TRADITIONAL SPORTING GAMES AND PLAY: ENHANCING CULTURAL DIVERSITY, EMOTIONAL WELL-BEING, INTERPERSONAL RELATIONSHIPS AND INTELLIGENT DECISIONS

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TRADITIONAL SPORTING GAMES AND PLAY: ENHANCING CULTURAL DIVERSITY, EMOTIONAL WELL-BEING, INTERPERSONAL RELATIONSHIPS AND INTELLIGENT DECISIONS

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TRADITIONAL SPORTING GAMES AND DECISION LEARNING

Editorial: Traditional Sporting Games and Play: Enhancing Cultural Diversity, Emotional Well-Being, Interpersonal Relationships and Intelligent Decisions

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Editorial on the Research Topic

Traditional Sporting Games and Play: Enhancing Cultural Diversity, Emotional Well-Being, Interpersonal Relationships and Intelligent Decisions

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Traditional Sporting Games and Play and Emotional Well-Being. A Sociocultural Approach

Traditional Sporting Games and Play and Emotional Well-Being. A Pedagogical Approach

Traditional Sporting Games and Decision Learning

The editors of this e-book are pleased to introduce the Research Topic "Traditional Sporting Games and Play: Enhancing Cultural Diversity, Emotional Well-being, Interpersonal Relationships and Intelligent Decisions."

This is the first time that different research groups and researchers from different countries (Argentina, Brazil, France, Indonesia, Poland, Portugal, Russia, and Spain) and continents (America, Asia, and Europe) have shared a scientific challenge: to show through scientific evidence that traditional sporting games (TSGs) are worthy objects of study. The 24 texts that form part of this work show the polyhedral nature of TSGs from different domains of knowledge. Shared relationships, cultural meanings, emotions, and intelligent learning are different dimensions of the same phenomenon: the traditional sporting game. Frontiers in Psychology recognizes this multimodal nature of TSGs by integrating the articles in this book into the following sections: Movement Science and Sport Psychology, Personality and Social Psychology, Educational Psychology, Cultural Psychology, and Educational Psychology.

This e-book shows that the TSG operates as a mirror of the society where it is hosted, while at the same time it functions as an authentic laboratory of life experiences that have an impact on the deepest part of its players. Far from being minor manifestations, the texts confirm their worthiness and function in different past and present societies. Applied research is also presented in the context of formal education (primary, secondary, and university physical education), as well as in informal education (festive contexts) as well as in the field of sports initiation.

At the same time, this book also presents a wide variety of disciplines in researching TSGs: anthropology, ethnology, ethnography, sociology, history, pedagogy, social psychology, and a not very well-known discipline in the English-speaking scientific field: motor praxeology, the science of motor action.

At the same time, the scientific research on TSGs also shows a great variety of methodological strategies, from quasi-experimental designs to case studies or ethnographies. The research groups involved in this book have used quantitative approaches, qualitative studies, and as mixed-method designs. Statistical analyses (using different techniques of inferential statistics) and also content analyses of narrative texts (with different specific programs) reveal the distinctive features of TSGs and their contribution to a systemic view of health, i.e., physical, emotional, relational, and cognitive well-being.

Motor praxeology was created more than 50 years ago by Pierre Parlebas, a former student and professor of the University of Paris (Sorbonne—France). His unique academic journey includes higher education in physical education and sports, sociology, psychology, mathematics, and linguistics. Parlebas could be considered the Darwin, Freud, or Einstein of the field of physical education and sports, because he created a specific epistemological corpus for the field of motor practices in general and TSGs in particular. The theory of motor action bases its scientific foundations on a structural rather than structuralist approach that is original to the field of physical activity and sport.

Thanks to this publication in e-book format, researchers in the English-speaking world will be able to find out a new approach to

researching TSGs, based on the systemic or structural approach. We hope that our colleagues in the Anglosphere will join us in the knowledge and application of the fundamentals of this scientific discipline, as has already been done in Africa (e.g., Algeria, Congo, Guinea, Mali, Morocco, and Tunisia), America (e.g., Argentina, Brazil, Colombia, Chile, and United States), Asia (e.g., South Korea), and Europe (e.g., France, Italy, Portugal, Spain, and Switzerland).

For this reason, it is not surprising that some authors of this book review the most important of Parlebas' books. Chaâbane takes on the challenge of reviewing of probably the main publication in the science of motor action: *Contribution à un lexique commenté en science de l'action motrice*. Through the definition of the core concepts for an in-depth understanding of motor situations, Parlebas proposes a specific scientific language to the domain of physical activities and sports (PAS) and an innovative analysis of physical and playful activities. The first edition (1981) is a testimony of the birth of a new point of view on motor actions. The second one (1999) highlights one of the consequences of this new approach: the interest in traditional games. Parlebas presents the concept of the internal logic (Parlebas, 1981, 1999), an intrinsic reality of sporting games which exposes the motor conducts. These conducts manifest according to the relationship they create between the actor and its environment: relationship with space, objects, time, and other actors. This discipline also offers a systemic and scientific classification of TSG that has provided multiple interpretations and applications. In addition, the motor action states that, on the basis of a rigorous analysis of ludomotor structures, extrinsic elements of the game bring further clarifications and enrich the understanding of TSG, from the angle of their relationship to culture and the social environment in which they are developed. Every motricity is an "ethnomotricity" (Parlebas, 1981, 1999). The frivolousness of TSGs is only an appearance: they are in reality the mirror of the community to which they belong, and they participate in the cultural identity of each society which represents original playful patterns, linked to their lifestyles (Parlebas, 2001; Lagardera and Lavega, 2003).

Pascal Bordes writes the book review of Parlebas' second key work: *Éléments de Sociologie du Sport*. Parlebas uses a rigorous methodology linked to an innovative standpoint to develop his scientific contributions. Sport is coherently conceived and understood as "the finite and countable set of motor situations codified in the form of institutionalized competition" (p. 55). Any traditional sporting game is precisely distinguished from sports because it lacks recognition by the authorities in place, and from federations and international committees in particular. They represent the diversity of an exuberant ludomotor heritage. On the contrary, sports embody massive hierarchical, centralized, and normative regulatory systems.

Behind the apparent diversity of forms in the sports world there operates one same deep structure: opposition in the form of contests between teams or individuals that fight on equal terms according to scores of capitalizable numerical units; sport presents itself as the Esperanto of physical games.

Subsequently, Founaud and Oiarbide present the book review of La Aventura Praxiológica. Ciencia, Acción y Educación Física that contains 32 selected and translated by the editor Raúl Martínez-Santos, who groups them chronologically and thematically. It is the adventure that Parlebas undertakes to create the science of motor action, a new conception of physical education, the process of creation of a matrix science, a change of paradigm for an orphan, as physical education has been.

By reading these three core books of motor praxeology, researchers will recognize the fundamentals and use of the main meaningful concepts related to the system and the actor, i.e., the game and its protagonists. Concerning the game, two key concepts emerge: (a) the *internal logic* or identity card, that asks players to solve four types of internal relationships: with others, with the physical space, with time, and with the materials; (b) *an innovative classification* of sporting games with eight different action domains regarding the relationships that agents establish with their social and natural milieus. These two concepts, which are widely used as independent variables in multiple research studies, lead us to the key concept of the actor: the "motor conduct" understood as the meaningful organization of motor behaviors, as the common factor of games, sports, and any physical activity, and, consequently, as the proper object of object physical education.

The reader of this e-book can feel privileged accessing the article The Universals of Games and Sports written especially for this monograph by Pierre Parlebas. This article shows that behind the superficial disorder that is all the rage in traditional games, there is an in-depth order in there as well. The "universals" are these laws of order, these underlying objective systems on top of which the praxic exchanges that can be observed in all games and sports are built: operational models which represent the basic structures of the functioning of any sporting game, bearers of the fundamental features of its internal logic. Ludodiversity is a confirmed phenomenon: the analysis of universals reveals that the alleged superior complexity of sports is an illusion. Between traditional games and sports there is not a difference in degree, but in nature.

This e-book also reviews other works that have used motor praxeology to research TSGs: Prabucki, Poland reviews Games and Society in Europe (published by the European Traditional Sports and Games Association (ETSGA/AEJeST) stating the status of TSGs as an intangible cultural heritage.

Pubill analyses the Catalan Encyclopedia The Traditional Games and Sports. Traditionari. The 25 authors provide an excellent approach from the past (tradition) and the present (modernity) in order to understand the current society through the foster important values on TSGs.

Rodrigues describes how motor praxeology also contributes to understanding the motor and socio-cultural richness of Portuguese TSGs, in the work Recreios Collegiaes, authored by Priest Pedro Aloy. One of the findings of the analysis of this work

is the great predominance of socio-motor games that encourage a great diversity of interpersonal relationships.

The fundamentals of motor praxeology also allow to identify the ethnomotor singularity of TSGs in the Canary Islands (Luchoro-Parrilla et al.). The playful activities were games (activities with rules) and played with objects, that enhanced material and social sustainability experiences. Motor action theory was also applied to interpret the distinctive features of TSGs during the Spanish Civil War (Ormo-Ribes et al.). Different features were observed when comparing TSGs with and without war connotations.

Fitri et al. present an ethnography of TSGs in the commemoration of Indonesia Independence Day that is conducted annually. Games and local culture are an inseparable binomial.

Rodríguez-Fernández et al. analyze, using mixed methods, the Skittles on the Northern Route of the Camino de Santiago, revealing symbols of local traditional heritage. Saura and Zimmermann wrote an article to discuss how a TSG Festival in a public school in São Paulo, Brazil, promotes intercultural dialog with a focus on sustainability, and how it empowers people and creates equality among its players.

Araújo and Jaqueira apply a multi-method process to analyze the Blows and Capoeira Movements from the Caricatures of Calixto Cordeiro in Brazil. The research shows substantial information about the blows/moves of this contest, as well as its different names, slang, and expressive forms, often associated with different groups of practitioners from different Brazilian cities.

The contextual view of TSGs is complemented by the contribution of Waluch, by reviewing the book The Story of Catch: The Story of Lancashire Catch-as-Catch-Can Wrestling by Ruslan C. Pashayev. The historic approach describes this wrestling TSG in different periods. This is the only major book ever to cover this subject.

This e-book explains that emotions can be studied from different disciplines, in addition to psychology. Costes et al. explain how the TSGs collected in Alcover and Moll's Catalan-Valencian-Balearic Dictionary originated playful communities of emotions among their protagonists. Damian-Silva et al. conduct an ethnographic study to reveal the emotional states elicited in a human tower performance. Emotional well-being also plays a role in the mixed-method study around the traditional Cypriot Easter Games written by Koundourou et al. The findings indicate that the games elicit emotions such as joy, excitement, and euphoria. Emotions such as embarrassment, frustration, and anger are also observed occasionally, specifically in situations of competitiveness and defeat.

TSGs may trigger positive effects on mood states in different families of TSG. Cifo et al. focus on traditional opposition games and observe that competition and the gender of the group are variables to be taken into account. Mateu et al. research the moods of male and female students in their body language and dance choreographies. Alcaraz-Muñoz et al. study the joy in TSGs practiced by elementary physical education students.

This study brings the value of considering games as a key role to promote the education of social-emotional well-being in schoolchildren, as the basis of academic training

García-Monge et al. explore the childhood meanings of the chained bear TSG and compare their findings with the cultural meanings of different traditional versions of this game. Their results show that, beyond the individual images that each child created in their mind, most of them coincided in stories about harassment, defense, theft, and protection.

The pedagogical use of TSGs is also the focus of interest in the contribution by Martínez-Santos et al. when they carry out a conceptual analysis to try to and reconcile two perspectives, namely motor praxeology and teaching games for understanding (TGfU). Their conclusion is that TGfU, or game-based approaches to sports coaching and teaching, can take great advantage of the motor-praxeological rationale.

Martínez-Santos reviews the book La paradoja de jugar en tríada (The motor game in triad) by Pic and Navarro-Adelantado, showing the sporting games in which three teams play against each other performing interesting paradoxical situations. Any game in which three agents interact leads to triadic motor interaction systems, that is, to motor action systems in which one player's acts must be interpreted as positive or negative in relation to any other two players' relationship.

Finally, Oboeuf et al. illustrate the influence of traditional sporting games on the development of creative skills in football. Creativity originates from an interaction between divergence and convergence. In this research, the number of communications (fluidity) and the diversity of updated communications (flexibility) are the divergence indicators. Convergence is studied as the ability to make good decisions. The results show that TSGs can help develop players' creative abilities.

The editors would also like to acknowledge the valuable work of around fifty reviewers that joined this process. With this great team, we believe this book represents a substantial contribution to the TSG field.

Finally, we would also like to thank the journal Frontiers in Psychology for being a pioneer in organizing a scientific monograph on traditional sporting games and play.

AUTHOR CONTRIBUTIONS

All authors listed (PL-B, MB, and MP) have made a substantial, direct, and intellectual contribution to the work, and approved it for publication.

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Book Review: Contribution à un Lexique Commenté en Science de l'Action Motrice

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A Book Review on

Contribution à un Lexique Commenté en Science de l'Action Motrice

Pierre Parlebas (Paris: INSEP), 1981, 322 pages, ISBN: 9782865800001

The first edition of this book (1981) was entitled *"Contribution à un Lexique commenté en Science de l'Action Motrice,"* (Contribution to a commented lexicon in Science of Motor Action). Eighteen years later, a new and augmented edition (1999) is intitled *"Jeux, Sports et Société,"* (Games, Sports, and Society), with a subtitle *"Lexique de Praxéologie Motrice,"* (Lexicon of Motor Praxeology). The cover of the first edition was stark. The second one draws the attention with a sixteen century print showing players in action. The first edition is a testimony of the birth of a new point of view on motor actions. The second highlights one of the consequence of this new point of view: the interest of traditional games. Motor praxeology was bearing itself the highlighting of their richness.

Through the definition of the concepts necessary for an in-depth reading of motor situations, Parlebas proposes a scientific language specific to the field of physical activities and sports (PAS) and an innovative analysis of physical and playful activities. He founds "the motor action science," which defines motor situation as a communication range. This means the abandonment of classic descriptive perspectives for the benefit of a conception mostly dynamic and relational, through a problematic linked to action. Of this "motor praxeology," the author keeps the personalist aspect (Ullman, 1985): human behavior always has a meaning and motor skills cannot be confused with movement on its mechanical way. It is the "motor conduct" of a subject (Parlebas, 1981, 1999). There is no praxic activity without reading, without interpretation of the multiple informational elements of the situation, without relationship to the world and others. The subject is an acting subject, a subject in situation, a subject deciding the strategy and the action to be constructed.

We understand thenceforth the choice made in favor of traditional sporting games (TSG), widely represented in the book. For a long time condemned by the authorities, abandoned for the most disadvantaged, and neglected by research, TSG reveal their complexity. "Few authors have studied games on the field, in their operation, and in their original characteristics. The risk is strong to only present a game alchemy, with missing a rigorous study of true playful chemistry" (Parlebas, 2003, p. 2).

The modeling of structures of motor situations done by Parlebas in his lexicon reveals the extraordinary richness of TSG. Above all, he emphasizes the necessity to take into account the internal logic (Parlebas, 1981, 1999), an intrinsic reality of sporting games which expose the motor conducts. These conducts manifest according to the relationship they create between the actor and its environment: relationship with space, objects, time, and other actors. The analysis of this interaction, primordial step and essential for an objective understanding of the game, leads to a reconsideration of TSG: the inclusion of "affectivity, the key to motor conducts" (Parlebas, 1970, 2017), symbolic aspects, representations, communication, motor decisions, informational

data, signs and codes, particularly abundant in TSG, induce on the field important changes in pedagogical interventions modalities, and a new way of conceiving research in PAS field.

The classificatory and modeling approach offered by the author, notably borrowed to theory of games and theory of graphs, comes to complete the identification of game: According to Parlebas, the system of interactions defined by the rules of ludomotor contract creates an organization of motor actions, whose configurations reveal basic structures of the game process. "*It's the body of rules that brings into play the rules of body*" (Parlebas, 2003, p. 3) as he said. These configurations are operational models, called "universals" of sporting games; therefore, with analysis of the network of TSG motor communications, of the structure of their score interactions, of the network of sociomotor roles, or of their scoring system, we can discover original models with complex functions, in comparison to institutional sporting games (Sport) (Parlebas, 1981, 1999), which turns out to be stiff and structurally uniform.

These are the distinguishing features, specific to the internal logic of sporting game, defined, analyzed and illustrated in the lexicon, which allowed to establish an objective comparison between the different PAS. They constitute the "identity card" of the game and notably rely on the properties of the game system itself, opposed to "external logic" elements, which characterize the context (public, stakes, players characteristics,…) (Parlebas, 1981, 1999).

The author makes us discover this way that, on the basis of a rigorous analysis of ludomotor structures, extrinsic elements of the game bring further clarifications and enrich the understanding of TSG, from the angle of their relationship to culture and the social environment in which they developed.

Every motricity is an "ethno-motricity" (Parlebas, 1981, 1999). The frivolousness of TSG is only an appearance: they are in reality the mirror of the community to which they belong, and participate to the cultural identity of each society which represents original playful patterns, linked to their lifestyles (Lagardera and Lavega, 2003; Parlebas, 2003).

Parlebas' lexicon, directed toward the construction of scientific specific field, covers all motor practices as a whole and bring a fundamental contribution to the knowledge of PAS. It is an essential tool for anyone interested in motricity field, a compulsory reference in sporting games theory. This theory represents a control on the clearest set of situations in which we can study social action and the set of interactions.

The question of terminology, the main element of the lexicon, must be understood in a context of a new relevancy, the one of motor action. It refers to the construction of a new object, without giving up the contributions of various scientific domains.

The permanent dialectic "system/acting subject," ubiquitous in the lexicon, turns out to be full of possibilities and allow the revelation of practices that were depreciated for a long time, which constitutes a real revolution.

AUTHOR CONTRIBUTIONS

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Book Review: Éléments de Sociologie du Sport

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A Book Review on

Éléments de Sociologie du Sport

Pierre Parlebas (Paris: Presses Universitaires de France), 1986, 276 pages, ISBN: 978-2130392996

The universe of physical games is exuberant; as it happens with languages, variety reigns, and diversity is the law. The great contribution of Pierre Parlebas's work is not only to remind us of this but more importantly to demonstrate it using a rigorous methodology linked to an innovative standpoint. According to the author, the study of sporting games must not only be related to classic ≪external≫ analyses: namely, sociological, psychological, anatomical, or physiological ones. It can also, and above all, emerge from a particular point of view that analyses from the inside what these practices are like and how they function. By explaining the game for its own sake, this approach, far from confirming the inherited ideas about sport, takes them off balance. In the wake authors such as Saussure, Bachelard, or Canguilhem, Parlebas builds up in the first place the research object of his project: sporting game. After dismissing and refusing literary dissertations, general assumptions, and obstructing truisms, he proposes a set of rigorous operational definitions that makes it possible to find order in the ≪wasted lands≫ he is confronted with.

Sport is therefore coherently conceived and understood as ≪the finite and countable set of motor situations codified in the form of institutionalized competition≫ (p. 55). It is from this definition that everything starts; it is from this point of view that the varieties of games emerge and their variations take shape. To start with the mode of resolution, sports situations are motor situations by nature; that is, situations that have no existence apart from that of the player's physical involvement. In other words, sports are situations in which ends and means merge, task and activity are one and the same. The motor action deployed by the players is limited to its very bodily realization, something that distinguishes it from other types of games whose pertinence is not of motor nature: card games, for example. The second trait allows us to differentiate unregulated, non-competitive physical practices, such as just jogging, and those which attest to rule-created confrontation, such as Athletics. Finally, the institutional trait completes the definition. Often overlooked, this trait becomes conclusive for finally distinguish sports from other ludomotor practices. Any traditional or street sporting game is precisely distinguished from sports because it lacks recognition by the authorities in place, federations and international committees in particular. On the contrary, as we know, sports embody massive hierarchical, centralized, and normative regulatory systems.

What can we learn after reconsidering what sport is from scratch? First of all, that among all the modalities that can be found in the universe of physical games, sport and its globalized practices only represent an over-published little island, a ≪restricted subset≫ of sporting games, as Parlebas puts it (p. 252). Our ludomotor heritage very much exceeds in number the sum of the recognized and accountable sports disciplines. Promptly, a second observation emerges. Behind the apparent diversity of forms in the sports world there operates one same deep structure: that which favors

opposition in the form of duels of teams or individuals that fight on equal terms according to scores of capitalizable numerical units. This model is outrageously dominant, says Parlebas, for its simplicity facilitates quick reading and immediate understanding, feeding a spectacular dimension capable of mobilizing crowds regardless of their ethnic or socio-cultural backgrounds. Elementary in the way it functions, but very efficient when it comes to designate victors and vanquished, sport presents itself as the Esperanto of physical games.

Nonetheless, what sport gains in dissemination and accessibility is lost in richness and complexity: its universal claim is more that of *Globish*, the impoverished planetary English with a hegemonic vocation, a universal means of communication for the citizen of the world, with no past, no borders and no culture. Sport is that standardized ≪world game≫ with a uniformed, elementary functioning that puts in danger our cultural diversity, which is characteristic of the human species. Contrary to sport, traditional sporting games (that is, non-sportified games) display an insolent luxuriance, and Pierre Parlebas' merit is, first and foremost, bringing that to light. Concepts and analysis tools specially forged or redefined for the occasion make possible both to explore this diversity and put it in order, making it intelligible at the same time. For instance, the communication networks between players or teams are much more varied than what the sports' model exhibits: each one for themselves, compulsory rotation within the team or at the good will of the players, permutation of players or even asymmetrical confrontations in rights and duties… The relational palette of traditional sporting games goes far beyond the face-to-face situation of sports confrontation, and the same is true for the different roles that each agent may take on during game-playing. While sport reduces their number to a handful of positions from which performance must be pushed to the limit, traditional games multiply functions and attributions upon which players can move along. As far as scoring is concerned, sports only retain certain noteworthy acts, generally produced against the opponent, in the form of

quantified capitalization. Pierre Parlebas shows that traditional games offer, here again, a multiplicity of scenarios: not all scores necessarily turn into accounting results, just as there are games with regressive accounting in which the reversal of roles resets the game to the starting situation. More surprisingly, many games operate without any scoring support, avoiding the designation of winners.

Éléments de sociologie du sport is, in short, a fundamental work that clearly teaches that there is a difference in nature between sports and the so-called ≪traditional≫ games. In deep disdain for their intrinsic richness, sports imperialism tends to eliminate traditional games, often ≪more developed and "complicated" than that of institutional play≫ (249). Even though, as part of the ludocultural heritage of humanity these practices deserve not only attention and preservation but promotion and revaluation, because only they can offer alternative relational models to the reductionist competitive logic of the dominant sports model.

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Book Review: La Aventura Praxiológica. Ciencia, Acción y Educación Física

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A Book Review on

La Aventura Praxiológica. Ciencia, Acción y Educación Física

Pierre Parlebas (Seville: Junta de Andalucía), 2017, 496 pages, ISBN: 978-84-89225-74-9

In 1959 Pierre Parlebas, just graduated from the Normal Higher School of Physical Education (ENSEP) in Paris, published his first, visionary article in response to an invitation from one of his former teachers: *Éducation physique et éducation philosophique* (Parlebas, 1959). In 1986 he successfully applied for the position of Professor in the Faculty of Social and Human Sciences of La Sorbonne, after receiving a State Doctorate in the same university, 2 years earlier, thanks to a piece of research in three volumes that put traditional sporting games in the front line of physical education and social sciences: *Psychologie sociale et théorie des jeux: étude de certains jeux sportifs* (Parlebas, 1985). In between these two biographical milestones, Parlebas built up an outstanding theory of human motricity, games and sports, and physical education whose inception and development are now fully accessible to Spanish readers thanks to this work: *La aventura praxiológica. Ciencia, acción y educación física* (The praxeological challenge. Science, action, and physical education).

This volume of 496 pages, published thanks to the support of The Andalusian Regional Government, contains 32 articles selected and translated by the editor Raúl Martínez-Santos (Martínez-Santos, 2017), who groups them chronologically and thematically in seven parts. As he explains in a sound introduction in which Parlebas' thought and trajectory are wisely exposed and explored: "There is a chance that Parlebas be more famous that truly known, despite his sports classification is most popular and many of his concepts (i.e., motor conduct, motor situation, internal logic, sports games, etc.) already make part of the terminology of so many scholars and practitioners" (Parlebas, 2017). We are sure that this book will change this situation for the better because the selection and translation of the references result in an instructive, meaningful whole that increases the individual value of each chapter. Besides, the numerous translator's and editor's notes help readers of any level contextualise and understand the whys and wherefores of Parlebas' proposals. Every part is opened with a brief introduction by Parlebas. Along with the presentation of the book and the second chapter (titled *The drunken boat* after Rimbaud's poem, Parlebas, 2014), these short recollections compose a little treasure with great academic value for the opportunity they give the readers to share Parlebas' reflections on his own work. In this sense, the opening part includes the two aforementioned articles as kind of the alpha and omega of a never-ending alphabet.

Revue Éducation Physique & Sportif, the journal founded in 1950 by the association of alumni of the ENSEP, was the main venue for Parlebas to present his scientific, academic production. In 1990, the third edition of *Dossiers EP&S n° 4: Activités physiques et éducation motrice* contained the fundamental corpus of his literature, and the core of this dossier can be found in this volume. The

second part of the book contains his introducing, position taking article: "A physical education in shreds" (Parlebas, 1967). In this long article split up in four numbers of the journal Parlebas presented a thesis surprisingly contemporary: physical education suffers from a double shredding that involves a multiplicity of intervention domains, on the one hand, and a plurality of doctrines and methods, on the other hand. This situation is severely weakening and endangers the legitimate ambition of the whole profession, which suffers from a sempiternal serfdom. The way-out from the crisis depends on the recognition of the "motor conduct," the meaningful organization of motor behaviors, as the common factor of games, sports, and any physical activity, and, consequently, as the proper object of object physical education. In this article, "sociomotricity" is also presented as operationally distinct than a redefined 'psychomotricity."

Parlebas had the chance to enjoy the effervescence of the French social sciences in the 1960s. His studies in psychology, sociology, linguistics, and mathematics in La Sorbonne allowed him to develop a *structural, not structuralist* theory of motor action that, given time, would be proposed as a theory of motor action, or *motor praxeology*. The third part contains seven articles, probably the densest ones, on motor learning and transfer, gestalt theory, sociometry, genetic epistemology, and the cognitive and affective conditions of motor action that would lead to an innovative classification of sporting games with eight different action domains regarding the relationships that agents establish with their social and natural milieus. The theory of motor action will be completed in the 1970s with the mathematization of the internal logic of sporting games with the so called "ludomotor universals." The presentation of these models, including the two ones related to the game-changer "semiotricity" (semiology of the motor action), is the content of the fifth part, in which traditional games like "sitting ball" and "fresher" are the most appropriate examples.

The other three parts are more diverse, equally important, and certainly more surprising. One of the great values of this publication is to complete Parlebas' bibliography in Spanish with his most physical-educational papers. Parlebas is mainly known as a sociologist (Parlebas, 1988) and a theoretician (Parlebas, 2001), but he is first and for all a teacher of physical education whose great experience in the field takes himself to question the foundations of his art and science. The fourth part is all about physical education's elements: contents like body expression and dance, higher education of teachers, institutional value and consideration, benefits and outcomes, games, dreams, and

fantasies… In this vein, the sixth part contains four short texts in which the alleged superior value of sports practice is contested in a different style: these texts were written for practitioners off college, sports and summer camps monitors willing to explore outside the bounds of competition, what make them even more valuable. Parlebas learnt about the potential of traditional games during sleep-away sporting camps, in which he could put to the test, in a masterful way, the received theories about teaching methods and alleged superiorities.

The seventh, closing part includes four articles that present Parlebas' ideas in their maturity. These later works on motor metacommunication, sports, and epistemology of physical education, are a treatise on the three elements that give sense to a whole life dedicated to physical education: the deep respect for the right to be individually considered in education, the continuous research for a better understanding of culture and society, and the total commitment to the scientific foundations and independence of a wonderful profession. *La aventura praxiológica. Ciencia, acción y educación física,* is a long waited work that comes to be a fundamental contribution in the development of motor praxeology, physical education, and traditional games.

AUTHOR'S NOTE

AUTHOR CONTRIBUTIONS

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The Universals of Games and Sports

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The so-called *traditional* motor games are group situations that function like small-scale societies, full of emotionally rich vicissitudes and proper objectives, alliances, and antagonisms. Traditional games have certainly been the object of many dispersed, really interesting studies, but no general conception of them, based on a scientifically supported methodological approach, has been developed so far. How do these games work? Does their development depend on sheer chance? Does it respond to any underlying structures? Is this development anyhow related to the socio-emotional dynamics of the group of players? As a whole, do these games, so different from each other, have any common characteristics that generate similar effects on the personality of the players? In the end, is what we know about a given game comparable and generalisable to any other one?

Keywords: motor action, traditional sporting game, internal logic, motor praxeology, structural invariance, sociometric assessment, ethnoludism

IN SEARCH OF A GENERAL, THEORETICAL FRAMEWORK

We search for a general theoretical framework that bring together, in a coherent and reasonable way, the whole set of traditional games and sports, whatever their area of reference may be. Can little terroirs' local attachment be harmonious with global, worldwide perspectives? Major international organisations insist on the positive role of sporting games in favour of entente and peace between peoples, but can this be as solid a venture as proclaimed when everybody can notice the weight and intensity of those acts of rivalry that abound in games?

An Ambiguous Ludomotricity

A simple examination of the studies produced in many countries brings to light the extreme variety of traditional games, which, while abiding to the cultural norms of their context, exhibit original characteristics that sometimes are antipodal to each other. Certainly, if we are not careful, traditional games can become a ground for discord rather than a ground for concord: *ludodiversity* can also provoke cultural, political pressure in favour of nationalist withdraws likely to increase hostility toward the others.

Many recreational sports practices exacerbate the impulse for belligerence and domination of the others, what hardly seems to be a school of solidarity and understanding between peoples. Competitive antagonism and cultural discrepancies: Are traditional games condemned to inevitably exacerbate hostility between players on the one hand, and between cultural communities on the other? In this sense, what sort of findings and analyses can inform us about the specific nature of motor games, about their internal reality? That is, can we aspire to detect any kind of unity behind their immense variety?

An Approach Centred on the Motor Action

The systematic observation and analysis of field, pertinent data, carried out in collaboration with researchers of different nationalities, has allowed us to develop new methodological approaches adapted to the study of motor games. Our general purpose has always been twofold:

- *To develop tools and methodological approaches* properly connected with ludomotor practices as to reveal phenomena specific to the motor action deployed during games playing, defining new concepts when necessary and taking into account the positive and negative effects exerted on the participants.
- *To synthesise these different results*, for we cannot feel satisfied with small pieces of research, monographs or isolated experimental data, no matter how important these may be. It seems interesting to conceive a general theory of motor games that place them within the great cultural creations, leading to more or less profound consequences in the social, educational, and political fields.

As usual, these two perspectives can only be successfully developed if they are called upon in constant interaction, because they feed off each other. For instance, an examination of all the motor practices reveals a split-up between two sectors. We can distinguish two fundamental domains in ludomotricity, quite an obvious distinction apparently which seems far from having been fully identified:

- *The domain of psychomotor situations* including situations that require a single actor and which therefore do not allow any relevant motor interaction with anyone else – which does not prevent the presence of other people, spectators for example.
- *The domain of sociomotor situations* including situations that take their reality only through operative motor interactions between several participants.

The critical point of our theoretical framework lies in the choice of one certain scientific specificity, our intention being to base the analysis on the contents and forms of motor action itself as revealed during the practice of physical activities and sports. The interdisciplinary aspect of such a praxeological approach is obvious, but it must always be centred on the motor conducts of persons in total dependence on their cultural expression.

Confusions to Avoid

The first trap to avoid is the confusion between "traditional games" and "sports." Of course, they have much in common: they all are based on a motor action subject to a system of competition rules which determines its internal logic. However, a major difference separates them: some of these motor situations have been chosen and intensely promoted by international institutions that have shaped them in the image of their socio-economic universe. In fact, only those motor games best adapted to the demands of a certain kind of mass spectacle, favouring competition and the consecration of an elite of winners, have

been retained. This is what is called *sport*, which is based on the simultaneous presence of four necessary and sufficient distinctive features: motricity, rules, competition, and institution. *Sport is the set of motor situations codified in the form of competition and institutionalised.* The nomenclature problem is not neutral. We thus fundamentally differentiate "sport" from "traditional games," although we will use the expressions *motor games* or *sporting games* when these two sectors are to be considered together.

Sport is opposed to *non-sport*. The main consequence of this fracture underlines that those activities which do not subscribe to the criteria of the sports spectacle –that is to say hundreds of traditional games– will be excluded from the field of valued practices, and from the field of research as an insidious consequence! It is also astounding that the aforementioned institutional dimension makes institutionalisation itself invisible. Is such an exclusion of traditional games from the sphere of noble activities desirable, therefore considered to be natural and taken for granted? Can scientific research accept to bow down before any received ideas, or must it break up with the categories of thought imposed by sports institutions? Can we try to highlight, alongside the indisputable contributions of sport, the specific and differential resources of traditional games?

THE PRESENCE OF UNIVERSALS

Thanks to many contributions carried out for several decades, it has been revealed possible to detect strong regularities in the ludic functioning behind the immense variety and apparent confusion of the data collected in the field. As Propp (1970) clearly showed in his study of fairy tales, Lévi-Strauss (1987) in the phenomena of kinship, or Chomsky (1971) in the analysis of language, deep structures exist under the surface of apparent events. Even more, as Lévi-Strauss (1983) stated, it is more than advisable to "discover the laws of order underlying the observable diversity": Behind the superficial disorder that is all the rage in traditional games, there is an in-depth order in there too. We call "universals" these *laws of order*, these underlying objective systems on top of which the praxic exchanges that can be observed in all games and in all sports are built: operational models which represent the basic structures of the functioning of any sporting game, bearers of the fundamental features of its internal logic.

In any game and in any sport we can for example identify the "network of motor interactions" which formalises all the operational motor communications permitted by the rules. This objective model is the irrefutable canvas for any relevant motor exchanges in any sporting game (mutual aid or antagonism), whether it is football or Prisoners' base, volleyball or Dodgeball. This universal represents the equivalence class of the communication networks of all sports games, whichever they are. It is a class-invariant that shows many concrete potentialities. Within this equivalence class the actual form can indeed vary from game to game, but always keeping its identity as a network of motor interactions based on relations of *solidarity* and *rivalry*. For any specific game or sport, only one network of this class

is accredited: the network of motor interactions associated with each game is therefore a strict invariant.

In this sense, any universal has two planes of understanding: the strict level of each game in particular, where it is a unique invariant, and the level of the set of games in general, where it represents a generative invariant, that is to say an equivalence class capable of generating the potential structure of each game. In other words, the universals of each game are a *species* of a higher level *genre* which encompasses all the particular universals.

After a morphological study of motor games centred on their essential, dynamic resources, we have been able to identify seven universals: the network of motor interactions, the network of scoring interactions, the scores system, the graph of transitions of sociomotor roles, the graph of changes in sub-roles, the gestemic system, and the praxemic system. These models are not independent of each other. Quite on the contrary, their respective characteristics are frequently inter-influenced. Thus, for instance, the network of changes of roles is directly linked to the network of interactions in many games such as the Hawk, the Bear and its keeper, the *Galine*. In order to illustrate the objective resources of these generative structures we propose to present below, in broad outline, one of these generative structures and to suggest its explanatory scope.

THE NETWORK OF MOTOR INTERACTIONS

This universal represents the virtual canvas on which all ludic exchanges develop. It is undoubtedly the element where everything is to be played out according to the constraints of the internal logic, such as the ways of acting and communicating. Each sporting game stages its own universal leading to extremely varied particular behaviours, very rich in relational consequences: The universal of team sports shows a great relational clarity that makes it a reference of undeniable interest while giving us the opportunity to compare with it the networks of traditional games.

An Exemplary Network

As an example, we are going to examine the basketball's model (**Figure 1**), which represents the smallest expression of all the motor interaction networks of classic team sports: e.g., football, handball, hockey, water polo. By "network of motor interactions" we mean the graph whose vertices are players and whose arcs represent the operational interactions authorised by the rules: passing, tackling, shooting, stealing, etc. This network is considered *stable* because rivalry and solidarity relationships between players remain constant throughout the game, and it is said to be *exclusive* because two participants can never be simultaneously partners and opponents, a principle contradicted by the so-called *paradoxical* games as we will have the chance to prove.

In this case, this graph is kind of a sketch: it is the canonical image of total opposition between two identical, strongly united clans that imposes itself as a "duel of teams." When the two opposing teams have the same formal characteristics, as is the

FIGURE 1 | Basketball's universal of motor interactions. Independently of the number of players, this model represents the universal of motor interactions of all European team sports. It is a symmetric duel of teams that strictly opposes two cliques whose relationships of cooperation and opposition are exclusive and stable.
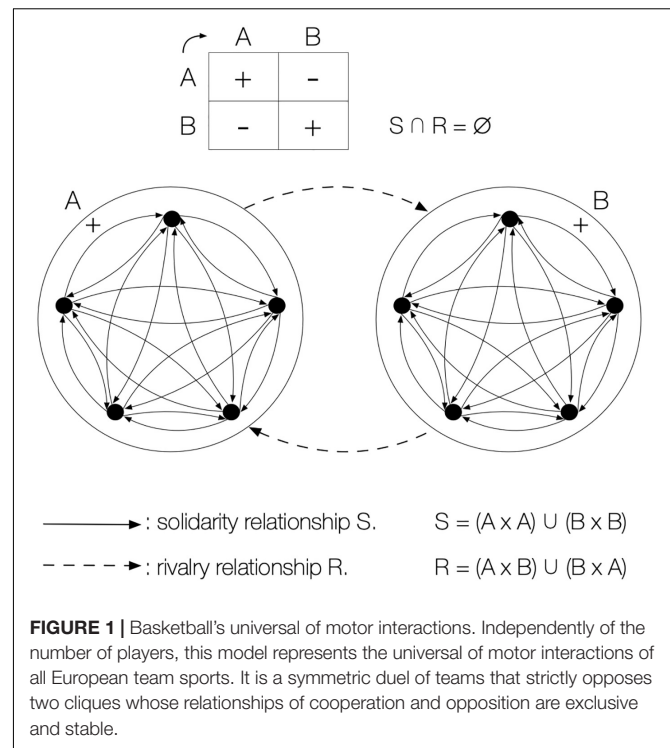
case with basketball, the network is said to be *symmetrical*; otherwise it is qualified as *dissymmetrical*: baseball, rounders, the Seven stones, the Deliverance… If the encounter only opposes two players we speak of a «duel of individuals», which can be symmetrical, when the status of the opponents is identical: e.g., fencing, combat sports, tennis, etc., or asymmetrical, when the combatants hold complementary roles: e.g., Quinet, gladiatorial fights…

Basketball is a teams duel whose stable, exclusive, and symmetrical network possesses very determining properties:

- *According to the relationship of Solidarity S*, it is made up of two symmetrical, complete subgraphs of five vertices each called K_5 "cliques." Internal cooperation within each team is thus ensured.
- *According to the relationship of Rivalry R*, it consists of a complete $K_{5,5}$ "bipartite graph." The opposition between the two teams is absolute.

The simultaneous consideration of these two relationships S and R determines the bigraph G, which represents the exhaustive support of the relevant motor interactions produced by the two teams (**Figure 1**). Within the framework of a given federation, this graph is an invariant: it remains strictly identical, whatever the clubs, the composition of the teams or the nations involved may be. If we consider a game other than basketball, the network can remain equivalent, except for the numbers (e.g., football, handball, Prisoners' base, Dodgeball…), or be structured differently (e.g., Sitting Ball, the *Galine*…). Anyhow, all these motor interaction networks are part of the

same equivalence class, according to relationships R and S, and belong to the same class universal.

A Comparative Approach

Before any quantitative or practical application, a remark must be made: Out of an immense field of possibilities, sport is illustrated on a single, dominant model: the «duel», which covers half of the sociomotor games (e.g., team sports, combat sports, fencing...) at the Olympic games (OG). If we consider some fifteen players, the graph of possible interactions according to the relationships of solidarity and rivalry can take millions of different configurations. Therefore, each game, faced with such a myriad of possibilities, represents a surprisingly deliberate restricted selection that leads us to ask ourselves: What imperatives does this choice abide by?

The fact that this universal of motor interactions can be represented in an objective and verifiable form grants it interesting possibilities in terms of observation and comparison. As a consequence, researchers have a remarkable tool for experimentally exploring the influence of a given motor communication structure, both on group dynamics and the players' personalities, from an affective, relational perspective. Moreover, beyond those aspects directly observable in the field, the particular structure of this universal adopted by each community can reveal how certain values are embodied and produced. Taking this universal into account, particularly in an intercultural comparative approach, we can shed some light on both the psychological and the sociological levels of groups and individuals.

As we can imagine, the analysis of the properties of the universals in relation to the characteristics of players and communities seems to be of paramount importance. In the studies reported below, we are not interested in the circumstantial characteristics of a particular group of players or a particular game, but in data that test the possible role of universals. Therefore, we will primarily address our comments to the most significant, overall results in this regard.

GAMES UNDER THE LIGHT OF OBSERVATION

This study concerned two groups of 13/14 years old adolescents (13 girls and 13 boys) that took part in a summer camp. It was a piece of *action-research* in the sense of Kurt Lewin, that is to say a study subject to the classical constraints of experimental research while being integrated into the usual daily life of a sleep-away activity centre. The teenagers responded in writing to a sociometric questionnaire before taking part in two games (Sitting ball and Elbow tag), each one bringing together the 26 players, during which all motor interactions were carefully noted down by trained observers.

The Sitting Ball

In this *each-for-oneself* game any player in possession of the ball can choose on whom to shoot (by direct shot) or to whom to make a pass (by a rebound of the ball on the ground). As a

consequence, any player hit by a direct throw must sit down and wait to retrieve the ball without any help before becoming delivered and having the chance to stand up. Such an unusual rule means that players can be expected to be partners (on passing) and opponents (on shooting) at the same time, and the observation of behaviours in the field makes it possible to record who passes to whom and who shoots on whom.

Game-playing went on for 46 min and resulted in 502 motor interactions, including 236 passes and 266 shots. The analysis of the responses revealed that both sociometric and praxic exchanges were dominated by the relationship between the two gendered male/female subgroups. In these intra-sub-group and inter-sub-group interactions, the sociometric responses and the interactive acts were in clear correspondence ($p < 0.01$): overall, the players reproduced on the pitch their on-paper emotional choices and rejections. The network of ludomotor contacts generally embraces the network of friendships and enmities: the praxic is indisputably immersed in the affective.

However, a more detailed examination of the behaviours revealed some contradictory results. Certain subjects who mutually chose each other in their sociometric programs shot at each other during the game; in other cases, two players of the same reciprocal affective dyad interacted sometimes by friendly passes, sometimes by antagonistic shots; besides, a boy ranked 4th in praxic participation was 21st in sociometry. We too found, even in a more accentuated way on the level of motor interactions, the large dispersion of individual statuses that Moreno (1970) calls "socio-dynamic effect" on the sociometric level, but with some discrepancies: the precise comparison of the status of the 26 male and female players in terms of sociometric popularity, on the one hand, and in terms of praxic popularity, on the other hand, revealed a positive correlation at $p < 0.05$ that disappeared at the $p < 0.01$ threshold, which indicates its fragility.

As far as the universal of the motor interactions is concerned, the Sitting ball is very different from basketball (**Figure 2**): while

FIGURE 2 | Sitting ball's universal of motor interactions. Any two pair of vertices are linked at the same time by solidarity relationship S and rivalry relationship R. This ambivalence creates a «paradoxical» game.
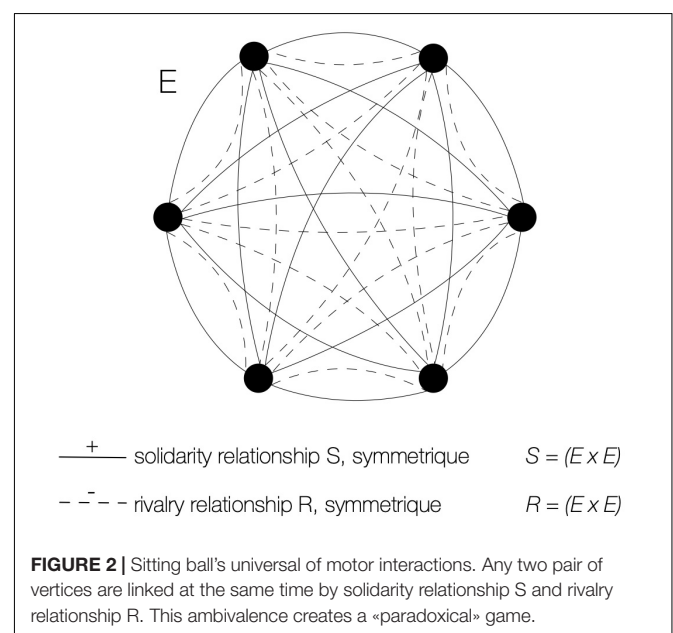
the latter splits up the players into a couple of antagonistic blocks, the former condenses them into a single, complete graph for each of the two relationships of rivalry R and solidarity S. It follows that, in terms of internal logic, all the players are both partners and adversaries: a participant who has just addressed a friendly pass to a comrade can suddenly become the antagonistic target for this same comrade, who chooses *for sport* to put him temporarily out of the game. This turnaround is very badly received by a victim who usually shouts out of treason. However, this gesture of transgression of a tacit connivance is authorised by the internal logic of the game: each participant has complete freedom to choose with regard to the same player between the solidarity pass or the rivalry shot. The Sitting ball is therefore placed under the sign of ambivalence, which results very shocking in relation to usual morality because all participants are simultaneously allies and enemies. For this reason, we will speak of *paradoxical* games since it is indeed the relational structure of the universal of communications that holds the key: it is this which offers the possibilities of acting in such and such a way, which conditions the decisions of the players by granting them more or less of leeway. Furthermore, the inconsistencies identified in the results depend directly on it.

The observation of the behaviours of the players revealed another phenomenon. The constraints of space, distance, and movement linked to the circulation of the ball caused unexpected, unforeseen proximities. Suddenly, a player receives the ball and finds herself face to face with a comrade toward whom she has hardly any acquaintance. Often times, in the heat of the moment, she will interact with him in what sometimes is the start of a chain of unexpected, subsequent connections. Individuals who ignore each other in everyday life find themselves surprisingly side by side and cannot help but interact. These unplanned interactions can pull a relational trigger and create new bonds among the participants. In the affective and relational field, an imposing research involving hundreds of practitioners, led by Lavega et al. (2013) with the help of many other researchers, has shown how pronounced the impact exerted by traditional games can be, in particular by multiplying feelings of pleasure and solidarity: Game-playing is not only the carbon-copy of a completely pre-determining affective network, but the source of interesting educational extensions, thanks to its capability of sparking new relational interactions.

Elbow Tag

As we said, our objective is to test the differential influence of some of the possible forms of the universal of motor interactions. The praxic data collected during a sequence of Elbow tag were compared to the sociometric responses, all along the same players as before. At the start of this game, 24 of the total 26 participants are divided into a large circle of couples clinging by each other's elbow; the other two are designated «hunter» (it) and «hare» (runner). Pursued by the hunter, a hare finds its salvation by *hooking* to the free arm of one of the two players of any of the couples in the circle; in that very moment the other player of the standing pair gets released and becomes the new hare, which runs away at full speed before clinging in turn to one of the waiting pairs. If the hare is touched before hanging on there is a swap

of roles between the hare and the hunter. The most popular role among players is the hare because it allows a lot of fantasy, tricks, and feints: some hares hang on after only a few seconds, while others prolong their facetious provocations for several minutes.

The 26 previous players took part in a game that lasted 42 min with 130 clinging motor interactions. The universal of communications is identical to that of the Sitting ball (**Figure 2**). However, in this game of *each-for-oneself* without pre-established teams, the internal logic of the universal imposes an original operating mechanism. The interactive process at the heart of the game is relatively complex. It is apparently a binary relation – the hare clings to a comrade –, but the relationship is ternary in reality: by their attachment, the hare has freed the second player of the pair, who becomes the new hare in accordance to the universal of sociomotor roles. Sometimes the running hare even directs its course so that the *hare-to-be* standing player will be easily struck by the hunter when the role-change occurs, which creates a quaternary relationship. These phenomena are not a mere speculation on the observers' part: the teenagers express them loudly by their exclamations on the spot and by their comments after the game.

The chain of praxic actions of hooking and unhooking revealed that, here again, we find a global correspondence between the sociometric links according to the male/female subgroups and the network of motor interactions. Still, at the individual level, the correlation between the sociometric and praxic statuses observed at the Sitting ball was broken. The ludomotor exchanges no longer corresponded trustworthily to the socio-affective attractions, and the playing mechanism of the game caused incongruous interactions, usually refused elsewhere. In the same vein, the two scales of praxic popularity established for each of the two games did not show any significant correlation. The account is clear: The universality of communications generates relationships specific to each game, creating new contacts and opening up a field favourable to new attractions.

However, the mechanism of the universal led to bizarre results, intriguing and apparently impossible to explain. For example, one of the players with lower sociometric status was surprisingly the one that his comrades unhooked most often, getting therefore the highest participation rate. What was going on? After a first release, this player systematically clung to a comrade very appreciated by the group who, because of this popularity, was quickly hooked by a hare, an action that *ipso facto* freed our sociometrical neglected player giving him the chance to prance and twirl around the couples and recommence his strategy of selective hooking. This ternary relationship, the source of the adventures of the game, leads us to an obvious conclusion: We can only understand the alchemy of the relationships between players by taking into account the mechanisms of the development of the motor interactions of the universal.

Hens-Vipers-Foxes

In Sitting ball ambivalence depends on the individual decisions of players, who have the option of choosing whether or not to be *uncoherent*. On the other hand, in Hens-vipers-foxes it is the game itself, by its internal logic, which inevitably imposes the

FIGURE 3 | Hens-Vipers-Foxes game's universal of motor interactions. Three (solidarity) cliques are situated on an (intransitive) circuit of rivalry.

FIGURE 4 | Mechanism of reversal of relationships that makes part of the internal logic of Hens-Vipers-Foxes. The fact that player «a» can tag «b» (who is a menace for «c») protects «c» from the attacks of «b»; thus, if «a» is captured «c» has no defence from «b». Therefore, «c» will be reluctant to tag their designated adversaries for they are their paradoxical protectors.

negotiations, alliances, betrayals, and reprisals. By means of a mechanism as simple as the grid of its motor interactions, the universal of this game creates an unusual relational world and causes destabilising interactions which force participants to think twice about their conduct regarding the others.

A Universal Source of Creativity

We can put together the content of the previous observations in a few lines:

- The players' praxic exchanges are globally in deep correspondence with their socio-emotional links.
- However, relational creativity can be provoked in game situations by generating new relationships likely to create future contacts.
- Some traditional games feature ambivalent relationships which give rise to paradoxical discrepancies that put the usual relationships upside down.
- In *each-for-oneself* games, any player, not subject to any team pressure, can choose at will who will be partner and who will be opponent: everyone is the master of their motor conducts and decisions.
- In conclusion, the experiences generated by each traditional game vary considerably depending on the internal logic of the considered universal.

By arousing great variations in behaviour, these characteristics can be rich in educational implications: creation of new relationships, disconcerting contacts that prepare for social adaptability, embodiment of individual power of initiative and decision. The numerical results recorded during these games reveal important phenomena, but they cannot be generalised in their detail: They serve to detect the most revealing points and to guide future research. Basically, they reveal the crucial role of the universal of motor interactions in the development of sports games and its effects on the conducts of players, regardless of their individual characteristics.

THE MAJOR STRUCTURES OF THE UNIVERSAL OF COMMUNICATIONS

A Plurality of Models

After processing multiple datasets, it has been possible to identify the different ways in which the universal of motor interactions is present in all the sociomotor games. These are the main models we identified:

- *The duels*:
    - *duel of individuals*:
        - symmetrical: boxing, fencing, tennis, cane, stick.
        - dissymmetrical: *Quinet*[1].
    - *duel of teams*:

discordance no matter how much players like it or not. This game puts three teams in opposition, each one with a separate camp: *hens*, *vipers*, and *foxes*. The confrontation is carried out by a relation of tagging by simple touch: hens can tag vipers; vipers can take on foxes; and foxes can capture hens (**Figure 3**). A tagged player becomes a prisoner and taken to the camp of their predators, and prisoners can be delivered by one of their partners with a simple touch.

The logic of this game is disturbing: When a hen captures a viper deprives itself of an agent who protects it from the fox! The more the players get the impression of winning by accumulating prisoners, the more they deprive themselves of their only defenders, and the more they contribute to their own downfall. As shown in **Figure 4**, the motor action of the players who capture an opponent paradoxically becomes the germ of their defeat! Ambivalence is therefore absolute and ineluctable here, and leads to original conducts in the field: hesitation,

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[1] One player with a stick tries to hit away as far as possible a little piece of wood, the *quinet* itself, while the other one tries to catch it to become the hitter.

- *symmetrical*: football, hockey, Prisoners' base[2], Stealing sticks[3].
- *dissymmetrical*: Cops and robbers, Seven stones[4], Capture the flag (one flag version) . . .

- *Measured-performance races*: athletics, swimming, rowing, sailing.
- *Cooperative or semi-cooperative games*: canoeing, team rowing, acro-sport.
- *Games with an original structure*:
  - *Each-for-oneself*: the Sitting ball, Elbow tag, the *Galine*[5].
  - *A-team-against-others*: the Fishing net[6], Octopus tag[7].
  - *One-against-all*: the Gouret[8], the British bulldogs.
  - *Circular confrontation between coalitions*: Hens-vipers-foxes.

Some other structural traits could be added, especially those which lead to drastic modifications of the internal logic of the games and give way to paradoxical relationships or the reversal of alliances, but the scope of this paper does not require so.

Underlying Cultural Correspondences?

Does this structural diversity, brought to light in an objective way, allow any interesting cultural interpretations? In fact, once we are aware of such a praxic variability, there is no reason to keep considering the game as a *black box* whose output would be indifferent with regard to the functioning mechanisms of the activity. In each case a *game grammar* linked to the internal logic of the game operates and selectively predetermines certain constants and sequences. For this reason, it is necessary to bring to light the operational processes specific to the universal of each category of games to infer the most probable relational and social effects.

Traditional games are the fruit of a history that has shaped their structures according to the values and collective representations of each region. So, we can expect that universals be in the image of the culture they belong to: Games' morphology entails cultural meaning. In this sense, it seems possible to draw up a *ludoscopy* of the different sporting games to uncover those fundamental structures that unveil major social trends. It is

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[2] Also known as *Prisoners' bar,* this is a tagging game between two equal teams in which a player can only by captured by those other team's players leaving their base *after* the opponents to be caught.

[3] The players from two equal teams try to steal a certain amount of sticks, or stones, from each other avoiding to be temporary put out of play if tagged while on the other team's half-court.

[4] After knocking down the *seven stones* tower made by team A, team B players try to capture all A players hitting them with a ball before they rebuild up the tower.

[5] Intriguing tagging game in which enemies are declared out loud, pebbles aimed and thrown at the *galine* to put them in prison, and everybody tries to get as many pitching opportunities as possible avoiding to get caught after the *galine* is hit.

[6] A closed, circular net of fisher-players hold hands up until the count gets to their secret number; in this moment the arms are pulled down closing *the net* and trying to catch as many fish as possible; captured fish become fishers.

[7] Free players run from one end to the other trying to be safe from the octopus, having to sit where caught and help the octopus catch the rest of fish by waving their arms.

[8] Free players stay safe while having their sticks in their assigned holes, which draw a semicircle with a bigger, common hole in the centre; "it" tries to get the *gouret*, a little hard ball, into any player's hole forcing a role change; "it" also gets free if taking an empty hole with the stick; free players try to hit the *gouret* away and stay safe at their own holes or taking any momentary empty hole.

not frivolous to say that corporal practices, ludic practices in particular, plant the seeds of future social behaviours. In the same way parents like to find in the younger generations ways of acting and reacting in agreement with their conception of adulthood, sporting games install certain predispositions to future conducts.

This study suggests the hypothesis that the functioning structures of sporting games support underlying values and categories of action that predispose participants to forge their relationship with others in the suggested way. Even though, based on the main features of these structures and without indulging in uncontrollable speculation, can we offer any stimulating interpretations of the aspirations and values staged by the corresponding societies?

The Supremacy of Duels and the "Reversal Effect" of Sport

Consider the OG, which are meant to be representative of the major sporting games on the planet. The figure is impressive: 50% of the sociomotor events of the Rio 2016 games were duels, both between individuals or teams. This highly majority percentage of duels suggests that this binary competitive model is today in accordance with the main collective representations of host cultures.

The structure of this binary confrontation, as illustrated by the graph of the universal of motor interactions in **Figure 1**, is remarkably clear: The ambivalence of the relational paradox, the *betrayal* of the sudden reversal of alliances are all totally unknown. As we have noted, the properties of exclusivity and stability of the relationships R and S make it possible to systematically declare and praise a final winner, according to the terms stablished by the universal of scores. Every duel ends with the absolute domination of one of the two players or super-players, to the detriment of the unfortunate loser.

However, if the champion's victory is to be indisputably glorified, the conditions must be equal in the first place. In order to balance the chances of success for each opponent, the universal is symmetrically composed by two "cliques" of the same size opposed by a "complete bipartite subgraph" (**Figure 1**). Sports competition, ostentatiously egalitarian at the start (equality in equipment, team numbers, age categories, weight....), will end with a systematically unequal outcome at the finish. In other words, the equality of opportunities, so frequently advanced as a factor of consensus and equity, is conversely what will legitimise the eventual domination by fracturing the relations between practitioners. In the end, equality is at the service of inequality: This is the "reversal effect" of sport.

This rapid analysis of sport's vindication of performance and domination with regard to others suggests, on one hand, that contemporary societies push to the front a conquering and domineering elite. On the other hand, the confrontation of two united clans –ultimately reduced to a single player – offers an easily decodable spectacle, favourable to the projection of the passions of the spectators. The duels' model, exemplary clear and fertile of uncertain results, possesses the limpid and objective characteristics of a very valuable mass spectacle, both tactically and emotionally speaking. From this perspective, sport is an incontestable success.

We should note, however, that this reversal effect, this harsh, aggressive reality of the effects of domination, is very difficult to reconcile with the declared objectives of fraternity. Sports' remarkable conditions to become a mass spectacle are not systematically compatible with an ethical, educational perspective oriented toward humanism and solidarity yet advocated by international governing bodies, what acutely poses one true problem as far as sports culture is concerned.

A Homogeneous Methodological Approach

The universal of motor interactions, a tool for observing and analysing games behaviours, can be used for intracultural interpretations as well as for intercultural comparisons. Playing games socialises the children, and thereby predisposes them to the influence of the structures and habits of their environment. Several ethnological pieces of research have already studied games by describing and classifying them, sometimes examining their connection with the norms and values of their host society (Griaule, 1938; Charles, 1955). Speaking of the Dogon child, Marcel Griaule does not hesitate to write: "Through games, they prepare themselves in their own way for the struggle that awaits them," through games that "constitute a kind of introduction to cultural life." This is the core of our project: Can universals unveil the mystery of the deep, often unnoticed phenomena of play? Can the objective characteristics of the relational networks of sporting games and their operating mechanisms shed any thought-provoking light on the content of the cultures in which they flourish?

From an anthropological perspective, Roberts et al. (1959) proposed a classification of the games of fifty ethnic groups by matching their ludic practices with some social options: strategy, chance, physical skill. However interesting the authors' conclusions may be, this kind of research does not take into account specific, essential characteristics of the games, particularly those of physical activities', which are in total more than the double of the rest of practices. Conceptual unity and methodological homogeneity seem basic at first if we want to grant games full status as scientific reality. This is the point of view defended by many researchers who, for the past 40 years, have taken games as their research object from the angle of the bodily conducts and motor action requested. We are going to rely on these works, which have studied the universals of many games and in particular the ups and downs of the universal of motor interactions.

In this spirit, we have brought together sociomotor games from many regions, games identified and studied meticulously by many researchers: Ferretti (2016) for Ticino (Switzerland); Bouzid (2000) for the Kerkennah archipelago (Tunisia); Staccioli (2004) for the games of Basile (Italy); Ould Saleck (1994) for Mali and five other neighbouring countries (Senegal, Burkina Faso, Mauritania, Côte d'Ivoire, and Niger); and ourselves for the illuminations of Ango (2010) (Parlebas, 2010), the children's games painted by Brueghel (2003) (Parlebas, 2003), the prints by Prévost (2017) (Parlebas and Depaulis, 2017), and Jacques Stella's drawings (1998) (Parlebas, 1998). We thus have sets of games from different countries that enable unprecedented intercultural comparisons.

This comparative approach allows many possibilities for contrasting games from the same region at different times, games from the same period in different regions or games from different regions and eras. **Table 1** groups together the sociomotor games of the regions mentioned above, listing the games at periods that spread over time. Besides, the activities are categorised according to the four main sections that we have previously identified: duels, races, cooperative or semi-cooperative games, and games with original structures.

AN ETHNOMOTRICITY THAT HOLDS AN IDENTITY

What does **Table 1** reveal? Certainly, a strong international diversity in the universal of communications. Each cultural area takes pleasure in developing a ludic heritage distinct from that of the others. We can advance the term ethnomotricity insofar as any region cultivates its own ways of using body gestures to play, to maintain links of solidarity and opposition that belong to tradition and terroir. This ethnomotricity reveals the search for the affirmation of an identity that, through frequent references to its *roots*, constitutes an original ludic heritage that goes far beyond the simple diversity in the naming of games or nuances of detail: It deals with the deep dissimilarities between the networks and processes of motor interaction which connect players to each other. What are the main interpretations that can be inferred from **Table 1**?

The Olympic Games

Nowadays a set of games from around the world honoured and supported by more States than the UN contains, the OG can serve as a baseline for immediate comparison:

- Among the sociomotor games, the OG show a very high percentage of duels (50%), much higher than that of all the other categories. In our corpus this percentage gradually increases from the 16th century to the present day (**Figure 5**).
- The OG are the only ones to have "races", sanctioned by precise measurements of time or space, calling for peak performances and world records.
- The OG are the only ones to present no universal of original motor interactions.

The verdict is clear: The OG, which symbolise what modern physical games are, have frankly broken with traditional games, being defined by highly specific traits linked to a culture of excellence in antagonism and to the search for outperformance.

On a General Level

Bearing in mind what we have just learnt about sports, it is possible to understand how universals contribute to the study and understanding of sporting games by thoroughly looking into **Table 1**:

TABLE 1 | Distribution of the different models of the universal of motor interactions according to different countries and epochs (percentages of respective sociomotor games).

Games corpora	Games categories Duels	Measured racing performances	Cooperative or semi-cooperative games	Originally structured games	Total
ANGO (1525) n = 158	9%	/	**64%**	27%	100%
BRUEGHEL (1560) n = 33	33	/	30	37	"
PRÉVOST (1587) n = 144	27	/	30	43	"
BASILE (1625) n = 28	29	/	18	**53**	"
STELLA (1657) n = 84	36	/	43	21	"
TESSIN-SWITZERLAND (1900) n = 33	20	/	42	38	"
MALI (1990) n = 128	37	/	2	**61**	"
AFRICAN COUNTRIES (1990) n = 275	38	/	3	**59**	"
TUNICE (1995) n = 240	29	/	32	39	"
2016' OLYMPICS Rio de Janeiro n = 182	**50%**	25%	25%	/	100%

The universal's forms are distributed with exuberant diversity, a testament to how different cultural representations can be in regard to social linkage. Bold values are indicate the most prominent values in some of the datasets.

- Most communities, including the OG, but excluding African countries, give a significant place, of the order of

FIGURE 5 | Percentages of duels within sociomotor games. After an evaluation of games corpora from the Renaissance to nowadays, it shows the spectacular of the progressive increase of the proportion of duels. The duel structure has prevailed little by little becoming the dominant model of sports today.
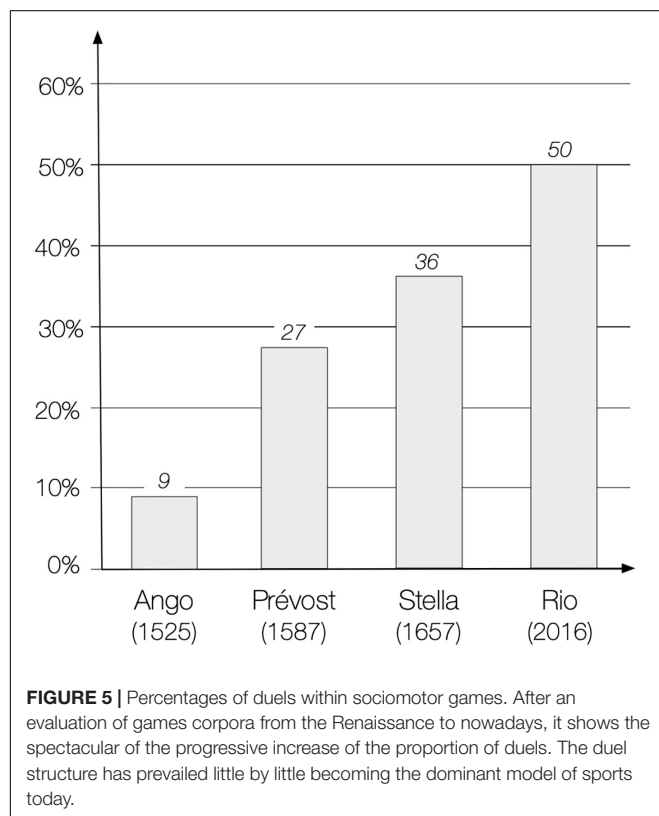
a quarter, to cooperative or semi-cooperative games. The reality of motor cooperation is therefore present in the majority of the cultures here considered.

- The proportion of traditional games with original universals is abundant, sometimes even in excess of 50% of the cases. This is one of the indications of an intense social creativity in the search for infrequent, stimulating, destabilising situations that demand a strong individual adaptability to unusual activities. The equality offered by traditional games is not attached to measurement and performance as in sports. Instead, taking into account the constraints of internal logic, this sought-after equality is part of the free choice offered to each player to behave according to their emotional and relational preferences.

- Belonging to the same region is not enough to standardise the modalities of the universal. Although they belong to the same extended cultural area (Normandy and the Parisian region), Ango games appear very different from Prévost and Stella games (**Figure 6**). The social categories of belonging (rural and urban) as well as the corresponding lifestyles have a considerable influence on the ways of experiencing one's body and the others' bodies during games. The frequency of farm work practiced in community, which requires a great solidarity in the accomplishment of the tasks, can be put in correspondence with the abundance of the cooperative games of the illuminations of Ango (64%).

Dissimilarities and Similarities

As a whole, these results represent a kind of survey that offers a partial but solidly documented picture of ancient and modern
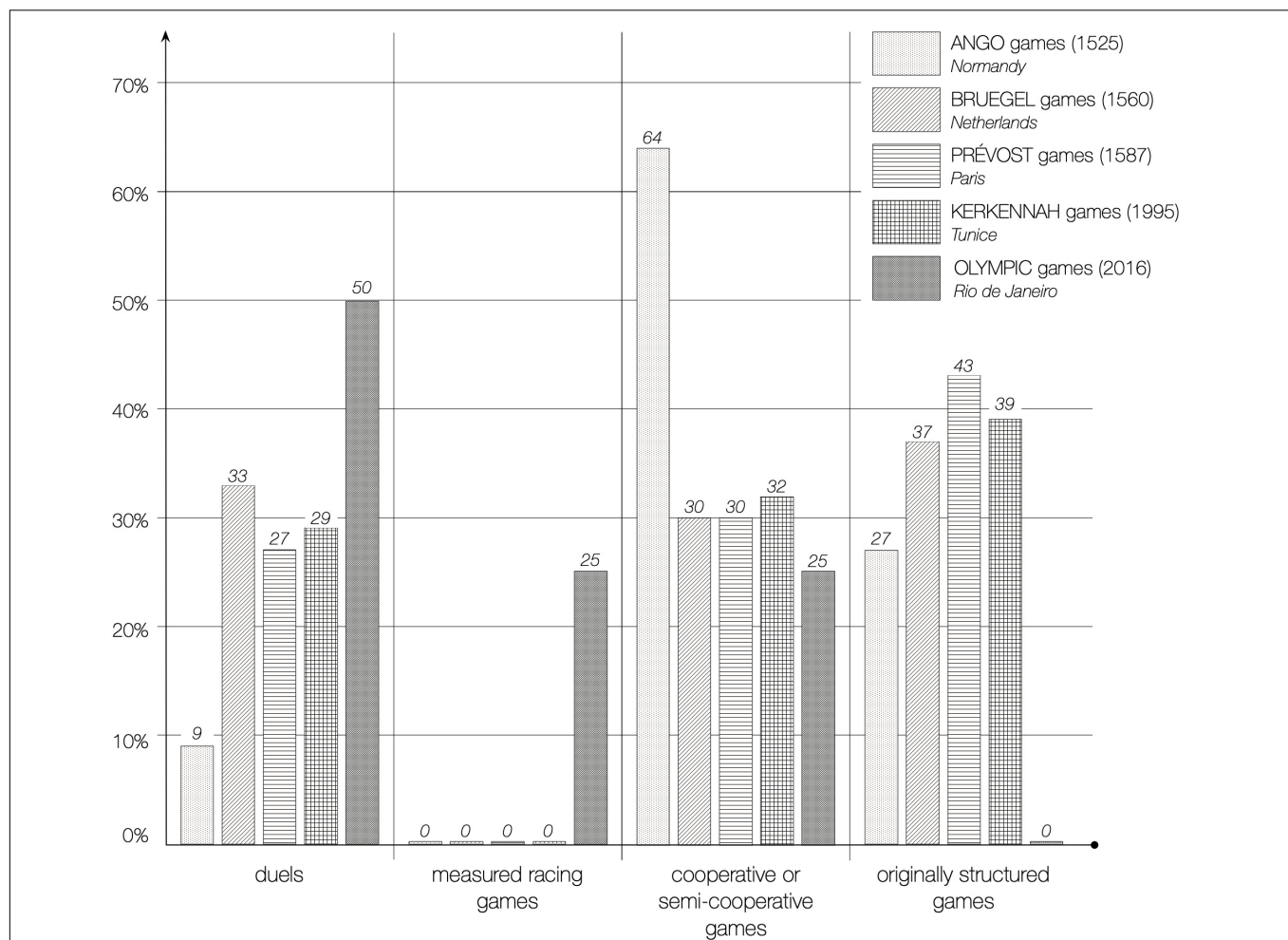
FIGURE 6 | Distribution of the main ludic categories in several cultural areas. The distribution of the categories of the universal of motor interactions models is very variable in regard to different cultures. Along with the clear differences between Ango and Rio, separated by five centuries, there some similarities to be explored among Bruegel, Prévost and Kerkennah.

ludic practices in different countries, pointing at remarkable observations that well deserve a deeper look:

TABLE 2 | Olympic games and African games.

Corpora Duels	Olympic games $n = 93$	African games $n = 105$
Individual duels	**75%**	24%
Team duels	25%	**76%**
Total	100%	100%
Symmetric	**100%**	37%
Dissymmetric	/	**63%**
Total	100%	100%

Team duels and dissymmetric duels are clearly majority in African games, just the opposite to the Olympic duels, which highlight the individual and the equality of arms. Bold values are indicate the most prominent values in some of the datasets.

- Alongside the two very different extreme corpora: Ango (Normandy around 1525) and Rio (the planet, 2016), undeniable similarities appear between Brueghel (Netherlands, 1560), Prévost (Paris, 1587), and Kerkennah (Tunisia, 1995) sets, yet far apart in space and time (**Table 1**). We can hypothessze that the island of Kerkennah, being located an hour by boat from the Tunisian coast, has been somewhat protected from sporting influences and has kept its traditional recreational roots. What all this work shows is the weight of the social and geographic contexts of belonging, the representations and the imagination of host cultures. We are indeed in the presence of an *ethnoludism* that marks with its cultural imprint the heritage of the games.

- Mali and certain African countries present aspects which contrast with the previous results (**Table 1** and **Figure 6**). During a prolonged field survey, Ould Saleck (1994) analysed data relating to Mali (128 games) and five other neighbouring African countries (275 games including those

from Mali). The results are spectacular: high percentage of duels (37% and 38%), virtual absence of cooperative games (2% and 3%), total absence of racing games, and proliferation of games with an original structure (61% and 59%). This abundance of original games is localised in the models *one-against-all* (76% of these games) and *each-for-oneself* (19% of these games). Obviously, Malians and their neighbours appreciate individual prowess and are adept at fighting and confrontation.

- The comparison between the OG and the African games is very enlightening (**Table 2**) in regard to duels. African games favour team duels (76% of duels) while OG give the lion's share to individual duels (74%). Besides, unlike African games, which give clear priority to mismatched duels (63%), the OG are radicalised by completely excluding any asymmetric duel. Equality wants to be the standard-bearer. Spectacularly, the reversal effect of duels gets to the peak in sports the Olympic way.

THE ORIGINALITY OF TRADITIONAL GAMES

Any in-depth study would require to immerse the previous data back into the social and historical environment they come from. It would also be advisable to increase the number of corpora from very different countries. However, the results obtained here are sufficient to offer interesting interpretations, which can serve as indicators for subsequent studies:

- Ludodiversity is a confirmed phenomenon: The universal studied above has structures that can be extremely different from one game to another, and this rich patrimony should not be condemned in the name of any demand for standardisation. The adoption of the same sports structures on a world scale favours to a certain extent the relations between foreign practitioners, but at the risk of the abolition of regional identities. Globalisation should not be opposed to the recognition of the local originalities of the regions. As Levi-Strauss wrote, it is necessary to respect an "optimum of diversity" (1983), and the identity of a culture is also played out in its games.
- The analysis of universals reveals that the alleged superior complexity of sports is an illusion. Quite on the contrary,

what is evident is the remarkable simplicity of symmetrical duels and races, in contrast to the lush palette of the original structures of traditional games. These are often presented as *little* inferior games, just *preparatory to team sports*. However, it is simply not true that traditional games be at the beginning of a linear scale of complexity culminating in the higher echelon of sport, thus seen as the crowning achievement: Between traditional games and sports there is not a difference in degree, but in nature.

This type of exploratory analysis on the operational mechanisms that support the development of sporting games has been extended to all universals, and has shown the interlinks that connect them to each other. The universals of scores, sociomotor roles, and sub-roles confirm the inquiry possibilities offered by the universals of motor interactions. This works reveal that sporting games constitute a way of forging relationships with others, of making decisions and of constructing categories of action that create predispositions to future behaviours: A way of experiencing the world simply put.

Issued from the rules of the games, universals represent different social frameworks that call for individual motor action according to more or less permissive action logics. Taking them into account makes it possible to link the carefully collected empirical materials to a reflection on the foundations of ludic conducts and, above all, on the foundations of motor action in general. In brief, the conclusion suggested by this study is that sporting games represent a specific world, symbolised by the presence of a system of universals, rich in psychological and sociological elements, that calls out for in-depth scientific research.

AUTHOR CONTRIBUTIONS

ACKNOWLEDGMENTS

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Book Review: Games and Society in Europa

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A Book Review on

Games and Society in Europa

Pere Lavega (Barcelona: Asociacion Europea de Juegos y Deportes Tradicionales), 2006, 287 pages, ISBN: 84-611-2150-3

SUMMARY OF THE BOOK

The reviewed book was published by the European Traditional Sports and Games Association (ETSGA/AEJeST) as the result of a fruitful cooperation and co-publication, achieved thanks to the contributions of many different institutions.

It consists of a preface, an introduction, two main parts and final reflections.

A short preface, written in three languages (English, French, and Spanish) introduces the reader into the subject of traditional sports and games (TSG)—the movement of their rediscovering, re-appreciation and promotion, starting from the 1980s and presenting its constant development until the special project, entitled "Juega con tu corazon, comparte tu cultura" (Play with your heart, share your culture), successfully carried out by the above-mentioned European Traditional Sports and Games Association with its European partners within the framework of the EU Culture 2000 Programme (2003-2006), which resulted in producing and interpreting data on traditional sports and games, played by the adults in 11 different, European countries and regions. The presented book was published by An introduction, written solely in Spanish, but with summaries in 7 different languages (among others in English, French, and Portuguese), deals with the thorough description of the above-mentioned project. This part contains a description of the background of this project, its main objectives, methodology, results, discussion, and conclusions.

The two main parts of this book deal with the detailed outcomes of the presented project.

The first part—entitled A Socio-Cultural Approach to European Traditional Sports and Games—contains 11 detailed articles, written in English, French, or Spanish (always with summaries in 7 languages), dealing with traditional sports and games from 11 European countries and regions—partners of the project.

The second part—Education in Traditional Sports and Games—consists of 2 articles in Spanish (with summaries), which concentrate on a very interesting example of educational activities with TSG, carried out in two Spanish regions—Cantabria and Catalonia.

The last part—Tradition and Modernity in Traditional Sports and Games—presents the final reflections on the international recognition for TSG from UNESCO, the Culture 2000 Project with its results and very important limitations, problems, and proposals for meeting future challenges in traditional sports movement in the twenty-first century. It is written in English, Spanish and French by the Scientific Director of the Culture 2000 Project—Pere Lavega.

EVALUATION

The presented book contains a rich and valuable material about traditional games and sports. The content of this work is the result of the above-mentioned, very important, European project, aimed at rediscovering, studying, analyzing, promoting, and finding practical applications for traditional sports and games—one of the most neglected, but at the same, most valuable parts of human cultural heritage. This is a common work of the distinguished scholars and practitioners, dedicated to this issue at the world's highest level. There are more than 300 games described or at least mentioned from different games' groups—ball games, bowl games, throwing, locomotion, shooting, or fighting games.

First of all, the reader can realize how important these games are, by getting to know with the international recognition for TSG as world cultural heritage from the most important, world-wide and European organizations, such as UNESCO or European Parliament, and by reading about a special organization—European Traditional Sports and Games Association—dedicated to revitalization, promotion, and practical application of traditional sports and games in Europe and all over the world.

Moreover, the reader can find here not only the detailed descriptions of numerous, European, traditional sports and games, but also their original photographs, tables and figures, indicating the interesting data, such as the number of traditional sports, still active on a given territory, their type, their features (called internal logic), and socio-cultural contexts in which they exist on a daily basis (external logic). The reader can find such games as: many varieties of Catalan bowl games, Portuguese Jogo do Pau, Polish Pierścieniówka (Ringnetball) and many others.

What is equally important, the reader can get to know with many practical applications of these games—they can be used in education, health-enhancing physical activity, social integration initiatives, tourism, recreation, education etc. The latter field is described in detail in the second, main part of this book, dealing with the very interesting examples of school and extra-curricular educational activities with traditional sports and games.

A limitation for the reach of this book is the fact that not all of its parts are written in English. Some of the articles are only in Spanish or French. To understand the entire content, the reader should know three languages. Fortunately, for every part, there are the before-mentioned summaries in 7 languages, helping the reader in general familiarization with the book's content.

DISCUSSION

The presented book deals with such an important and up-to-date issue that even today, after 14 years since its first publication, it is still very actual and universal. It contains a very interesting, theoretical assumptions, basing on Pierre Parlebas' motor praxeology and analysis of the research carried out within the framework of the above-mentioned project, giving the reader the necessary background to better understand the meaning of traditional sports and games.

In addition, it is enriched with many practical information, thanks to which everyone interested can get to know with numerous traditional games and sports—their descriptions, photos and practical applications. This is crucial as the reader can understand that these games and sports have a lot to offer, not only in theory, but also in practice.

Thanks to its well-structured way of narration, starting from the background of traditional sports movement, leading through the descriptions of many TSG from different parts of Europe and ending with indicating limitations, problems, and practical recommendations for the future, this book can serve as a starting point for everyone interested and for many world-wide, cultural, sport, social, and the other organizations to better grasp the significance of traditional sports and their importance for the future of our common world.

Specially significant is here introducing TSG to educational activities since, as Pierre de Coubertin said, the future of our civilization depends solely on the direction given to education.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

frontiers
in Psychology

Book Review: Els jocs i els esports Tradicionals. Tradicionari. [The Traditional Games and Sports. Traditionari]

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A Book Review on

Els jocs i els esports Tradicals. Tradicionari. [The Traditional Games and Sports. Traditionari]

Enciclopèdia Catalana (Barcelona: Enciclopèdia de la cultura popular de Catalunya), 2005, Vol. 3, 311 pages, ISBN: 84-412-1390-9, https://www.enciclopedia.cat/content/els-jocs-i-els-esports-tradicionals

Between 2005 and 2008 the accredited publishing house Enciclopèdia Catalana published *Tradicionari. Enciclopèdia de la cultura popular de Catalunya* (see **Figure 1**), a huge work of 10 volumes. The aim of this ambitious Encyclopedia was to show the different cultural dimensions of the Catalan popular tradition. The domains of the work, the party and the festive calendar, music and dance, myths, beliefs, and traditional games and sports are some of the themes of the encyclopedia.

The contend of each volume is based on studies of a wide crowd of specialists: Eminent folklorists, ethnographers, and anthropologists of intangible cultural heritage. The challenge is to join the tradition and modernity in a whole approach, in order to understand the contribution of these manifestations in the past, in the present and probably in the future local societies.

Although the *Tradicionari.* is a collective work, it is presented as a joint, integrated and coherent work. This challenge was achieved thanks to Joan Soler-Amigó, the director of the 10 volumes, surrounded by the best specialists in each field, becoming the coordinators of each volume.

The third volume of this encyclopedy is dedicated to traditional games and sports (TSG). A team of more than 25 specialists, coordinated by Pere Lavega-Burgués -professor at INEFC, University of Lleida, Spain, current president of the European Association of Games and Traditional Sports. He is also expert of UNESCO and author of an extensive bibliography in the field of physical activity and TSG. This team guarantees a broad and transversal vision, with multidisciplinary approaches and a range of perspectives that between theory and practical exemplification give the right balance to the work.

The scientific rigor is already evident in the first pages with Prof. Pierre Parlebas' contribution who succinctly, intelligently and understandably writes about the game as an inherent part of the culture, and eloquently introduces some of the basic concepts of praxeological study.

Parlebas, creator of the science of motor action or motor praxeology, establishes at the outset some knowledge and an original approach in relation to the internal logic of the games (relations between the players, space, materials and time of game). He also explains the connection with other sociocultural factors of the local culture (external logic). Both dimensions internal and external
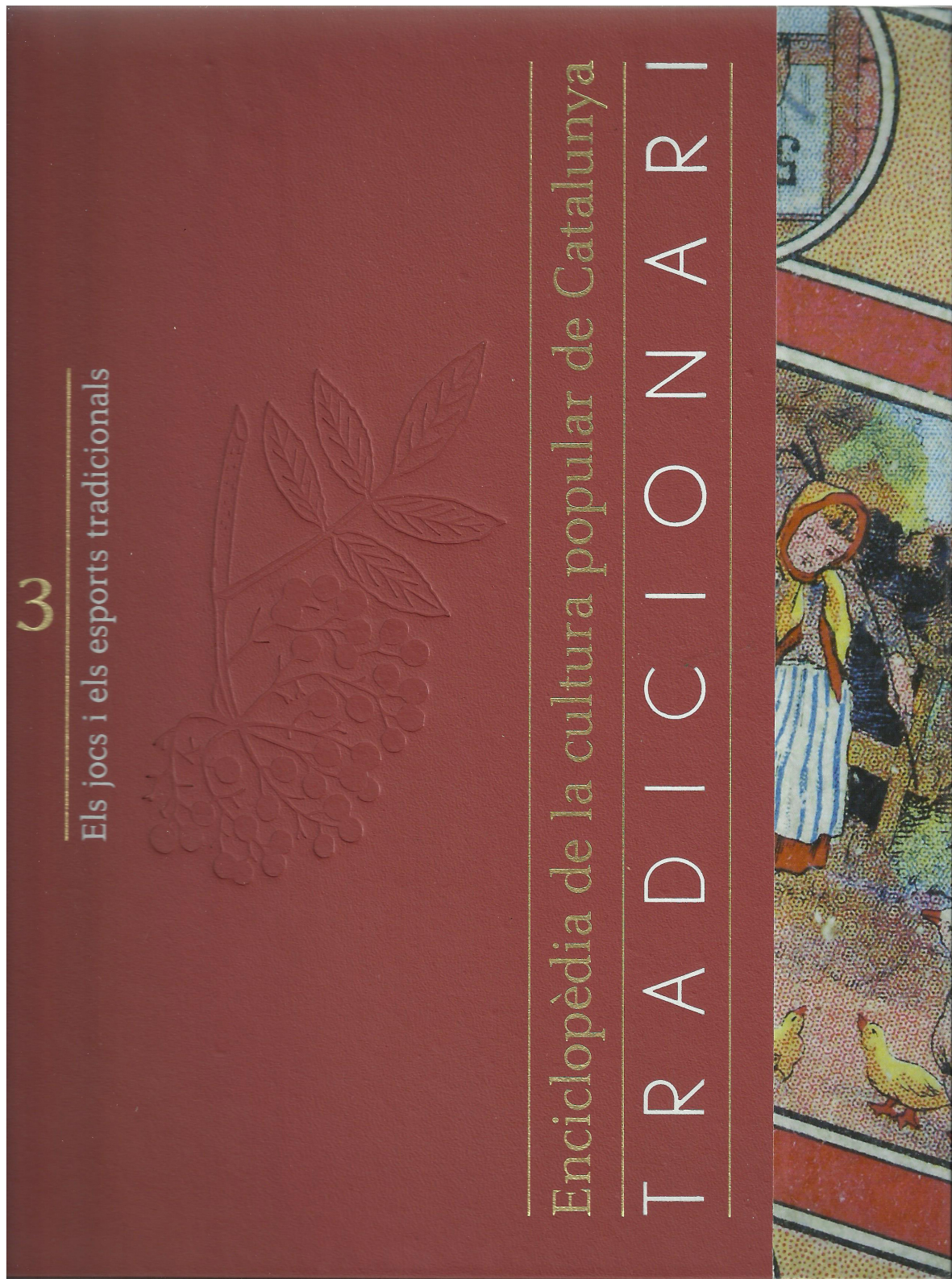
FIGURE 1 | Cover of the book Els jocs i els esports Tradicionals. Tradicionari. [The Traditional Games and Sports. Traditionari].

logic are integrated in the concept of *ethnomotricity* to understand the meaning of any TSG in its society.

Pere Lavega, coordinator of this volume, takes over by defining the concept of the game, exposing different classical theories related to the game to end up delving into the praxeological analysis, with a variety of traditional games and sports.

These first chapters are key pages to understanding how this volume of the Traditional is structured. From the exposition of the scientific theories on the game we find that four of the nine sections that follow take the name, precisely, of the determining aspects that conform the internal logic of the games as well the external logic: Protagonists of the games, Toys—materials of game—, Game Spaces and Game Times.

The encyclopedia develops the chapters in a original and very rigorous way. It not only describes a great repertoire of TSG in Catalonia, but also presents this playful universe joined to the past and also to the present. The volume notes the evolution and changes undergone while pointing and predicting future trends. Thus, for example, when dealing with toys—play materials—the importance of handcrafted construction is emphasized. Then, firstly, the world of collecting and the role of museums is described, and secondly the visibility is also given to modern facilities such as toy libraries or new trends like videogames in the current digital society.

In the same way, the section The Spaces of the Games is not limited to enumerate traditional spaces of game as for instance, the house, the streets and places or near natural surroundings. The section also deals with the domestication of spaces—parks, gardens, sports facilities...—or the creation, consolidation, and development of theme parks. And of course, as a current and future trend, the emergence of a new play space stands out: The internet.

Another quality to note is that from the first to the last page, the text is enriched by many examples of TSG related to each section. To complete this approach, the last two chapters are reserved to present an extensive and significant thematic repertoire of TSG taking into account criteria as: TSG to start playing; TSG with different sort of relationships: individual challenges (e.g., skittles, races, jumping games) cooperation (dances and rhythmic games), opposition (e.g., wrestling and tag games), team games (e.g., ball games, dodgeball); winning or losing TSG (e.g., competitive TSG); and also board games.

Traditionari becomes a new encyclopedic concept that, without renouncing the enumeration or collection of TSG, this book seeks to be a reference for consultation as well as a source of pedagogical and creative inspiration. The readers can take profit of a whole section dedicated to explain the socialization role of TSG as well as many examples that TSG offers as a pedagogical tool in the field of education and recreation. This section also presents some evidences to identify the effects of TSG on emotional well-being, as a tool for mediation and resolution of conflicts.

The book provides an excellent approach to past (tradition) and present (modernity) in order to understand that TSG foster important values for current society. *Traditionari* is the result of a rigorous research of the Catalan TSG as Intangible Cultural Heritage and many unpublished contributions of prestigious specialist. And all of this, accompanied by numerous examples of good practices.

Another detail should be highlighted as a last remark; this volume presents a large number of illustrations related to old and current photographs carefully chosen. The result is an attractive and stimulating strategy to provide the core messages. The book invites the reader to understand the contribution of ludic intangible cultural heritage in ancient ages, in current society and also to think about its contribution in the future.

Finally, we the book has as limitation that the content is written in Catalan, although on the other hand we see that it is available online.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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Book Review: Recreios Collegiaes

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A Book Review on

Recreios Collegiaes

Aloy, P. (1882). Recreios Collegiaes. Lisboa: Tipografia Universial

This book is one of the oldest and most important publications on the topic of traditional games in Portugal. The author, Pedro Aloy, was a Jesuit priest born on the 23rd of May 1840 in Mallorca, Spain. Before and after his ordainment as a priest, Aloy taught at the Colégio de Campolide, an all-boys Jesuit college in Portugal, and served as its subdirector for 12 years.

The book was written for his students as a guide for their leisure time and follows the pedagogical ideology of Jesuit priests, pioneers of education in Portugal, of introducing physical activities and games in schools (Ferreira and Ferreira, 2003). Thematically, the book focuses on traditional games and is an example of how Jesuits, always ahead of their peers on pedagogy, highlighted the benefits of physical exercise toward our physical and mental health and well-being. Because it was written in the late nineteenth century, when education was mostly a male privilege, the book contains dated concepts and language. Nevertheless, most games included in the book work equally well in modern schools with mixed-gender student populations.

In the opening chapter, titled "Advertências" (Introduction), the author explains and highlights the importance of his work: "We intended to simply collect a series of pleasant activities for our students, so that they could enjoy a more moral, healthier, and happier collegial life during leisure hours." We note the author's particular care in recognizing that "the playground is a simulacrum of the students' freedom," that is, that the playground is like a laboratory, a place where students learn social and physical skills through experimentation. The choice of which traditional games to include in the book, as well as their distribution throughout the school year, sought to keep the students happy, motivated, and avoided the "fervor of the game," which could lead to disorder. In this way, the author tried to find a balance between playing games and maintaining the students' spontaneity and individual freedom.

As a teacher, Aloy proposes a very practical organization of the games according to the periods of the school year— "winter," "spring," and "summer." He then further subdivides them in two categories, depending on the spatial needs of the playground: games with more action and movement ("jogos principaes"), that required larger spaces, and games with little to no action, that could be played anywhere ("jogos accessórios").

Throughout the book, the author describes a total of 226 games, including variants, which is far more than the 150 listed originally. Of these 226, 170 are motor games, 32 are social games, and 23 are tabletop games. The 170 motor games, which we consider more relevant for modern physical education, can further be subdivided in competitive (79) or non-competitive (91) games. This diversity of games stands in contrast with current practices in physical education, that tends to focus only on competitive games and sports such as football, basketball, or athletics.

We applied the concepts of motor praxeology to analyze and understand the educational principles behind the 170 motor games included in this work (Parlebas, 2001; Lagardera and Lavega, 2003). According to this scientific discipline, each game has an internal logic, or identity

card, that challenges players to solve four types of internal relationships: with others, with the physical space, with time, and with the materials.

For the relationship with others, we observe a clear preference for team or socio-motor games ($n = 134$; 78.8%) over individual or psycho-motor games ($n = 36$; 21.2%). The book promotes a diverse and relational physical education through a multitude of games that encourage different types of interpersonal relationships: cooperation (e.g., dancing) and opposition (e.g., duels, chases), as well as cooperation-opposition (e.g., symmetrical and asymmetrical team duels and ambivalent games, including paradoxical games).

Regarding the relationship with the physical space, we find a majority of games played in stable spaces ($n = 123$; 72.4%), during which the conditions remain constant. The remaining games ($n = 47$; 27.6%) are played in unstable spaces, leading to unforeseen consequences. This preference for games played in stable spaces is understandable given that schools have to ensure optimal and controllable playing conditions: stables spaces provide easier means of control.

As for the relationship with time, we observe that there is a slight majority of games without competition ($n = 91$; 53.5%), in which playing the game is the end goal, vs. those with competitive elements ($n = 79$; 46.5%), in which there are winners and losers. This balance fosters a more inclusive and less discriminating environment for all participants.

Finally, for the relationship with the materials, we find that the majority of games utilize some sort of physical material ($n = 133$; 78.2%), compared to those that do not ($n = 37$; 21.8%). Further, we are able to deduce that the materials used in these games are quite diverse and often originate from the students' surroundings—either naturally or purposely-built—therefore promoting environmentally sustainable educational practices.

In summary, this is an unique body of work in Portugal, presenting itself as an educational project that highlights traditional games, and referring the reader to a time where physical education was introduced as a pedagogical tool. This book encompasses a holistic perspective of our education and demonstrates that physical and relational acts are key to our socialization. Furthermore, despite having been written more than 100 years ago, this work shows particular care for inclusion, emotion, and democracy, all toward promoting the students' social well-being and even environmental sustainability. We believe the rich and balanced offer of games presented in this book is a valuable complement to the modern physical education of all genders.

AUTHOR CONTRIBUTIONS

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Traditional Games as Cultural Heritage: The Case of Canary Islands (Spain) From an Ethnomotor Perspective

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UNESCO in the 2030 agenda for sustainable development establishes respect for the environment and sustainability education as key elements for the challenges of society in the coming years. In the educational context, physical education can have a vital role in sustainability education, through Traditional Sporting Games (TSG). The aim of this research was to study from an ethnomotor perspective the different characteristics of two different groups of TSG (with and without objects) in the Canary Islands, Spain. The corpus of this investigation was made up of 513 TSG, identified by two analysis techniques and collected in a database. The categories corresponding to the variables of the internal logic of the game were the type of motor interaction, related to space, relationships with time (competition), and relationships with objects. The study also examined the variables of external logic or sociocultural conditions such as the protagonists, playing areas, and game moments. The data analysis was carried out using descriptive and inferential statistics: cross-tables, effect sizes, classification trees (CHAID), and the identification of frequency areas. Of the total number of playful activities identified ($n = 664$), most were physical activities ($n = 513/664$; 77.26%) (non-physical activities: $n = 151/664$; 22.74%). These activities were Quasi-games without rules ($n = 87$) and TSG ($n = 426$) as well as activities with Objects ($n = 299$) and without material ($n = 214$). This research confirms that the TSG in the Canary Islands is a mirror of traditional culture and, from a pedagogical approach, shows great potential for material and social sustainability.

Keywords: intangible cultural heritage, motor praxeology, ethnomotricity, sustainability, relational well-being, material culture

INTRODUCTION

Almost 20 years ago, UNESCO (2003) defined intangible cultural heritage as "*The 'intangible cultural heritage' means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artifacts, and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage.*" According to

this definition, Traditional Sporting Games (TSG) constitute a cultural heritage, since they are manifestations that are expressed through body language, that is, motor actions (e.g., Caillois, 2001; Sutton-Smith, 2001; Huizinga, 2010). The 2nd article of the recently passed Canarian Law on Physical Activity and Sport (Ley, 2019) states "*the right to know (…) and promote sport as an integral element of our culture, recovery, maintenance and development of autochthonous, and traditional sports and motor games (…), as an expression of our insular reality*" (Law 1/2019, of January 30th, on Physical Activity and Sport in the Canary Islands, 2019). TSG are the main asset of physical education to enhance the local culture. These traditional activities constitute a cultural legacy in the respectful way of relating to others and also to the environment. Moreover, UNESCO's 2030 agenda (UNESCO, 2017) establishes "respect for the environment and sustainability education as key elements for the challenges of society."

According to Parlebas (2001, p.286), TSG correspond to "*sporting games, frequently rooted in a long cultural tradition, which have not been regulated by official authorities.*" The rules of these games bear the distinctive characteristics of the local culture and show the great diversity that characterizes the immaterial recreational heritage. When an activity does not have rules, it means that the way of playing is very open, allowing the practice conditions to be continuously modified, the reason why these activities are called "quasi-games" (Parlebas, 2001). Each and every TSG has an internal logic that leads the agents to solve original problems associated with the relationships to the other participants, to space, to time, and to objects (Parlebas, 2001). However, when relating the internal logic of game to the culture it belongs to, it is necessary to consider aspects external to the rules of the game, but constitutive to the game situation such as the characteristics of the players (i.e., age and gender), the playground (i.e., indoors/outdoors, degree of arrangement), the temporal circumstances (i.e., season of the year), and the objects (i.e., origin and methods of production). This connection between internal logic and culture is captured in the notion of ethnomotricity, understood as "*field and nature of motor practices, considered from the point of view of their relationship with culture, and the social environment in which they have been developed*" (Parlebas, 2001, p. 227).

The gradual loss of different games of children and adults that were played on the islands in the mid-20th century onward makes us consider the importance of knowing, rescuing, and maintaining the different TSGs that were developed in each one of the islands (Navarro, 1994; Castro, 2001). Various studies in the Canary Islands (Navarro, 1994; Castro, 2001), and in other regions too (Lavega, 1995; Etxebeste, 2001; Warnier, 2001; Lavega et al., 2006; Hastie and André, 2012; Rauber et al., 2014; Parlebas, 2016a; Proyer et al., 2018; Lavega-Burgués and Navarro-Adelantado, 2019), have shown that TSG are cultural expressions that contain representative values of those communities. "*Entering a game is entering a society. A game is a kind of emblem of culture; therefore, deep knowledge of playful practices is an important element of the knowledge of a society*" (Parlebas, 2005, p. 13). Therefore, we can be certain

that Traditional Sporting Games of the Canary Islands (TSGC) are a mirror of the local culture, traditions, and society of our archipelago (Sánchez and Suárez, 1996; Concepción, 2006; Hernández et al., 2015). These studies have provided evidence that through TSG, core social values can be promoted, such as learning to live together, social inclusion, gender equality, socio-emotional well-being, and sustainable actions related to the other people as well as the physical environment. In order to properly understand the Canary Islands' playful activities, it is necessary to know that the Islands come from a volcanic origin, with characteristics that are unique in terms of climate, landscape, and vegetation compared to other regions of Spain. Moreover, they form an archipelago with a historically agricultural economy. The Canary Islands were a place of passage for migrants traveling to the Americas or for staying on the Islands. The migrants used to bring with them representative elements of their playful traditions. In this study, we are going to analyze children's ludomotor activities with cultural local traits and with other similar features to other regions of the Spanish territory (Amades, 1984; Lavega et al., 2009; Cortizas, 2013; López and García, 2014).

The presence of objects in any TSG reveals a direct link with local material culture. Each and every player of these TSG is "shaped, subjectified by its embodied material culture" (Warnier, 2011). These elements often come from the local environment where the players find them, to prepare them in a unique way to be used in the game. "*The reuse of objects from the domestic environment and the ecological use of materials from nature confirm the condition of playful heritage of these manifestations*" (Lavega, 2017, p. 6). This is a clear example of a respectful and sustainable learning (Etxebeste et al., 2015).

The relatively non-existent research or specific publication on the comparison of games with and without objects has led us to delve into the distinctive features of these two great families of TSG. This study will facilitate the understanding of the TSG as a mirror of the society that has starred them (Navarro, 2002).

Taking into account this theoretical background, the objectives of this investigation were:

(a) To reveal from an ethnomotor perspective the distinctive features of TSGs with and without objects identified in the Canary Islands, Spain.

(b) To identify the predictive strength of the variables corresponding to the rules (internal logic) and their sociocultural context (external logic) to characterize the ethnomotor features of the TSG with and without objects in the Canary Islands (Spain).

MATERIALS AND METHODS

Corpus

The original corpus of this investigation was made up of 664 games. Some of these TSG (151) were excluded from the study due to an unfulfillment of the motor skill or motor situation criterion (Parlebas, 2003, p. 67). Finally,

513 TSGs completed the total number of games susceptible to analysis.

Ethnomotor Variables

Various categories corresponding to the variables of the internal logic of the game were considered: (a) *type of motor interaction:* psychomotor (Psyco), cooperation (Coop), opposition (Oppo), and cooperation–opposition (CoopOppo); (b) *relation to space:* stable (Stab) or unstable (Unstab); (c) *relation with time:* with competition (Acco) and without competition (Nonacco); and (d) *relation with objects:* with objects (Wobj) and without objects (Nobj); as well as variables of external logic or sociocultural conditions: (a) *protagonists age*: infant (Infa), juvenile (Yout), adult (Adul), and all ages (Alla), and protagonist sex: masculine (Mas), feminine (Fem), and mixed (Mix); (b) *play areas (type of facilities)*: internal (Int), external (Ext), and internal–external (IntExt); playing areas (preparation): prepared (Prep), little prepared (Litprep), and not prepared (Nonprep); and (c) *game moments*: with calendar (Cale) and without calendar (Noncale)[1].

Instruments and Procedure

The TSGs were identified using two analysis techniques: (a) content analysis of 27 written consultation sources, published in the Canary Islands, from 1940 onward (Diego, 1943; Hernández, 2005); (b) TSG compilation using oral sources and materials, collected by various researchers for more than 20 years and complemented by semi-structured interviews with six players and artisans of game objects (Lagardera et al., 2018). A guideline was designed with short, open-ended questions concerning aspects of the rules of the games and sociocultural conditions of practice. Data collection was carried out through video and audio recordings and field notes that provided a complement to this research.

There were four observers specialized in traditional games with more than 10 years of experience in the "*ad hoc*" construction of the registration system, and all games were classified by consensus.

Data Analysis

Through the use of the statistical software SPSS v.25, it was possible to determine and complement the previous ethnomotor analysis. Parlebas (2016a, p.46) points out "Each game is a universe that makes cultural sense and must be interpreted on the basis of the observed motor sequences, on the configurations and the networks discovered." According to this approach, we also used frequency areas technique to identify the ethnomotor chains of the traditional Canarian games. These descriptive and multimodal graphs facilitate the comparison of games with and without objects in the set of ethnomotor variables studied (≥ 3 numbers of games with or without objects).

Descriptive and inferential statistical techniques were used: cross-tables, effect sizes, classification trees, and identification of frequency areas.

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[1]The description of these variables is available at http://praxiologiamotriz.inefc.es/?p=1333

Statistical margins were used for all analysis ($p < 0.05$). Cross-tables were generated with Pearson's chi-squared values, as well as adjusted residuals (ARs) between the margins (ARs) >1.96 or <-1.96. Subsequently, the effect size was calculated using Cramer's *V* test (0.10 = small effect, 0.30 = medium effect, and 0.50 = large effect) (Field, 2013).

An exhaustive chi-squared automatic interaction detector (CHAID) classification tree (Ye et al., 2016; Lorenzo et al., 2017) was used to determine the dependent variable (with and without objects) regarding the rest of the predictive variables. The following requirements were used to build the model: (i) Pearson's chi-squared test was applied; (ii) a maximum of five depth levels; (iii) margin of cases between 50 and 100 between the nodes; and (iv) cross-validation, consisting of randomizing and dividing the data up to 10 times, with 90% of the total cases used for learning the model, while 10% of the total was reserved for the final test (Thornton et al., 2016).

RESULTS

Most of the playful practices analyzed ($n = 664$) were motor in nature (513 motor = 77.26%; 151 non-motor; 22.74%).

Rules in Playful Practices With and Without Objects

Most of the recreational practices ($n = 513$) corresponded to TSG, that is, activities created by rules that established rights and prohibitions to be respected by the players. Significant differences ($p < 0.001$; $ES = 0.340$) (**Table 1**) were found depending on the variable of the rules variable. The quasi-games (Alga) (**Table 2**) were carried out mostly with objects ($n = 83$; $Ar = 7.7$; 16.2%) with respect to the activities without object ($n = 4$; $Ar = -7.7$; 0.8%). Regarding games (Traga), there was a slight predominance of games with object ($n = 216$; $Ar = -7.7$; 42.1%) in relation to regulated activities without object ($n = 210$; $Ar = 7.7$; 40.9%).

Motor Communication in Games With and Without Objects

Significant differences were found ($p < 0.001$; $ES = 0.571$), when comparing both types of activities depending on the type of motor interaction. Most psychomotor practices were carried out with objects ($n = 136$; $Ar = 11.1$; 26.5%) [psychomotor games (Psyco) without objects: $n = 3$; $Ar = -11.1$; 0.6%]. When the games were performed with the presence of opponents, the presence of objects predominated: Opposition games (Oppo) with objects ($n = 81$; $Ar = 1.2$; 15.8%) vs. TSG without objects ($n = 48$; $Ar = -1.2$; 9.4%); cooperation–opposition games (CoopOppo) with objects ($n = 26$; $Ar = 1$; 5.1%) and without objects ($n = 18$; $Ar = -1$; 3.5%). On the other hand, this regularity occurred in the opposite direction in the cooperation games (Coop) in which the presence of activities without objects predominated ($n = 145$; $Ar = 11.2$; 28.3%) in relation to the games with objects ($n = 56$; $Ar = -11.2$; 10.9%).

TABLE 1 | Results of cross-tables taking into account internal and external logic variables with and without objects.

Logic	Variables	Categories	With objects		Without objects	
			n; %	*Ar*	*n; %*	*Ar*
Internal logic variables	Rule (*p* < 0.001; *ES* = 0.340)	Quasi-Game	*n* = 83 16.2%	7.7	*n* = 4 0.8%	−7.7
		Sporting Game	*n* = 216 42.1%	−7.7	*n* = 210 40.9%	7.7
	Motor interactions (*p* < 0.001; *ES* = 0.571)	Psychomotor	*n* = 136 26.5%	11.1	*n* = 3 0.6%	−11.1
		Opposition	*n* = 81 15.8%	1.2	*n* = 48 9.4%	−1.2
		Cooperation–Opposition	*n* = 26 5.1%	1	*n* = 18 3.5%	−1
		Cooperation	*n* = 56 10.9%	−11.2	*n* = 145 28.3%	11.2
	The game space (*p* < 0.001; *ES* = 0.157)	Stable	*n* = 282 55%	−3.5	*n* = 214 41.7%	3.5
		Unstable	*n* = 17 3.3%	3.5	*n* = 0 0%	−3.5
	Scoring system (result) (*p* < 0.001; *ES* = 0.307)	With scoring	*n* = 77 15%	7	*n* = 6 1.2%	−7
		No Scoring	*n* = 222 43.3%	−7	*n* = 208 40.5	7
External logic variables or sociocultural conditions	Age of the players (*p* < 0.001; *ES* = 0.214)	Children	*n* = 247 48.1%	−4.7	*n* = 206 40.2%	4.7
		Youth	*n* = 17 3.3%	2.2	*n* = 4 0.8%	−2.2
		Adult	*n* = 26 5.1%	3.2	*n* = 4 0.8%	−3.2
		Any Age	*n* = 9 1.8%	2.6	*n* = 0 0%	−2.6
	Gender of the protagonists (*p* < 0.001; *ES* = 0.317)	Female	*n* = 66 12.9%	−8.1	*n* = 122 23.8%	8.1
		Male	*n* = 78 15.2%	5.1	*n* = 18 3.5%	−5.1
		Mixed	*n* = 155 30.2%	3.9	*n* = 74 14.4%	−3.9
	The location of practice areas (*p* < 0.001; *ES* = 0.263)	External	*n* = 167 32.6%	−5.7	*n* = 171 33.3%	5.7
		Internal	*n* = 10 1.9%	−2	*n* = 8 1.6%	2
		Internal–External	*n* = 122 23.8%	5.9	*n* = 35 6.8%	−5.9
	Preparation of zones in games (*p* < 0.001; *ES* = 0.299)	Not prepared	*n* = 225 43.9%	−6.8	*n* = 208 40.4%	6.8
		Little prepared	*n* = 20 3.9%	3.5	*n* = 1 0.2%	−3.5
		Prepared	*n* = 54 10.5%	5.5	*n* = 5 1%	−5.5
	Calendar in the games (*p* < 0.005; *ES* = 0.123)	No Calendar	*n* = 285 55.6%	−2.8	*n* = 213 41.5%	2.8
		Calendar	*n* = 14 2.7%	2.8	*n* = 1 0.2%	−2.8

The Stable or Unstable Spaces Used by Games With and Without Objects

Significant differences were found (*p* < 0.001; *ES* = 0.157) when comparing both types of activities depending on the stable or uncertainty related to the space where games were played. When the activities were carried out in a stable space, both types of games had a more balanced distribution, with predominance of games with objects in stable spaces without objects (*n* = 214; *Ar* = 3.5; 41.7%) and stable spaces with objects (*n* = 282; *Ar* = −3.5; 55%). If the games were performed in an unstable space, bearing uncertainty, they were only performed with the presence of objects: unstable space without objects (*n* = 0; *Ar* = −3.5; 0%) and unstable space with objects (*n* = 17; *Ar* = 3.5; 3.3%).

Score (Result) in Games With and Without Objects

Significant differences were found (*p* < 0.001; *ES* = 0.307) when comparing both types of activities based on the result or accounting on the scoring system. Most games with a scoring system were performed with objects (*n* = 77; *Ar* = 7; 15%) compared to games without objects (*n* = 6; *Ar* = −7; 1.2%). When there was no competition among the participants, there was a slight superiority of games with objects (*n* = 222; *Ar* = −7; 43.3%) in relation to games without objects (*n* = 208; *Ar* = 7; 40.5%).

In relation to the distinctive features of the variables of external logic or sociocultural conditions, the following results were found.

TABLE 2 | Different play chains of the frequency area with or without objects.

		ILobject		Total
		Nobj	**Wobj**	
Alga,Psycho,Stab,Nonacco,Infa,Mas,Ext,Nonprep,Noncale	A	0	3	3
Alga,Psycho,Stab,Nonacco,Infa,Mas,IntExt,Nonprep,Noncale	B	0	15	15
Alga,Psycho,Stab,Nonacco,Infa,Mix,Ext,Nonprep,Noncale	C	0	7	7
Alga,Psycho,Stab,Nonacco,Infa,Mix,IntExt,Nonprep,Noncale	D	0	36	36
Alga,Psycho,Unstab,Nonacco,Infa,Mix,Ext,Nonprep,Noncale	E	0	5	5
Traga,Coop,Stab,Nonacco,Adul,Mix,Int,Nonprep,Noncale	F	2	1	3
Traga,Coop,Stab,Nonacco,Infa,Fem,Ext,Nonprep,Noncale	G	97	45	142
Traga,Coop,Stab,Nonacco,Infa,Fem,IntExt,Nonprep,Noncale	H	23	4	27
Traga,Coop,Stab,Nonacco,Infa,Mas,Ext,Nonprep,Noncale	I	9	0	9
Traga,Coop,Stab,Nonacco,Infa,Mix,Ext,Nonprep,Noncale	J	8	0	8
Traga,Coop,Stab,Nonacco,Yout,Mix,Int,Nonprep,Noncale	K	3	0	3
Traga,CoopOppo,Stab,Acco,Infa,Mix,Ext,Nonprep,Noncale	L	0	4	4
Traga,CoopOppo,Stab,Acco,Infa,Mix,Ext,Prep,Noncale	M	2	4	6
Traga,CoopOppo,Stab,Acco,Yout,Mix,Ext,Litprep,Noncale	N	0	3	3
Traga,CoopOppo,Stab,Nonacco,Infa,Mas,Ext,Nonprep,Noncale	O	3	3	6
Traga,CoopOppo,Stab,Nonacco,Infa,Mix,Ext,Nonprep,Noncale	P	10	1	11
Traga,Oppo,Stab,Acco,Infa,Mas,Ext,Litprep,Noncale	Q	0	3	3
Traga,Oppo,Stab,Acco,Infa,Mas,IntExt,Prep,Noncale	R	0	10	10
Traga,Oppo,Stab,Acco,Infa,Mix,Ext,Nonprep,Noncale	S	1	2	3
Traga,Oppo,Stab,Acco,Infa,Mix,IntExt,Nonprep,Noncale	T	1	3	4
Traga,Oppo,Stab,Acco,Infa,Mix,IntExt,Prep,Noncale	U	0	4	4
Traga,Oppo,Stab,Acco,Yout,Mix,Ext,Litprep,Noncale	W	0	3	3
Traga,Oppo,Stab,Nonacco,Infa,Mas,Ext,Nonprep,Noncale	X	3	2	5
Traga,Oppo,Stab,Nonacco,Infa,Mas,IntExt,Nonprep,Noncale	Y	2	2	4
Traga,Oppo,Stab,Nonacco,Infa,Mix,Ext,Nonprep,Noncale	Z	30	10	40
Traga,Oppo,Stab,Nonacco,Infa,Mix,Ext,Prep,Noncale	AA	1	3	4
Traga,Oppo,Stab,Nonacco,Infa,Mix,IntExt,Nonprep,Noncale	BB	6	7	13
Traga,Psycho,Stab,Acco,Infa,Mas,Ext,Prep,Noncale	CC	0	3	3
Traga,Psycho,Stab,Nonacco,Adul,Mas,Ext,Nonprep,Noncale	DD	0	3	3
Traga,Psycho,Stab,Nonacco,Infa,Fem,IntExt,Nonprep,Noncale	EE	0	13	13
Traga,Psycho,Stab,Nonacco,Infa,Mix,Ext,Prep,Noncale	FF	0	3	3
Traga,Psycho,Stab,Nonacco,Infa,Mix,IntExt,Nonprep,Noncale	GG	0	13	13
		214	299	513

Age of the Players in Games With or Without Objects

Significant differences were found ($p < 0.001$; $ES = 0.214$) when comparing both types of activities based on the age of the participants. In childhood, there was a slight superiority of games with objects ($n = 247$; $Ar = -4.7$; 48.1%) compared to games without material ($n = 206$; $Ar = 4.7$; 40.2%). In adolescence (Yout), games with objects predominated ($n = 17$; $Ar = 2.2$; 3.3%) over games without objects ($n = 4$; $Ar = -2.2$; 0.8%). Adult games with objects ($n = 26$; $Ar = 3.2$; 5.1%) also predominated in relation to games without material ($n = 4$; $Ar = -3.2$; 0.8%). Games that could be performed at any age (Alla) were only played with objects ($n = 9$; $Ar = 2.6$; 1.8%) (games without objects: $n = 0$; $Ar = -2.6$; 0%).

Gender of the Protagonists in Games With and Without Objects

Significant differences were found ($p < 0.001$; $ES = 0.317$) when comparing both types of activities according to gender. The female gender (Fem) used mostly games without objects ($n = 122$; $Ar = 8.1$; 23.8%), compared to games with objects ($n = 66$;

$Ar = -8.1$; 12.9%). This regularity was reversed in the games of the masculine gender (Mas): Games with objects ($n = 78$; $Ar = 5.1$; 15.2%); games without objects ($n = 18$; $Ar = -5.1$; 3.5%). Mixed games (Mix) also reflected a greater presence of activities with objects ($n = 155$; $Ar = 3.9$; 30.2%) than without material ($n = 74$; $Ar = -3.9$; 14.4%).

The Location of Practice Areas in Games With and Without Objects

Significant differences were found ($p < 0.001$; $ES = 0.263$) when comparing both types of activities depending on the playing area. When games were played in outdoors (Ext) there was a slight superiority of games without objects ($n = 171$; $Ar = 5.7$; 33.3%), compared to games with objects ($n = 167$; $Ar = -5.7$; 32.6%). In games played indoors, this slight difference changed direction in favor of games with objects ($n = 10$; $Ar = -2$; 1.9%) compared to activities without material ($n = 8$; $Ar = 2$; 1.6%). Finally, games performed both indoors and outdoors (IntExt) were mostly games with objects ($n = 122$; $Ar = 5.9$; 23.8%) compared to activities without objects ($n = 35$; $Ar = -5.9$; 6.8%).

Preparation of Zones in Games With and Without Objects

Significant differences were found ($p < 0.001$; $ES = 0.299$) depending on the type of conditioning of the playgrounds. Most of the games with and without objects were performed in unprepared areas (Nonprep) ($n = 433$; 84.4%). Under these conditions, there was a slight superiority of games with objects ($n = 225$; $Ar = -6.8$; 43.9%), compared to games without material ($n = 208$; $Ar = 6.8$; 40.4%). When the areas were little prepared (Litprep), games with objects predominated ($n = 20$; $Ar = 3.5$; 3.9%) compared to those that did not use materials ($n = 1$; $Ar = -3.5$; 0.2%). Finally, if the games were made in a specific facility to play (Prep), the games were mostly with objects ($n = 54$; $Ar = 5.5$; 10.5%) in relation to games without objects ($n = 5$; $Ar = -5.5$; 1%).

The Calendar in Games With and Without Objects

Significant differences were found ($p < 0.005$; $ES = 0.123$) depending on the type of conditioning of the playing areas. The vast majority of games were played at any time of the year, without following a calendar ($n = 498$; 97.1%). This type of activities was dominated by games with objects ($n = 285$; $Ar = -2.8$; 55.6%) in relation to games without material ($n = 213$; $Ar = 2.8$; 41.5%). When games had a calendar, games with objects also predominated ($n = 14$; $Ar = 2.8$; 2.7%) compared to games without material ($n = 1$; $Ar = -2.8$; 0.2%).

Predictive Capacity of the Ethnomotor Variables (of the Internal Logic and the External Logic) of the TSGC With and Without Material

The exhaustive CHAID model or decision tree showed a proportion of 78% correctly classified cases with a standard error (misclassification risk) of 0.018 (**Figure 1**).

The variable with the highest predictive strength was the type of motor interaction. Significant differences ($p < 0.001$; $\chi^2 = 166.881$; $df = 2$) were found between psychomotor games (node 2), cooperation games (node 1), and games with adversaries (node 3), opposition or cooperation–opposition. As observed in the previous type of statistical analysis, games with objects predominated in psychomotor games and with the presence of an opponent, unlike cooperative games in which games without objects predominated.

The location of the playing area (nodes 4 and 5) was the only predictive variable for psychomotor games. Significant differences ($p = 0.039$; $\chi^2 = 4.282$; $df = 1$) were found between games that were played in outdoors (node 5) and those that were played in indoors or outdoors (node 4). In both cases, there was a clear predominance of games with objects.

For games with an opponent (opposition and cooperation–opposition), score-keeping was the only predictive variable shown by the classification tree. There were significant differences ($p < 0.001$; $\chi^2 = 39.622$; $df = 1$) in games with and without competition (a score system). The games with a scoring system

were mostly with objects, while in games without competition, the distribution was similar, with a slight predominance of games without objects.

A Multidimensional View of Games With and Without Objects

The largest frequency areas (**Figure 2**) were G (Traga, Coop, Stab, Nonacco, Infa, Fem, Ext, Nonprep, Noncale), with a result of games without blue objects ($n = 97$) and games with red colored objects ($n = 45$). The H frequencies (Traga, Coop, Stab, Nonacco, Infa, Fem, IntExt, Nonprep, Noncale) stand out, with ($n = 23$) blue color and ($n = 4$) red color, in addition to D with ($n = 35$) exclusively red and the Z (Traga, Oppo, Stab, Nonacco, Infa, Mix, Ext, Nonprep, Noncale) with ($n = 30$) blue color and ($n = 10$) red color that demonstrate the predominance of this type of game in this frequency area.

DISCUSSION

This study attempted to reveal from an ethnomotor perspective the distinctive features of TSGs with and without objects identified in the Canary Islands, Spain. It was also proposed to identify the predictive strength of the variables corresponding to the rules (internal logic) and their sociocultural context (external logic) to characterize the ethnomotor features of the TSG with and without objects in the Canary Islands (Spain).

This study should serve as the basis for building new educational projects in the Canary Islands that address the challenges necessary for the 21st century, such as democratic coexistence or sustainability. For this, it is necessary to delve into the ethnomotor footprint, an objective that characterizes the legacy of the traditional Canarian leisure culture.

The ethnomotor approach (Parlebas, 2001; Lavega-Burgués and Navarro-Adelantado, 2019) has revealed the distinctive features of the internal and external logics of the Canary Islands, TSG in their condition of cultural heritage (Parlebas, 2016b, 2017; Navarro-Adelantado and Lavega, 2017; Lavega, 2018; UNESCO, 2018).

Ethnomotor Diversity

Canarian culture offers a wide variety of playful activities that testify to the integrative nature of its games. The analysis carried out identified several ethnomotor trait-chain activities: (a) with rules (specific conditions of the game are established); (b) with a diversity of motor relations (especially cooperative games); (c) predominance of the use of material (objects from the immediate environment); (d) with or without a score system (which allowed comparing the results of the participants or playing games without counting the successes of the players); (e) children's games (they are games mainly intended for the first ages); (f) masculine, feminine, or mixed (both genders can enjoy the recreational culture); (g) carried out in a stable, interior–exterior space,

FIGURE 1 | Decision tree of various variables with or without game objects.
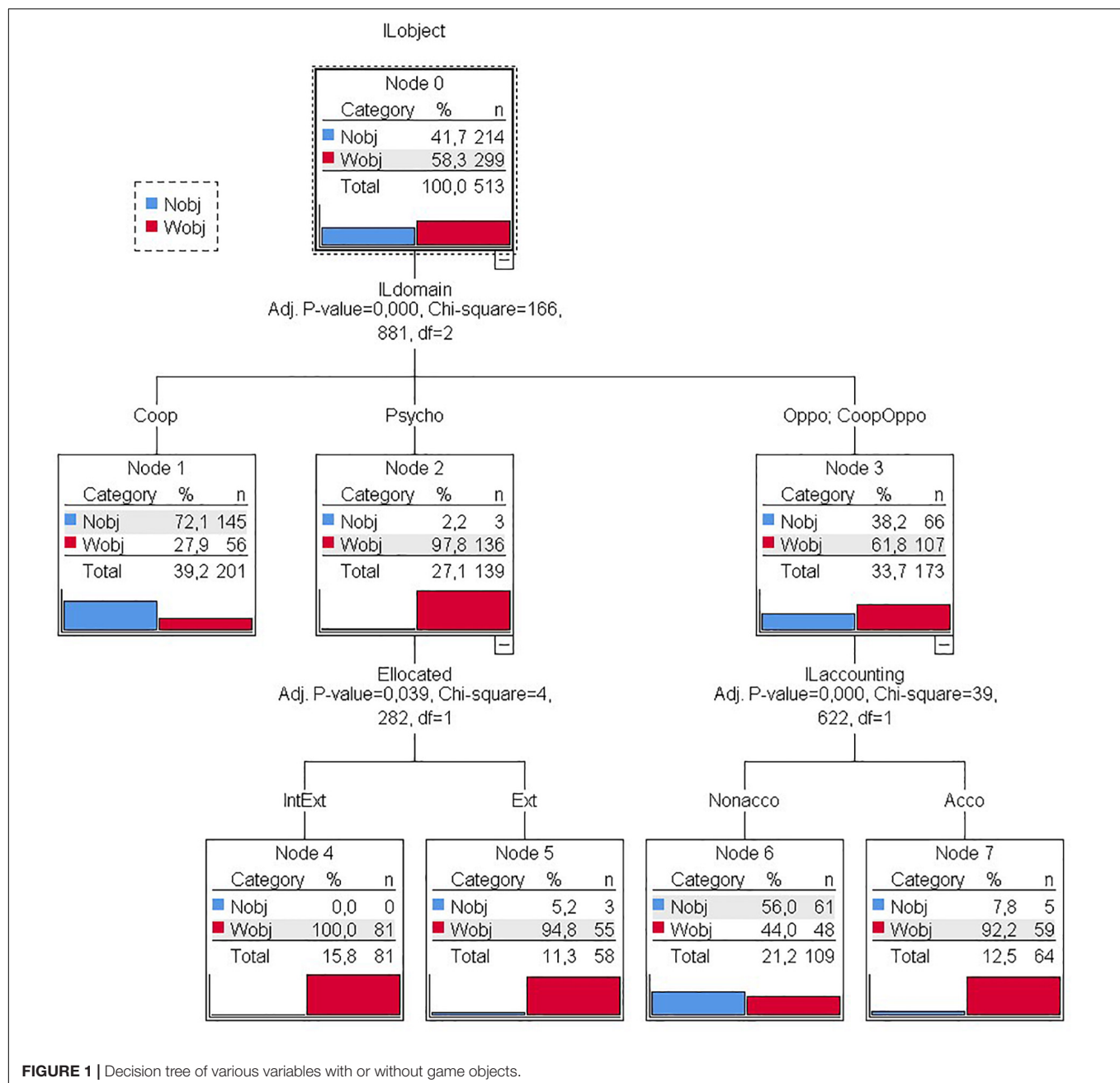
often not prepared (a circumstance that favors adaptation to any circumstance); and (h) without calendar (made at any time).

This ethnomotor vision reveals some peculiarities of the Canarian games in relation to other features identified in other cultural contexts. In the Canary Islands, a high percentage granted to cooperation is observed (39%) compared to studies in which cooperation was residual, around a third of rivalry (Parlebas, 2001; Pic, 2018), and even lower values of 6.4% (Alonso et al., 2010) and 8.33% (Lavega and Navarro, 2015). This distribution is also different compared to events such as the Vitoria-Gasteiz International Games Festival

(Alonso et al., 2010) or the Olympic Games (Pic, 2018; Parlebas, 2020).

Games With and Without Objects Are Two Representative Families of the Canary Islands

Among the first findings, we highlight the existence of two large families of TSG, with the presence or absence of objects. Two internal logic variables [type of motor relationship (domain) and the score system] and one of the external logic game zone are the main predictors of games with and without material.

FIGURE 2 | Frequency area of various variables with or without game objects.
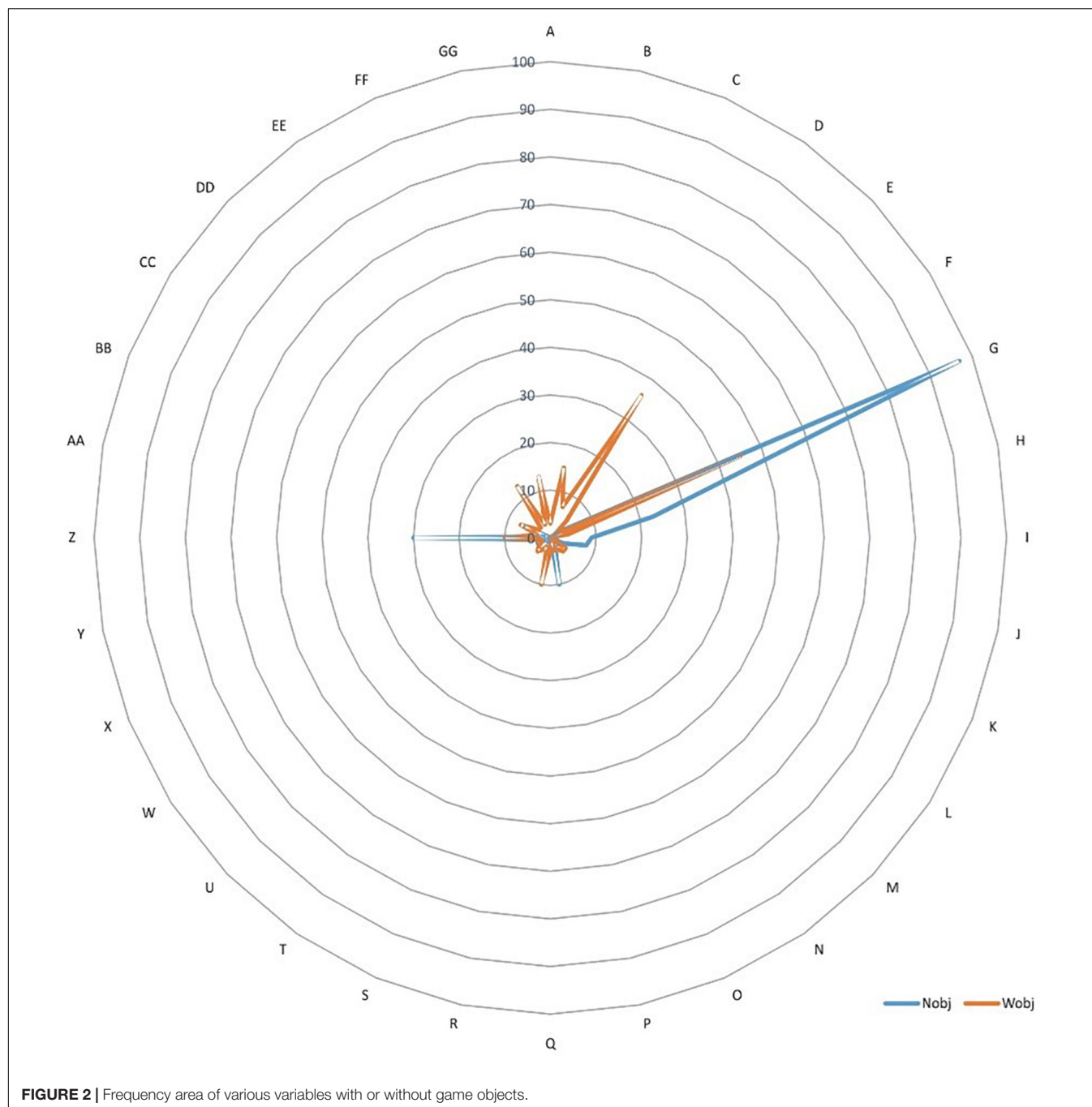
The games with objects are mainly psychomotor that can be performed in indoor or outdoor areas indifferently. These objects are usually obtained from the predominant vegetation or natural elements on the islands to make animal or people figures: (a) the verol (*Kleinia neriifolia* Haw), to make cows and human figures; (b) the gamona (*Asphodelus albus*), to create goats and mills collected in the South of Tenerife; (c) the Canary Island palm (*Phoenix canariensis*), a standard of the native flora and used to make bows, arrows, and mills; and (d) the shells and fossils, to make camels or barrels. Other playing

objects are also made, such as stone throwers and spinning tops with native plants such as Drago, Sabina, Barbuzano, Acebuche, or Mocan.

The objects are also present in games of adversaries (opposition or cooperation–opposition), in this case associated with a scoring system. These are mainly games in which two people face each other (opposition duels) or two teams (cooperation–opposition duels). Some examples of objects used in these sociomotor games are banana leaves to build balls; the Canary Island palm tree (*P. canariensis*) was used to

make sticks in team games such as *pina* (close to hockey) or *billarda* (kit-cat).

In these contexts, the objects are mediators of the ludic adventures since they give the opportunity to all the players to show their in the use of the game materials. Even when there are no rules, the objects favor the curiosity and motor creativity of the participants (Hüttermann et al., 2019), by constructing them in a personalized way and using them in a wide variety of playful situations (Casey and Hastie, 2011). The use of objects ensures that each player shapes unique experiences of embodied material culture (Warnier, 2011).

The games without objects are mainly cooperative, practiced mainly by girls. These activities are represented by circle games, in stable spaces and without a final score that favors interpersonal relations, although they can also be in games with adversaries (tagging games) performed in mixed groups (girls and boys) when there is no scoring system. In this case, the strength of the interpersonal relationship takes precedence over expertise in the use of game objects.

Carpe Diem

An ethnomotor feature of the Canary games. The Canary Islands offers a great diversity of games that do not require a calendar. Surely having a moderate climate throughout the year favors playing at any time. Furthermore, on many occasions, the games do not have a final outcome (a scoring system), especially when they are cooperative; attention is directed to the development of the game itself (Etxebeste, 2001). From this TSG approach, give strength to the present time, to the enjoyment of each moment, giving meaning to the expression "carpe diem" through the TSG (Fernández et al., 2020).

The findings identified in this study provide educators with ethnomotor keys of interest to favor contextualized educational programs. The education of interpersonal relationships (Pic et al., 2018), sustainability, as well as learning to live with intensity every moment is a fundamental knowledge offered by the legacy of the TSG in the Canary Islands, as an intangible cultural heritage.

LIMITATIONS

This study had a series of limitations and future prospects for other research groups. The increase in the number of categories was always a tempting possibility to gain precision. However, our main limitations were related to the search for evidences that confirmed the presence of recreational archeology in the Canarian culture. On the other hand, addressing the transfer of the findings found to a pedagogical level would have completed a cycle of research and action. Finally, other research groups could start from the motor situation. The study of girls and boys when playing would be to propose an enriching look to know in depth not only the cultural baggage hidden in TSGC but also the ethnomotor consequences resulting from playing and its scarce neutrality in practice.

FUTURE PERSPECTIVE

The different possibilities that this study shows us, in the use of game objects in physical education classes, could be included in the educational curriculum of the Canary Islands, as a specific part of the promotion of the TSGC, being in tune with the context and not simply leaving it to the will and preferences of the teachers of the educational centers.

CONCLUSION

This study provides an understanding of the ethnomotor traits of TSG in the Canary Islands as a way to shape original embodied material culture. The Canarian playful heritage has created two large families of ludomotor activities represented by two chains of ethnomotor traits: (a) With Objects: Quasi-Games, Psychomotor, Stable Space, without a final score, played by male–female children, in indoors–outdoors not specific to playgrounds, and without a calendar; (b) Without Objects: TSG, Cooperation, Stable Space, without a final score, played by female children, outdoors not specific to playgrounds, and without a calendar.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTTONS

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frontiers in Psychology

Playing Ludomotor Activities in Lleida During the Spanish Civil War: An Ethnomotor Approach

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The traditional ludomotor activities (LA) are recognized by UNESCO as an intangible piece of cultural heritage. The ethnomotricity analyzes LA in its sociocultural context, taking into account the proprieties of rules or motor conditions (internal logic) and the link with local culture (external logic). The aim of this research was to identify and reveal the distinctive ethnomotor features of LA in order to understand the adaptations that occurred in the social scenario of the Spanish Civil War (1936–1939) in Lleida. The corpus of the research was constituted by 101 LA which were collected from the analysis of 20 semi-structured interviews. An "*ad hoc*" tool was designed and agreed upon by expert observers. It was comprised of a total of 27 ethnomotor variables related to LA. The experts achieved high reliability [Cohen's kappa coefficient (κ) and Spearman's correlation coefficient = 1] when the classification of LA was carried out on two different occasions. Descriptive statistics, cross-tabulations (Pearson's chi-squared) effect sizes, and two-step clusters were performed by external and internal logic variables. The presence or absence of motor interaction ($X^2 = 9.029$; $df = 1$; $p < 0.003$; $ES = 0.298$) was enlightening when comparing LA with and without a war connotation. On the other hand, the hierarchy of variables rested primarily on IL-Domain (Psycho-Coop-Oppo-Coop/Oppo) (PI = 1). Among other singularities, while two-step cluster analysis revealed a corresponding ethnomotor silhouette with cluster 1, with the warlike connotation ($n = 48$; 96.0%), its homologous structure was expressed (Cluster 2) in the absence of the warlike character ($n = 26$; 50%).

Keywords: ethnomotricity, motor praxeology, motor action science, traditional games, intangible cultural heritage, cluster

INTRODUCTION

Different international organizations (UNESCO, 2003) and researchers (Lavega, 1995; Etxebeste, 2001; Lavega et al., 2006; Etxebeste et al., 2015; Parlebas, 2016; Lavega-Burgués and Navarro-Adelantado, 2019) have clearly shown that Traditional Sporting Games (TSG) are a piece of intangible cultural heritage (ICH).

According to Mauss (1996), each community has its own body of techniques; that is to say, symbolic creations close to the norms and values of that society. Through TSG, people use techniques that are specific to their community (Warnier, 2001; Parlebas, 2005; Rauber et al., 2014).

Motor praxeology provides scientific criteria to study TSG as ICH. TSG are motor situations whose rules are agreed by players themselves, from which a wide range of different playing styles emerge (Elloumi and Parlebas, 2009; Navarro-Adelantado and Lavega, 2017). Ludomotor activities without rules are called quasi-games (QTSG). These activities can vary continuously according to the choice of the players (Etxebeste et al., 2015). Both types of ludomotor activities (LA), TSG and QTSG, contain their own characteristics which can be scientifically revealed.

Motor praxeology establishes that each LA (TSG or QTSG) has an internal logic that determines a particular way of relating to other participants, to space, to time, and to material (Parlebas, 2020). Each one of these internal relationships originates from singular features, for example, relationship with others [motor interaction type: without interaction between participants (psychomotor)]; with motor interaction between players (sociomotor); domains of motor action (cooperation, opposition, or cooperation-opposition); relationship with space (stable or unstable space implying contingencies; space as q goal to be reached, fixed or in-motion, human or artificial); relationship with the material (with or without objects); and relationship with time (with or without a final outcome). Therefore, LA with a different internal logic (Lavega-Burgués et al., 2020) (e.g., tug of war, skittles, wrestling, hopscotch, or QTSG with boules) trigger different internal relationships that will lead to unequal motor conducts in the players. These motor conducts are loaded with signs, messages, and values promoted by their local community or culture (e.g., dominance relationships, gender roles, aggression, and permissible violence) (Berthoud-Aghilin, 1986; Etxebeste, 2001). As Warnier (2002) indicates, LA are effective body techniques of subjectification by which players become subjects who learn to govern themselves. According to Foucault, the power relationships are clues to understand how the body and the concept of subjectivity are related. Power does not have the same meaning in different societies. It is shaped by techniques of the self. In different situated interactions in ludomotor activities, each subject (not the individual or the actor) has the power to choose his or her own actions in a set of networks of interactions. In these playful contexts, the subject is "shaped, subjectified by its embodied material culture" (Warnier, 2011).

From this point of view, it is of great interest to apply the concept of ethnomotricity to the study of LA, understood as "*field and nature of the motor practices, considered from the point of view of their relation with the culture and the social environment in which they have been developed*" (Parlebas, 2001, p. 227).

An ethnomotor perspective provides tools to examine the particular features that may be contained in the rules or motor conditions of practice (internal logic) and the influences of the context (external logic) of LA.

In each context, the socio-cultural conditions of LA can be different in terms of protagonists (age, gender), zones (location: interior or exterior; setup: with or without preparation of the space), material (elaboration of the objects), and time (calendar). It is because of this that there is a need to contextualize any LA study in a specific historical period and geographical space.

In this research, we focus on the ethnomotor study of LA in the Catalan area of Lleida (Spain) during the last Spanish civil war (1936–1939). In this geographical area, the two opposing armies occupied strategic positions, simulating a chess game, with the alternation of advances, retreats, and maintenance of positions. In the area of Lleida, the positions of the two sides in dispute were maintained for months on both sides of the river that divides the city. The civilian population did not flee, living together and interacting with the military in many areas, and bearing witness to and engaging in scenarios of struggle where there were remains of war material (Mir, 1989).

In wartime contexts, the youngest gain very rapid access to the adult world and to new realities (Stargardt, 2006; Riot et al., 2014). The ludomotor activities (LA) with rules (TSG) or without rules (QTSG) of children and young people show that, instead of being considered simple "objects" of history, passive and anonymous victims of traumatic events, they should be seen as unique and active "subjects" of their own experiences (Stargardt, 2006).

During armed conflict, society becomes fragmented and structural violence may become a part of everyday social life (Galtung, 1996). The habits, ways of life, and need for survival affect the warlike LA of the youngest, incorporating singularities both in the features of the internal logic (motor relationships, way of starting and finishing the game, use of materials, and use of space) and in the socio-cultural conditions (zones, times, materials, and age and gender of the actors) (Ormo, 2017).

According to the ethnomotricity notion, several studies have been conducted from different contexts (e.g., Etxebeste, 2001; Lavega et al., 2006; Elloumi and Parlebas, 2009; Etxebeste et al., 2015; Navarro-Adelantado and Lavega, 2017; Lavega-Burgués and Navarro-Adelantado, 2019). Researchers have investigated, for instance, the predominance of games (TSG) over quasi-games (QTSG), the favoring of sociomotor games, the balance of games with or without a final score (outcome), the presence of TSG played by male, female, and mixed players, and the use of a wide range of objects. However, the ethnomotricity approach is yet to be examined in a war or conflict period.

We hypothesized that the war context had a direct influence on the body of techniques of those involved. This includes LA. Thus, it is possible to find different ethnomotor regularities in the rules and socio-cultural conditions of these LA with respect to periods without military conflict. In addition, typical elements of war (war material) could inspire new games or activities. These body of techniques would trigger motor conducts that would help build a subjectification linked to more or less imaginary combat situations (Warnier, 2001, 2002).

Based on this theoretical framework, this research proposed two objectives:

(a) To identify the distinctive ethnomotor features of the LA (with or without rules) played in Lleida during the Spanish civil war (1936–1939).
(b) To reveal the ethnomotor features of the LA (with or without rules) with and without war connotations in Lleida during the Spanish civil war related to the process of subjectification.

METHOD

Participants

This research had a corpus of 101 LA, identified through an oral source. The 20 interviewed people (men = 14; women = 6; Age Range; 69–78 years; M_{age} = 75.95, SD = 5.74) were identified with the help of city council social services in eight municipalities around the Province of Lleida. The inclusion criteria for participants were: (a) born between 1921 and 1930, (b) LA playing experience with war material, (c) adequate memory and mental skills, and (d) representing both genders.

The sample size was established by information saturation; the LA were cited by at least two different informants. The interviewees participated voluntarily and gave informed consent; the research was approved by the Ethics Committee for Clinical Research of the Catalan Sports Council 07/2019/CEICEGC.

Instruments and Procedure

Twenty semi-structured interviews (Miles and Huberman, 1984; Mathew et al., 2019) were conducted and recorded individually (Sony Pressman M529V recorders). They were later transcribed into a Microsoft Word document. For each of the LA identified by the informants, the three phases established by Miles and Huberman (1984) were followed: (a) identification and exploration of LA. For each LA, the rules or motor conditions (internal logic) and the socio-cultural conditions of practice (external logic) were described according to the concept of ethnomotricity (Parlebas, 2001); (b) categorization in an Excel database of the 27 variables, of the internal logic referring to the relationship with others, with space, with the material, and with time, and of the external logic referring to protagonists, materials, zones, and moments of the game. In this study we used the same ethnomotor variables that have been explained in other methodological manuscripts (e.g., Lavega et al., 2006; Etxebeste et al., 2015). These variables are also used in other ethnomotricity research (e.g., Etxebeste, 2001; Navarro-Adelantado and Lavega, 2017; Lavega-Burgués and Navarro-Adelantado, 2019).

(c) interpretation of the results from an ethnomotor perspective.

A tool for the classification of LAs was designed "*ad hoc*" within the GIAM research group, with at least 10 researchers directly involved. After using the registration tool, it was implemented with modifications to ensure the quality of subsequent registrations. Previously applied procedures from the observational methodology were followed (Anguera et al., 2011; Arana et al., 2016; Lavega-Burgués et al., 2020). The expert process of classification of intra-observer TSGs was independently coded by two experts (twice). This action reached values of 1 by Cohen's kappa coefficient (κ) and Spearman's correlation coefficient, and ensured a very good data quality (0.81–1.00) (Landis and Koch, 1977).

Data Analysis

Due to the limitation of this article, the ethnomotor variables and their categories can be consulted in[1].

[1] http://praxiologiamotriz.inefc.es/?p=864

Internal logic (IL) variables:

- Rules: (a) IL-Rule (Quasi-TSG or TSG);
- Relationship with others: (a) IL-Interaction (Psychomotor or Sociomotor); (b) IL-Domain (Psychomotor, Cooperation, Opposition, or Cooperation-Opposition); (c) IL-Psychomotor-Structure (Structure); (d) IL-Opposition-Structure (Structure); (e) IL-Coop/Oppo Structure (Structure); (f) IL-Communication-Exclusiveness (Exclusive Net or Ambivalent Net); (g) IL-Communication Stability (Stable Net or Unstable Net); (h) IL-Scoring-Interaction-Network (Cooperation Goal Net, Antagonistic Scoring Interactions Network, Mixed Scoring Interactions Network, or No Scoring Interactions Network); (i) IL-Opposition Type Interaction (Oppo-Body Contact or Oppo-Objects Contact); (j) IL-Opposition Body Aggression (Oppo-Body-Contact, Oppo-Body-Contact-Objects, Oppo-Strong Hit to Body, or Oppo Permanent Body Contact); and (k) IL-Roles-Changes-Network (Fixed Roles, Local Change Roles, or General Change Roles);
- Relationship with the material: (a) IL-Object (With objects or No objects);
- Relationship with the space: (a) IL-Space Stability (Stable Space or Unstable Space); (b) IL-Space-as-Objective (Fixed Human Space, Mobile Human Space, Fixed Artificial Space, or Mobile Artificial Space); (c) IL-Coop-Opposition-Charge-Distance (Almost Null Charge Distance, Reduced Contact Charge Distance, Median Contact Charge Distance, Long Charge Distance, or No Charge Distance); and (d) IL-Oppos-Guard-Distance (Almost Null Guard Distance, Reduce Guard Distance, Median Guard Distance, Long Guard Distance, or No Guard Distance);
- Relationship with time: (a) IL-Score;

External logic variables (EL):

- Military LA type: (a) EL-Warlike Ludomotor Activity (Warlike LA or non-Warlike LA); Warlike LA were identified as any LA that used some sort of object for war purposes (bomb, grenade, ammunition, etc.).
- Participants: (a) EL-Age (Children, Youth, Adults, and All Ages); (b) EL- Gender (Only Male, Only Female, Separated Male or Female, or Mixed Male-Female);
- Material: (a) EL-Material Provenance (Artificial Material or Natural Material); (b) EL-Material Modification (Modified Non-Military Material, Unmodified Military Material, Unmodified Military Material, or Without Material); and (c) EL-Material Elaboration (Handmade Material, External Made Material, or Without Material Elaboration);
- Zones: (a) EL-Zones Location (Inside-Zones, Outside-Zones, or In-Out-Zones); (b) EL-Zones Preparation (Prepared-Zone, Poorly Prepared-Zone, or Not Prepared-Zone);
- Moments: (a) EL-Calendar (With Calendar or Without Calendar).

All data were analyzed using the Statistical Package of Social Sciences (SPSS, version 25, IBM Corp., Armonk, NY, United States; IBM Corp. (2017)). In this research we used: (i) A comparative description of variables (these variables were individually considered); (ii) Crosstabulations [Pearson's chi-squared test; (Gómez et al., 2015)], as well as adjusted residuals ($AR > 1.96$ or < -1.96) were used to know the association of each variable, in pairs, with respect to its warlike or non-warlike character; (iii) effect sizes [Cramer's V test; (Volker, 2006)] were also applied. The strength of the interpretation was in accordance (Cohen, 1988) with $0.10 = $ small effect, $0.30 = $ medium effect, and $0.50 = $ large effect; and (iv) a classification technique belonging to the two-step cluster analysis family was applied (Fernández-Navarro et al., 2020), using log-likelihood selection (Burnham and Anderson, 2004) and Schwarz's Bayesian Criterion (Clement, 2014) to reveal the predictive size and grouping of variables.

RESULTS

The games studied ($n = 101$) would require motor skills for their ludic development.

Ethnomotor Features of the LA as a Whole

LA had a similar percentage among games (practices with rules) (51%) and quasi-games (50%). The 49% were activities with warlike connotations.

According to the internal logic, the following features were observed:

In relation to others: the psychomotor LA were slightly higher (54.9%) than the sociomotor LA (45.1%). In both groups of TSGs, the activities offered all possible interaction structures: Psychomotor LA (alone 28.4%), alternating comotricity 15.7% and simultaneous comotricity 10.8%, Sociomotor TSG: cooperative 17.6%; opposition 15.7% and cooperation-opposition 11.8%.

LA resulted in low rates of motor aggression, since most opposition (87.3%) and cooperation-opposition games (95.1%) were played without body contact with the opponents.

Regarding the material, a predominance (93.1%) of LA with objects was observed.

Regarding space, the majority (95.1%) of the LA were performed in a stable space.

Regarding to time, no LA had an accounting system.

From the external logic, the following features were observed:

The LA were mainly played by children (34.3%), by children and young people (37.3%), or by mixed ages (25.5%). Youth-only games accounted for 2.9%. At the same time, the LA were mainly male (54%) or mixed (41.2%). Only 2.9% were female-only and 1% were played by both genders separately.

Most of the LA (90.2%) were made with objects from a nearby artificial environment, 48% of which were military objects.

Most of the LA (71.8%) were played in outdoor spaces and in areas not specifically prepared for playing (86.3%). In addition, all the LA were carried out without a set schedule.

Comparison of the Distinctive Ethnomotor Features of LA With and Without War Connotations

The data related to statistical analyses in order to compare LA with and without war connotations were presented in the following **Table 1**.

Presence of Rules in LA With or Without a Warlike Character

There were significant differences ($X^2 = 17.275$; $df = 1$; $p < 0.001$; $ES = 0.412$) in the presence or absence of rules when comparing LA with and without war connotations. The quasi-sporting games (Play) were mainly warlike activities ($n = 35$; $AR = 4.2$; 34.3%) rather than non-warlike ($n = 15$; $AR = -4.2$; 14.7%). The trend was reversed in relation to games (Game);

TABLE 1 | Results cross-tables taking into account internal and external logic variables and LA with and without war features.

			LA with and without war feature			
			Warlike LA		**Non-Warlike LA)**	
Logic	**Variables**	**Categories**	**n**	**ar**	**N**	**ar**
Internal logic (IL)	ILrule	Play	35	4.2	15	−4.2
		Game	15	−4.2	37	4.2
	ILMinterac	Psycho	35	3	21	−3
		Socio	15	−3	31	3
	ILdomain	Coop	13	2.2	5	−2.2
		Coop-opo	2	−2.4	10	2.4
		Oppo	0	−4.3	16	4.3
		Psycho	35	3	21	−3
	ILobject	Obj	50	2.7	45	−2.7
		No obj	0	−2.7	7	2.7
	ILNetstab	Stab	50	2.5	46	−2.5
		Unstab	0	−2.5	6	2.5
	ILScore	FinTask	12	−0.8	16	0.8
		LimScore	0	−1.7	3	1.7
		LimTime	0	−1	1	1
		Wacco	38	1.6	32	−1.6
External logic (EL)	Elage	All	20	3.3	6	−3.3
		Child	0	−7.2	35	7.2
		Child-Youth	30	4.7	8	−4.7
		Youth	0	−1.7	3	1.7
	Elgender	Fem	0	−1.7	3	1.7
		Mas	41	5.4	15	−5.4
		Mix	8	−5.1	34	5.1
	ELMatprov	0_Obj	0	−2.7	7	2.7
		Art_Nat_obj	0	−1	1	1
		Art_Obj	50	3.3	42	−3.3
		Nat_Obj	0	−1.4	2	1.4
	Elzones	0-Obj	45	1.1	43	−1.1
		Low-Prep-Obj	1	−1.9	6	1.9
		Prep_Obj	4	4	3	−4

a greater presence in non-war LA ($n = 37$; $AR = 4.2$; 36.3%) than in war ($n = 15$; $AR = -4.2$; 14.7%) was detected.

Presence of Motor Interaction in LA With or Without a Warlike Character

Significant differences were found ($X^2 = 9.029$; $df = 1$; $p < 0.003$; $ES = 0.298$) in the presence or absence of motor interaction when comparing LA with and without war connotations. The psychomotor LA (Psycho) were mainly warlike activities ($n = 35$; $AR = 3$; 34.3%) more than non-warlike ($n = 21$; $AR = -3$; 20.6%). The trend was reversed in relation to sociomotor LA (Socio): greater presence in non-war LA ($n = 31$; $AR = 3$; 30.4%) than war LA ($n = 15$; $AR = -3$; 14.7%).

In addition, there were significant differences in sociomotor LA ($X^2 = 28.361$; $df = 3$; $p < 0.001$; $ES = 0.527$) when comparing the two groups of LA according to the types of motor interaction: Cooperative LA: non-warlike ($n = 5$; $AR = -2.2$; 4.9%) vs. warlike TSG ($n = 13$; $AR = 2.2$; 12.7%); Opposition LA (Oppo): non-warlike ($n = 16$; $AR = 4.3$; 15.7%) vs. warlike ($n = 0$; $AR = -4.3$; 0%). Cooperation and opposition LA (Coop – opo): non-war LA ($n = 10$; $AR = 2.4$; 9.8%) vs. war LA ($n = 2$; $AR = -2.4$; 2%).

Presence of Uncertainty in Space in Ludomotor Practices With or Without a Warlike Character

A significant superiority of stable spaces (Stab) over unstable ones (Unstab) was observed ($X^2 = 5.056$; $df = 1$; $p < 0.025$; $ES = 0.223$), both in warlike LA: Stab ($n = 50$; $AR = 2.2$; 49%) vs. Unstab ($n = 0$; $AR = -2.2$; 0%), and in non-warlike LA: Stab ($n = 47$; $AR = -2.2$; 46.1%) vs. Unstab ($n = 5$; $AR = 2.2$; 4.9%).

Presence of Materials in LA With or Without a Warlike Character

In both types of LA (with and without war connotations) the presence of materials (Obj) predominated ($X^2 = 7.227$; $df = 1$; $p < 0.007$; $ES = 0.266$) with respect to LA without objects (No obj). Warlike LA: Obj ($n = 50$; $AR = 2.7$; 49.0%) vs. Non-object ($n = 0$; $AR = -2.7$; 0%); Non- Warlike LA Obj ($n = 45$; $AR = -2.7$; 44.1%) vs. Non-war Obj ($n = 7$; $AR = 2.7$; 6.9%).

Presence of Accounting in LA With or Without a Warlike Character

There were no statistically significant differences ($X^2 = 5.056$; $df = 3$; $p = 0.168$; $ES = 0.222$) according to the score by both LA.

The Age of the Protagonists in LA With or Without a Warlike Character

There were statistically significant differences ($X^2 = 5.048$; $df = 3$; $p < 0.001$; $ES = 0.756$) when comparing the different ages of the warlike and non-warlike LA. In the wartime LA, mixed age groups predominated: Any age (All): Wartime LA ($n = 20$; $AR = 3.3$; 19.6%) vs. non-wartime LA ($n = 6$; $AR = -3.3$; 5.9%); Children and youth (Child-Youth): Wartime LA ($n = 30$; $AR = 4.7$; 29.4%) vs. non-wartime LA ($n = 8$; $AR = -4.7$;

7.8%). In contrast, the child population only participated in non-warlike LA ($n = 35$; $AR = 7.2$; 34.3%). Only young people were observed practicing LA.

The Gender of the Protagonists in LA With or Without a Warlike Character

Significant differences were found ($X^2 = 32.140$; $df = 3$; $p < 0.001$; $ES = 0.561$) between both types of LA. The wartime LA were mainly led by male groups (More): wartime LA ($n = 41$; $AR = 5.4$; 40.2%) vs. non-wartime LA ($n = 15$; $AR = -5.4$; 14.7%). Mixed groups predominated in the non-wartime LA: non-wartime LA ($n = 34$; $AR = 5.1$; 33.3%) vs. wartime LA ($n = 8$; $AR = -5.1$; 7.8%). Hardly any LA were found to be solely male or played by both genders separately.

The Origin of the Material in LA With or Without a Warlike Character

There were significant differences ($X^2 = 10.661$; $df = 3$; $p < 0.014$; $ES = 0.323$) between both types of LA. Both groups of LA were mostly made up of objects from the material environment, especially those of a warlike nature: warlike LA ($n = 50$; $AR = 3.3$; 49%) vs. non-warlike LA ($n = 42$; $AR = -3.3$; 41.2%). Scarcely were LA found with objects from a natural environment.

The Zones in LA With or Without Warlike Character

No significant differences were found ($X^2 = 3.722$; $df = 2$; $p = 0.156$; $ES = 0.191$) between both types of LA.

The Calendar in LA With or Without a Warlike Character

All the activities identified were carried out without a calendar.

Predictive Capacity of the Ethnomotor Variables of the Internal Logic and the External Logic of LA With or Without a Warlike Character

The ethnomotor variables were classified into five groups according to their predictive importance (PI), which ranged from 1 (maximum PI) to 0 (low PI) (see **Figure 1**).

1. The first group (PI = 1) was constituted by the variable IL-Domain (Psycho-Coop-Oppo-Coop/Oppo);
2. The second group (PI ≤ 0.8) was composed of the variable IL-Space-as-objective;
3. The third group (PI ≤ 0.6) was integrated by two variables: IL-Interaction (Psycho-Socio); IL-Psycho-Structures;
4. The fourth group (PI ≤ 0.4) was composed of 13 variables: IL-Opposition-Structures; IL-Opposition-Body-aggression (Oppo-By simple contact; Oppo-Body-contact-objects; Oppo-Strong hit to body; Oppo Permanent body contact; No Oppo body contact); IL-Opposition-Guard-Distance; EL-Material Modification; EL-War-Activity; IL-Opposition Type Interaction; IL-Coop-Opposition-Charge-Distance; IL-Roles-Changes (Fixed, Local, General); IL-Coop/Oppo-Structure;

FIGURE 1 | Predictive importance of ethnomotor variables (IL and EL).
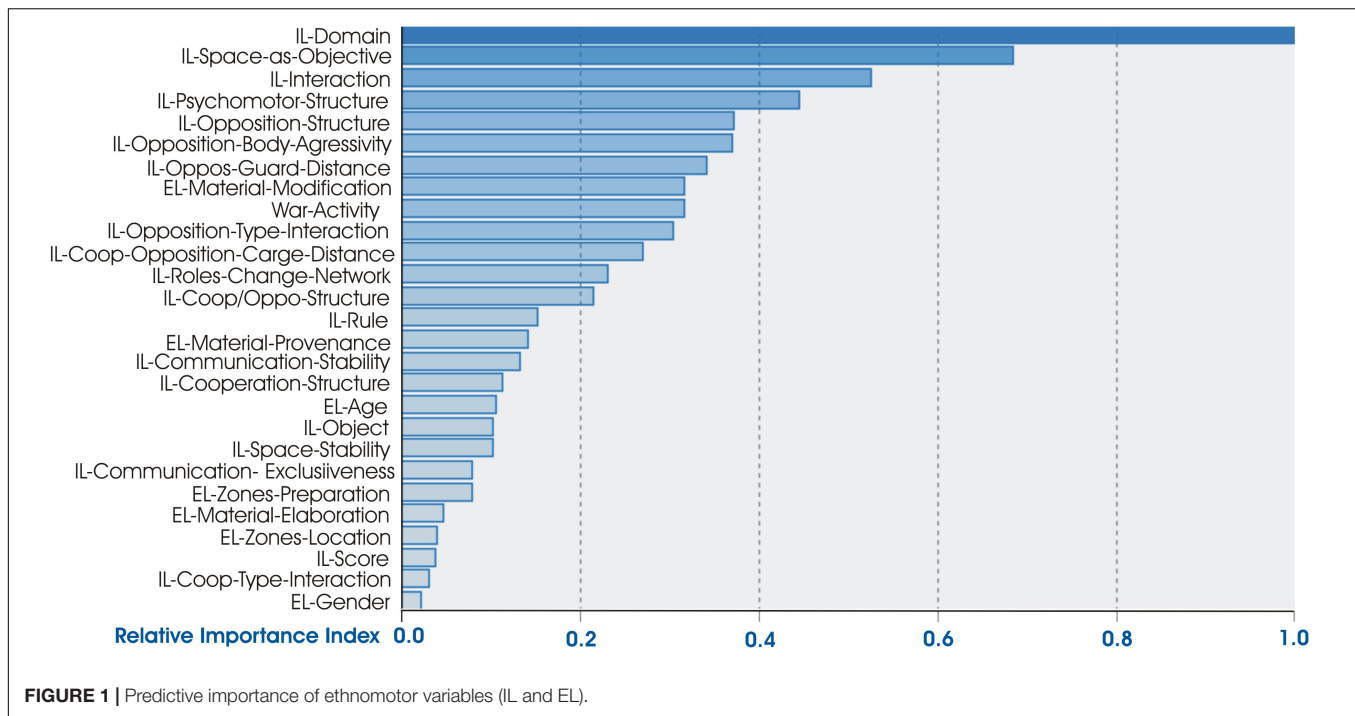
5. The fifth group (PI ≤ 0.2) was composed of 14 variables: IL-Rule; EL-Material-Provenance; IL-Communication Stability Net; IL-Coop-Structure; EL-Age; IL-Object; ILSpace Stability; IL-Communication Exclusive Net; EL-Zones-Preparation; EL-Material Elaboration; EL-Zones-Location; IL-Score; IL-Coop-Type-Interaction; EL-Gender.

Figure 2 shows graphically the distribution of the percentages of the predominant category in both clusters 1 (warlike LA) and 2 (non-warlike LA). The first four variables that were of greater predictive capacity in **Figure 1** are described below.

The largest cluster (cluster 1) had 68.6% of the cases ($n = 70$) while the smallest one (Cluster 2) had 31.4% ($n = 32$); the ratio of sizes was 2:19. Cluster quality achieved was close to 0.5 and considered "fair" (Schwartz's Bayesian Criterion (BIC). For interpreting this value, it is necessary to take into account the quality cluster (silhouette measure: both cohesion and separation, ranges from −1 to +1). A negative value in the silhouette measure means that the average distance of a case to members of its own cluster was larger than when compared with other clusters (this is an undesirable feature); however, the results of this study were always positive values in the silhouette measure.

The percentages of the first predictor variable IL domain were unequal in both clusters: Psycho: Cluster 1 ($n = 56$; 100%) vs. Cluster 2 ($n = 0$; 0%); Coop: Cluster 1 ($n = 18$; 100%) vs. Cluster 2 ($n = 0$; 0%); Oppo: Cluster 1 ($n = 0$; 0%); vs. Cluster 2 ($n = 16$; 100%); Coop-Oppo: Cluster 1 ($n = 0$; 0%); vs. Cluster 2 ($n = 12$; 100%).

The second predictive variable IL-Space as objective originated unequal percentages in both clusters: Without Objective space: Cluster 1 ($n = 72$; 93.5%) vs. Cluster 2 ($n = 5$;

6.5%); Fixed artificial space: Cluster 1 ($n = 2$; 22.2%) vs. Cluster 2 ($n = 7$; 77.8%); Mobile artificial space: Cluster 1 ($n = 0$; 0%); vs. Cluster 2 ($n = 2$; 22.2%); Mobile human space: Cluster 1 ($n = 0$; 0%); vs. Cluster 2 ($n = 14$; 100%).

The percentages of the third variable IL-Interaction were unequal in both clusters: Psychomotor: Cluster 1 ($n = 56$; 100%) vs. Cluster 2 ($n = 0$; 0%); Sociomotor: Cluster 1 ($n = 18$; 39.1%) vs. Cluster 2 ($n = 28$; 60.9%).

The fourth variable IL-Psycho-Structures also generated different percentages in both clusters: Alone cluster 1 ($n = 29$; 100%) vs. Cluster 2 ($n = 0$; 0%); Altern Comotricity cluster 1 ($n = 16$; 100%) vs. Cluster 2 ($n = 0$; 0%); Simultaneous Comotricity cluster 1 ($n = 11$; 39.1%) vs. Cluster 2 ($n = 0$; 0%); Not Psychomotor structures Cluster 1 ($n = 18$; 100%) vs. Cluster 2 ($n = 28$; 60.9%).

The variable war or non-warlike LA established a clear distinction between both families of LA: Cluster 1 ($n = 48$; 96.0%) vs. Cluster 2 ($n = 2$; 4.0%); No-warlike LA: Cluster 1 ($n = 2$; 4%); vs. Cluster 2 ($n = 26$; 50%).

DISCUSSION

This research studied the distinctive ethnomotor features of the ludomotor activities (LA) with or without rules carried out in the city of Lleida (Catalonia, Spain) in the context of the Spanish Civil War (1936–1939). Likewise, the features of LA with and without war connotations were compared.

This study presents an original approach to statistical analysis by means of descriptive statistics, Crosstab's Command, and clusters of the 27 ethnomotor variables of the identified LA. These statistical strategies allowed revealing and interpreting the
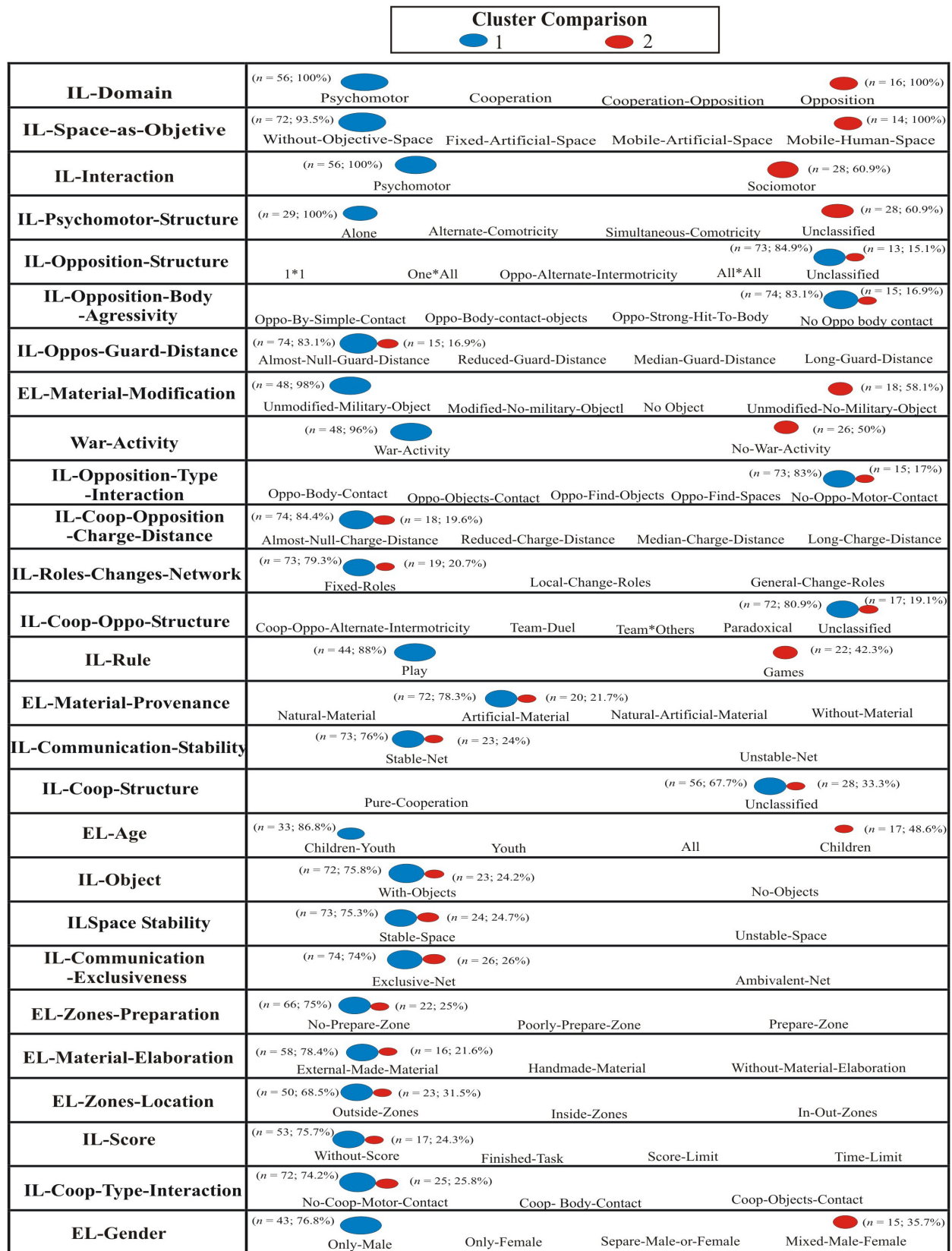
FIGURE 2 | Cluster 1 (Warlike LA) and Cluster 2 (Non- Warlike LA) comparison of the most important ethnomotor categories in each ethnomotor variable.

ethnomotor features of LA with and without war connotations as interlaced units of a unitary set. In this way, the following findings are highlighted.

LUDOMOTOR ACTIVITIES IN THE CONTEXT OF THE WAR CONTAIN UNIQUE ETHNOMOTOR FEATURE

The unitary interpretation of the four ethnomotor variables with the greatest predictive force allows us to understand the uniqueness of the LA studied in the context of the Spanish Civil War [predictive variables: (a) domain of motor action; (b) space as an objective to be reached, (c) sociomotor or psychomotor; and (d) structures of the psychomotor domain].

This systemic ethnomotor vision justifies that the body of techniques (Mauss, 1996) introduced by the protagonists can be categorized into two large groups of ludomotor experiences:

(a) Psychomotricity, constituted by individual LA with the participation of the players, was carried out without interaction with other people. The participants had a variety of options, that is, using psychomotor structures to test their autonomy and exploratory capacity. This form of LA involved playing alone (solitary) or participating with others in turns, without helping or hurting each other (alternative comotricity) or in separate spaces, or without being able to interact with others (simultaneous comotricity). Psychomotor LA accounted for almost half of all LA, a percentage much higher than that found in other periods without military conflict (Lavega et al., 2006). To interpret this regularity, it will be necessary to go further into the distinctive ethnomotor features of LA with war connotations. This regularity has never been observed in other types of LA in Catalonia (Lavega et al., 2006) or cultural contexts in Europe (e.g., Etxebeste, 2001; Lavega et al., 2006; Navarro-Adelantado and Lavega, 2017; Lavega-Burgués and Navarro-Adelantado, 2019).

(b) Sociomotricity, represented by LA where players can share motor interaction with others. We observed the prevalence of LA with opponents that served to socialize interpersonal relationships. The bodies of the opponents become a target to be reached, that tests the decision making of the participants (Lavega-Burgués et al., 2020). This regularity is also observed in other moments in LA in Catalonia (Lavega et al., 2006). In order to interpret this group of LA, it will be convenient to go deeper into the features of the LA without warlike features.

THE ETHNOMOTOR FEATURE OF LA WITH AND WITHOUT he WARLIKE CONNOTATIONS

Statistical analyses identified unique ethnomotor traits for LA with and without war connotations. Therefore, ethnomotor interpretation should consider the regularities of these two families of LA in the context studied (Ormo, 2017).

In both cases, it will be highlighted in which way the internal logic of these practices activates the subjectification of the participants (Warnier, 2011). The intention is to reveal the power offered by LA to achieve autonomy over their own body of techniques and over the understanding of the network of values shared with the other players.

LA With War Connotations as Agents of Material Subjectification

Statistical analyses revealed that one of the main distinctive features of the LA was the ludic use of war materials (bombs, grenades, etc.). Younger men (boys and young men) used quasi-games (QTSG) to explore the cold, serious, and dangerous weaponry used by the military. Both in war and in ludic activities, the final objective is to make these materials explode, in the first case on the enemies, in the second, on a human target. Thus, these activities were QTSG, i.e., activities without rules, open to constant changes in game actions, at the will of the participants. They were mostly psychomotor (**Figure 2**, Cluster 1), which is in line with previous research (Alonso et al., 2010) but against the findings in the Olympic Games (Parlebas, 1988; Pic, 2018; Parlebas, 2020), and absent of any motor interaction with others, that is, they allowed testing the self-sufficiency of each person in risky situations. Exploration, creativity, fantasy, and overcoming of fear were constant in the motor behaviors associated with the process of subjectification of the material culture of this moment. Thanks to these body of techniques, the players educated themselves on the competencies of autonomy and personal initiative (European Union., 2006; European Commission/Eacea/Eurydice, 2012) in situations of maximum risk (Warnier, 2002).

LA Without War Connotations as Agents of Social Subjectification

LA without war connotations were mostly games (TSG), that is, activities with traditional rules that had already been practiced by previous generations (Lavega et al., 2006). They were sociomotor TSG based on motor interactions with others. The players (children who participated in mixed male and female groups) learned to interact and enjoy the group encounter with others (Parlebas, 2003). These activities were mainly of an oppositional nature, consisting of looking for the body of others that became a mobile target to be reached, as in the family of TSG represented by persecution (such as the one against all or all against all structure in tag games). When the TSG used some materials, the objects came from the environment and were not modified, that is, they were used in the conditions in which they were found. Examples are usually games where the rivalry is established through the contact of the other objects (e.g., marble games) (Etxebeste, 2001). This kind of body of techniques helped to educate the process of social subjectification, that is, to understand and internalize the signs, messages, and interpersonal values important in that society (Berthoud-Aghilin, 1986; Warnier, 2011).

LIMITATIONS

This study had a chronological limitation. The population able to be interviewed was limited to people over 69 years old at the

time of the interviews. In addition, they had to be residents in the area at the time of the events, willing to express their personal experiences, and with the intellectual capacity to remember and maintain the conversation during the interview.

FUTURE PERSPECTIVE

It would be interesting to carry out this same study in other war contexts (in other countries) to identify ethnomotor traits and compare them with those found in the studied environment.

CONCLUSION

This study confirms the need for contextualized research (in a specific place and historical moment) to interpret LA (with rules/TSG or without rules/QTSG) in relation to local cultures. LA show unique ethnomotor features due to the presence of war.

This study successfully addressed the contextualized identification and cultural interpretation of the ethnomotor features of LA practiced during the Spanish civil war.

The use of the theoretical fundamentals of the science of motor action, together with the variety of statistical analyses used, have enabled us to reveal the main ethnomotor properties of LA described by the people interviewed.

The organization of the predictive capacity of the variables suggests the predominant importance of the domain (type of motor relationship in LA). This identification was crystallized in a more concrete motor silhouette of individual participation and warlike reminiscence (Cluster 1), as opposed to sociomotor participation and non-warlike character (Cluster 2). This study confirms the need to conduct further ethnomotor research to reveal the connection of LA in war contexts. Furthermore, thanks to ethnomotricity, it is easier to understand the process of subjectification that LA creates.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the ethics committee for clinical research of the catalan sports council. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

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The Commemoration of Independence Day: Recalling Indonesian Traditional Games

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Traditional games in Indonesia are one of the cultural heritages the existence of which should be protected and preserved. The purpose of this study was to preserve the cultural diversity by recalling the traditional games through the commemoration of Indonesia Independence Day that is conducted annually. The Online Ethnography method was used in this research by administering text analysis and interview. The result of the study showed that traditional games held during the commemoration of Indonesia Independence Day could help recall the form and the rules of traditional games that are annually conducted during the commemoration in different regions. The result also showed that the traditional games held in the commemoration of Indonesia Independence Day indirectly built a bonding of the people through the value of togetherness, cooperation, and solidarity among the member of the society. Furthermore, the games reflected the cultural diversity of Indonesia, where every region has different names and rules of the traditional games.

Keywords: traditional games, traditional sport, cooperation, solidarity, togetherness

INTRODUCTION

Indonesia is a country popular for its diversity and large number of cultures, where every region owns different cultures. In a book published by The Ministry of Education and Culture, the diversity in each region is a social potential that could build the characters and the image of the culture itself, while cultural diversity is an important component in building the image and identity of a culture of a region. Furthermore, diversity is part of intellectual and cultural property of the cultural heritage that should be preserved (Dokhi et al., 2016). It is a responsibility for the society to preserve the existed cultural diversity, while the role of the youth in inheriting the local culture that would be a power for the existence of the local culture itself in the globalization era is highly expected (Nahak, 2019).

Traditional games have developed from a certain habit of a society into a form of game and sport. In the next development, a traditional game becomes a game that owns an original characteristic of a region that is adjusted with the culture of the region. Traditional games are crucial to be protected and preserved for their advantages and cultural values (Anggita et al., 2018). The traditional game in Indonesia is a culture in which the existence

should be preserved and retained, as it comes from certain region that has cultural values of society life (Aneka and Rahmatika, 2019). Every region also has traditional games with different names and procedures, although, sometimes, there are games that have similar rules with different names in different regions. As an example, in West Java, there is a game named *galah asin*, while outside West Java, the game is known as *gobak sodor*. Although the name of both of games is different, they have similar rules and procedures. In traditional games, there are games that involve physical activity, known as traditional sports. In relation to the statement, the reconstruction of the traditional game is required so that the game can be implemented and played easily, the participants could understand the value of each game, and, because the traditional games is frequently introduced and played, more children will know and understand the traditional game and its values; thus, the traditional game is automatically preserved (Lintangkawuryan and Adiati, 2017).

According to previous research, traditional games have positive values, including prompting honesty, responsibility for self and others, healthy lifestyle, discipline, hard work, enjoyment, the ability of thinking logically and critically, creativity and innovativeness, rule obedience, respect of others' duties and achievement, democracy, empathy, awareness on social surrounding, nationalism, social aspect development, and respect of differences. On the other hand, traditional games could also develop friendship aspect, self-management, and academic behavior and decrease antisocial behaviors (Fitria, 2018; Nur et al., 2020).

Among the values of the games, the most distinguished values in the traditional games from Indonesia include the feeling of joy, creativity, sensitivity, social awareness, friendship, and repressing the antisocial behavior. The values in the traditional games could build the togetherness cooperation and familiarity among the people.

In Indonesia, there are traditional games and sports that are regularly conducted during the independence day of Indonesia. There are games for children and adults that are frequently held in different regions, such as *panjat pinang* (slippery pole climbing), *balap karung* (sack race), *gebuk bantal* (pillow fight), *bakiak* (long wooden sandal race), *tarik tambang* (tug of war), and *sepakbola sarung* (playing football with sarong). People are involved in the game enthusiastically. The game is not only fun, but it also reminds and recalls the memory of simple outdoor games that are rarely played by the urban society. When the game is over, the winners usually receive prizes provided by the organizing committee. As argued in an article reported in the Pikiran Rakyat newspaper, the game in Indonesia Independence Day commemoration usually comprises collaboration and togetherness values (Adji, 2018).

In relation to the previous statement, Jabar News states that the competition in the Indonesia Independence Day commemoration, known as *tujuh belas agustusan*, is an annual tradition of the Indonesian people to commemorate the Independence Day; although the games and competition tend to be the same, the people are involved in the game enthusiastically (Rizka, 2019). Therefore, in the written statement of The Ministry of Law and Human Right, cited in tirto.id,

the Indonesian people are encouraged to commemorate the independence day by getting involved in activities promoting the value of togetherness, since the activities are conducted to build the spirit of nationalisms and the feeling of love and pride for the country, to strengthen the bonding as Indonesian people, and to show the spirit of cooperation (Dayana, 2019). Unfortunately, there are obstacles in conducting the activities. As reported in merahputih.com, the competitions for commemorating Indonesia Independence Day in the urban area are getting left out, as the place to conduct the activities is limited. Therefore, many regions left the games and activities, although the annual competition has become a tradition in Indonesia and showed the identity of the country (Habib, 2018). It is unfortunate that the games and activities are rarely conducted nowadays, as the commemoration of Indonesia Independence Day has a crucial role. As reported in Jabar News, the presence of social media caused a person to become more individual, while competitions during independence day can be a medium to enable persons to meet in an affordable way, in which a lot of laughing and fun are created and a lot of positive values can be taken from the activities (Rizka, 2019).

A research states that, in Indonesia, especially in Monggak society, the *Engrang* game is still preserved. Although they are also exposed to modernization in reality, but the existence of the competition in commemorating the Independence Day could show the presence of the game. In addition, organizing the competitions could give advantages for the society, including providing a medium to gather up and to interact so that the society could decrease the individualism, embrace the diversity, and maintain the harmony of the Monggak society (Okwita and Sari, 2019).

REVIEW OF LITERATURES

Play and Games

Basically, play activity requires willingness, where the players involved in the game could freely choose the game and who they would play the game with. Considering the nature of the game, it will create a comfort and enjoyment for the players. The play activities have a lot of advantages, including improving cognitive aspects, affective aspects, movement skills, social skills, and emotional skills (Rombot, 2017). Regarding the social development aspect, a lot of games involve many people; thus, the game affects the social adaptation and self-adaptation of the players, especially the game involving a social nuance since, in the process, the interaction will grow with both the teammates and the opponents (Gelisli and Yazici, 2015).

A game is a tool to express emotion, interaction, experience, one's expectation, and the fulfillment of self needs. It is believed to be way to learn. It is also a tool to maintain the body, mind, and character development. The character development is achieved through the evolution in the nature of their game and the change in their social environment (Varzani, 2013).

Games are classified into active and passive games. In active games, the players are required to do a lot of physical activities.

Meanwhile, in passive games, the game is for entertainment purpose that does not require a lot of energy. Games consist of two classifications, including individual game and team game. In a team game, the players are divided into groups, small or large. They discuss for their turn to play. In an individual game, the player mostly considers the interest and the winning of themselves; thus, although the game involves many people, individual principles become the first consideration (Hurlock, 2002; Purwaningsih, 2006; Husna, 2009).

Traditional Sports and Games

Traditional sport and games (TSG) is a specific part of the global sport system that could create the ideas of manifestation of the endangered and exotic culture. It can be analyzed from different perspectives related to sociological science, anthropology, and culture. A game is not only a game, but it is also part of culture. It has a history, an objective, a reason, a structure, a philosophy, and a strategy. It has characteristics and rules, ritual, rhythm, and moral. It connects to a certain environment and has educational dimension that can be learned both from scientific and artistic perspectives. Those perspectives, in short, explain a wider area of research as a cultural study or sport anthropology. Approaches in traditional sports and games can be easily connected to the process of identity that seems to be the main point of TSG role in individual, local, regional, or even national level (Jaouen and Guibert, 2005; Groll et al., 2015).

Defining and classifying TSG is as hard as defining sport in general. It begins with a simple game for children to (semi) professional team sport in a well-organized league or event (Groll et al., 2015). The researchers have been spending efforts in promoting a culture-rich TSG. As argued by a researcher from Japan, through the article in TAFISA magazine, the TSG retention in society is degrading recently. Therefore, Unesco is encouraged to protect and promote this sport to improve the spirit of the community, to keep the society in a togetherness, and to grow the feeling of being proud of the root of the culture of the society (Budde, 2008). All TSGs must have a historical aspect, where they have existed for a long time. Some of the TSGs might have been forgotten, shown by only some persons who play the game. However, in reality, some TSGs still have important roles. The importance of the traditional sport and game is laid on their general characteristics; for instance, TSG is a component of culture and tradition that is important to be preserved and respected for its minimum requirement of tools, simple rules, and also for the type of game that is easy to adapt. TSG recalls us into the cultural diversity and creates the bridge among cultures to acquire a better understanding. Therefore, it is important to preserve and to introduce the traditional sport and games as the heritage of humanity culture and the reminiscence of civilization to be explored in TSG. The concept and the perspective presented originated from sociology and the science of culture that offer a lot of ways to have a further analysis of TSG and their roles in building the bonding among society and creating its identity (Budde, 2008; Groll et al., 2015). It is relevant with the research stating that this sport heritage could help create a harmonious living environment with different cultural expressions and build the bridge among cultures to improve understanding because bonding, value, and practice of togetherness are getting necessary to unite the society. The appreciation of sport and physical activity is a real example. TSG, especially, has been long abandoned in modern life. Therefore, it should be remembered that neglecting the heritage of the traditional sport is the same as eliminating individual culture in a region, a country, or even a continent (Bronikowska et al., 2015).

Furthermore, TSG is also expected to have an active role in the education environment, starting with conducting a teacher training. Nowadays, teachers in various academic levels have not received sufficient training related to traditional games, both in formal and recreational education. Teachers in elementary school and middle school, young bachelor teacher, supervisors in game centers and recreation facilities, and, especially, physical education teachers need a special training to know TSG and to understand their educational values. In some physical education faculties in Europe, traditional sports and games are even taught as part of optional subjects; there is also another initiative such as summer courses offering introduction for 30–40 h of education through traditional games (Lavega, 2006). Moreover, it also has been discussed in the European Traditional Sport and Games Association (ETSGA) forum that, as has been explained by the research of experts, traditional games often offer more possibilities in motor education than the modern sport. Traditional games offer a variety of possibilities, especially with the social–motor collaborative games, but it violates the "image" of inferiority that is usually given to TSG. However, traditional games have another asset to offer; it is the culture diversity in the level of school teaching, where the age group detachment among the generation is increasing. Traditional games offer better socialization, as they do not refer to sports stars. In traditional games, winning is less important; thus, losing the games is also becoming less important (Budde, 2008).

A research on TSG was conducted in Canada. It is especially about an Inuit game that lives and develops in the Nunavut area. Every community promotes the game through schools and recreation centers in their community. The games are integrated into school curricula along with other modern games. There are macro- and micro-organizations in the region watching over the development and the organization of the Inuit game. Documents and videos describing the games are present. The Nunanut government financially supports the game. The game is played internationally. The Inuit game begins to appear in the media, but it is still in amateur level where the game is played for fun, fitness, and health. In addition, there is Cree game, but this game does not have the visibility and the success as that of the Inuit game. It might be caused by a lot of variables. The Euro-Canada school system has not been fully aware of the need of the Cree game. The partial Cree Culture curriculum does exist, but it only has a moderate emphasis on the Cree game itself. The school system does not facilitate the integration of the Cree game in school. Cree does not have national nor international

competition; thus, the research on the Cree game is still being conducted (Jaouen and Guibert, 2005).

The Organization and Activities of Traditional Sports and Games

Some traditional sports and games are popular in their area, while others are waiting to be recalled. However, despite the huge differences in popularity, the structure of the organization, and motor complexity, TSG builds an idea where something old, which is geographically specific, is worth to be remembered (Groll et al., 2015). TSGs also relate to the agenda of Sports for All, which is often voiced by The Association for International Sport for All (TAFISA). TSG itself is a source for sports for all; thus, many efforts are administered to realize sports for all through TSG. In Indonesia, there is an organization that accommodates sports for all, namely, the Federasi Olahraga Rekreasi Masyarakat Indonesia (The Federation of Recreation Sports of Indonesia Society), known as FORMI. The organization has joined TAFISA; thus, the existence of FORMI has been recognized internationally. Besides FORMI, Indonesia also has a community named Hong community, founded by Zaini Alif. The community contributes to the preservation of the existence of the traditional games from different regions.

Moreover, the Mindanao people have conducted the sport for all concepts as the inclusive program that do not treat people differently according to their participation advantages in sport and physical activity. Therefore, it should be able to provide opportunities and wider access for all to participate and to respond to the need and interest of the people they serve, including the local people. Sports for All should include a general physical activity that has been long conducted among the local people, including the games and sports, dance, and ritual that come from their neighborhood. In developing culture-based Sports for All for the Mindanao people, they have some stages in the process, including (1) understanding and knowing the people and their culture, (2) having partnership with the community and the leaders, (3) identifying and giving training for the leader of the program, (4) planning the program and the organization, (5) conducting promotion programs and awareness of Sports for All, (6) implementing and supervising the program, and (7) documenting and evaluating the program. The result shows that Sports for All contributes significantly in building healthy cultured people and a strong country (Budde, 2008).

RESEARCH METHODS

This present study used an online ethnography method where the research process employed the qualitative approach to collect the data in virtual communities. The value of conducting online ethnography research through internet is not only as a tool but also as conceptual and methodological bridges for other research. The online ethnography research involves activities related to online methods as the practical media in obtaining and collecting data through document collection, online observation, and online interview (Androutsopoulos, 2008; Skågeby, 2011). The data collection technique in this research used the text analysis from different sources, including the media and social media platform such as Instagram and Twitter.

DISCUSSION

Recalling Traditional Sports and Games Through the Commemoration of the 74th Independence Day of the Republic of Indonesia

The independence day of the Republic of Indonesia, on 17 August, is often celebrated by conducting various activities followed by the society enthusiastically. One of the activities conducted in celebrating the Independence Day is competition in different places in Indonesia, whether it is in a district level, urban area, national institution, school, or even in a workplace. As cited from an article in iNews.id, "*agustusan* (the celebration of Indonesia Independence Day) is incomplete without competitions, for example *panjat pinang* (slippery pole-climbing), *makan kerupuk* (prawn cracker eating contest), nail in a bottle contest, *gebuk bantal* (pillow fight), or *balap karung* (sack race). The festivity is created when the competitions are conducted. These competitions always invite excitement and laugh" (Teguh, 2019). It is also relevant with a report in tirto.id, "through the competitions in 17th of August, the children are introduced to the struggle and sacrifice of the heroes in struggling for independence. It is drawn in the struggle of the participants to win the competition that is usually called as *tujuhbelasan* competition. Not only for remembering the effort of the heroes, *tujuhbelasan* competition also has a positive advantage for physical and spiritual health" (Dania, 2019). Various typical traditional games, in the Independence Day commemoration, indirectly become the medium to recall the form and the rules of the games. The players indirectly recognize the spirit of struggle and the willingness to struggle in the activities that build the nationalism and independence.

Relevant to the nature of play, which is based on the participant willingness, Respondent 1 says that "the traditional games in *Agustusan* is an entertainment with the purpose of building the spirit and the struggle and creating familiarity." Thus, the *Agustusan* event gives a social experience containing cooperation, never giving up, and even interaction to raise awareness on the independence that is rarely found in the daily life. The first main point of the statement is that the spirit of struggle in doing any activity with a good mental condition is required. The second point is that the commemoration of the Independence Day becomes an event to recall the traditional games, their rules, and how they are played. It also becomes an event to preserve the games. As cited from an article in Pikiran Rakyat, according to Zaini dewAlif, as the activist of the Hong Bandung community, "August, through the commemoration of the Independence Day on 17 August, becomes a momentum to raise and popularize the traditional sports and games. It is because in August, specifically in the

commemoration event, a lot of people, from children to adult, are involved in the traditional games" (Adji, 2018). That is the reason why this annual event is important to be continuously conducted, as through this activity, the society will know and preserve the traditional games and sports of the country.

The Most Popular Traditional Sports and Games in the Independence Day of the Republic of Indonesia in 2019

On the 74th Indonesia Independence Day, known as *Agustusan*, in 2019, there were various traditional games that the researchers found and analyzed from Indonesian uploads in social media platforms. Respondent 2, related to the commemoration on Indonesia Independence Day, said, "In my opinion, Indonesia Independence Day is one of the moments that we are waiting the most for its fun, familiarity, and togetherness in every series of game conducted." According to the statement, the respondent rarely feel the moment in daily life. Therefore, the Indonesia Independence Day commemoration becomes important to build positive essentials such as joy, interest, even a strong socialization in various games. Moreover, in the same occasion, Respondent 3 said, "From what I see, the festivity and excitement of the participants are reflected on the games they involved. Hopefully, the joy and togetherness could nourish the warmth among the people in our country, Merdeka!" The statement of Respondent 3 shows that there is an expectation to be noted, especially by an Indonesian citizen; it is preserving the togetherness in maintaining the good name of the country, starting from building a warm atmosphere among individuals. According to Respondent 3, the important point is that the Indonesia Independence Day commemoration becomes the reference in maintaining the warmth among the society in every game conducted. Various games for competitions included *bakiak* race, *balap karung* (sack race), futsal *sarung* (playing futsal with sarong), futsal *daster* (playing futsal with female home dress), *gebuk bantal* (pillow fight), *balap kelereng* (marble race), *makan kerupuk* (prawn cracker eating contest), *panjat pinang* (slippery pole climbing), *tarik tambang* (tug of war), *voli daster* (playing volleyball with female home dress), *voli sarung* (playing volleyball with sarong), crossing the water game, moving the flag game, decorated bicycle parade, nail in a bottle, *egrang* (stilts), *nyunggi tampah*, water collecting game, eel collecting game, coin collecting game, water hitting game, *gobak sodor*, flour pouring game, sandals matching game, leading balloons with *tampah* game, and water pouring game.

Bakiak is a kind of sandals made from wood. The *Bakiak* game requires togetherness and cooperation in the team to win. The game prioritizes togetherness and cooperation from the participant. In this game, the participants should walk together to keep the balance and avoid falling. The *bakiak* itself is a long wooden sandal that can be used by four to six participants (Aneka and Rahmatika, 2019). *Balap karung* (sack race) game is one of popular traditional games in Indonesia Independence Day commemoration. To play the game, the participant should put their lower body into a sack; then, they race to the finish line (Munir, 2019). *Balap Karung* games began when Netherlands colonialized Indonesia; this game was

often conducted in the institutions and schools built by Netherlands in Indonesia. When Indonesia gained independence, the *Balap Karung* game is preserved by Indonesians, until today, especially in the *17 Agustusan* moment (Widyawati, 2019). Futsal *sarung* game has a similar rule to that of the general futsal game, but in this game, the player should wear a sarong to add more fun to the game. Futsal *daster* game is also similar to futsal *sarung*; the difference is that the player should wear a *daster*, a home dress that is usually used by women at home. *Gebuk bantal* (pillow fight) game is usually conducted above a pond/a river with a long bamboo made like a bridge above the pond/the river. The game includes two participants where the participants hit each other by using a pillow until one of them falls into the pond. The participant who does not fall is the winner. *Balap kelereng* (marble race) game is a game where the participants stand on the start line carrying a spoon filled with a marble on their mouth. When the command is given, they walk as fast as possible to the finish line while keeping the marble on the spoon from falling to the ground without touching the marble nor the spoon.

Makan kerupuk (prawn cracker eating contest) game is an individual game, followed by some participants as competitors. The participants should eat a prawn cracker that hangs on a string. The fastest participant who eats up the cracker without using their hands becomes the winner (Husna, 2009; Dewi et al., 2015). In *panjat pinang* (slippery pole climbing) game, an oiled long straight betel palm tree trunk is plugged in on the ground with prizes on the top of the trunk; the participants should climb the trunk to get the prizes; the climber might fall on the climber below them (Damanik, 2019). In this game, the players should help each other. Therefore, one of the members of the team could successfully reach the top of the pole (Yulita, 2017; Damanik, 2019). *Tarik tambang* (tug of war) game is a traditional game that uses a rope with a certain size as a tool to test the strength by pulling the rope, one group at each side of the rope. As with other traditional games, this game is popular in Indonesia (Syukur and Suprayogi, 2016). Similar with futsal *sarung* and futsal *daster*, *voli sarung*, and *voli daster* have similar rules to a general volleyball game. The difference is that the participants wear a sarong or a *daster*.

Crossing the water game generally needs a good balance because, to play this game, every participant should walk on a bamboo above a pond as a bridge. The participant who can pass the bamboo bridge without falling becomes the winner. In moving the flag game, a participant should have at least one opponent, then decides a start line and puts a bottle in a finish line. The participants get ready in the start line while carrying flags; when the game is started, the participants should run as fast as they could to put the flag on the bottle; the first participant who puts the flag on the bottle is the winner (Rasmi, 2017). In the decorated bicycle parade contest, the participant should decorate their bicycle as attractive as possible. When the bicycle is fully decorated, the contestants gather up to join a parade/carnival that has been planned by the committee. The participant with the best/most unique bicycle decoration, according to the jury, becomes the winner. In the nail in the bottle game, the participants will wear a string on their waist

with a nail at the tip of the string. The participants get ready at the start line. When the command is given, the participants should reach the bottle at the finish line as fast as possible; then, they focus on putting the nail into the bottle without touching the string nor the nail. *Egrang* (stilts) game is usually played individually or by some participants in groups. The players put their feet on footholds with 50 cm of height from the ground; both of their feet are put on both footholds, and they begin to walk on the *egrang*; the *egrang* itself is usually made from bamboo (Munir, 2019). The *Egrang* game first became popular in West Java. It is the reason why this traditional game becomes the West Java typical traditional game (Sundanese area). The *Egrang* game gains a high interest in other regions in Java because it is fun and interesting (Supriyono, 2018).

In the *nyunggi tampah* game, the participants should make a line at the start line while carrying a *tampah*, a rounded woven bamboo container, on their head. When the command is given, the participants should race to the finish line while keeping the *tampah* from falling without touching the *tampah* itself. The water collecting game is conducted by taking the provided water at the start line; then, they fill the empty bottle at the finish line. The water is brought by using a small glass. The first participant who fills the bottle fully becomes the winner. The Eel collecting game has a similar rule with the water pouring game, but in this game, it is the eels, which have a slippery skin, that should be collected. The participants should take the eel with their bare hands and put the eels into a bottle. The participants who have the highest number of eels will become the winner. In the coin collecting game, some coins will be plugged in an oiled papaya. Half of the coin will appear on the surface of the papaya. As in the prawn cracker eating game, the papaya hangs on a string. The participants should take as many coins as possible. In the water hitting game, some plastic bags are filled with water, tied, and hung on a string. The participants get ready in the start line with their eyes closed. When they hear the command, the participants should walk straightly as fast as possible to hit the water bags hanging on a banana trunk. The participant who successfully smashes the water bag will be the winner.

Gobak sodor game includes two teams. A team consists of three persons or more. The player of the game should stop the opponent from getting into the last line and from going back into the first line, when they first come. To decide the winner, all of the team members should do a back-and-forth process in the field area. The members of the keeper team will keep their area; every person guards the decided line in a zig-zag way. The keeper team should try to get the member of the opponent's team so that they can have their turn to play the game. Every player who successfully reaches the finish line and gets back into the start line will get one score; the team with the highest score will be the winner (Laelah et al., 2010). There is a unique fact of this game. The name of this game is adapted from the English language "Go Back through the Door." As the words are hard to be pronounced by the Indonesian people, the name becomes "Gobak Sodor." Besides, this game came from Yogyakarta, where *gobak* means move

freely and *sodor* means spear. This game trains the collaboration among the players and their brain ability in making strategy (Shinta, 2016; Supriyono, 2018). The flour pouring game usually involves two to three teams consisting of four to five persons in a team. Every participant sits in a line with their faces facing forward. The participants hold a plastic plate. The first person in the line holds the plastic plate containing flour. The participants then transfer the flour as fast as possible to the player behind them until the last participant in the line. The group who collects the most flour will be the winner. In the sandals matching game, some sandals are provided randomly. The participant should match a sandal with their pair. The participant who collects most matched sandals will be the winner. The leading balloon with *tampah* game is usually an individual game with some competitors. Every participant holds a *tampah* and a balloon at the start line. When the command is given, the participant leads the balloon to the finish line by using a *tampah*. The participant who reaches the finish line first will be the winner. The water pouring game has a similar rule to the flour pouring game. The difference is on the material. In this game, the material is water, while the media used is a glass.

The researchers found at least 127 posts uploaded by social media users with an open account. From 127 posts, the three most popular games uploaded into social media include *balap karung* (sack race; 27 posts), *bakiak* race (23 posts), and *tarik tambang* (tug of war; 12 posts). From the three most popular games, *balap karung* becomes the most conducted and posted games by social media users. It might be because the rules of the *balap karung* game are often modified; thus, the game often invites laugh for its uniqueness. The modification is usually conducted by adding additional tools. Besides a sack, the participants sometimes use a helmet and blindfold. As cited in Antaranews, "balap karung game with helmet is exciting and challenging. It is also safer than the general *balap karung* game as the participants' head are protected by the helmet." "The objective of modifying the *balap karung* game by the committee in commemorating the 74th independence day of Indonesia is to educate the people and participants about wearing a helmet for safety" (Kanafi and Masnun, 2019). Respondent 4 says, "The game seems so exciting. One of the participants was so afraid, that he crawled like a baby rather than jumped. I think the modified *balap karung* game makes the game and the atmosphere lively." The important point of Respondent 4's statement is that the games in the Indonesia Independence Day commemoration had essential meanings, such as bravery in facing challenges to achieve the success. The games also created a lively atmosphere for all people, including for men, women, children, youth, and older people. Besides that, the *balap karung* game is interesting and was enthusiastically participated in by the Indonesian Navy and American Navy in the Cooperation Afloat Readiness and Training (Carat) event. As reported in detiknews, "there was much merriment when the *balap karung* game was held. The American navy who had a big body were involved in Indonesia traditional game, that is usually conducted on the Independence Day, without feeling awkward. Even, as they are so powerful,

the sack they used was getting broken. Meanwhile, the representative of the US Navy, LT Thomas Cumming, said that he was happy with this sport" (Utomo, 2019). Aside from the merriment, the *balap karung* game could improve self-confidence, especially for children in early childhood (Munir, 2019). The modification in *balap karung* gained attentions from Indonesian people in different regions. This game created a meaningful experience for the players and spectators. The modifications of the game, including using helmet, playing the game in a squat position, playing the game in pair, and even using the blindfold, were accepted enthusiastically by the players. The modifications brought laugh and joy during the game. However, the modification should also consider the safety aspect. Generally, the modification did not change the main rule and important points of the Indonesian traditional game. The existence of the originality of the game enables the society to preserve the local culture principles that would eventually create awareness on the importance of preserving cultures as the identity of the country (Hidayat, 2013).

CONCLUSION

One of the promotion efforts to preserve the existence of the games, which slowly disappear and forgotten, is by integrating the games in the activities conducted by organizations related to traditional game and big events regularly conducted in Indonesia, including *Agustusan* held by schools, offices, and institutions in different regions. Some competitions of typical traditional games in the Independence Day commemoration are conducted enthusiastically and full of merriment, although

the games are administered annually. In the Agustusan 2019, the most popular traditional game in Indonesia was *balap karung*. It is shown by the number of posts uploaded by Indonesian citizens in social media platforms. Besides, the *balap karung* game became the game that was often modified by the committee of the competitions in different regions.

According to the obtained data, the Indonesia Independence Day commemoration prompted the society to repeat and to recall various traditional sports and games in Indonesia, especially the rules of the game. The moment became an opportunity for Indonesian citizens to preserve the culture and the values of the games. The competition of the traditional games indirectly built the togetherness, cooperation, and familiarity among the people during the activities.

AUTHOR CONTRIBUTIONS

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The Game of Skittles on the Northern Route of the Camino de Santiago

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The main purpose of this study was to analyze the presence and current situation of
the game of skittles throughout the northern route of the Camino de Santiago. Thus,
we considered its current practice, modalities, where it is played, and its different
manifestations as an informal and formal game (sport), comparing it with other traditional
games on this pilgrimage route. To do this, a mixed qualitative-quantitative study
was designed with 89 participants (municipal professionals, politicians, players, club
managers, and teachers), constituting an informant for each municipality through which
the Northern Way passes. An *ad hoc* questionnaire was used for the data collection,
which was processed through content analysis by expert judges (qualitative section)
and by using the IBM-SPSS statistical package (version 25). The results of the study
show notable skittles activity on the Northern Camino (58.32% of the municipalities),
reflected in the number of skittles alleys ($n = 291$), the number of clubs, associations,
and *peñas* participating in federated leagues ($n = 162$), and the wide range of varieties
of skittles currently active on the Camino ($n = 20$). The relationship between skittles
and local culture, both symbols of identity in these northern Spanish regions, made
it possible to preserve the traditional heritage in these places, keeping it alive today,
despite the push toward new and more attractive leisure and sport trends.

Keywords: skittles, traditional sports games, intangible cultural heritage, Camino de Santiago, Northern Camino,
pilgrimage, heritage

INTRODUCTION

The interest in discovering diverse symbolic manifestations of the population, such as play,
traditions, and folklore, has contributed to research locating these aspects—in addition to culture,
community, society, and signifiers of identity—within the main approach to understanding
a phenomenon that has, over time, been of particular interest in research about human
beings' behavior: the relationship between play and culture (Caillois, 1957; Bantulá, 2005, 2006;
Enriz, 2011).

Disciplines such as social anthropology describe play as the result of social practices leading to
activities of a more playful nature, adapted to people's developmental stages (Schwartzman, 2012;
Karpatschof, 2013; Hamayon, 2016). The play-culture binomial, noted by Vigne (2011) as a basic
relationship refers to people's nature, and also reflects the evolution of the human being from a play
perspective (Salter, 1978; Parlebas, 2001; Lavega and Navarro, 2015; Rodríguez-Fernández, 2016)

which is natural and adapted to reality. Play has clear cultural value (Stone, 1989; Huizinga, 2008); it is a symbol of culture (Enriz, 2011) and a kind of emblem, since through play and games we can come to understand the way of being of a given society (Parlebas, 2005; Sutton-Smith, 2009).

Culture is transmissible, transformable, and transformative. It is a guide, and it is senses, meanings, values, and practices (Álvarez; Enriz, 2011). In this regard, sociocultural processes such as enculturation, acculturation, and syncretism highlighted by Rodríguez-Fernández et al. (2014a), are reflected through playful practices. They help us to understand not only how people lived throughout history but also the origin and acquisition of certain customs as a result of people's social interaction.

Coêlho de Araújo et al. (2013) refer to play as one of the most common expressions of human beings, an essential part of human nature which has been present in our culture since the oldest societies. From the wide range of play that exists, popular and traditional games best define the relationship between society and culture (Lavega, 1996; Rodríguez-Fernández, 2013). This is because they are a determining factor in individuals' socialization and learning (Bantulá and Mora, 2002; Lavega, 2013) and because they allow us to make an intergenerational connection via the transmission of customs over time (Bantulá, 2006; Rodríguez-Fernández, 2013). Rodríguez-Fernández et al. (2014a) stated that traditions that are representative of regions or places with their own cultural character are transmitted principally by being a reflection of those places' cultural idiosyncrasies. Habits, customs, and traditions are reinforced by routines, by everyday activities reflecting how people act, most commonly transmitted within the family, in which case it is from grandparents to parents and then to children (p. 1401).

Due to its relationship with culture, play may be considered one of a society's intangible assets (Do Nascimento et al., 2015). In 2010, UNESCO included popular and traditional play in the list of world cultural heritage practices (Alonso et al., 2020). Bantulá (2006) associates that directly with caring about the study, preservation, promotion, and transmission of manifestations of play in the 21st century, and more generally by local authorities' interest in the study of popular and traditional games in villages, regions and cities.

Out of the wide range of popular and traditional games we have access to, there is one that stands out due to its singular nature (Lavega, 1996) which has been widely played in many cultures and civilizations throughout history and is possibly one of the most widely played games in the world in its various forms (Ruiz, 2000). This is skittles, a traditional game based on throwing a ball at targets (skittles) in order to knock them down (knock-down skittles modalities) or move them as far as possible (*pasabolo* modality) (Rodríguez-Fernández et al., 2014a), which requires high levels of strength and precision, depending on the modality (Alonso-Rueda et al., 2015).

Despite the significant history of skittles, it has been in decline over recent years, making way for so-called modern sports and institutionalized games (Lavega, 2000; Parlebas, 2003; Zorrilla-López, 2005; Torre, 2013). This, along with the changing habits of a modern society that values the new and relegates traditions and the past to second place

(Méndez-Giménez and Fernández-Río, 2011) has meant that skittles retains only a fraction of the prominent role it once had (Rodríguez-Fernández et al., 2014a).

There has also been a gradual decline in skittles being played, a trend which has been seen since the middle of the 20th century, which was a consequence of the loss of players and the closure of skittles alleys (Ruiz, 2000; Rodríguez-Fernández, 2013; Homobono, 2015). However, skittles is still played in many municipalities due to the efforts of various skittles clubs that particularly focus their activity on federated sports (mainly from the last third of the 20th century onward) (Braun, 1984).

In Spain nowadays, skittles is played more commonly in the northwestern part of the Iberian Peninsula, with most activity in Aragon, the Basque Country, Cantabria, Asturias, León and Galicia (Ruiz, 2000). The people who live in these areas, sensitive to the traditions that forged their identity, fought in order to help preserve their ancestors' traditions, maintaining skittles as part of their day to day recreational activity (Braun, 1984; Zorrilla-López, 2005; Lucas-Recio, 2008; Rodríguez-Fernández et al., 2014b; Homobono, 2015; Rodríguez-Fernández, 2016).

In addition to people's feelings about tradition in these areas, another aspect that helped to preserve skittles is its transformation from a game to a sport. It developed from a nonformal game, with flexible rules and a strongly social nature, to a formal, institutionalized activity with certain (rigid) rules, controlled and directed by a sports federation (Lavega, 2010; Sedano-Campo, 2010; Méndez-Giménez and Fernández-Río, 2011; Rodríguez-Fernández et al., 2015a). Nevertheless, authors such as Zorrilla-López (2005) have pointed out that this transformation also contributed to the loss of different varieties of skittles, especially in urban areas. Variants of skittles remain in the most rural areas, and are played only in specific tournaments during local festivals.

Expósito (2006), Moreno (2008), and Rodríguez-Fernández et al. (2015b) indicated a characteristic aspect of popular and traditional games, which is the use of open rural spaces, natural surfaces (earth, clay, sand, grass...), and the use of urban spaces which are not specifically designated for sport. This type of alternative space is commonly used for the skittles alley or *boleras*, generally in social meeting points such as squares, churches, or pubs. In the past, rural pubs were authentic sociocultural centers, where people could meet, interact, and share their hobbies, such as skittles (Ruiz, 2000; Rodríguez-Fernández et al., 2015b; Gonçalves-Junior et al., 2018). These locations combined commercial and recreational goals, providing an influx of people for the business, and contributing to the preservation of the most widely played traditional game in the world (Ruiz, 2000). Nowadays, with the transformation of skittles into a sport, many *boleras* have changed their appearance to more rigid, formal spaces, built using modern materials (both the space and the game material), and including places for spectators. However, they remain essentially places of meeting, socialization, and intergenerational interaction (Homobono, 2015).

Skittles has always been an exclusively male activity. Not because of the need to be strong to play certain types of skittles, but rather because of women's roles in the past (Braun, 1998; Rodríguez-Fernández et al., 2014b, 2016;

Gonçalves-Junior et al., 2018). The presence of women in skittles has changed radically. This has been due to both the continuous struggle against gender inequality and discrimination between men and women in sports (which also occurs in the skittles world), and by the recognition and appreciation of women who have kept certain varieties of skittles alive in an exclusively female way (De La Villa, 2002; Maestro, 2002, 2007; Martín, 2002a,b; Ungidos, 2002; Lucas-Recio, 2008).

Nowadays, skittles is still played in specific parts of Spain. Like most popular and traditional games, skittles has experienced a decline in parallel to the rise and consolidation of mass sports. Its survival rests mainly on maintaining its practice where it is still active (Ruiz, 2000; Rodríguez-Fernández et al., 2014b; Rodríguez-Fernández, 2016).

The Camino de Santiago (The Way of St James) is a religious and cultural movement that has been recorded in Spain since medieval times (Rodríguez-Fernández et al., 2014a). In the wider sense of the word, it was the label given to a series of Christian pilgrimage routes that went from all over Europe to the Cathedral of Santiago de Compostela to venerate the relics of St James the Apostle. The Camino de Santiago is an authentic source of spiritual, religious, and cultural exaltation with diverse beliefs and traditions, resulting from the footsteps of countless pilgrims from all over the world (Lester, 2015).

The Camino de Santiago is the longest of all the pilgrims' routes. It was possible to trace this in the political and geographical framework of the medieval West. It began in the early 9th century and was strongly promoted from the 11th century (Acuña-Delgado, 2015). The route extended throughout Western Europe and was described early on in the Codex Calixtinus, preserved today in the Archive of the Cathedral of Santiago (Barreiro-Rivas, 2002). The Spanish Federation of Associations of friends of the Camino de Santiago (2020) recognizes 11 routes in the Iberian Peninsula and from all over Europe. These include the Northern Ways; the Camino Primitivo (the original way of St James), and the Northern Way (see **Figure 1**), considered one of the two most important routes along with the French Way (Fernández-Poyatos et al., 2011).

The French Way is a 750-km route linking Europe with northern Spain via the village of Roncesvalles. It has always been the main route of entry into the peninsula, nevertheless, since the 14th century, the municipality of Irún joined Roncesvalles as one of the main gateways through which pilgrims came from Europe, heading to Santiago de Compostela by several routes near the North coast of the peninsula, mainly the Primitive Way and the Northern Way. The difference between these two is that the Primitive Way is a mainly mountainous route from the Principality of Asturias, whereas the Northern Way continues along the entire Cantabrian coast (Pombo, 2018). The 817-km Northern Way from Irún to Santiago de Compostela is the longest of all the routes to the Galician capital (Whitson and Perazzoli, 2015), crossing four autonomous communities[1] (the Basque Country, Cantabria, Asturias, and Galicia) and a total of 89 municipalities (29 in the Basque Country, 25 in Cantabria, 21 in Asturias, and 14 in Galicia).

Although the Camino de Santiago began with an exclusively religious purpose which continued for a long time, nowadays, many people prioritize the experience and enjoyment of the Camino over the religious objective (Acuña-Delgado, 2015), which highlights its polysemic character (Lois and López, 2012). From the walkers' perspective, the route to Santiago is the "only first-magnitude historical pilgrimage whose itinerary is as important (or more important, as the case may be) as the very goal toward which it is heading" (Atienza, 2004, p. 12). In other types of pilgrimage (Christian or Muslim), the goal has always been the essential part of the journey, usually by the shortest route. The Camino de Santiago, in contrast, attaches special importance to the Way itself, which makes it a unique experience, since the spiritual goal sought by the pilgrim was not limited to reaching the end of the journey.

When talking about the Camino de Santiago, Martín-Luque (2014) noted that all the references and data were only collected from people who arrived in the Galician capital, minimizing the characteristics and history of those people who do not complete the route, or do it in reverse—back to their place of origin. Rodríguez-Fernández et al. (2014a) point to the formation of important population centers as a result of the

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[1] Spanish territorial administrative entity with certain legislative autonomy and its own elected representatives.

FIGURE 1 | Northern route of the Camino de Santiago as it passes through the autonomous communities of the Basque Country, Cantabria, Asturias, and Galicia.

pilgrimages to Compostela via the Camino de Santiago, in terms of infrastructure and human capital, something which led to the assimilation of foreign customs and which, according to Braun (1984), nowadays constitutes a huge cultural and artistic legacy.

In 1987, the Camino de Santiago was declared the "First European Cultural Itinerary" by the European Council, and in 1993, a "World Heritage Site" by UNESCO (Godoy-Portugal and Crecente-Maseda, 2018). This relationship between culture and the Camino de Santiago has not gone unnoticed by authors such as Granero-Gallegos (2004) and Ramos (2011), who consider the Camino to be the primary, most important European cultural route for its religious, historical, literary, and artistic aspects, which have greatly influenced Spanish culture through artistic and cultural currents produced by personal relationships, the exchange of ideas, and coexistence. Granero-Gallegos et al. (2005) emphasize that the Camino de Santiago constitutes an excellent framework for interculturality and coexistence that many young people and adults go to in search of personal experiences, fun, adventure, and to enjoy a physical activity in contact with nature.

In addition to the above, we can see how those cultural exchanges between the Iberian Peninsula and the rest of Europe through the Camino de Santiago have also had repercussions on sports, games, and recreational activities on the Camino (Brunhs, 2002; Lagardera, 2002; Rebollo, 2003; Granero-Gallegos, 2004; Granero-Gallegos et al., 2005; Jiménez-Vaquerizo, 2013). Braun (1984, 2003), Rodríguez-Fernández (2016); Rodríguez-Fernández et al. (2014a), Rodríguez-Fernández and Oliveira-Pereira (2016); Rodríguez-Fernández et al. (2018), Ruiz (2000); Sedano-Campo (2010), or Torre (2013), among others, have linked the origin of the traditional game of skittles to the Camino de Santiago, with significant German and French influences.

Studies by García-Serrano (1974) and Rodríguez-Fernández (2013, 2016) link the beginning of the game of skittles on the Iberian Peninsula to foreigners who arrived for some reason and brought with them a game that was not native to Spain but was played in other European countries. In this sense, the fact that the route of the Camino de Santiago facilitated the development of cultural practices, providing enrichment to the pilgrim routes, indicates that the game of skittles was one of those practices.

In research about skittles on the final stages of the different Caminos de Santiago, Rodríguez-Fernández et al. (2014a), recorded significant skittles activity mainly through four routes into Galicia: the Northern Way at its entrance through the region of Ribadeo in Lugo; the Portuguese Way through Tui in Pontevedra; and the area between the French Way and The Silver Way (Camino de la Plata), entering through Viana do Bolo, A Veiga, Carballeda de Valdeorras, Rubiá, O Barco de Valdeorras, Vilamartín de Valdeorras in Ourense, and Quiroga in Lugo. The study also stressed the presence of numerous federated sports clubs with formal sports activities (regulated competitions) linking that to the continuity and vitality of skittles in Galicia.

Subsequently, in a study about skittles in the final stage of the Portuguese Way (From Porto to Valença do Minho), Rodríguez-Fernández et al. (2018) described the practical nonexistence of skittles practice in this part of the Camino, finding it in only one of the nine municipalities on this part of the route

and highlighting the practice of other traditional games with more roots in Portugal. They also stressed that skittles activity on the Portuguese Way in its entry into Galicia did not continue into Portugal.

The main purpose of this study is to analyze the game of skittles on the northern route of the Camino de Santiago, looking at its different varieties, the places it is played, and whether it is played as an informal or as a formal game. We also compare it with other traditional games, looking for links that help us reach a deeper understanding of the nature and essence of the game of skittles.

MATERIALS AND METHODS

Design

We designed a mixed qualitative-quantitative study (Johnson and Onwuegbuzie, 2004; Pereira, 2011), with a descriptive, interpretative character (Lima and Palhares, 2014; Baptista, 2016). The qualitative analysis focused on the description of the different varieties of skittles over the entire pilgrimage route, those who promote it, where it is played, and the development of the game. The objective of the quantitative analysis was to compare variables and establish relationships in terms of variables including autonomous communities, modalities, transformation into sport, and the preservation of the traditional game, among others.

Participants

We used intentional (nonprobabilistic) sampling to select informants from municipalities that the Northern Way runs through.

A total of 89 people participated in the study (73 men and 16 women, with a mean age of 48.67 and 42.06 years, respectively), one informant for each of the municipalities traversed by the Northern Way of the Camino de Santiago. The older age group was represented by subjects aged 50 or over (40.5%). The informants were mostly local authority professionals responsible for sport or culture (50.6% of the sample); failing that, the information from the municipal authority was obtained through a politician (councilor) from the sports or culture area (16.9%); 28.1% were players or managers of skittles clubs, with direct links to this traditional game. Minority of the samples (4.4%) were Physical Education teachers from local schools; this was in those municipalities where there was no skittles activity or, where due to size, there were no technical personnel for sports and culture or a delegate councilor. Due to the number of municipalities that the Northern Way crosses, the Autonomous Communities of the Basque Country (32.6%) and Cantabria (28.1%) were the largest contributors to the study (see **Table 1**).

In addition, we selected informants using the same sampling approach from 60 municipalities from the same Autonomous Communities which had similar population characteristics but were not on the Northern Way. These respondents had a similar profile of age, sex, and profession to the Northern Way respondents.

	N (%)
Gender	
Men	73 (82%)
Women	16 (18%)
Age	
Under 40	26 (29.2%)
Between 40 and 50	27 (30.3%)
Over 50	36 (40.5%)
Profession	
Municipal sports/culture professional	45 (50.6%)
Politician (Councilor for Culture or Sports)	15 (16.9%)
Player/club manager	25 (28.1%)
Other	4 (4.4%)
Autonomous community	
Basque Country	29 (32.6%)
Cantabria	25 (28.1%)
Asturias	21 (23.6%)
Galicia	14 (15.7%)
Municipality's population sizes by autonomous community	
Basque Country	916.410
Cantabria	337.178
Asturias	487.617
Galicia	158.940

Measures

As there were no existing tools which met our requirements for this study, we designed a questionnaire *ad hoc* (Baptista, 2016; Magalhães and Hill, 2016).

The design of this questionnaire followed three phases: firstly, we identified the main elements in the existing literature on the subject; we analyzed and collated inconsistencies or contradictions present in those diverse theories, and finally we arranged the points into general categories creating specific information sections.

The resulting instrument collected information in four areas:

- Personal information (gender, age, type of informant, and municipality).
- Information related to skittles (whether the game is played currently, varieties of skittles, associationism, skittles alleys, formal and informal activity, and the importance of skittles in the municipality).
- Information about other traditional games and sports (varieties and how much they are played).
- Personal opinion about skittles and other popular and traditional games and sports (Knowledge, whether they play, preference, stage of development in the municipality, and transmission channels of the traditional game).

The sections were made up of different types of questions including open-ended, dichotomous, multiple-choice, and scalar-type questions. In order to verify reliability, the questionnaire was subjected to external validation by four expert judges in the academic context who were specialists in physical education and traditional games.

Procedure

We contacted each municipality crossed by the northern route of the Camino de Santiago to establish contact with the person responsible for sport in the local authority. Where there was no specific person in the municipality responsible for sport, we used the councilor for sport and culture (political office) as a second option. In small municipalities, we also sought the participation of cultural representatives and delegate councilors.

In specific cases where the game was well established, the local authority contacts directed us to a person in charge of the local skittles club or sports club, or even regular skittles players, as they were able to provide us with better quality information.

We informed our contacts of the study objectives, that their participation was entirely voluntary, and that all personal data would be confidential and anonymous. Each participant gave their informed consent by marking a check box before completing the questionnaire.

We sent the questionnaire to the participants by e-mail and subsequently contacted them by telephone to thank them for their participation and collect additional data in the field notebook.

Statistical Analysis

For the qualitative section of the study, three expert judges used content analysis. In the quantitative study, the responses to the questionnaire were coded and the data analyzed using the IBM-SPSS statistical package (version 25). We performed descriptive comparative analysis using the Mann–Whitney U test, Kruskal–Wallis, and Chi-square, along with relational analysis in order to compare responses between independent samples (gender, age, profession, and autonomous community).

Since the data did not fulfill the assumption of normality, we calculated the effect size for the Mann–Whitney U ($r = Z/\sqrt{N}$) and Kruskal–Wallis [ES $= H * (N + 1)/(N \char`\^ 2 - 1)$] tests for all significant results (Tomczak and Tomczak, 2014), interpreting them according to Cohen's classification: 0.1, small; 0.3, medium; and 0.5, large. We performed pairwise comparisons of the Kruskal–Wallis test using the Dunn test with Bonferroni correction. Comparative test results are reported in the main body of the article only when $p < 0.05$.

RESULTS

Current Situation of the Game of Skittles

Skittles is currently played in 52 (58.43%) of the 89 municipalities that lie on the Northern Way (see **Table 2**). Cantabria stood out as skittles is played in 24 (27%) of the 25 Cantabrian municipalities the pilgrimage route passes through. Galicia had the least skittles activity, since it is only played in 3 (3.37%) of the 11 municipalities on the Camino. In Asturias and the Basque Country, it is played in 40–60% of municipalities on the Camino. Although the Basque Country has the most municipalities on the Camino, and the highest population in these municipalities (see **Table 1**), there was a moderate amount of skittles activity. Cantabria, on the other hand, has a smaller population than Asturias or the Basque Country but reported more skittles

		Skittles currently played		Total
		Yes	No	
Autonomous community	Basque Country	13	16	29
	Cantabria	24	1	25
	Asturias	12	9	21
	Galicia	3	11	14
Total		**52**	**37**	**89**

activity. This shows that the skittles activities in the municipalities of the four communities the Northern Camino passes through are not directly proportional to their population sizes. In this regard, looking at the number of skittles clubs by the population of the municipalities, there are 2.9 skittles clubs per 100,000 inhabitants in the municipalities in the Basque Country, but 33.8 skittles clubs per 100,000 inhabitants in the municipalities in Cantabria. The corresponding figures for Asturias and Galicia are 8.8 and 1.9, respectively. Similarly, applying the same approach to the number of skittles alleys, in the Basque Country, there are 3.6 bowling alleys per 100,000 inhabitants, while in Cantabria, there are 52.5, in Asturias 13.7, and in Galicia 8.8.

In terms of being played in the past, 64 informants (71.91%) reported that skittles used to be played (that they have evidence of) in their municipalities. We found 20 different types of skittles played along the Northern Camino (see **Table 3**). In the Basque Country, there were 10 different modalities (without a clear predominant variety), with the greatest activity recorded in the last third of the Camino passing through this community. In Cantabria, we recorded only four skittles varieties, the most common by far being *Bolo Palma* (in 88% of the municipalities on the Camino), followed by *Pasabolo Losa* and *Pasabolo Tablón*. In the last third of the Cantabrian Camino, only *Bolo Palma* was played. In the Principality of Asturias, we recorded seven types of skittles. The most widely played was *Cuatreada* (in 8 of the 21 municipalities on the Camino, representing 38.09%). In Asturias, most skittles activity was concentrated in the first two-thirds of the Camino (with a preference for *Cuatreada* and *Batiente*) and in the last third we recorded very little activity (only in one of the last seven municipalities on the Camino in this part of Asturias). In Galicia, we recorded only three types of skittles (*Bolo Celta*, *en Línea*, and *Ó Canteiro*) in the first three municipalities at the beginning of the route in Galicia. From there to Santiago de Compostela, in the remaining 11 municipalities, we found no record of skittles being played nowadays.

We found a total of 162 clubs, associations or *peñas* participating in federated skittles competitions and 25 participating in nonformal (nonfederated) competitions (see **Table 4**). These organizations were located in 48 of the municipalities on the Camino (53.93%), and practically all of them (47) engaged in competitive (federated) activity. We found only one municipality with skittles clubs that did not participate in federated activity. There are regular tournaments in the municipalities where these clubs were recorded (many coinciding with important dates on the calendar, such as

the popular festivals in each place) in addition to federated competition. To a lesser extent, these clubs also participate in internal (nonformal) leagues that run parallel to formal (federated) competition.

Examining the data in **Table 4** by autonomous community, 51% of the municipalities with federated skittles clubs were in Cantabria ($n = 47$), 21.3% were in the Basque Country, and 23.4% were in Asturias. Only 4.3% of municipalities with federated skittles clubs were in Galicia. These data are proportional to the number of federated clubs by autonomous community; there were 92 in Cantabria, 26 in the Basque Country, 41 in Asturias (in this case there was a higher density of federated clubs by municipality compared with the Basque Country), and 3 in Galicia. The proportions of nonfederated clubs were similar to the federated clubs, albeit with much smaller numbers: 22 in Cantabria, 2 in Asturias, 1 in the Basque Country, and none in Galicia.

In the 89 municipalities analyzed, we recorded a total of 291 skittles alleys dedicated exclusively to the game (see **Table 5**). Most (60.82%) were in Cantabria, 23.02% in Asturias, 11.34% in the Basque Country, and 4.81% in Galicia. Skittles alleys were reported in 57 of the 89 municipalities on the Camino (64.04%). In Cantabria, 24 out of the 25 municipalities had skittles alleys (with a ratio of more than 7 fields per municipality), in Asturias 15 out of 21, in the Basque Country 13 of 29 and in Galicia, 5 out of 14, including municipalities with skittles alleys but where skittles is not currently played (evidence of past activity).

Table 6 shows the informants' perceptions of the importance attached to skittles in each place (on a scale of 1 to 5). The scores were low (and directly proportional to the activity in each autonomous community), with an average of 3.72 in Cantabria, a medium-high assessment. Asturians had a low-medium score (2.24), those in the Basque Country had a low score (2.03), and Galicians had a very low score (1.57).

Other Popular and Traditional Games and Sports

In addition to skittles, informants reported other popular and traditional games and sports on the route of the Northern Camino (see **Table 7**). We classified the informants' responses into four types: *Pelota-pala-cesta* (ball games using hands, paddles, shovels, or baskets); *Rural Sport* (which includes activities such as rope pulling, log cutting with saws or axes, races with milk jugs, lifting stones or sacks of corn, stone dragging (whether by people or oxen), mowing grass, and stick pulling, etc.); *Rowing* (in fixed seats in boats called *Traineras*); and *Others* (activities that do not fit into the previous sections and that constitute practices inherited from generation to generation, such as the key game, the frog, *tuta*, *toka*, and *petanca*, among others).

In the Basque Country, *Pelota* (ball games) stood out (in 79.31% of the municipalities on the Camino); these were exclusive to the Basque Country and not reported in any of the other autonomous communities. We also saw notable levels of rural sports (51.72%) and rowing (34.49%). This is not surprising, since the Northern route of the Camino (also called the *Coastal*

TABLE 3 | Active skittles varieties by autonomous community.

Variety	Basque Country (No. municipalities)	Cantabria (No. municipalities)	Asturias (No. municipalities)	Galicia (No. municipalities)	Total
Bolatoki	2	0	0	0	2
Hiru txirlo	3	0	0	0	3
Toka	3	0	0	0	3
Bolos a katxete	3	0	0	0	3
Remonte	1	0	0	0	1
Tres tablones	4	0	0	0	4
Calva	2	0	0	0	2
Bolo leonés	2	0	1	0	3
Pasabolo tablón	3	4	0	0	7
Bolo palma	2	22	2	0	26
Pasabolo losa	0	6	0	0	6
Bolo pasiego	0	1	0	0	1
Cuatreada	0	0	8	0	8
Bolo Tineo	0	0	1	0	1
Batiente	0	0	4	0	4
Bolinos	0	0	1	0	1
Rodao	0	0	1	0	1
Bolos celtas	0	0	0	1	1
Bolos á línea	0	0	0	1	1
Bolos ó canteiro	0	0	0	2	2
Total	**25**	**33**	**18**	**4**	**80**

TABLE 4 | Skittles clubs and participation in formal and nonformal competitions.

	Mun. with skittles clubs[a]	Mun. with skittles clubs fed.[b]	Mun. without skittles clubs fed.[c]	No. skittles clubs fed.[d]	No. skittles clubs nonfed.[e]	Mun. tournaments[f]	Mun. leagues int.[g]	Mun. leagues fed.[h]
Basque Country	11	10	1	26	1	9	9	10
	12.36%	11.24%	1.12%	16.05%	4%	10.11%	10.11%	11.24%
Cantabria	24	24	4	92	22	24	16	23
	26.97%	26.97%	4.49%	56.79%	88%	26.97%	17.98%	25.84%
Asturias	11	11	2	41	2	11	8	11
	12.36%	12.36%	2.25%	25.31%	8%	12.36%	8.99%	12.36%
Galicia	2	2	0	3	0	2	0	2
	2.25%	2.25%	–	1.85%	–	2.25%	–	2.25%
Total	**48**	**47**	**7**	**162**	**25**	**46**	**33**	**47**
	53.93%	**52.81%**	**7.86%**	**–**	**–**	**51.68%**	**37.98%**	**52.81%**

[a]Number of municipalities with clubs dedicated exclusively skittles.
[b]Number of municipalities with skittles clubs participating in formal (federated) competitions.
[c]Number of municipalities with skittles clubs participating in nonformal (friendly) competitions.
[d]Number of skittles clubs competing in formal (federated) competitions.
[e]Number of skittles clubs competing in nonformal (friendly) competitions.
[f]Number of municipalities where skittles tournaments are held regularly.
[g]Number of municipalities with internal skittles leagues (nonfederated).
[h]Number of municipalities where skittles league days are held (federated).

Way) runs along the entire coast of the Cantabrian sea, hence the keenness for this nautical sport, originally with rowing boats used for fishing and evolving into a sport over time.

In Cantabria, rowing stood out (28% of the municipalities on the Camino) and, to a lesser extent, rural sport (8%) and other popular and traditional games and sports (12%). In Asturias, the highest percentage was in other games (28.57%), with fewer reports of rural sports (19.05%) and rowing (9.52%). In Galicia, there was only activity reported

in other games and pastimes (28.57%), referring to traditional games such as *billarda*, the key game, badges, the frog, and *peonza*, among others.

In terms of which traditional/popular game or sport the respondents considered to be most important in their municipalities (see **Table 8**), skittles stood out in the entire Northern Camino (40.45%). By autonomous community, in the Basque Country, ball games stood out (42.27%), in Cantabria and Asturias, skittles was the most important (84 and 52.38%,

TABLE 5 | Skittles alleys.

	No. of municipalities with skittles alleys	No. of municipalities without skittles alleys	Total no. of skittles alleys
Basque Country	13	16	33
	14.61%	17.98%	11.34%
Cantabria	24	1	177
	26.97%	1.12%	60.82%
Asturias	15	6	67
	16.85%	6.74%	23.02%
Galicia	5	9	14
	5.62%	10.11%	4.81%
Total	**57**	**32**	**291**
	64.04%	**35.96%**	**–**

TABLE 6 | Importance of the game of skittles in the municipality.

	Average rating (1–5)	SD
Basque Country	2.03	1.24
Cantabria	3.72	1.02
Asturias	2.24	1.41
Galicia	1.57	1.09
Total	**2.48**	**1.43**

TABLE 7 | Other popular and traditional games and sports on the Northern route of the Camino.

	Ball games	Rural sport	Rowing	Others
Basque Country	23	15	10	5
	79.31%	51.72%	34.49%	17.24%
Cantabria	0	2	7	3
	–	8%	28%	12%
Asturias	0	4	2	6
	–	19.05%	9.52%	28.57%
Galicia	0	0	0	4
	–	–	–	28,57%
Total	**23**	**21**	**19**	**18**
	25.84%	**23.60%**	**21.35%**	**20.22%**

respectively), and in Galicia, other popular and traditional games and sports as noted above were more important, particularly *billarda*.

Transmission Channels for Popular and Traditional Games and Sports

Our data, which came from a multiple choice item, indicates that popular and traditional sports and games were mainly passed on through the family (69.66%). Other means of transmission such as the media or personal practice accounted for 65.17% of the responses. Family and personal experience of playing the game were presented as the best tools for the transmission of traditions from generation to generation. On the other hand, school as a transmission channel generated 35.95% of the responses while community transmission (friends, neighbors, etc.) appeared in 30.34% of responses.

TABLE 8 | Importance of popular and traditional games and sports on the Camino.

	Skittles	Ball games	Rural sport	Rowing	Others	None
Basque Country	4	14	3	7	1	0
	13.79%	48.27%	10.34%	24.14%	3.45%	–
Cantabria	21	0	0	3	0	1
	84%	–	–	12%	–	4%
Asturias	11	0	0	2	1	7
	52.38%	–	–	9.52%	4.76%	33.33%
Galicia	0	0	0	0	8	6
	–	–	–	–	57.14%	42.86%
Total	**36**	**14**	**3**	**12**	**10**	**14**
	40.45%	**15.73%**	**3.37%**	**13.48%**	**11.23%**	**15.73%**

Skittles Based on Sociodemographic Variables

In order to identify how gender, age, and profession influence knowledge, practice, and preference for skittles, we performed a comparative analysis using the Mann–Whitney U test.

Men scored higher than women (see **Table 9**) in terms of knowledge of skittles ($U = 399.500$, $p = 0.035$, $r = 0.22$), playing it ($U = 288.000$, $p = 0.001$, $r = 0.35$), and their preference for the game ($U = 281.500$, $p = 0.001$, $r = 0.36$).

The only significant differences we found with respect to age were about knowledge of skittles [$\chi^2(2, N = 89) = 6.947$; $p = 0.031$]. This indicates that older people knew more about it (see **Table 10**).

We found significant differences between respondents based on profession (see **Table 11**) in terms of playing skittles [$\chi^2(3, N = 89) = 28.652$; $p < 0.001$]. Specifically, we found a significantly higher score in this regard ($p < 0.001$) for club players/managers (67.18) compared with sports/cultural officers in the municipality (35.79) or to councilors for culture or sports (37.60).

Relationship Between Playing Skittles and Other Sports

Table 12 presents the analysis of differences between those who played skittles and those who did not with regard to knowledge of other traditional games ($U = 545.50$, $p = 0.000$, $r = -0.42$), whether they played traditional games in the past ($U = 366.500$, $p = 0.000$, $r = -0.54$), their preference for these games ($U = 436.000$, $p = 0.000$, $r = -0.50$), and what they usually play ($U = 547.000$, $p = 0.000$, $r = -0.39$). We found that subjects who played skittles had greater knowledge of other traditional games, played them to a greater extent in the past, showed more interest in them, and currently play this type of sport or game more often.

Skittles Activity and Its Relationship With the Northern Route of the Camino de Santiago

In order to analyze whether the northern route of the Camino de Santiago influenced the playing of skittles, we performed

TABLE 9 | Results of Mann–Whitney U test comparing gender and skittles.

	U of Mann–Whitney	Z	Asymptotic significance (bilateral)	N	r
Knowledge	399.500	−2.11	0.035	89	−0.22
Preference	288.000	−3.32	0.001	89	−0.35
Practice	281.500	−3.36	0.001	89	−0.36

TABLE 10 | Results of Kruskal–Wallis comparing age and skittles.

	χ^2	GI	N	Asymptotic significance (bilateral)	E_R^2
Knowledge of skittles	6.947	2	89	0.031	0.08

TABLE 11 | Results of Kruskal–Wallis comparing profession and skittles.

	Knowledge	Practice	Preference	Played in municipality
H of Kruskal–Wallis	24.965	42.930	31.244	28.652
GI	3	3	3	3
Asymptotic sig	0.000	0.000	0.000	0.000
E_R^2	0.28	0.49	0.36	0.33

TABLE 12 | Results of Mann–Whitney U test comparing other traditional sports/games and playing skittles.

	Knowledge of traditional game	Played traditional game in past	Liking traditional game	Plays traditional game now
U of Mann–Whitney	545.500	366.500	436.000	547.000
W of Wilcoxon	1248.500	1069.500	1139.000	1250.000
Z	−3.992	−5.049	−4.681	−3.716
Asymptotic sig (bilateral)	0.000	0.000	0.000	0.000
r	−0.42	−0.54	−0.50	−0.39

a comparative analysis between municipalities on the Camino ($n = 89$) and a sample of other, similar municipalities ($n = 60$) from the same autonomous communities.

Firstly, we found significant differences between the two groups in the number of clubs (see **Table 13**). The municipalities on the northern Camino route had more clubs compared with the other municipalities ($U = 745.500$, $p = 0.000$, $r = −0.44$).

We also found differences in terms of the number of varieties of skittles [$\chi^2(2, N = 149) = 10.253$; $p = 0.006$]. In fact, the municipalities on the Camino had a greater variety of types of skittles, which we relate to the cultural diversity of the pilgrim route, which would have helped to preserve and develop this activity, allowing it to reach other areas of Spain.

In line with the above, our analysis also indicated significant differences pointing to greater wealth in terms of traditional games and sports played in the municipalities on the northern route [$\chi^2(1, N = 146) = 10.786$; $p = 0.001$]. This shows, on the one hand, the cultural influence on the areas the Camino runs through contributing to enriching the games

TABLE 13 | Results from Mann–Whitney U test comparing number of clubs in municipalities on the Northern Camino and other municipalities.

	U of Mann–Whitney	Z	Asymptotic significance (bilateral)	N	r
No. of clubs	745.500	−4.615	0.001	109	−0.44

in these areas, and on the other hand, the preservation of the traditions associated with the experience involved in this pilgrimage route.

DISCUSSION

One of the main results of this study shows that skittles is still played in almost 60% of the municipalities that make up the Northern Camino and, moreover, it is the most popular traditional game played on this route, ahead of ball games (which are exclusive to the Basque Country), rural sports, rowing, or the other types of traditional games and sports often played in this area. Skittles is one of the most deeply rooted traditional games in this region. As various studies have shown, skittles has served as an important social meeting point in different communities by functioning as a channel of cultural transmission, contributing to its promotion and conservation (Ruiz, 2000; Rodríguez-Fernández, 2013).

Skittles, as with other "popular" games, serves as a tool of identity for social groups. Playing it contributes to the maintenance of habits and cultural forms that are transmitted from generation to generation.

García-Serrano (1974) reported that Spain was rich in popular and traditional games and they are currently in good health (Doncel-Recas, 2014), with the Cantabrian coast having the largest number of these games, particularly the Basque Country and Navarra (Baena-Extremera, 2005). With respect to communities on the Northern Camino, Moreno (1993) placed the Basque Country at the highest level of activity followed by Cantabria, Asturias, and Galicia at a high level. Skittles has been included in these assessments, with most activity being reported from Cantabria, Asturias, and the Basque Country (Rodríguez-Fernández, 2013; Rodríguez-Fernández et al., 2015a). In the case of the Basque Country, different studies and reports have been published collecting evidence of the wide diversity of traditional games and sports played in that region, among which the game of skittles stands out (Mendizabal and Homobono, 1966; Aguirre, 1971; Ibabe and Lujanbio, 1987; Glaria, 1988; Peña et al., 2018).

Our study recorded skittles activity in the municipalities of Ribadeo, Barreiros and Lourenzá, the first three municipalities upon entering Galicia via the Northern Camino. In the fourth municipality (Mondoñedo), we found no reports of current skittles activity, although there were indications of recent activity considering that we did have a report of a skittles alley here. These data match the findings in study by Rodríguez-Fernández et al. (2014a) about skittles in the final stages of the Camino de Santiago, linking skittles with the municipalities that the

Northern Camino goes through as it enters Galicia and other municipalities near this route.

In his study of skittles in Vizcaya (Basque Country), Zorrilla-López (2005) reported skittles activity in the municipalities on the Northern Camino in this community. However, the highest concentration of skittles was in the municipalities in the interior of the Basque Country. Our data agree with these findings, noting skittles activity near the coast at 44.83%, data that Zorrilla-López (2005) noted as worrying when referring to skittles as a type of game which used to be as popular as ball games, the main traditional game played in the Basque community which in our study was played in 48.27% of municipalities.

Skittles activity was reported in 96% of Cantabrian municipalities on the Northern Camino. This very high percentage confirms the levels of skittles activity in this community reported by authors such as Blanco-Maza (1992), Hoyos (2002), and Torre (2013) and indicated by the records of the activity (league matches, cup, regional and national championships, circuits, competitions, and tournaments) of the Cantabrian Skittles Federation (2020a). Braun (2019) pointed out that playing skittles in Cantabria is influenced by the love for the land of the people who play, it is a symbol of identity for this community, hence the Cantabrian government's commitment to preserving this tradition, supporting the regional federation, and sports clubs, and promoting an educational project in schools to consolidate the future of these practices in the community (Zuloaga-Martínez, 2019).

In Asturias, 57.14% of municipalities on the Northern Camino reported skittles being played; these are, together with Cantabria, the highest rates in our study. Authors such as Ruiz (2000) and Mencía (2007) highlighted how much skittles was played in this community, while they also indicated concern about its gradual decline in recent years. Both authors highlighted how popular skittles was in general throughout the Principality of Asturias, both because of the federated activity each year and because of the relationship with the local culture, since skittles is a very old tradition in this region which belongs to all Asturians (Mencía, 2007). Plans to promote it were put in place in schools to maintain that tradition in addition to regulated competitions, especially through Physical Education lessons (Crespo, 2002; Mencía, 2007).

In the four communities on the Northern Camino, we recorded 20 different types of skittles. On the one hand, this indicates the plurality of the game in terms of its aspects and modalities, something highlighted by authors such as Lavega (1996), Ruiz (2000), Rodríguez-Fernández (2013, 2016), and Torre (2013), and for Blanco-Maza (1992), it remains one more identifying factor of the idiosyncrasies of each of these peoples. From the 10 modalities played in the Basque Country, 7 were only played in this region, particularly *Hiru txirlo*, *bolatoki*, *toka*, and *bolos a katxete* (Zorrilla-López, 2005), all of which are knock-down skittles games. We found four types of skittles in Cantabria, two *pasabolo* type (*pasabolo-losa* and *pasabolo-tablón*) and two knock-down type (*bolo palma* and *bolo pasiego*) (Cantabrian Skittles Federation, 2020b). *Bolo palma* is the most deeply rooted in Cantabria and one of the most widespread in Spain (De la Torre, 2002; Zorrilla-López, 2005). This agrees

with our data, where *bolo palma* is played in 22 of the 25 Cantabrian municipalities on the Northern Camino (88%). In Asturias, we found seven different varieties of the game, the most common being *cuatreada*, which agrees with the studies by Mencía (2007) and Ruiz (2000). In Galicia, we recorded three types (*bolo celta*, *á línea* and *ó canteiro*, all *pasabolo* types) matching the findings from Rodríguez-Fernández et al. (2014a) in his study on skittles in the final stage of the Camino de Santiago.

A unique aspect of our study is our record of 162 clubs, associations, and *peñas* that participate in federated skittles competitions. The fact that the game is mediated by sports clubs that participate in regulated competitions (under the control of a sports federation) means that we are talking about a sport. In this sense, skittles is a sport, which abandons the essence of what a game represents in itself (a nonformal activity characterized by flexibility in the rules to adapt them to a given context). This transformation of a traditional game like skittles to a sport (Maestro, 2007; Lavega, 2010; Sedano-Campo, 2010; Méndez-Giménez and Fernández-Río, 2011; Rodríguez-Fernández et al., 2015a) contributed to the decline or practical disappearance of many indigenous varieties (Martín, 2002c; Zorrilla-López, 2005), but on the other hand, there was a definitive commitment to keeping the sports modalities alive (Ruiz, 2000; Hoyos, 2002; Mencía, 2007; Rodríguez-Fernández, 2013; Rodríguez-Fernández et al., 2015a). In this regard, Lavega (2002, p. 93) stresses the maintenance of the game-sport binomial, proposing it as an empowerment, promotion, and dissemination of the game of skittles "reconciling sport with celebration, tradition with innovation, sharing with fun competition."

The activity in the municipalities of the Northern Camino was also reflected in the number of skittles alleys we recorded in this study, a total of 291. Almost two-thirds (64.04%) of the municipalities through which this pilgrimage route passes have one or more skittles alleys. These play spaces have always been considered social spaces (Ruiz, 2000; Rodríguez-Fernández, 2013; Rodríguez-Fernández et al., 2015b), defined by Torre (2013) as centers for leisure, meeting and social gatherings, fun, and sporting challenges, although some voices have emerged warning of a change in the concept of skittles alleys in which competition has won to the detriment of play, abandoning that nuance of "place of social relationship" which has always characterized skittles alleys. In any case, skittles alleys have improved in quality over time. Hoyos (2002), on the state of the *Boleras* (skittles alleys) in Cantabria, where 60.82%—according to our study— are located, indicated that in many cases they have gone from being a small stone wall with trees for shade to small covered stadiums, with advertising, management, and stands capable of accommodating three thousand people comfortably seated.

Despite the high levels of skittles activity we found on the Northern Camino, the participants in our study generally had low opinions of the importance of skittles in their corresponding localities, with the exception of Cantabria, which give a medium-high rating. These data coincide with the study by Rodríguez-Fernández (2013) on skittles in a Galician town, where participants had a low opinion of skittles, considering it a simple game, irrelevant to other

facets of life except for specific leisure time. In relation to other games and sports played in the four autonomous communities covered by this study, our data confirms that skittles is the most popular traditional game/sport played in Cantabria and Asturias, the two communities that gave it a higher score. Mencía (2007) and Torre (2013) attributed the importance of skittles in these localities to how much the inhabitants and entities (public and private) cared about maintaining this type of tradition, and their awareness of skittles as a symbol of their identity and part of their culture and heritage. In the Basque Country, respondents had the highest opinions of traditional Basque ball games, also due to their close relationship with traditional Basque culture (González-Abrisketa, 2006, 2013).

Our analysis of skittles in terms of demographic variables indicated that men knew more about the game, played it more, and had higher levels of preferences for it than women. This is not surprising as it is a game which is mostly played by men (Braun, 1984; Blanco-Maza, 1992; Ruiz, 2000; Rodríguez-Fernández, 2013). Although women do play skittles (Braun, 1998; Ruiz, 2000; De La Villa, 2002; Maestro, 2002, 2007; Martín, 2002a,b; Ungidos, 2002), their participation is generally symbolic except for specific cases throughout Spain (Rodríguez-Fernández et al., 2016). The older our respondents were, the better their knowledge of skittles. People who played skittles also knew more about other popular traditional games and sports. In this regard, it is important to consider the decline in playing skittles and its loss of prominence (Lavega, 2000; Parlebas, 2003; Zorrilla-López, 2005; Torre, 2013; Rodríguez-Fernández et al., 2014a), which means that older people not only know more about skittles but also other traditional games and sports in general thanks to their regular contact with them. Similarly, in terms of participant profiles, players or managers of federated clubs played more. This confirms the idea of skittles being made into a sport, to the detriment of being considered a strictly traditional game.

Our results confirm a development of skittles in the towns and villages on the northern route of the Camino de Santiago which has led to it becoming a "sport." However, there are few studies on this topic in this area, and those that do exist confirm that skittles is widely played in the Basque Country, Cantabria, and Asturias, but less so in Galicia, where it is mostly played symbolically. In that regard it is important to note that Galicia is the last stage of the northern route (**Figure 1**), something that may help to explain the low levels of skittles activity in the area. Nonetheless, this type of research not only helps us get closer to the reality of an important traditional game in the peninsula—particularly in the North of Spain—but also helps clearly illustrate part of the local culture associated with popular games.

CONCLUSION

The Northern route of the Camino de Santiago is a route of interaction and cultural exchange not only between the Iberian Peninsula and the rest of Europe but also between the inhabitants of the different regions of northern Spain. The possible French and German influences on the game of skittles in other times have left us with current data indicating that skittles is widely played along this route (almost 60% of the municipalities on the Northern Way). This activity is reflected in the number of skittles alleys (291) and in the 162 clubs, associations and *peñas* that participate in leagues, championships, and competitions organized by the regional federations and by the Spanish Skittles Federation.

From the 20 different varieties of skittles we found along the Camino (with knock-down types being more common than *pasabolo* types), *bolo palma* stood out as the most widely played, especially in Cantabria, a community that placed the highest value on skittles and that reported more skittles played than the other Spanish regions on the Northern Camino (96% of Cantabrian municipalities on the Camino). In addition to interest in skittles, our research confirms the importance felt in the Basque Country, Cantabria, and Asturias about maintaining their traditions through traditional games and sports. In the Basque Country, it was through Basque ball games (handball, shovel or basket), rural sports, rowing and skittles. In Cantabria, it was through skittles, and in Asturias, through skittles and rural sports. In Galicia, there was also interest in skittles, although at lower levels, along with other games such as *billarda*, the key, and the frog.

Finally, our study shows how traditions are passed on from generation to generation, mainly through the family. Personal experiences and contact with popular and traditional games and sports are essential for parents in order to transmit to their children the full value they place on this type of activity. For this reason, public administrations must focus on the promotion, dissemination, and preservation of popular culture through traditional games, collaborating and supporting private nonprofit entities (federations, clubs, associations, and skittles clubs), and establishing mechanisms that motivate new generations to play traditional games and sports, with the school being an important place to focus this important task.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of Bioethics Committee of the University of Santiago de Compostela (Spain). All subjects gave written informed consent in accordance with the Declaration of Helsinki.

AUTHOR CONTRIBUTIONS

JR-F and ML-M conceived and designed the research. JR-F carried out the data collection and management with informants.

JG-Á and GM-S analyzed the data and reflecting it in the study results. JR-F drafted the manuscript. ML-M, JG-Á, and GM-S contributed to the writing of the study and reviewed it. All authors read and approved the manuscript.

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Traditional Sports and Games: Intercultural Dialog, Sustainability, and Empowerment

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From Traditional Sports and Games (TSG) we have not only learned different ways of living time as well as inhabit space and a particular mode of practicing sports and games from distinct cultures, but also promoting universal dialog among people. TSG presents sustainable and ecological references for living needed even before the advent of the COVID-19 pandemic. Nowadays, environmentally friendly policies and production methods must be taken more seriously. TSG may reveal a path to sustainable development, considering our corporeality and cultural diversity. TSG are expressions of human groups that historically reproduce their way of life-based on modes of social cooperation and specific forms of relationship with nature, traditionally characterized by sustained environmental management. The purpose of this article is to discuss how TSG promotes intercultural dialog with a focus on sustainability, and how it empowers people and creates equality among its players. We understand that TSG can break socio-cultural barriers. For this study, we considered data from a Brazilian experience of TSG's Festival held at a public school in the city of São Paulo (Brazil), organized in collaboration with our study group. Data consists of observations recorded in pictures and films during the processes of organization, preparation, implementation, and evaluation of a TSG Festival, held in a public school in São Paulo, Brazil from the years of 2017 and 2018, with the participation of 800 students from the first to the ninth grade of elementary school, aged between 7 and 17 years. The first step in our analysis is taken from a dynamic called "Talking Circles," where researchers registered dialog about experiences and used specific literature about TSG, from a philosophical perspective. The team and students from our study group that organized these events were invited to participate in four different Talking Circles. Approximately 20 people participated in each one of these meetings. Recurrences that emerged from these Talking Circles are presented in the results and explored afterward. What does this experience–from bodies in movement, artistic or sporting, or both–teach about intercultural dialog and empowerment? Such gestures indicate a cultural heritage and corporeal wisdom that allows humans to face new encounters and understanding in peace, recognizing humanity common to all of us, regardless of our origins. Ethical and aesthetical results of such dialog reveal possibilities to be explored in our relationship with different cultures and the environment, providing points of sustainable development through TSG.

Keywords: traditional sports and games, phenomenology, philosophy, festival, dialog

INTRODUCTION

Since we all play together, Traditional cultural expressions like Traditional Sports and Games (TSG) demonstrate prominence in the ethical and aesthetic dimensions considering the fluidity and relevance of the groups in the elaboration of affects. Important research studies have been carried out about the diversity and richness of knowledge and learning provided by TSG all over the world (Parlebas, 2002, 2010; Lavega, 2004; Eichberg and Nygaard, 2009b; Gómez et al., 2012; Marin and Stein, 2015; Renson, 2016; Young Lee, 2016; Lavega-Burgués et al., 2020). For the scope of this paper, we understand TSG as a traditional community's expression based on research and dialogs with Central and Latin America, especially in Colombia and Mexico, which have traditional games well consolidated both in academic studies and public policies (Herrera Velásquez et al., 2018). Based on this assumption, the purpose of this article is to discuss how TSG promotes intercultural dialogs with a focus on sustainability and how it empowers people and promotes equality among its players. Along these lines, we begin by defining traditional communities and their expressions, taking into account the Brazilian experience, and their current contributions. We would like to highlight the role of events and festivals in these communities, and then present the Brazilian case of a TSG Festival, held every year since 2017 at a public elementary school in São Paulo.

Observations recorded in pictures and films during the processes of organization, preparation, implementation, and evaluation of this TSG festival help us to discuss some fundamental elements present in bodily manifestations of traditional communities in Brazil. After the festival, we conducted four Talking Circles as a qualitative methodology to identify the recurrences observed by the researchers. Through them, we verified what seems to be most significant aspect for each person, seeking for more universal aspects. For humanities research, recurrences are indicators of meaning and potency (Bachelard, 2008) and guide the elements for the analysis. Our reflections were driven by the following question: what does this experience–from bodies in movement, whether artistic or sporting, or both–teach about intercultural dialogs and empowerment? Hence, the article focuses on the contribution of TSG for the discussion of three issues: intercultural dialog, sustainability, and empowerment.

TRADITIONAL COMMUNITIES IN BRAZIL AND ITS FESTIVALS

Brazil, with continental dimensions, holds a diversity of communities preserved, to some degree, due to the vast proportions of the country. These communities historically reproduce their way of life-based on modes of social cooperation and specific forms of relationship with nature, traditionally characterized by sustained management of the environment. Even in different habitats, such as large cities, we could verify that TSG maintains the expressions of such way of life.

Tião Carvalho, a master of traditional Brazilian knowledge, says this about the values he tries to spread in his classes and festivals: "These values, which are actually very old, are new to people in the city" (testimony in Saura, 2008). He is talking about the purpose of the festivals he promotes in São Paulo city. His festivals include plays and dances which originate from remote northern areas of the country. For about 20 years, Tião Carvalho has been organizing these festivities in the largest population center in Brazil, São Paulo State, situated in the rich southeast region. Although the festivities are eccentric for most of the city's population due to its popular religiosity and original themes, each event brings together millions of people. Why does this festival, coming from a particular and exotic context, seduce so many people in the metropolis?

"Faith in the festivities, faith in the encounter," explains Mr. Tião, showing that TSG expressions are traditional but also contemporary and alive today. Here we try to clarify how TSG operates with principles of collectivity, bringing together generations, valuing diversity, integration, and respect for the environment. These elements present different values from the valued individualism and meritocracy encouraged in multiple and complex ways nowadays, especially in large urban centers.

Lévi-Strauss (2013) reflected on the loss of reference that "Western type civilization" suffers: "Long an act of faith, the belief in a material and moral progress destined to go on forever is facing its gravest crisis. Western-style civilization has lost sight of the model it had set up for itself and is no longer bold enough to offer that model to others. Is it not therefore fitting to look elsewhere, to broaden the traditional frameworks to which our reflections on the human condition have been restricted? Ought we not to integrate social experiments that are more varied, more different from our own than those within the narrow horizon to which we have long confined ourselves?" (p. 4–5).

The ancient values derived from traditional expressions reflect a way of life that we are invited to look at, since traditional societies have been inhabiting the planet for 99% of the time of human life on earth, whereas, in contrast, our society as we know it today, 1% of this time (Lévi-Strauss, 2013). Therefore, our contemporary civilizations are exceptions as a reference of possible human existence.

By traditional community we mean: "culturally differentiated human groups that historically reproduce their way of life, relatively isolated, based on modes of social cooperation and specific forms of relationships with nature, traditionally characterized by the sustainable management of the environment" (Diegues, 2000, p. 22). This notion refers to indigenous populations and Afro-descendant communities (*quilombos*), among others, in an intense relationship with the environment. In the case of Brazil specifically, where exuberant natural areas are still preserved, there is a rich diversity of these communities, more or less isolated. They maintain their respective ways of life despite the impositions of the Western capitalist system. Here, at least 15 different human groups were identified. Each group has its particularities in their way of life, as well as in terms of TSG. Taking a group of Afro-descendants as an example, there are about 700 *quilombos* that practice capoeira regularly today. Capoeira, a dance influenced by martial

arts, acts as an expression that reflects the group's identity and recalls the still recent struggle for freedom (Saura, 2019). These populations steadfastly protect their environment and habitat, living in complete interdependence with the environment, practicing close observation, and especially, by the way, they prevent external factors from threatening their areas (Brasil Ministério do Meio Ambiente, 2000). Therefore, we are talking about different ways of understanding and acting in the world. Contrary to the misconception that traditional is stagnant and unchangeable, these communities show us how knowledge and tradition are always being updated. However, they maintain certain fundamental structures (Saura and Zimmermann, 2016). According to Cunha (2007): "There are at least as many traditional knowledge regimes as there are peoples. For while there is, by hypothesis, a single regime for scientific knowledge, there is a legion of traditional knowledge regimes. There is no doubt, however, that scientific knowledge is hegemonic. Modern hegemonic science uses concepts, traditional science uses perceptions" (p. 79).

As in science, knowledge is always being built on the process of constant update. However, although all knowledge rests on the same logical operations and responds to the same thirst for learning and understanding the world around us (Lévi-Strauss, 2013), there is this significant difference between them: concepts and perception. Knowledge and other expressions from traditional communities reveals a learning process that necessarily passes through the human body and the senses. It is worth calling attention to the fact that traditional practices of building knowledge can perceive and anticipate discoveries validated afterward by hegemonic science due to the ability to understand the context, the interrelations and the circumstances. Their historical relationship and observation of all the phenomena made them discover and anticipate issues for science, as we have seen in biology, pharmacology, preservation, and reproduction of species, and even in social sciences, by the way many of these societies are organized. The accurate observation of nature places these populations in a prominent spot in the production of knowledge, and in the symbolic and mythical system that makes up the repertoire of humanity since ancient times (Bachelard, 2008). For these populations, the environment has been part of their symbolic system and appears on TSG expressions. This way, TSG reveals and updates the fundamental images and values from these populations, as master Tião Carvalho reinforces. Hence, the notion of the environment is extended and inclusive: "The environment came to include not only the environment of humans, but the environment of all life forms. Life then came to include more than living things encompassing rivers, landscapes, cultures and ecosystems. One started to talk about the living earth" (Breivik, 2019, p. 65).

Clearly we can see how TSG is related to the environment, culture, history, and political struggles (Calegare et al., 2014). These practices, made up of simple elements and complex, human nature observation technology show us a path to intercultural dialog, sustainability, and empowerment. Very often, games take place on important dates and celebrations for each one of these communities. The festivals are events that reflect the symbolic capacity of humankind to give meaning to things and events from what one observes. These festivities range from birth celebrations, hunting rituals, harvest parties, thanks for abundance and food, to other manifestations concerning human observations of the movement of nature, seasons, and life. They are translated into everything produced for these celebrations: body props and space, music and dance, food, rituals, narratives, artistic and craft productions. They go back to times of mystery, to the active human with creative imagination– this ability that, in addition to logic and reason, allows us to create, invent and assume the impossible (Durand, 2012).

As many of these celebrations end up with a race or a game where everyone participates, TSG plays a role in these systems. The festivities promote bodily engagement (Merleau-Ponty, 1962) of the whole community, concentrated in a single event. The notions of dialog and sharing are enriched by the experience of intercorporeality (Coelho Junior, 2003). Celebrations and festivities are present among all peoples and nations and help us all to align values and develop new meanings for our daily practices. These perspectives show different possibilities of being with others and introduce new forms of existence. And as Mr. Tião reminds us, presenting something new is not necessary. It is important to note that the recognition of interdependence relations is notably directed at personal relationships. In light of a traditional community's way of living and expressions, we prefer to align our discussion with a less anthropocentric perspective and more ecocentric premises.

METHODOLOGY

For this study we used data from TSG Festivals organized by the study group PULA, from the Center of Sociocultural Studies at the School of Physical Education and Sport/University of São Paulo/Brazil, in collaboration with a public school from the city of São Paulo, the EMEF Desembargador Amorim Lima. The "TSG and Street Leisure Festival" has been running since 2017 and engages a whole primary school, including students, teachers, and staff. Data for this article consists of discussions from observations registered in fieldwork during the process of organization, preparation, implementation, and evaluation of the TSG festival from the years of 2017 and 2018. For data collecting, we organized four Talking Circles after the festivals coordinated by two professors in each edition of the festivals. In the first and second meetings, ten researchers involved in the Festival identified issues related to the Festival itself. In the third meeting, we listened to the students from two Physical Education (PE) undergraduate disciplines, which participated in the festival. And in the last meeting, we brought the findings to the research group, so we could identify the recurring themes that emerged from both groups. Talking Circles is a proven methodology that has been applied in traditional communities works, and integrates academic research with traditional populations and native peoples (Tachine et al., 2016).

This annual festival lasts an entire day and is attended by students from this public school that has a partnership with our university. In total, about four hundred students attend in the morning and another four hundred students in the afternoon.

Students are from the first to the ninth grade of elementary school, aged between 7 and 17 years. Students from this school reflect the socio-economic and ethnic heterogeneity present in the surrounding neighborhood. Although all social classes are represented in this school, a predominance of families are from lower income levels. This heterogeneity is highly enriching from the perspective of solidarity. According to the school's evaluation, students from families with very different income levels establish friendships and bonds that favor exchanging life experiences.

At each event, games and activities from childhood culture are selected. A commonality to these games is the fact that they are strongly present in the traditional communities in which we work. The festival takes place in the street, considered to be a public space. Every step of the process requires pre-planning. It is extremely important to consider TSG's background to organize a festival properly. There are many challenges presented by contemporary societal dynamics, and it is essential to consider previous experiences and research to support educational perspectives (Eichberg, 2009).

The first step was to start planning with the school EMEF Desembargador Amorim Lima. We held meetings, one for each event, with the Head of School, teachers, and staff at the beginning of the school semester. The school is located close to our university campus, making it easier to work with undergrad students. Together with the school's team, we discussed which games will be played and equipment needed. Games that do not require major material investments were given preference. These meetings also helped teachers prepare the students for the event. During the school year, students researched and played traditional games. In parallel, we trained PE students to assist teachers and students during the festival.

Activities at the festival include jump rope, spinning, marbles, stretch games, "peteca," hula hoop, and yo-yo, among others. We consider that one important note–learned from other Festivals initiatives–are gestural inspirations provided by experts in these games. Thus, at each event, there are special guests, experts in one or other game as yo-yo or top, who always dazzle children. The choice for using a public space in front of the school encourages neighborhood participation. It reinforces the importance of valuing the public character of streets and sidewalks. The street in front of the school is closed for cars, creating a safe environment for playing.

During the festival, undergraduate students, researchers, and schoolteachers stand at different points on the street, according to the game they're participating in. Children can move freely without space or time limits, without age, gender or grade restriction. For everyone, according to the reports collected, the day is over in the blink of an eye. Teachers and PE training teachers were available to help students with materials when needed. The idea is to leave the students free to choose what they want the most, relating to the use of materials, the place, and the time available.

This study has a qualitative approach, considering its characteristics and theoretical references. Talking Circles proved to be the most appropriate methodology for identifying recurring themes among what researchers and undergraduate students considered most significant in the Festivals. Talking circles

started with us all sharing audiovisual materials from the festivals. Each group–undergrad students, schoolteachers, and researchers–took pictures focusing on relationships, recurrences, or anything else notable. For this study, we selected images with a focus on relationships between the participants. After sharing and selecting audiovisual records, direct questions were asked to encourage discussion. Teachers, researchers and undergrad students at the festival commented on issues involving intercultural dialogs, sustainability and empowerment. Definitions about these issues considering the urban context were previously made by the conductors, and presented at the "Results" section.

Approximately 20 people from the research group participated in Taking Circle. Participants were free to talk about subjects that they considered to be relevant in the experience of promoting the Festival and observing the children's engagement. Recurrences considered for discussion in this work were mentioned more than five times in the Talking Circles.

The search for recurrences–what is repeated everywhere regardless of the cultural environment in which people are present–is part of this methodological approach. This research attempts to investigate subjectivities. Such perspective presupposes considering the first person perspective as the one who lives the experience. But the collection of this rich and human material presents itself not only as an individual or particular component, in this perspective it may bring traces of our human existence. Therefore, this approach emphasizes experience, or personal experience, but seeks among them what is true for every human being, to be able to make more general postulates and not just private or individual observations. In cultural terms it is not possible to generalize conclusions from one group to another but adopting a philosophical perspective it is possible to explore elements that belong to humanity (Martinková and Parry, 2011). In this sense, it is crucial to understand subjectivity and recognize its relevance in how knowledge is produced. It is methodologically significant specifically in the perception of human manifestations where the human being cannot be studied only as an object, considering the complexity of the phenomena. Talking Circles as a methodology requires attentive listening to promote a horizontal relationship between professors and students, aligned with traditional communities' values. It harkens back to oral tradition, to horizontality, to listening more than talking, respecting diversity and understanding of one another (Tachine et al., 2016). Based on the principles of Paulo Freire (2015), Talking Circles was the moment to elaborate on everything that we saw, felt, and learned from the festivals. It was the moment to reflect on what enchanted us at TGS Festivals and why.

RESULTS

The team and students from our study group that organized these events were invited to participate in four different Talking Circles. Recurrences that emerged from these Talking Circles are presented below in the results and explored afterward. Triggering questions were: "What does this experience from bodies in

movement, which updates children's gestures in traditional games, promote among its players? What does enchanted us all on TSG Festivals, and why?"

The participants were surprised at the high level of engagement from the children and their teachers. Everyone in the Talking Circles noticed that cell phones were hardly used throughout the day. This engagement was a pleasant surprise, which showed the strength of TSGs even for children growing up in the city.

That led us to other inquiries related to intercultural dialog, sustainability and empowerment. Talking Circles focused on each one of these main themes. Specific and general questions were asked about the topics, as indicated in **Table 1**. Most participants gave similar answers and expressed surprise at the results overall and level of children's engagement in particular.

For this paper, we consider broad definitions of intercultural dialog, sustainability, and empowerment. These notions that are derived from fieldwork in traditional Brazilian communities bring other indirect questions to researchers when applied to an urban setting. For instance, in academic literature, intercultural dialogs refer to the dialogical encounter between subjects from different cultures. In the case of Traditional Games and Sports that occurs at these festivals in large urban centers, intercultural dialogs may be identified as bringing together children with different backgrounds playing together.

We have shown how corporeality favors this dialog between people from different backgrounds. Teachers witnessed how, throughout the year, children form cohesive groups and often do not mix. Those barriers were broken during the festival, where children were more interested in the games and activities, which encouraged them to play together. Analysis of materials collected from the Festivals shows that even seemingly watertight social barriers can be broken.

As an example, we can mention how teachers' roles were reversed in many festival situations, as their students taught the teachers how to play. Similarly, in Talking Circles and by observing pictures and videos, the participants noticed the reversal of other structural differences. They identified that children of different ages, children and people from different social classes and ethnic groups, children with neighbors from different backgrounds, as well as adults, were are all playing together.

In urban environments, sustainability takes on a different meaning. They refer to using public spaces, encountering other people, the empathy promoted by playing together, and the dialog that is established with others. It refers to realizing that there is no need for expensive toys or large investments in material resources for playing games. Children who participate in TSG festivals learn to share spaces and simple equipment. They also learn to make their own toys from simple material. Expensive toys and the entire entertainment industry are unnecessary for us

TABLE 1 | Themes, Questions, Indicators and Recurrences developed in the Talking Circles.

Central themes	Questions and Indicators	Recurrences
Intercultural dialog	How does the encounter between different cultures in the school arise from the game? What are the differences between the participants? Can interculturality observed in traditional communities be transferred to school? How? How do children appropriate body repertoire of games? How do they play together?	Gesture of traditional communities updated on children Play and do-together Adults and children playing together Boys and girls playing together Boys and girls of different ages playing together Boys and girls from different social classes and ethnicities playing together.
Sustainability	What attracts children to different games? How is to play in the street? Do they try different things in different spaces? How do they learn? Do they enjoy playing on the streets? How do they use the space available? Is there interaction with people outside the school? Do they demonstrate empathy with differences between them?	Materials and simple elements such as shuttlecocks, marbles, tires, ropes, rubber bands were fascinating. Body inspiration and gestural references are important. Use of public space. Environment interaction: playing with elements. Environment perception: playing in wider spaces Interaction with the community surrounding the school. Interaction with each other. Playing together.
Empowerment	Do children feel the desire to learn these games? Did the children engage in any of the possible games? Did the children demonstrate vibration and power? How did they resolve conflicts? Children who usually do not participate due to gender, race, disability? Are children who already know the game generous with each other? Children who want to play alone?	Integration Autonomy and spontaneity to choose which game they would like to engage in. Horizontality in relationships. Highlighted body awareness. Learning new bodily skills and gestures. Ethical presence: debates on how to play, joint development of rules and new challenges. Conflict resolution with innovation and autonomy. Disabled children playing together. Remember new gestures and body skills. You can play alone if you want and need. Play together.

First question: After participating in the festival and seeing the images, what moved you?

to be together, learn and have fun. Participants from the Talking Circle also noticed that there were many moments of interaction with the school community. Through games, gestures and rules, it is clear that traditional communities values, such as learning together, healthy and happy competition, are shared.

For this work, we consider empowerment as the appropriation of bodily knowledge established in relationship with the world. It is a concept that reveals a learning process that necessarily passes through the human body and the senses and emerges when we incorporate something new. It is an "I can" movement (Merleau-Ponty, 1962) that requires full presence and usually comes from a desire to achieve specific objectives–the player tries, insists and succeeds. During the Circles, many participants mentioned that some children were playing alone, but only until they learned the game's techniques. After acquiring some new skills, they would find other children to play, teach, and show. At this point, repetition is part of this process, deepening the game structures in new ways. Freedom and spontaneity also seem essential in running the festival: children play with what and whom they wish. The goal of playing together was for the sake of the game and improvement.

Although we are not in one of the contexts of traditional Brazilian communities, it is necessary to understand how these communities' values can be updated in the bodies that play. Besides, even if it was not the festival's intention, as we can see below, "doing-together" stood out as a premise of freedom, potential, intercultural dialog, sustainability, and empowerment.

Certainly, doing together, one of the core values that touch traditional communities, was present in the three themes observed at the festivals. Masters of traditional knowledge often respond when asked how they teach: "I don't teach, I do it together" (testimony by Tião Carvalho in Saura, 2008). Traditional communities consider the voice of the elderly like being the voice of the world's past. This existential doing-together dialogs with traditional perceptual knowledge and happens without the need for words. This knowledge emphasizes the primacy of experience, gestural and corporal reference. Boaventura de Souza Santos refers to the primacy of the senses in the production of knowledge as inherent to the Epistemologies of the South (Santos, 2019). In his proposal, the "South" represents excluded, silenced and marginalized populations exploited by colonialism and capitalism. So, "the global South is not a geographical concept, even though the great majority of its populations live in countries of the Southern hemisphere" (Santos, 2016, p. 18). Doing-together is a recurrent *modus operandi* among these populations. Children and the elderly are included within the knowledge transmission system, which triggers our shared corporeality (Merleau-Ponty, 1962). Observing gestures from the more experienced players or creating technologies is part of a learning process for children. When they reach a particular manual skill level, they can follow the process. This bodily perspective appears in different possibilities of being with other people and introduces different ways of aligning values and developing new meanings for our daily practices. Doing-together requires trust, active participation and the understanding that being a child is a presence of now, and not only a promise of a future.

DISCUSSION

In the film "Promises" (Goldberg et al., 2001), Israeli and Palestinian children share the harsh reality of separation and hatred, despite being just 10 min away from each other. The cameraman interviews them to ask what they think of each other. They speak of themselves through past generations' voices talking about war, the enemy, and anger. The echoes of many previous generations are in the children's voice. When invited to a meeting with each other, they hesitate, but finally, they accept the documentary's filmmaker idea. The proposal now is to establish a real communication between them, a body of communication in a playful situation. At that moment, ingrained resentments and hatreds are set aside. Children play together. Eichberg and Levinsen (2009a) also provide an example of the power of a Popular Movement Culture for conflict management. They explore the experience of a popular football festival, different from a competitive and standardized sport, in the Balkans. The festival was the first multi-ethnic event, including Muslim refugee children, to take place in Srebrenica after the civil war and brought children together through a common language. Similar examples are found elsewhere in the world.

This paper aims to discuss how TSG promotes intercultural dialogs with a focus on sustainability and how it may empower people taking into account the experience of TSG festivals in a public school in São Paulo–Brazil that attends 800 children from 7 to 17 years old. We analyzed some recurring elements that emerged from within the Talking Circles with the researchers from our study group and PE undergrad students who participated in TSG Festivals. Intercultural dialog, notions of sustainability, and empowerment through TSG were widely discussed. Some schoolteachers wrote to us gratefully, giving their testimonies of what they perceived during the festivals and later, on the impact of day-to-day activities with the children. These testimonies are not presented in this paper but reflect the interaction among all participants.

Here in this section, first we present our experience on TSG area, how we had inspiration for realizing a festival, and how recurrences of gestures called our attention. Considerations of the corporeal engagement and the importance of Festivals for children and for the city are taken. We highlight how the practice of traditional games may promote global health, adding elements of the main subjects: sustainability, intercultural dialog and empowerment. The originality of this session is to situate the TSG not as local event, but as bodily practices that dialog with the humankind, regardless of cultural origins, as they are located in our symbolic gestures and corporeality.

The Festivals Gets Into the City–The Experience of a TSG Festival in São Paulo City

It has been a long way for us to understand TSG as an important phenomenon for thinking academic research and public policies. After conducting an International Seminar delimiting the field of knowledge with invited researchers from universities of Europe, Asia and North America (Saura and Zimmermann, 2016) our

department turned to Latin and Central America researchers, understanding that among them "knowledge is embodied" (Santos, 2019, p. 136). In the event that followed, we received researchers from the University of Antioquia (Colombia) and from the Mexican Traditional and Autochthonous Games and Sports Federation (FMJDAT/Mexico), who presented their good academic practices and research experience. A year later, on Colombian soil, we witnessed the "Traditional Play from the streets" (JRTC) in Caldas, municipality of Antioquia. In this festival, which is in its 37th year, we saw an entire city in the streets to play for five consecutive days (Gómez et al., 2012). Conceived by Master José Humberto Gomez, the phenomenon inspired the Street Games Festivals in São Paulo, carried out by the PULA Study Group at the Sociocultural Studies Center-EEFE-USP. This background has been fundamental to support our actions and research on TSG.

The international community mentioned the same persistent gestural recurrences we see in TSG festivals in Brazil. Some materials, the ones that we see in traditional communities, encourage the same gestures even from school children, taking into account that many of them have never left the city. By the same gestures, we mean a familiarity of body behavior in dialog with similar provocations. The well-known work of Mauss (1979), first published in 1935, brings to light the cultural mark of body techniques. The anthropologist highlights the relationship between biology and culture registered as corporeality. From this, it may be assumed that even universal games, such as the spinning top, promote a cultural encounter. Through detailed observation, one might notice that some children use different fingers to hold the top or tie the beard in different ways to find a variety of results. However, there is a proximity of gestures that results from the relationship that the player establishes with the elements of the game. As Parlebas (2003) advises, it is important not to be tempted to reduce the game to the context's characteristics or the player. The game has an intrinsic reality that is perceptive by traces of motor action. These motor behaviors are noticeable in the player's relations with his environment: space, objects, time, and other players. From a phenomenological perspective (Merleau-Ponty, 1962), we understand that the materials and equipment suggest a corporeal engagement, like a language that puts us all in dialog sharing differences based on common soil. This is what can make the game a fruitful locus for bringing different cultures together. Through the body, we are invited to enter cultural and mythical aspects (Bachelard, 2008) in the same eco-sustainable postures that we frequently find in our research field. Also, despite its low cost, the high social impact of the material used to play is remarkable.

Considering the experience from the so called "TSG and Street Leisure Festival" and analysis from different fieldwork carried out over the last 10 years by the Pula Study Group (Saura and Zimmermann, 2016, Saura and Zimmermann, 2018), it is clear that traditional games actually preserve structural elements of human kind in magnificent reproductions of body images. A Greek painting depicts the movement of a boy playing a spinning top in the ancient age. Their moving image is the same as boys and girls in Brazil and the world today. Incredibly and without any apparent contact with each other, the same gestures

appear. The scenes are repeated in schools, streets, alleys, in a game that historically has existed since ancient times, throwing with the same effusiveness arms and eyes of attentive boys and girls. During the Talking Circles, this was the first strong aspect that everyone noticed. "Children know how to play. Feels like they remember. They all forgot their cell phones when they saw a top. They were delighted. It was like responding to an inner call." (Testimony in the Talking Circle). We speak of this place where the tradition is located in the gestures that children show us today–here and now–with archetypal elements that cross different times and spaces, from ages ago to the present day. TSG embodies the collective human memory. Game creators have already identified this potential. In the case of the spinning top, one can mention updates of the object that have become real "fevers" among children, not by chance, like the blay-blade and the spinner.

Groups understood games and activities as a kind of dialog (Zimmermann and Morgan, 2011). This dialogical condition is ethical since rules are created and recreated in intermittent debates (Bruhns, 2004), which above all require full presence in what children do. Moreover, one recurrence and even a surprising character was to perceive that the relationships among the festival participants were horizontal. PE Students expected to teach. In the beginning, they were unsure about our organization; they were in a much smaller number than the children. But some children knew how to play much better than our students. In TSG, there is no clear border between who teaches and who learns: facing the materials, everyone feels challenged and attracted by the game. They all notice that other common barriers were dissolved during these festivals: social status, age, and gender. In this case social barriers do not matter for playing since the same rules apply to everyone. Many mixed groups were seen playing together. Older participants may be a reference for how to do it, but there is not a hierarchy. PE Students also mentioned they do not perceive gender or age barriers, since the groups were mixed.

The educators are the children themselves, and the players are all. New elaborations appear on all sides, precious, surprising scenes. In fact, the objects surrounding the practice of TSG do not require significant investments and are like gunpowder, material provocateurs of this human repertoire, as Bachelard (2008) already reminded us. During the Festivals, students invite teachers to play together, some of them ask for help, while others teach their friends. Besides, different elaborations with the same materials were experienced. New groups of children from different ages were spontaneously organized, including students from inclusion programs with disabilities.

The spinners are set aside in front of a spinning top–firm strings between the fingers. A member of staff is willing to teach the game of his boyhood to children. A vibrant wheel is formed; the tops spin in the air, enigmatic, spectacular, flying. It can be seen that when a child plays, in a very authentic way, it strengthens ties with the most human of each of us.

The Talking Circles noticed that how the children organized into groups was always changing. The street becomes alive in a safe, playful environment and during two festival events no incidents were reported. The own children solved minor

conflicts, and different solutions were found for everyone to play. Teachers reported that the project has helped to improve the repertoire of games and the students spontaneously chose TSG as a theme for a big annual festival at the school. Another interesting report was that after noticing that some children were having several relationship problems during their free time, the school made TSG materials available and the problems were over. Research conducted in a very different context showed promising results on the improvement of students' relations and socialization in primary education after traditional games implementation (Kovačević and Opić, 2014).

For the teachers who conducted the activity, none of this was entirely new, as we mentioned before, there is Caldas, municipality of Antioquia, Colombia, where an entire city gets to the streets annually to play (Created by master José Humberto Gomez, the "Festival de Juegos Recreativos Tradicionales de La Calle" showed its expertise and inspired these similar events in São Paulo). At that festival, experienced practitioners were a reference for children and young people. Therefore, for these "TSG and Street Leisure Festival," Anselmo Gomes, the Brazilian national yo-yo champion was present and left the children in amazement.

In a city where contact with childhood becomes increasingly reduced, where the landscape is increasingly "grown-up," we see, less and less, boys and girls playing in public spaces. Since the festival breaks down school cliques and takes place in the surrounding streets, children and young people realize that the street is a place of possibilities, a common space for all of us.

Considering these investigations, it is currently believed that TSG should be part of public policies. Play is important not only for small children but for everyone. Moreover, TSG in PE and Sport enhances experiences, not only of classes and training but also of a whole relationship with the body, with space, the street, the school, with the diversity of the whole city at last. Research, fieldwork and interviews with partners reveal expressive bodies that are willing to play again.

Intercultural Dialog, Sustainability, and Empowerment

According to United Nations Educational Scientific and Cultural Organization [UNESCO] (2015) TSG are considered an intangible heritage of humanity. UNESCO stresses, "the practice of traditional games promotes global health." What seems to be the ethos of TSG is this bodily dialog, which reveals the humanity in all of us, regardless of geographical, social or cultural aspects. From this perspective, sports and games are a common language, spoken with a material call to action. Children are, for example, completely infatuated by the bow and arrow. It is a material that invites them to play. With the equipment, players repeat the same gestures and archetypal stances of warriors existing in all nations. We are talking from this understanding of the traditional as something located in the gestures that children show us today–in the here and now–with archetypal elements that cross different times and spaces. It is possible to find the same gestures in the traditional communities of Brazil (Hackerott et al., 2017). The

game evokes, in the body, the very materiality of the arrow, with images of speed and straightness (Bachelard, 2008).

Moreover, similar gestures are found around the world. In these recurrences, we find something prior to the traditional nature-culture dichotomy. We see a gesture that is a precedent, which is characteristic of humankind. (For instance, the first records found of the top spinning game, a traditional children's toy that turns on itself: a Greek painting of a boy playing the top in the old age). The image of the gesture of a child playing a top is the same as that performed by boys and girls today, whether in the interior of the Amazon rainforest, on the northeastern beaches, among Xingu Indians, in schools or on the outskirts of urban centers. It is a traditional game that dialogs with boys and girls from all historical times and without defined geography. So we have seen how TSG promotes intercultural dialog, coming from a knowledge that takes place in the corporeal experience of the gesture. Like knowledge developed in traditional communities, knowledge produced by TSG is of the order of perception. In Caldas, Dom Antônio manufactures spinning tops in broad daylight, surrounded by avid boys and girls. The master boasts of having trained the best players in the country. His tops are considered the best in the world, perfect and exact. When we see him perform with the children who grew up under his care and learning, we were all shocked. The tops dance with their players' bodies, are launched into the air infinite times and never touch the ground. This hypnotic fly, turning around its own axis in space, continues to enchant, over and over, people from all over the world without causal explanations. Mastering this lively and aerial dance performed by the top is the desire of many players.

Durand (2012, p. 60), inspired by Merleau-Ponty, considers that "the whole body collaborates in the constitution of the image," and that there is "close concomitance between body gestures, nerve centers and symbolic representations." In this anthropological perspective, body language is also considered as a symbolic language, that is, of generating meaning for human existence, so perhaps the existential insistence on performing certain gestures.

Sports and games have been presented as a fruitful dialog for the culture of peace (Saura et al., 2018). Regardless of the complexity of its rules and the competitive content employed, the game's dialogic character is one of its main characteristics (Zimmermann and Morgan, 2011). This dialogical character protects ethical possibilities to the play. The game requires players to be fully present. In the game, the impediments of age, gender, space, those who teach or learn, languages, social classes, and different cultures are mitigated. The knowledge that the game requires is based on corporeal experiences (Zimmermann and Saura, 2016).

It is also an aesthetic issue, as the game comes from this perceptual, subjective knowledge, the bodily experience about which it is not always possible to explain. That is why the theme was chosen by United Nations Educational Scientific and Cultural Organization [UNESCO] (2015) as one of its priorities for action. It was also selected as an activity to bring together a divided country, such as Korea. For UNESCO TSG practice "promotes global health," placing players in an intersection between past and future, reaffirming the specific identity of peoples in the age

of globalization, while their recurrences and similarities reveal certain thematic that are universals. It is perhaps in this way that games promote peace: through intercultural and corporal dialog that can be established when these themes are in action, that is, in the very act of playing (United Nations Educational Scientific and Cultural Organization [UNESCO], 2015).

Considering elements from fieldwork and references from different cultures we may understand that TSG bears the mark of many cultures and connects with humanity that which permeates us all. It is possible to observe an approximation of gestures in similar games, similar ways of establishing relationships with the environment and the relationship of proximity with organic elements, offered by nature. As we highlighted previously, tradition is not something that is frozen in time. We have seen that tradition embraces new behaviors, as long as it doesn't lose its structure and central elements. These central elements are those that dialog with who we are as humans, with our biocultural body, our universal aspects. It is not a matter of culture, race, gender, social condition, age and so on. Fighting games, kites, and spinning tops are games that reflect this proximity and do not require words to bring different cultures together. This gestural proximity also facilitates the approximation with those games that we are not familiar with, and through these we also establish a dialog with the difference. The horizontal relations of the game allow for an appreciation of other perspectives.

The close relationship with the environment and the development of equipment with resources from nearby nature also fall in line with sustainability. TSG frequently uses organic resources, and care for the environment is fundamental to the possibilities of play. There is no need for equipment or highly elaborated spaces with external resources as games are organized according to the spaces and resources available, they also end without signs of depredation. During a serious environmental crisis that we are going through, this is an issue that has attracted the attention of sports researchers (Edgar, 2020). Children who participate in TSG festivals learn to share spaces and simple equipment. They also learn to make their own equipment from organic elements: wood, stones, ropes, straw, leather. It is important to notice that they wish to make this equipment, to work with their own hands, tools and materials as every human did before them. It seems to be important nowadays to establish clearer differences between having and being, and TSGs contribute to this inference.

The major sustainability issue for traditional communities is the achievement of sustainable management of species. This happens through the accurate observation of the environment, understanding it, the feeling of interdependence with the habitat, and empathy with an ecocentric vision. In traditional communities, it is common for children's games to be exercises to improve skills and perceptions. In the Talking Circles, the researchers identified these same perceptual exercises at these festivals in the city.

Moreover, getting to know our body and how we play is to understand who we are, and it is very revealing and empowering for oneself. By playing games, we better understand our potential. Empowerment is fostered in a collective construction if we consider the possibility of an ethical debate from TSG

practices. During Festivals, we saw children experiencing limits, possibilities and new elements. In a playful relationship, there is always the possibility of learning from the more experienced and helping the beginners. It is a dialogical teaching experience. Heeding the call of a game that attracts us is also going toward who we are.

Traditional Sports and Games promotes global health as it allows for diversity and dialog, the meeting between tradition and novelty. So, TSG Festivals have much to contribute to empowerment by facilitating accessibility to all levels of cultural diversity–schools, public spaces, networks and associations.

FINAL CONSIDERATIONS

Traditional cultures and childhoods know the world through bodily and perceptual knowledge. This knowledge is created and recreated with imagination, logical reasoning, thought, and intimate relationship with the living world. It is also remembered in our body, updated in our gestures. Once embodied, this knowledge fosters respect, cooperation, and solidarity. Besides, considering the dialog with simple equipment and values from traditional communities, they bring relevant examples of respect for the environment. In its applicability, TSG proved to be important as an educational practice in public teaching programs, to present ways of inhabiting public spaces and promoting health, with the festive presence of human movement.

This article presents results from an initial study, and the topic further researches with different methodologies, which we hope to inspire. Beyond research, Festivals on TSG should be a theme to promote and look at from different perspectives. Play and movement had been associated with health not only by its objectives elements but also for its symbolic and significant ways of operating this body language and knowledge that we tried to highlight. We recommend and encourage Festivals and further research about it. Comparative elements could enrich and reinforce the results we found in this research. Although they seem initial, they sustain outcomes from many years of theoretical study and field observation.

By relating the concepts of sustainability, equality, and empowerment of traditional communities with events in urban centers, we believe it was possible to outstand how a TSG Festival may be invigorating to people in ecology, even in the city. In this sense, TSG reflects a way of life that we are invited to look at, especially nowadays, as it reveals and updates the fundamental images and values from these populations in an intercorporeal dialog. "Doing-together," a widely found premise in traditional communities, stood out to promote intercultural dialog, sustainability and empowerment. This existential doing-together dialogs with traditional perceptual knowledge and happens without the need for words. This knowledge emphasizes the primacy of experience, gestural, and corporal reference.

Observations from a particular TSG Festival, in this case held in São Paulo, do not allow universalization of results. However, elements from this experience may indicate the potency of TSG. Through this study, we could verify how human gestures are updated in TSG, in the relationships established between

community events and festivals in the city. Moreover, it is not only the gestures that are updated, as values, sustainable ways of thinking, and livings are present in this bodily repertoire. Empowerment happens in the body, under the "I can" premise. Considering that TSG is updated consistently in dialog with new generations, they also present the possibility to overcome barriers such as gender. This possibility creates a chance for learning how to solve conflicts. Playing together embraces us all. It is a profound and serious subject, although festive and playful. That is how TSG festivals operate: monitoring, updating, and keeping the challenges of producing humankind knowledge alive.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

All procedures followed were in accordance with the ethical standards fpr studies involving human subjects. The participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

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The Blows and Capoeira Movements From the Caricatures of Calixto Cordeiro

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This study analyses some elements of the historical and social nature of Capoeira, such as the juridical-political, the clothing, the symbolic and the identity, but, essentially, those of a physical and linguistic nature, from the caricatures produced by Calixto Cordeiro, which illustrated the work of Lima Campos in 1906. In this work, a multi-method process was applied, represented by the presuppositions of Historical Archeology, the interpretation of images indicated by Panofsky, and the documental analysis of various sources. The use of these presuppositions and the confrontation of sources of diverse natures allowed us to interpret the signs, symbols, and meanings from the facts and data described by Cordeiro, about Capoeira presented by different literates. The results of these analyses showed substantial information about the blows/moves of this struggle, as well as its different names, slang and expressive forms, often associated with different groups of practitioners from different Brazilian cities.

Keywords: capoeira, caricature, strikes, history, Brazil, iconography, iconology

INTRODUCTION

The interest in this approach to image interpretation attributed directly or even indirectly to the fight/game of Capoeira comes from several distinct factors, from which we emphasize the virtual inexistence of any imagery analysis of the mentioned fight/game, coupled with the fact that we can identify in its specific literature superficial and little informed interpretations of some of the iconography that portrayed the presence of this expression in the Brazilian society of the 19th and 20th centuries.

By choosing the iconographic interpretation as part of the historical and social analysis of Capoeira, we use the concepts of Panofsky (1986) on iconography, which is:

> *The branch of Art History that deals with the subject content or meaning of works of art as something different from its form, and according to the theory of iconicity is the iconography (…) the rewriting of reality, comprising a whole universe of nonverbal signs of figurative manifestation ranging from drawing to photography* (Panofsky, 1986: p. 19)

Despite identifying a growing number of studies on the interpretation of various types of images, more specifically of images produced by different artists and the most diverse techniques over the 18th and 19th centuries in Brazil, we recognize that there are still only a few studies produced by scholars from the various fields of knowledge addressing Capoeira as the analytical

focus that allows us to interpret the signs and meanings, the facts, and data presented in the traces of artists of yesteryear.

Recognizing that there is a gap in the context of iconographic interpretations of Capoeira, and identifying a significant volume of images that portrayed aspects of Brazilian colonial, imperial and republican customs, there highlighting bodily expressions of fight that would bring us closer to the consideration of being these, the fight/game of Capoeira – we take it as necessary to venture out in the analysis of the intricacies of such records, thus allowing ourselves to confirm the icons represented by the artists in their most distinct forms of artistic expression (Araújo and Jaqueira, 2017), shedding light on some aspects of the history of this genuinely national body art.

The study now elected stems from the need to record new scientific approaches developed for the Brazilian fight in order to promote further analysis on this body expression in various aspects, and in this case, on the presence and evolution of the strikes/body movements in the context of Capoeira. This work is scientifically based on the theoretical framework of Historical Archeology in order to, through selected images, contribute through the highlighted icons to a more complete understanding and reconstruction of this fight and aspects of daily life of practitioners of Capoeira and the resulting dynamics occurring in its context.

THE SCIENTIFIC BASIS OF THE STUDY

Considering the richness of information contained in an image, and the different elements that can be extracted from it, we believe that a single methodological procedure would not allow us to cover the different nuances present in the image that we analyze here. Starting from this observation and the scarcity of iconographic and iconological analysis in the context of Capoeira, we consider that a multi-methodological framework would allow us to validate the different elements of a juridical-political nature, the clothing, the symbolic and identity, and mainly, those of a bodily and linguistic nature, as well as the descriptions of the authors associated with the images appreciated.

We recognize, therefore, that the use of a multi-method procedure will allow us to fill gaps derived from the insufficiency of each of the assumptions applied here for the analysis in question and to extract as much information as possible about the object of analysis and the social reality where it manifested itself, reconstructing and reinterpreting according to Orser (1992), "repressed cultures, forgotten practices, suffocated voices," and thus the material and immaterial culture of the illiterate.

These methodological assumptions of Historical Archeology (Orser, 1992), of interpretation of Panofsky (1986), and of the documental and bibliographical analysis allowed us to reconstitute aspects of the daily life of Capoeira in the 19th and early 20th centuries, considering for analysis the elements of a documental nature compulsed in Brazilian archives and libraries and bibliographical literature on Capoeira for this temporal space.

The multi-methodological foundations that supported this interpretation, first iconographic and later iconological, for promoting a break with the discourses of common sense, were those inherent to that of Historical Archeology, that of bibliographic and documentary analysis for its abundance and richness of sources on this Brazilian expression, and that of determinants for this iconographic/iconological interpretation, the assumptions presented by Panofsky about the interpretation of images, mainly because they are scarce for the context of Capoeira, interpretations of images supported by a theoretical assumption that proved applicable for the intended analysis in this specific case and for a set of previously selected images.

This methodological framework was thus structured for better application to this type of work in particular for presenting characteristics that allow, in a more flexible way, to select techniques that can lead to an extensive and varied data collection, allowing the clarification or a better understanding of the selected object (Capoeira), either by the quantity or the quality of the material collected in view of the interaction of all elements, material, non-material, and human present in a historical period, and the consequent influence on the behavior of individuals identified as *capoeiras*.[1]

This multidisciplinary approach allows us, through the different sources used, on the one hand, a wider understanding of society and its manifestations, and on the other hand, the reconstruction of aspects of the reality closer to the daily life of those who practice Capoeira fighting/playing in Brazilian historical periods.

The assumptions of a field of study called Historical Archeology emphasizes that there is no scientific predominance of one area over another and that it is necessary to be able to understand it as a diversified and multidisciplinary field of approaches that combine correlated areas, thus promoting "a partnership between men and things" (Orser, 1992), and that contribute to the achievement of their own objectives.

In face of the multidisciplinary character of this field, approaches and appraisals from different sources are highlighted for each specific field of study, with elements of a cultural nature such as "oral testimonies, ethnographic records, folklore"[2] (Orser, 1992), for the field of History, "historical documents," and for the field of Archeology, "historical architecture, artifacts" and structures, and also pictorial elements, where one can find paintings and drawings in their most in its various expressions, and photographs as well. Regarding the typology of the sources consulted, among those presented to us in the field of Historical Archeology, we highlight those translated into pictorial information and expressed by drawings, paintings, caricatures, and photographs (Orser, 1992).

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[1]According to Paulo Araújo, the individuals belonging to marginal groups, also called *capoeiras*, are those considered outside the legal framework of society, slaves, local or Guinean blacks, mamelucos, and white maladjusted who, making use of the spaces and ways of community life found there, promoted a form of struggle against the state system that oppressed them. *Abordagens sócio-antropológicas da Luta/Jogo da Capoeira (Maia: Publismai, 1997), p. 79.*
[2]Orser Jr., Introdução à Arqueologia Histórica, 57.

For this study, we selected six caricatures produced in 1906 by the Rio artist Calixto Cordeiro (1877/1957), an artist who played several different roles throughout his life. He stood out both as a writer and a playwright, as an illustrator, as a sculptor, and as a poet, among others, and contributed to numerous magazines and newspapers of his time. The selected caricatures deal with the fight of Capoeira and particularly with some structural elements of Capoeira, which complement the textual analyses elaborated by Lima Campos[3] and "indicate some of the most common defense and attack moves and provide an idea of the technical slang."[4]

To support the analyses, we resort to a considerable body of primary (Brasil Arquivo Nacional, 1920), and secondary sources produced by distinguished characters during the 19th and 20th centuries, about the history of Brazil in general, and Capoeira in particular, where written documents stand out, as well as travel records, diverse legislation, oral information, diverse iconography, and several others, and also those that require analysis and interpretation of contemporary literary works that have published information about this representation of Brazilian fight.

From the analysis of the selected images that portrayed aspects of the Capoeira fight in the early years of the 20th century, we consider the need for understanding a particular fact, and for that, we turn to the concepts formulated by Alarcão (2000) which tell us that fact "is what was, what has gone by, that cannot be observed in the present,"[5] or a specific datum, which the same author considers as a "trace, being what one finds that is there, before my eyes, but also that from which something else is deduced, that is no longer observable. The datum is what is."[6]

Sustained on the scientific arguments presented by Panofsky on the interpretation of images and included in the introduction to his book Iconology Studies (1986), we present his summary table that will allow us to demonstrate the possibilities of interpretation of the selected iconography about Capoeira, identifying from concepts presented by Alarcão (2000), what would fit in them as data or facts, making us infer being such images representations of the manifestation called in other times and at present, as the Brazilian game/fight of Capoeira.

Based on the assumptions indicated by this author with regard to the interpretation of images, the consideration of the object, the act, and the baggage of interpretation as fundamental elements to extract the data and facts derived from the images under analysis, indicating to the researcher the appropriate procedures for the promotion of a consequent analysis, portrays through the combination of other information, a history of these men and their cultural practices, which go beyond the simple iconographic interpretation and, thus, promote an iconological interpretation that goes deeper than the simple description of the pictorial element analyzed.

TABLE 1 | Adaptation of Panofsky's Synoptic Table on image interpretation.

	Primary or natural subject content (factual, expressive) constituting the world of artistic motives	Secondary thematic content, constituting the world of images, stories and allegories	Intrinsic meaning or content, which is the world of values
Object of interpretation			
Act of interpretation	Pre-iconographic description (and pseudoformal analysis)	Iconographic analysis, in the strictest sense of the word	Iconographic interpretation, in the deepest sense (iconographic synthesis)
Background knowledge for interpretation	Practical experience (familiarity with objects and actions)	Knowledge of literary sources (familiarity with specific themes and concepts)	Synthetic intuition (familiarity with the essential tendencies of the human spirit conditioned by psychology)

Of the three items of interpretations highlighted, object, act, and background knowledge (**Table 1**), some aspects arise, the ones that have allowed us to conduct our iconographic analyses and, thus, enable us to make inferences about the Capoeira expression, which over time have not been fruitful in discourses that could allow us to state categorically its presence in all known iconic representations.

From the data present in caricatures under focus, we cannot afford to understand them as the true story of marginal groups of Brazilian society depicted there but as an extract of the social reality presented from the perspective of the author and complemented by the considerations of Lima Campos over a certain group of individuals of this society, transferring its own ideology, values, and specific knowledge about structural elements of Capoeira.

It is necessary to reinforce the idea that the iconographies do not represent the real truth of events, expressivities, and historical objects that the author narrates as if they had happened, but his perception and all the appropriations of the society he lived in, which are confirmed by the obtained data sets of the data collected in the different sources consulted. The images selected in this work are as visual certificates of a past event, experienced, imagined, that is only embodied as a possible temporal truth, becoming real with content and information from other related fields and a series of documentary media, written and oral.

The axis of this reflection aims at probing the cultural history of Capoeira through its imagistic representations in the time and space referred to, bearing in mind all the social, political, legal, and law-enforcement variables, among others, in the ambient that allowed the author of the images the reliable reproduction of the observed reality, although they may include general observations of his social perception, highlighted by their "features, aspects, symbols, representations, hidden dimensions, perspectives, inductions, codes, colors and shapes present in them."[7]

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[3]Lima Campos. A Capoeira. Revista Kosmos, Rio de Janeiro, Anno III, n° 3, 1906.
[4]Paulo Araújo and Ana Rosa Jaqueira, *Do jogo das imagens às imagens do jogo. Nuances de interpretação iconográfica sobre a Capoeira* (Coimbra: Centro de Estudos Biocinéticos, 2008), 109.
[5]Jorge de Alarcão, *A escrita do tempo e a sua verdade* (Coimbra: Quarteto Editora, 2000), 124.
[6]Alarcão, A escrita do tempo e a sua verdade, 130.

[7]Eduardo França Paiva, *História and imagens* (Belo Horizonte: Autêntica Editora, 2002), 19.

We also call the attention to the care that we went through when analyzing such images, given the fact that the specific literature of Capoeira often includes bizarre statements about certain signs present in its context, that remain to this day as if they were truths, considering contemporary assessments of this form of expression, but in the past, perhaps, did not have the representation attributed to them. I, therefore, corroborate the statements of Paiva (2002) in which,

> We must always be aware of the existing limitations of these interpretive procedures, failing which, in the extreme, of inventing historical realities in order to adapt them to the audited iconography. Or, which is as pernicious as the previous situation, of inventing meanings to better fit an image in its time. Or even still, taking to the past and to the iconic representation values of our time, which did not exist before, which consists of anachronism, the greatest sin, so to speak, that a historian can come to commit.[8]

It is impossible today to deny the importance of image interpretation in producing innovative work to recount the history of Brazil and, therefore, its distinct human groups and their manifestations, interpretations which, more present in the works of Social and Human Sciences, and virtually inexistent within the Sports and Physical Education Sciences, in particular in the distinctive fields of expression of Capoeira, are mostly due to the unconditional acceptance of the positions of interpreters from other areas, who often use the common sense discourses of practitioners of this Brazilian fight.

To analyze aspects relating to data and facts of an iconography about Capoeira, from the interpretation of the processes listed by Panosfski, we chose the six caricatures produced by Calixto Cordeiro to illustrate the text of Lima Campos (1906), named after the order in which they are presented in his work as: types and uniform; The Sifting; The Coconut Strike; The Shim or Tripping; The Oil Lamp; and Tuck the Move, so thus promoting comments that contribute to a better understanding of its own signs, symbols, and representations and the positions of the authors or third parties, assumed in the interpretation of these iconographies.

THE CARICATURES OF CALIXTO CORDEIRO AND CAPOEIRA: HISTORICAL CONSIDERATIONS HEADINGS

The caricatures of Calixto Cordeiro were elaborated to underpin Lima Campos's text entitled Capoeira,[9] whose theme was the presentation of the components of Capoeira fight in Rio de Janeiro in the carioca (Rio inhabitant) first republic context.

These caricatures identify some of the elements in the context of this sport, especially references on movements and strikes, the technical slang, very common among practitioners of this body language during the 19th and early 20th centuries, and some distinctive features between groups[10] of capoeiras of that period.

The distinctive features took into account the presence of Maltas,[11] Nagoas, and Guayamús in Rio de Janeiro, considering the allusions to their colors and the way of using the hat – for the former, the strap with white on red and the hat with a front brim pointing forward, and for the latter, strap with red on white and a hat with a front brim lifted upwards.

The reasons portrayed in Calixto Cordeiro's caricatures allowed Lima Campos to evince his deep knowledge about the foul language used by practitioners of Carioca Capoeira in the first decade of the 20th century, as well as words only used in popular contexts and only understood by its visitors. From this author's texts, we draw words like cueré-réca, churumella, estrompício, marchante, sarado, joça, figuração, chinxa, caveira, turuna, cutuba, many of these terms not appearing in current dictionaries, but that were commonplace in the statements of the regulars of trickery groups and by practitioners of Capoeira from this period.

The caricatured and accompanied images of the respective names of the movements or strikes used in Capoeira in Rio de Janeiro in the early decades of the 20th century, remarkably The Sifting, The Coconut Strike, The Shim or Tripping, The Oil Lamp, and Tuck the Move, allow us to clearly identify the characteristic of the movement, since the description by Lima Campos in his text, in some cases, could only be understood by the regulars of the Rio bohemian environment, for its popular use and for its foul and coded language.

Lima Campos, author of the paper entitled "A Capoeira", besides highlighting his impression and knowledge about Capoeira, refers to the caricatures of Calixto Cordeiro, as indicative of some of the most common defense and attack strikes and give some insight on technical slang, and in our view, promote as well a unique way of preserving the body memory of Capoeira and the linguistic memory of the practitioners of the Brazilian fight in a given period of time, if we consider the documentary lack of any nature in former periods that mentioned these cultural elements.

The records of body memory of Capoeira were treated episodically by Rugendas (1940), Earle (quoted in James, 1955), and Cristhiano Junior (quoted in Leite, 2002), while the linguistic and descriptive records of body shapes identified by strikes/

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[8]Paiva, História & imagens, 31.
[9]Lima Campos, "A Capoeira", Revista Kosmos: Anno III, n. 3 (1906): 56–59.

[10]According to Paulo Araújo, groups of capoeiras are forms of collective expressions of individuals known as capoeiras, often identified as gangs, groups, hoards, gatherings, and, finally, by malta (guys), which may be the most significant word to interpret the group events that sought to disrupt the established social order, be they effective practitioners of the Capoeira fight or not. Abordagens sócio-antropológicas da Luta/Jogo da Capoeira (Maia: Publismai, 1997), 161–162.
[11]Many authors who have studied this collective phenomenon, when referring to the organizational structure of the capoeira guys, portray them as an autonomous and hierarchical body, from the chiefs and sub-chiefs up to the carrapetas (lowest orders), in which all the members had their duties and functions fully encoded. Araújo, Abordagens sócio-antropológicas da Luta/Jogo da Capoeira, 174.

movements were only highlighted by ODC (1907), Edmundo (1932) and Moraes Filho (1999) by some handwritten documents from police authorities of the early 19th century and others who repeated the allusions of these authors without any insights on these and other movements and the language used in the context of the Brazilian fight.

Of the six caricatures presented by Calixto Cordeiro and aimed at a more conscious and objective methodology of work, we divided them into two types of features that will provide the elements of analysis, in which gain relevance, first, the costumes of the caricatured elements, followed by the presentation of some of the specific materials and movements of Capoeira, very usual during the 20th century.

As far as the costumes of the individuals depicted are concerned, we can even claim that the ones shown in the pictures are very different from those that have historically been assigned to these characters, either in Rio de Janeiro or in Bahia, and even to those listed in the literature about this fight, which are founded solely on oral tradition and have no evidence to support them.

The iconographic representations of Calixto Cordeiro concerning Types and Uniforms subsidize the descriptions of Lima Campos by showing the colors of the costumes of Rio's gangs and the use of the hat placed the right way while still allowing Lima Campos to extract from these caricatures other common components by the mentioned *capoeiras*, such as plaid tie and slip ring and nozzle boots, pieces also described by Moraes Filho,[12] and also highlighted in the image named *Furdunço* by Álvaro Martins (quoted in Bretas, 1989).

About the kinds, and contrary to the speeches of advocates that Capoeira was practised in the 19th and early 20th centuries exclusively by Black people, the representations of the artist showed the presence of Blacks and Mulattos, well typified in the various caricatures presented, specifically in the caricature Types and Uniforms, also represented by Álvaro Martins (quoted in Santos, n.d.) in the drawing identified as *Furdunço* (Bretas, 1989).

Another element that confirms the lives of *carioca capoeiras* is also recorded by Calixto Cordeiro and Álvaro Martins (quoted in Santos, no date), when it represents the defense weapons used by *capoeiras*, practitioners or not of this Brazilian fight; many of the descriptions given by Araújo (1997) are confirmed, in which the stick gains relevance,[13] present in the image The Sifting (**Figure 1**), which should never exceed 50 cm of canes (**Figure 2**) depicted in Types and Uniforms, or the knife (**Figure 3**; Freyre, 2000), shown in the illustration The Oil Lamp, numerous times portrayed in manuscripts and social and police chronicles of the 19th century, a defense weapon historically linked to individuals covered by the nickname *capoeiras*, and thus, allowing to remain unchanged, by means of this iconographic representation, the myth of the close connection between the knife/Capoeira.

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[12]Alexandre José Mello Moraes Filho. Festas e tradições populares do Brasil (Belo Horizonte/Rio de Janeiro: Editora Itatiaia, 1999), 258 and 262.
[13]Brasil, Codex 403 Vol. II. 01/03/1820. Arquivo Nacional.

FIGURE 1 | Types and uniforms.

A peneiração. (Kalixto, 1906.)

FIGURE 2 | Sifting.

As mentioned above, these images are invaluable for the understanding of the history of Capoeira and of one of its fundamental elements, its movements, and strikes used by practitioners in the 19th century, given the scarcity of pictorial records only represented by the drawings of Rugendas, Earle and Christiano Jr. during that century.

This iconographic record allows us to get closer to the written records of those cornerstones submitted by ODC (1907), Burlamaqui (1928), Edmundo (1932) and Moraes Filho (1999), and thus reconstruct the framework of movements and strikes of this expression over time, either by consideration of its expressive form of a corporal character or by the nominal

A lamparina. (Kalixto, 1906.)

FIGURE 3 | The oil lamp.

A cocada. (Kalixto, 1906.)

FIGURE 4 | The coconut strike.

identifications assigned to them in different periods, regions, or styles of Capoeira.

Considering the approaches made by Araújo and Jaqueira (2010) on the study of strikes and movements within Capoeira, the movements represented by the caricaturist and nominally identified as The Sifting, The Oil Lamp, The Coconut Strike had other names for more than three quarters of the 19th century, *negacear* (**Figure 1**), *tapona* (**Figure 3**; ODC, 1907; Edmundo, 1932; Araújo and Jaqueira, 2008), and *cabeçada* (**Figure 4**), some of them described in contemporary dictionaries (Novo Aurélio Século XXI: O Dicionário da Língua Portuguesa, 2000) with different meanings from those presented by the description of Lima Campos.

Some of these names were widely described in documentary[14] and bibliographic (Edmundo, 1932; Moraes Filho, 1999; Freyre, n.d.) records that portrayed the presence of the colonial *capoeiras*, practitioners or not of the Brazilian fight, in which for the word *cabeçada* (head strike) there were several others, depending on the specific parts of the body to hit, like chin; chest; belly; in the face, and also the word *chifrada* (strike with a horn).[15]

Although we find many allusions to the lack of documents about Capoeira in the state of Bahia, we are able to prove the presence of *cabeçada* in the 80s of the 19th century in this state[16] and the beginning of the 20th century[17] in the descriptions below:

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[14]See Note 12.
[15]Plácido Abreu, 1894, 95.
[16]Oséias Moreira de Araújo. Notícias sobre a Polícia Militar da Bahia no Século XIX (Salvador: Imprensa Oficial da Bahia, 1949) 24.
[17]"Um crime passional e uma cabeçada que mata." A Tarde (Salvador, 18 December 1916) 3.

On the night of February 22, 1883, the soldier José Raimundo de Souza, standing patrol in the Baixa dos Sapateiros, went to arrest the stevedore Celestino, author of a major conflict on that street, from whom he received a 'cabeçada' that caused him almost instant death (Araújo, 1949).

The soldier, retreating a bit, pulled the saber to frighten the aggressor. He could do nothing, however, because (…) he, skilfully, in a Capoeira step, dodged the blows, finally hitting Aristide with a great 'cabeçada', making him fall in an agonising fashion (Um crime passional e uma cabeçada que mata, 1916).

The movement The shim or Tripping (**Figure 5**), besides being present in Edmundo (1932), are also highlighted in ODC (1907) and Moraes Filho (1999) with the same name, although, under this double reference, it should be noted that they are two separate blows in the context of this fight, and so recognized by other writers who referred to the presence of these movements as two different ones. The Burlamaqui (1928) also considers the shim effectively a trip, but with a different form of expression from the one presented by Calixto Cordeiro in his image, which he identifies as the strike known as The Falling from the Slope.

In short, a strike called shim permeated the context of Rio Capoeira in the 19th century and the first two decades of the 20th century, fitting as a kind of trip, without, however, asserting itself as identical to the trip typified this caricature, only converging on the understanding that they are different movements but both are applied with the leg or foot to knock the opponent.

The trip configured in this cartoon is presented with the characteristic already identified by several authors who described

FIGURE 5 | The mower.
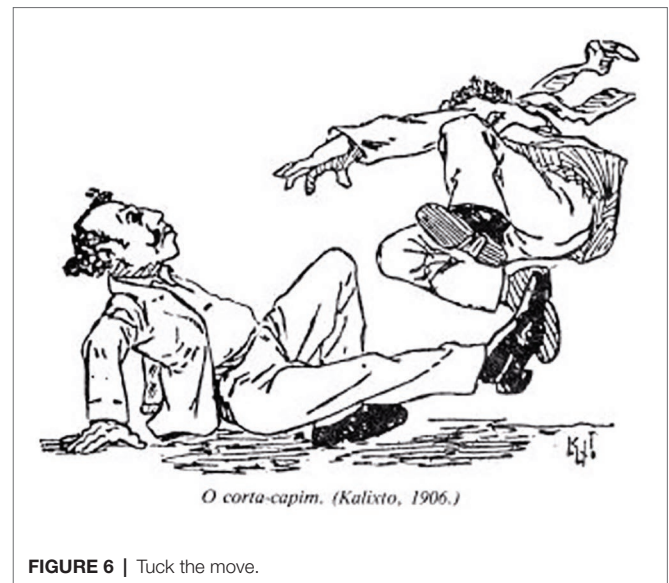
FIGURE 6 | Tuck the move.

some of the movements and strikes of Capoeira in the late 19th century and early 20th century, as the mower trip (Burlamaqui, 1928) or hunter trip (Moraes Filho, 1999) or the trip or *rabo de arraia* in three stages (Pederneiras, 1926), Plácido de Abreu being (1886) the first author to particularize and describe one of the ways to implement the many trips that we know today.

There followed several descriptions of this type of strike in the works of ODC (1907) and Burlamaqui (1928) as those that showed more characteristics of this type of attack movement, typifying and nominating them in relation to their temporality (ancient and modern), to the planes (transversal, sagittal, frontal) with the hands or feet, and to the orientation according to the performed physical action (from the front, back, side, outside, inside).

As to the term Tuck the Move (**Figure 6**), we believe this identification configures a slang feature in this context, as no citation by the chroniclers of the time or any similar primary source reference are not found historically; only one particular occurrence stands out in the iconography of Earle (quoted in James, 1955) – a movement with a body expression similar to that indicated by Calixto Cordeiro in his caricature but without any assigned name.

We found a similar physical expressiveness in the movements identified as plate or abutment (**Figure 6**; ODC, 1907; Burlamaqui, 1928) and already referenced in numerous works by the authors mentioned in this text, even with no specific designation, and that, at present, conform to the nominal identification of blessing (**Figure 6**; Mestre Bimba, campeão na capoeira desafia todos os luctadores bahianos, 1936), or even with these names in many existing Capoeira groups.

In the years that followed the production of these images, many were the authors who have registered, through their literary productions on the fight of Capoeira, the description and identification of these movements with different or identical names, by selecting only these names for a strike with this

feature according to the identity of the group with a view to their social or stylistic differentiation, by linguistic regionalism, or even by individual issues of the creators of the new groups of this Brazilian fight expression.

DISCUSSION

In concluding this analysis of the caricatures of Calixto Cordeiro, we consider the relevance of your work to the understanding of various inherent aspects to this Brazilian fight, which features the presentation not only of its own language, of specific costumes of the *capoeiras*, of defense weapons that always accompanied them but also, and above all, of the identification of some movements belonging to the gestural framework of Capoeira, very poor in descriptive and iconographic records of any kind up to that moment.

In deciding on a multi-method process for this analysis, and in particular on the assumptions indicated by Panofsky, we consider that this methodological choice proved to be right for this type of analysis, initially iconographic, but that, from the confrontation with the data and facts contained in the different sources consulted on Capoeira, relevant insights were provided on the different elements alluded to in this article and on the cultural history of this Brazilian expression.

Thus, the results derived from the analysis of the form expressed in Calixto's images, when confronted with the different sources consulted and providing information of a bodily, symbolic, linguistic, and indumentary nature, contributed to consider that an iconological study had taken place, because it did not focus only on the analysis of form and content but also because it enabled interpretations that enriched the knowledge of aspects inherent to Capoeira in the sociocultural context during the 19th century and the early 20th century.

The iconography analyzed greatly contributes to the historical reconstruction of this body expression over time, safeguarding

the regional peculiarities, well established already in the documentary evidence discovered so far and disclosed in some recent works on this genuinely Brazilian cultural manifestation.

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AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Book Review: The Story of Catch: The Story of Lancashire Catch-as-Catch-Can Wrestling

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A Book Review on

The Story of Catch: The Story of Lancashire Catch-as-Catch-Can Wrestling

Ruslan C. Pashayev (Delaware, OH), 2019, 250 pages, ISBN-13:978-1072393252

I present a review on the book "The Story of Catch" by Ruslan C. Pashayev a wrestling history enthusiast from Columbus, Ohio, United States who is also an expert-member of the Traditional Sports Team of the Instytut Rozwoju Sportu i Edukacji (the Institute of Sport Development and Education), Warsaw, Poland. Meticulous research and attention to detail have made Ruslan C. Pashayev one of the foremost authorities on the history of Western European Catch-Hold traditional styles of wrestling (folk wrestling styles), particularly the Lancashire Catch-as-Catch-Can style.

"The Story of Catch" is the only major book ever to cover this subject or the time period that began a variation of professional wrestling which is known around the world as "Lancashire Catch Wrestling" or simply "Catch." Besides that "The Story of Catch" covers the history of various Western European traditional catch-hold wrestling styles which predated and "fathered" Lancashire catch-as-catch-can as well as tracing the origin and explaining the evolution of modern International Olympic styles of wrestling such as Graeco-Roman and Freestyle. The purpose of his work was to establish the truth about the origin of Lancashire catch wrestling and explain the evolution of this cultural phenomenon.

Seven years of research in various libraries, local studies, historical societies, archives, registration and record offices, and museums in Great Britain in particular those located in the towns of East Lancashire (Wigan, Bolton, Bury, Middleton, Rochdale, Oldham, Ashton, Blackburn, and Burnley) and in West Yorkshire, as well as in the British Library, American Library of Congress, and many others. The memoirs of individuals, historical books, documents, newspapers, and magazines all have played a part in the overall success of the studies that led to this work.

This book presents a pivotal study in restoring the history of Lancashire catch-as-catch-can wrestling. Ruslan C. Pashayev's research clearly is both revolutionary and eye-opening. The author has done an amazing work of research in tracking down and documenting the true origins of catch-as-catch-can wrestling. He cuts through the myths and legends that have evolved around this wrestling style over the decades and presents irrefutable evidence as to its introduction to the Lancashire County of England and its amazing growth in the mid and late nineteenth century. By analyzing thoroughly historical documents, including newspapers of the time, the author has successfully challenged much of the traditionally perceived history of the sport. His inquiries resulted in an absorbing revelation of the foundations and development of a sport that was destined to become a social phenomenon of the twenty-first century. His investigations have unveiled the ethnic and geographical origins of the Lancashire Catch-as-Catch-Can style, the wrestling styles that preceded Catch in the region of East Lancashire, and the emergence of a professional category

in this sport. Like a modern day detective Ruslan C. Pashayev has pieced together the forensic evidence to weave an absorbing chronicle of Lancashire wrestling's fascinating history. Besides that it is written clearly, with attention to detail and humor that only one with a deep understanding of the wrestling sport could even appreciate.

The book starts with the author giving very detailed information and analyses of the various traditional wrestling styles (both catch-hold and fixed-hold styles of wrestling) which were historically practiced in different parts of England in particular in the areas of East Lancashire and West Yorkshire. Then author explains the history of the term of Catch-as-catch-can (catch/take a hold of someone as one pleases) wrestling in England throughout the centuries and resumes by providing a great account of two kinds of catch wrestling styles which were around in the early 1800s, the London Catch-as-catch-can and Lancashire Catch-as-catch-can styles of wrestling.

Among the revolutionary discoveries made by the author was the introduction of the up and down catch-as-catch-can wrestling by the immigrants (textile workers) from Continental Europe (originally from Flanders) in East Lancashire and West Yorkshire in the fourteen to seventeen centuries (since 1560s the Protestant wave of immigrants which besides Flemish also included Germans and French Huguenots) and its transformation into a professional Lancashire up and down fighting and establishment its major centers in the towns of East Lancashire (Pre-1800s). Tracing the roots of Lancashire catch-as-catch-can wrestling to the "Flemish weavers" the immigrants from the Medieval County of Flanders who brought their free-for-all traditional style of wrestling called Stoeijen to East Lancashire was instrumental in explaining two major features of Lancashire catch wrestling (catch hold of any part of the body above and under the waist and ground wrestling) which significantly differed from those of the traditional English styles of wrestling and weren't found anywhere else in England outside the areas of East Lancashire and West Yorkshire. Those two features of Lancashire catch wrestling previously remained without any explanation for so long until the author of this book successfully resolved this major historical paradox.

Further in the book the author talks about the abolition of illegal pro Lancashire up and down fighting and introduction of the modern pro catch wrestling in East Lancashire which happened in the 1820s. The information about the establishment of the Rules of the Game which occurred in the 1840s-50s (the time period which produced the first generation of Lancashire pro wrestling superstars) was uniquely interesting. Arguably the most important part of the book from the historical point of view is the one which talks about the Golden Era of Catch Wrestling,

the 1860s. In this the section of the book the author provides previously unknown detailed information about the earliest pro wrestling promotions (championship titles), the great champions and championship lineages of the most glorious epoch of catch. The Author fully and completely explains the rules according to which the pro wrestling business was operated in East Lancashire and how it affected and shaped the modern day pro wrestling.

In the second part of the book the author highlights pro wrestling during the so-called Era of Claimants, the epoch which followed the heyday of Lancashire wrestling and the immigration of Lancashire Superstars to America in the 1870s-1900s.

In the very end of the book the author is giving a descriptive analyses of the early 1900s situation in pro catch wrestling in Britain during the era called the Wrestling Boom or the music halls era of catch (1899- Pre-WW1) as well as he speaks about the destiny of catch wrestling in twentieth century (Britain, North America, and Continental Europe) and prophesizes about it's future.

The research presented in this book was rated as being of high historical value by the foremost American (such as Mark Hewitt and Steve Yohe) and British (such as Alan Bamber and Ron Harrison) wrestling historians. "The Story of Catch" was very well received all around the world and is now promoted on the various wrestling history studies websites such as Traditional Sports (traditionalsports.org), Wrestling Heritage of UK (wrestlingheritage.co.uk), Pro Wrestling Historical Society (prowrestlinghistoricalsociety.com), and Wrestling Titles History (wrestling-titles.com).

"The Story of Catch" also presents numerous historical photos, captions, and illustrations, some of which have never been seen before. Whether one is a wrestling fan, wrestling history scholar, wrestling and MMA enthusiast, or practitioner the research of this indefatigable historian and his "The Story of Catch" are a must read.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

Traditional Sporting Games as Emotional Communities: The Case of Alcover and Moll's Catalan–Valencian–Balearic Dictionary

Antoni Costes[1], Jaume March-Llanes[2], Verónica Muñoz-Arroyave[1], Sabrine Damian-Silva[1], Rafael Luchoro-Parrilla[1], Cristòfol Salas-Santandreu[1], Miguel Pic[3] and Pere Lavega-Burgués[1]*

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Learning to live together is the central concern of education everywhere in the world (UNESCO). Traditional sporting games (TSGs) provide interpersonal experiences that shape miniature communities charged with emotional meanings. The objective of this study was to analyze the ethnomotor features of TSG (relationship between the internal characteristics of the TSG and sociocultural variables) in three Catalan-speaking Autonomous Communities and to interpret them for constructing emotional communities. The study followed a phenomenological-interpretative paradigm. The identification of TSG was done by a hermeneutic methodological approach by using an exhaustive exploratory documentary research. We studied 503 games collected in the Dictionary Català-Valencià-Balear de Alcover and Moll (1926–1963). Instruments and procedure: A database was built up with information about the internal and external logic of the games. The validity of the information was confirmed by means of a concordance test between the researchers. Data processing was carried out by means of classification trees (inferential level), identifying the predictive variables of the types of TSG. Most of the TSGs were sociomotor games ($n = 405/503$; 80.5%). The classification tree identified four explanatory variables. Three variables were internal traits (body contact, material, and score), and one variable corresponded to external logic (age). Features of the TSG of the Catalan-speaking Autonomous Communities build original emotional communities. The ethnomotor regularities triggered emotional experiences associated with pleasure for (a) living together (predominance of sociomotor games); (b) domesticating of aggressiveness over opponents (different motor licit aggressiveness); (c) developing sustainability (presence and absence of objects from the surrounding environment); (d) educating the competition (games with and without final score); and (e) interpersonal well-being based on the community (transmission of ludic culture from children to young TSG).

Keywords: intangible cultural heritage, motor praxeology, ethnomotricity, sustainability, relational wellbeing

INTRODUCTION

Distinguished international organizations such as UNESCO have repeatedly stated that the main concern of education anywhere in the world is learning to live together (Yan Fang et al., 2014). Before reaching adulthood, people share a multitude of social experiences in formal (learning recognized by each country's education system that leads to certificates and qualifications), non-formal (additional learning, optional to formal), and informal (learning in daily life, in the family, in communities, without planning) educational scenarios (UNESCO, 2012).

In the context of informal learning, the traditional sporting game (TSG) is one of the main languages of socialization. In contrast to sport, the TSGs are confrontational situations whose rules are established by the participants themselves, according to local tradition (Parlebas, 2016). On the other hand, a sport is codified by a central institution (federation) with the intention of extending it to the whole world.

In informal or non-formal educational environments, societies have originated a remarkable diversity of playful experiences, unique methods of entering into relationships with others, and ways of following social rules. After school, during weekends and holidays, children and young people are used to playing with other people, weaving very special bonds of friendship and interpersonal relationships. In these scenarios, the TSG is a miniature society, where the protagonists learn to live together in the community (Parlebas, 2001). The TSGs anchor aspects of culture and weave bodily techniques or habitus of attitudes, gestures, and social preferences (Mauss, 1936; Geertz, 1983).

The relationships that each game activates help to build small communities, integrated by people who share emotions, beliefs, and responsibilities (McMillan and Chavis, 1986; Treitler et al., 2018). Thus, TSGs create what Rosenwein (2006) calls emotional communities, since their protagonists share emotional states that arise from the democratic dialogue of the rules of the game.

Playing a game means being involved in a social exchange of emotions with the other players (Lavega et al., 2014). Many TSGs establish rituals to distribute the roles of the pursuer (it) or captain, as well as to decide the order of intervention. In this first phase, people begin to feel that they share an emotional intrigue about how to start the game. Previous studies reveal that playing TSG elicits intense emotions, for example when players agree on a team strategy; when they share ludic actions as chasing, capturing, or running away from an opponent; or when they share the victory or complain about the defeat (Etxebeste et al., 2014; Duran and Costes, 2018). Traditionally, children and young people spend a large part of their leisure playing TSGs (Etxebeste, 2012; Etxebeste et al., 2015; Lavega-Burgués and Navarro-Adelantado, 2015; Parlebas, 2016).

Such persistent playful involvement helped each group of players to have their own particular values, modes of feeling, and ways to express playful feelings (Rosenwein, 2016). Emotional communities are therefore the process of viewing a social group by the way it assesses emotions and according to the norms it

follows for how emotions should be expressed. In other words, any group of people with common interests and goals can be called an emotional community. As Rosenwein (2006) highlights, each person may belong to several emotional communities, simultaneously or successively. In the course of one's life, we can move from one emotional community to another and be in several communities at the same time. This means that during childhood and youth, people participate in the construction of a ludic emotional community (Rosenwein, 2006).

Social in nature, TSGs become the mirror of the predominant characteristics of the communities, reflecting through their own rules the expression of social rules. Thus, it is necessary to reveal the unique nature of the rules of the game in order to identify the specificity of the ways of interaction.

The science of motor action offers scientific fundamentals to study the internal logic of the TSG, that is, the properties contained in the rules, independently of the characteristics of their protagonists (Parlebas, 2001). The internal logic is defined by "the system of relevant traits of a motor situation and the subsequent consequences in the completion of the corresponding motor action" (Parlebas, 2001, p. 216).

When playing a game, players respond to relationships established by their internal logic, that is, (a) relationship with space: participation in a stable surface (without uncertainty) or unstable surface (with uncertainties); (b) relationship with material: presence or absence of objects; (c) relationship with time: way of ending (presence or absence of a final score that establishes winners and losers); and (d) relationship with others (type of motor interaction with the other participants, or for instance, the allowed degree of intensity in/with body contact).

Regarding relationship to others, two categories of TSG are identified: (a) psychomotor TSG, where the person plays without partners or opponents as in the game of *Quernet* (knock down an almond pillar by throwing a much bigger almond), and (b) sociomotor TSG (two or more people cooperate to reach a common goal); e.g., in the game of *Molí* (two children join hands and turn around without moving their feet from the ground and increasing the speed of the turn); of opposition (the player opposes one or more opponents; e.g., in the game of *Estiracabells*, the children dispute a ball to take it to a designated place); or of cooperation–opposition (with motor interactions with partners and opponents; e.g., in the game of *Romaní-romanà*, one team chases another to make them prisoners).

The internal logic of the game also determines the level of motor interactions allowed by the rules. Thus, depending on the distance of confrontation between the opponents and the authorized body contact (Parlebas, 2017), different levels of motor aggression may be triggered (Collard, 2004). Aggression may be legal, permitted by the rules of the game (e.g., hitting an opponent in a fighting game), and should not be confused with aggression or physical violence involving the use of force (Elias and Dunning, 1986), which is illegal and sanctioned. Physical contact can also take place in cooperative games; however, it will not be logically associated with motor aggressiveness.

In addition to having a system of rules, TSGs have a direct relationship with the local culture to be included in any

sociocultural interpretation. Motor praxeology offers the concept of ethnomotricity to connect the internal traits of the games (internal logic) with variables external to the rules (external logic) or social and cultural conditions: characteristics of the players (sex; age); playing areas (location and conditioning); times of practice (with or without a calendar); and provenance of the objects (from the domestic, natural, or purchased environments) (Etxebeste et al., 2015).

Other ethnomotor studies in different countries show the mirror function of local culture [e.g., Etxebeste (2012) illustrates the connection of the TSGs with the traditional culture in the Basque Country; Lavega-Burgués and Navarro-Adelantado (2015) reveal the ethnomotor features of the TSG in Spain described by Rodrigo Caro; Parlebas (2016) points out the connection of the TSG with the cultural features of societies]. The effects of the TSG on the emotional states of members of the ludic community have also been noted (Lavega et al., 2014).

From this perspective, the aim of this research was to reveal the ethnomotor traits of the TSG of three autonomous communities (regions) of Spain and their possible link with the production of singular emotional communities.

METHODS

The design of the research was based on the phenomenological-interpretative paradigm (González-Monteagudo, 2001). In the identification phase of the TSG, the study followed a hermeneutic methodological approach (Pérez, 2011) by using an exhaustive exploratory documentary research.

In the process of classifying the TSG, we carried out a content analysis, which is typical of qualitative methodology, using data and research triangulation.

From a methodological point of view, the ethnomotor research of TSG performed in other historical periods has to face the limitations offered by written sources. Often, there is a problem with the quality of information described about the rules, habits, and customs associated with TSG. This limitation is even more severe when the work is written by a single author. To answer these problems, this study based on the "Diccionari Català-Valencià-Balear" (DCVB) has taken into account the following methodological considerations: (a) The same methodological procedure has been followed as in other previous researches, for instance, Parlebas, 2003; Etxebeste, 2012; Lavega-Burgués and Navarro-Adelantado, 2015). (b) The DCVB dictionary is considered as one of the first etymological dictionaries of the Romance languages elaborated with a contrasted scientific procedure (Domènech and López, 1999; Perea, 2012) involving a team of eminent philologists and more than 5,000 informers; therefore, the scientific lexicographic community grants objectivity and reliability to the contents of the work. (c) Many games have been identified in several localities, which confirms their presence and also complements the description of the rules and their sociocultural aspects. (d) When there were doubts in any game to interpret its rules, we consulted the books of the philologist, lexicographer, and etymologist Coromines (1980–1981) and of the ethnologist and

folklorist Amades (1982–1983) and the specific books of games in Maspons (1928) and Vidal (1893).

Sample

We studied 503 TSGs performed by different ages, mostly by children and young people and by both genders. The TSGs were located in Catalonia, Valencia, the Balearic Islands, and the South of France (formerly known as Northern Catalonia), described in the Dictionary DCV written by the authors Alcover and Moll (1968, 2018). This work, composed by 10 volumes, has 9,850 pages that make up 160,000 articles or entries describing the meaning of all the words, among them the games played until the end of the XIX century and the beginning of the XX century, which were used in the diverse dialectal modalities of the Catalan language.

Instruments and Procedure

A database was elaborated, and the variables referred to the internal logic were identified for each TSG: (a) authorized body contact against the opponent, (b) material, and (c) result (outcome), and to the external logic: (a) region; (b) origin of the material, (c) gender, (d) age, (e) location zones, (f) conditioning zones, and (g) calendar. To ensure the quality of the registers, four expert compilers were recruited (with more than 10 years of training in motor praxiology). A three-phase procedure was followed (Arana et al., 2016): (i) theoretical training and construction by consensus of an *ad hoc* tool, based on internal and external logic; (ii) theoretical and practical training of observers with examples and counter-examples for classification; and (iii) classification of all the TSGs independently and without interference among the observers, when the tool was prepared. This procedure (Anguera, 2003) was carried out twice (intra-observer) with a distance of 1 month, by the four observers (interobserver). The interobserver and intra-observer Spearman's (=1.00), Pearson (=1.00), and Cohen's kappa (=1.00) (Cohen, 1960; Lapresa et al., 2020) were used to ensure the data quality for analysis.

Analysis of the Data

Statistical analysis was performed by means of classification trees (Lavega et al., 2014; Lavega-Burgués et al., 2020b) at the inferential level (Pearson's chi-square) identifying the predictive variables (related to internal logic and to external logic) of the types of games according to the motor interaction they generate. We used the tree growth method known as CHAID (Chi-squared Automatic Interaction Detector, implemented in SPSS[TM] 26, Answer Tree©). We followed a cross-validation system with a stopping rule of three maximum levels, with 50 being the minimum number of elements at the terminal nodes.

RESULTS

Regarding the total number of TSGs identified in the dictionary (*n* = 503), the majority corresponded to socio-motor situations

(opposition games, cooperation, and cooperation–opposition games; $n = 405$; 80.5%), with a predominance of opposition games ($n = 234$; 46.5%).

The classification tree identified four explanatory variables of the games: Three variables corresponding to internal logic (body contact, material, and result) and one variable related to external logic (age) (see **Figure 1**). The overall classification accuracy of the model (CHAID algorithm) was 64.6%.

Among the characteristics of the internal logic, body contact with the opponents (relationship with the others) turned out to be the most representative. There were significant differences ($p < 0.001$; $\chi^2 = 240.602$; $df = 6$) between the three types of body contact. Most of the games were played without contact with the opponents (node 1) ($n = 300$; 59.6%).

Traditional sporting games with body contact ($n = 113$; 22.5%) were played with simple and permanent contact (node 2), represented exclusively by games with opposition ($n = 63$; 55.8%), TSGs with opposition and cooperation ($n = 50$; 44.2%), and 17.9% ($n = 90$) with strong impact or object contact against the opponents (node 3) were represented mainly by opposition games ($n = 80$; 88.9%).

In most cases, when games are played without contact of the opponents' bodies (node 5), two predictive variables of internal logic were identified: the relationship with the material and with time (result) ($p < 0.001$; $\chi^2 = 124.046$; $df = 3$). Analysis of

the "material" variable showed that, among these games without body contact, object games were the most prevalent ($n = 188$; 37.4%) mainly in psychomotor games ($n = 87$; 46.3%) and opposition games ($n = 76$; 40.4%).

Games without objects were less present ($n = 112$; 22.3%) than games with objects ($p < 0.001$; $\chi^2 = 124.045$; $df = 3$), represented mainly by cooperative games ($n = 69$; 61.6%).

Finally, in the TSG with objects the predictive variable "result" (outcome) showed that the TSGs with result or outcome were significantly predominant ($p < 0.001$; $\chi^2 = 37.673$; $df = 3$) and above all present in opposition games ($n = 57$; 53.3%). The TSGs without outcome corresponded mainly to psychomotor activities ($n = 45$; 55.6%).

In TSGs with simple or permanent contact, age was the external predictor variable. Significant differences were found ($p < 0.004$; $\chi^2 = 10.527$; $df = 1$). Children ($n = 60$; 11.9%) preferred opposition games ($n = 42$; 70%), and young people ($n = 53$; 10.5%) preferred cooperation-opposition games ($n = 32$; 60.4%).

DISCUSSION

The aim of this research was to reveal the ethnomotor traits of the TSGs of three Catalan-speaking autonomous communities
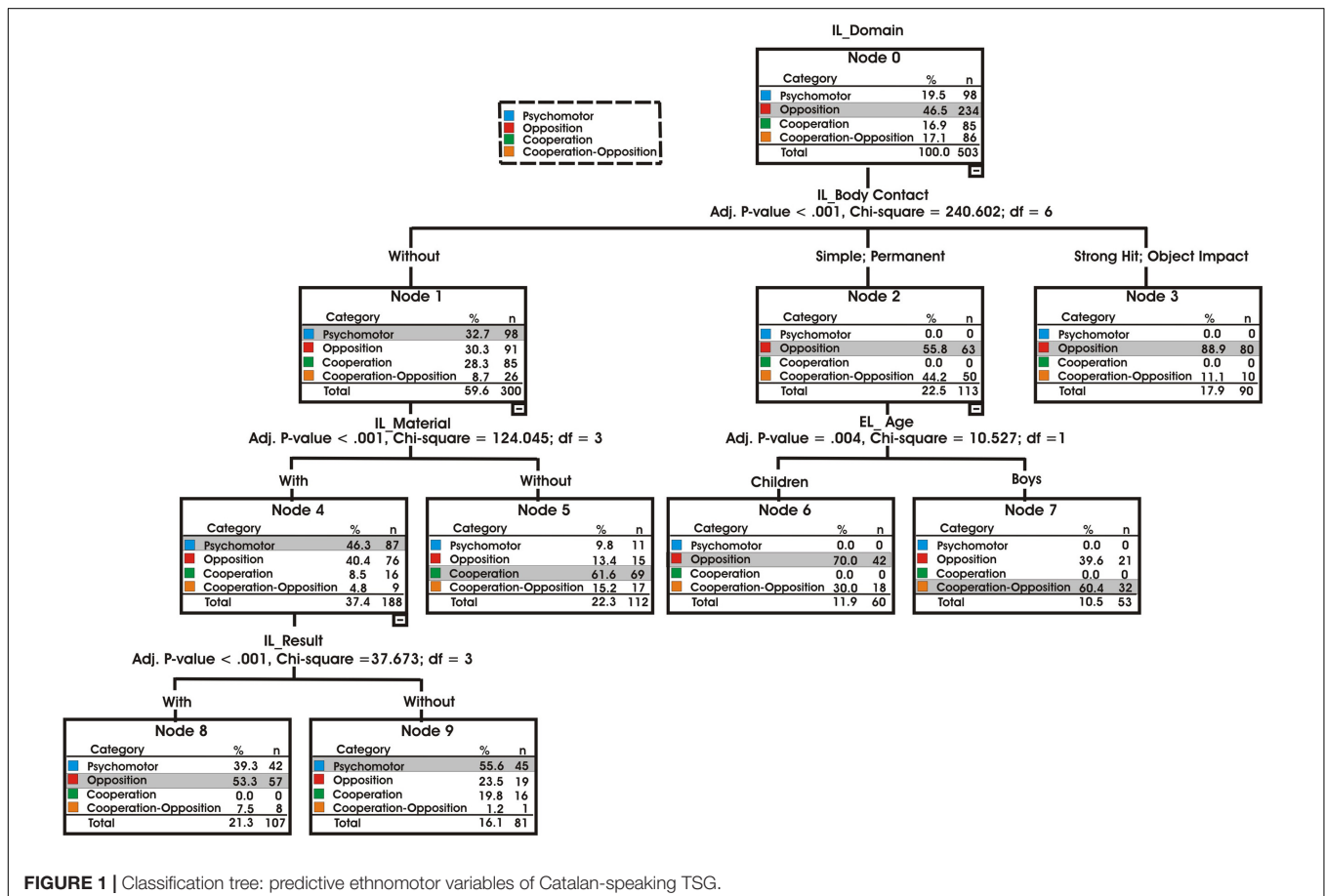
FIGURE 1 | Classification tree: predictive ethnomotor variables of Catalan-speaking TSG.

and their possible connection with the construction of singular emotional communities.

The ethnomotor study, through the intelligibility of the internal and external characteristics of the Catalan-speaking TSG, revealed the production of possible emotional experiences.

Games as a System of Social Interaction: A Socio-Emotional Well-Being
The Pleasure of Learning to Live Together

The different ways of motor relationship contained in the rules of the TSG show the type of social relationship they promote. The Catalan games are mostly sociomotor ($n = 405/503$; 80.5%).

Played with other players, TSGs are expressed in terms of motor interactions between participants, in particular through antagonistic socio-motor dynamics (46.5% are opposition games).

These characteristics allow a better understanding of the pleasant culture of playing together, of living together (see **Table 1**). Moreover, the triggering of decoding body signs, decision making, and motor strategy and the intense socio-affective dynamics caused by these oppositional situations create, at the same time, consequent emotional communities. This, in a possible intervention in formal education, presents a greater intelligibility of the educational action.

Learning to Domesticate Aggressiveness

Among the ten internal and external factors studied, bodily contact with opponents is the predominant trait of the internal logic of the inventoried games. Catalan games constitute a culture without adverse body contact (59.6%), that is, without illicit motor aggressiveness (Collard, 2004; Dugas et al., 2016). This trait is clearly present in opposition games (30.3%) as in *Catarroja* (the players hide and another person must guess where they are hiding, and he/she discovers them by saying their name).

When the games allow body contact, simple or permanent contact is preferred (22.55%) (moderate motor aggressiveness (Collard, 2004), mainly within opposition games (55.8%) As in *cat and mouse* (the cat followed the mouse to capture it with a simple touch).

High-impact or strong-impact games with objects (intense motor aggressiveness, Collard, 2004) represent a minority (17.9%) and are mostly composed of opposition games (88.9%) such as *Cordeta to amagar* (the player who finds a hidden rope chases the others and hits them with it).

The varied internal logic in this group of games teaches the protagonists to share legal motor aggressive actions of different intensity (Collard, 2004) and to regulate negative emotions in the face of reactions to frustration (Dollard et al., 1939; Berkowitz, 1989) or aggressive responses in a conflict (Dugas et al., 2016) or even to motor violence during the game (Elias and Dunning, 1986).

Developing Environmental Sustainability

The classification tree shows that games without body contact are played mainly with objects (37.4%), particularly in opposition games (40.4%) and psychomotor games (46.3%).

Conversely, games performed without objects (22.3%) were mainly cooperative (61.6%).

Motor interactions in opposition games with material were carried out through contact between handcrafted objects (e.g., throwing a wooden marble on the opponents' marble or balls, handkerchiefs, ropes, caps, or spinning tops).

In psychomotor games, there is no body contact; players take part side by side or in turns (e.g., in *Cinquetes*, different rhythmic actions are performed when throwing and collecting small stones).

All these games favor the development of environmental sustainability (respect for the natural environment) and social sustainability: participation (all the members are allowed to play), equality (the rules are the same for all the players), social cohesion (the community improves her internal relationships), and awareness of sustainability (the relationships have a long-term duration) (see Murphy, 2012). These dimensions are included in the sustainable development objectives in the Agenda 2030 adopted by the member states of the United Nations (2015).

The games with objects are authentic showcases of sustainable learning with a clear orientation toward environmental sustainability (Lavega-Burgués and Navarro-Adelantado, 2015). Unlike regulated sports, whose objects are bought and equal all over the world, playing with objects comes from a nearby environment (natural or domestic) (Parlebas, 2003). Before playing with these objects, it was necessary to perform two ecological actions: (a) searching for objects in the natural environment (e.g., stones, bones, branches, herbs, fruits, or reeds) or domestic environment (e.g., ropes, wheels, sacks, brooms, needles, shoes, and handkerchiefs) and (b) crafting this material (e.g., making stilts out of rope and paint cans). Recovering, recycling, and reusing were three common sustainable learning actions (see **Table 1**).

Other studies show that self-construction of playful objects arouses high levels of interest, enjoyment, and motivation (e.g., Méndez-Giménez et al., 2012) as would be the case with many traditional games.

Developing Social Sustainability

The second group of games without body contact over the opponents and without objects ($n = 112$) is mostly made up of cooperation games ($n = 69$; 69%). Examples are dance games, circle games, or choreographies, or Sant Joan de les *Cadenelles*: players holding hands move and sing. Other studies show that these TSG trigger intense interpersonal relationships which in turn activate very high states of relational and emotional well-being (e.g., Lavega et al., 2014).

According to the theory of contact (Allport, 1954), these cooperative games favor attitudes of positive social sustainability. By cooperating, the participants (a) act with equality of status within the group; (b) participate in the collective construction of the pact of rules and allow the playful community to support or sanction undesired conducts; (c) seek to achieve common objectives that unite them; and (d) intervene in genuine, deep, and intimate associations where energy, decision, emotion, and

TABLE 1 | The social construction of emotional communities through Catalan-speaking traditional sporting games.

Key features of Catalan-speaking traditional sporting games		
Ethnomotricity	**Educational and cultural values**	**Emotional values internal logic**
Internal logic: Relationship to others, material, time	Culture of social and environmental respect	Socio-emotional well-being
External logic: Age: young population	Culture of intergenerational transmission of heritage	Community interpersonal well-being

relationship are different dimensions of the same phenomenon of learning on social sustainability.

Once again, the presence of an exuberant playful diversity (Parlebas, 2001, 2003) is observed, which consolidates the learning oriented to sustainable well-being (see **Table 1**).

Learning to Interact With and Without Competition
Finally, for games without body contact and with material the following predictive variable is the result reached in the game. Two groups are identified: TSG with competition and without final score.

Learning to Compete
The games with result reached in the game (37.4%) are mostly competitive (*n* = 57; 53.3%). The internal logic of these games guides players to compare and classify their answers to proclaim winners and losers (Etxebeste et al., 2014; Parlebas, 2017). The struggle for victory emphasizes the tension in the motor actions of the rivals, although the use of objects allows the projection of all the playful energy on the other rival objects instead of over on their bodies (e.g., hitting the rivals' spinning tops hard, even breaking them). These playful resources are resources/means of informal education aimed at learning to control motor aggressiveness.

In these games, the competition begins to be constructed by negotiating the group agreement of the rules. The players agree on the conditions in which they will face each other, which brings an interest in the activity from the very beginning of the game (Cumming et al., 2007; Etxebeste et al., 2014). The high emotional intensity of the opponent's presence (e.g., Lavega et al., 2014; Duran and Costes, 2018) involves learning to establish a balance between enjoyment through interest in the process of the actions of one's own game (task climate) or through motivation to want to dominate and exercise power over others (ego climate) (Lavega et al., 2014; Lavega-Burgués et al., 2020a).

Learning to Enjoy Without Comparison
When games are played without a final score, psychomotor games predominate (55.6%) over sociomotor games. Here, emotional excitement is directed toward the enjoyment of the process associated with the chaining of motor actions, often in a cyclical manner (Parlebas, 2001).

These games trigger emotional well-being when next conditions are present: (a) The possibility of reaching the objective on several occasions (e.g., throwing a spinning top so that it stays dancing for a while); (b) the intervention associated with having to make an effort (trying out different ways of throwing the top over and over again); and (c) being able to perform motor actions effectively (achieving the proposed objective) without having to compare oneself with others (e.g., Serna et al., 2017; Lavega-Burgués et al., 2020a).

Play as a System of Social Integration: A Community-Based Interpersonal Well-Being
Constructing Emotional Communities in Formal and Informal Education
Among all the variables, the classification tree has identified only one external variable: the age associated with TSG with the presence of moderate or permanent body contact.

Children and young people play a similar percentage of games (children: *n* = 60; 11.9%; young people: *n* = 53; 10.5%). However, in children there is a superiority of opposition games (70%) over cooperation–opposition games (30%), while among young people this regularity is reversed (opposition games = 39.6%; cooperation–opposition games = 60.4%).

This finding is directly related to a fundamental learning process with the passage from child to young person, i.e., the adoption of the democratic pact with others and the acceptance of the community rule. Parlebas (1986) shows, through empirical studies, different stages of evolution in children's attitudes to the rule. Up to the age of 11, children go through the stage of rejection of rules (2–6 years) and later (6–11 years) through the stage marked by egocentrism in which they gradually lean toward the adoption of a shared rule. In these stages, it is consistent that the games that predominate are those of opposition, in which each player has an individual objective, and he/she is the center of attention when facing the others. From the age of 11, young people accept the common agreement of the rules of the game and enjoy the pleasure of sharing common rules.

Traditional games play a key role in informal education, in playful experiences where the presence of an educator or an adult to lead the game was not necessary (UNESCO, 2012). In these informal contexts, playing teaches people to live together, to live in the community and to enjoy the pleasure of meeting others (Parlebas, 2003; Yan Fang et al., 2014), and to live together through processes of community normalization (Allport, 1954).

However, the TSG in the Catalan-speaking communities have particular rules, with different ethnomotor features from other communities. In these conditions, Catalan children and young people create body techniques in accordance with the values of the society to which they belong (Mauss, 1936; Parlebas, 2001).

Every playful action, every match in a traditional game is a masterful lesson in constructing emotional communities (McMillan and Chavis, 1986; Rosenwein, 2006). The raw material is served, so that, by playing, Catalan children and young people learn to establish norms of social conduct; they learn to construct

FIGURE 2 | Ethnomotor meaning triggered by TSG in the process of constructing emotional communities.
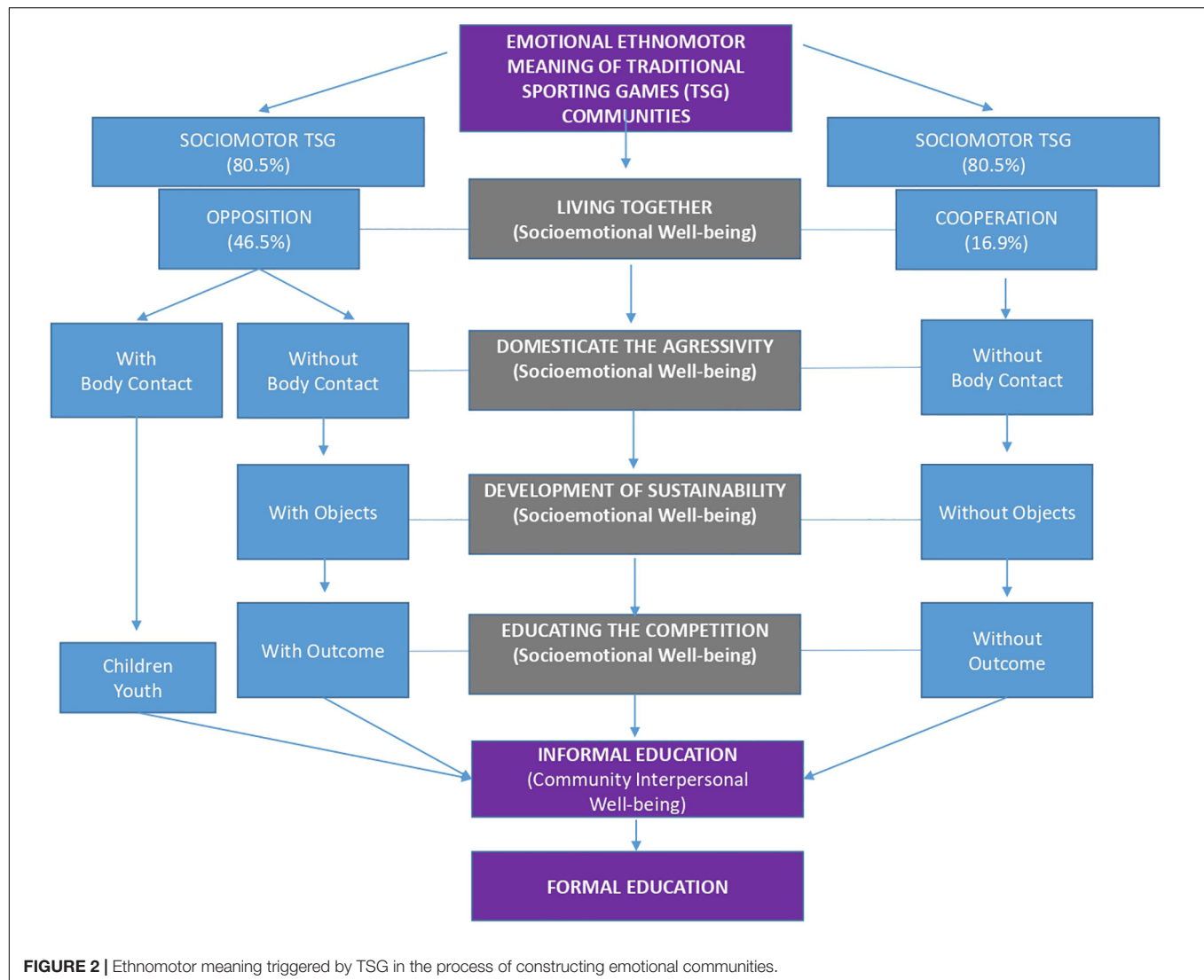
models of interpersonal relationships in which everyone is equal, in contexts in which the rights and prohibitions established by the rules are the same for any participant (Etxebeste, 2012). This common norm is associated with a process of reciprocal concessions in which a corporal habitus of organic, cognitive, social, and eminently emotional affective nature is configured (Parlebas, 2001; Warnier, 2001). TSGs are real laboratories of interpersonal relationships that teach the actors to live in the community (Yan Fang et al., 2014).

The main habitat of the TSG is the informal education, in which the members of the community learn to agree on their rules and to choose which games to play at each moment; the way to start and end the game; and the challenges to be accomplished and what will be at risk. These are informal contexts with a high educational load that integrates the values of their community. For this reason, formal education should take advantage of this fundamental cultural knowledge to integrate it, mainly through quality physical education (**Figure 2**). In this way, it would be possible to respond to some of the major challenges agreed upon by ministers of the different countries that make up the United Nations, in the proposals of the agenda for sustainable development in 2030 (United Nations, 2015).

CONCLUSION

This article presents an original way of analyzing the distinctive traits of more than 500 traditional games included in the Alcover and Moll (1968, 2018) dictionary. Each game is a piece of a puzzle, a miniature society (Parlebas, 2001) that, as if it were a mirror, reflects a clear connection of these TSG with the local culture of the Catalan-speaking communities.

As Warnier (2001) states, through motor practices such as TSG, there is the universal fact of becoming a human being. Being a citizen of the world means having access to the moral law that implies the relationship of oneself with others, in accordance with the social constrictions that each community establishes. The games, as Foucault (1982) would say, are procedures that

serve to fix the individual and collective identity. Games are techniques of subjectivization and individual identity (Bizumic et al., 2009), in which playing means relating to other members of the community.

The ethnomotor traits of Catalan games of the period studied are above all sociomotor games, of opposition, without body contact, with objects, and with a final result. When the games are cooperative, they are also without body contact directed at the opponents, without an object and without a final score. Learning to live together, taming motor aggressiveness, educating sustainability, and learning to compete and not to compare oneself with others are values of maximum interest for the society of the 21st century.

We have tried to show that the legacy offered by informal playful education, which corresponds to the genuine nature of traditional games, should be taken advantage of by formal education. Emotional physical education should make use of the fundamental learning contained in the TSG as intangible cultural heritage (Parlebas, 2016).

Games are above all a source of pleasure, fun, and well-being. For this reason, the distinctive features of the TSG have led their people to acquire learning that is as deep as enjoyable (Etxebeste, 2012; Lavega-Burgués and Navarro-Adelantado, 2015). Parlebas (1969) already advanced that affectivity is the key to the motor conducts of the participants in any game. Thirty years later, this study reaffirms that one of the main contributions of the TSG is their affective dimension, as the capacity to construct emotional communities in any society.

It is under these conditions that TSG directly intervene in the social construction of emotional communities (Rosenwein,

2006). Empathy and respect for the other actors in the game educate the affective sense of feeling members of the same community (McMillan and Chavis, 1986).

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

AUTHOR CONTRIBUTIONS

AC, PL-B, JM-L, and MP: substantial contribution to study conception and design. AC, PL-B, and JM-L: preparation of the document for approval by the Ethics Committee. AC, PL-B, VM-A, SD-S, RL-P, and CS-S: preparation and participation in the empirical work and discussion of data analysis strategies. AC, PL-B, MP, VM-A, SD-S, RL-P, and CS-S: preparation of the database (all variables). AC, PL-B, JM-L, MP, VM-A, and SD-S: database revision. All authors contributed to the article and approved the submitted version.

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The Emotional States Elicited in a Human Tower Performance: Case Study

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Human Towers are one of the most representative traditional sporting games in Catalonia, recognized in 2010 as Intangible Cultural Heritage by the United Nations Organization for Education, Science and Culture (UNESCO). The objective of this research was to study the emotional states (well-being, discomfort, and affectivity) elicited by a representative performance of the *colla* de Castellers de Lleida. This research is based on an ethnographic case study, with mixed methods in which 17 key informants (*castellers*) voluntarily participated. Participant observation was used; the data were recorded in a field diary and oral sources (semi-structured interviews). The content analysis was done using the Atlas.ti software (version 8.4.4). An SPSS database was also created. The statistical techniques were: Descriptive statistical techniques, cross tables with Pearson's Chi-square values (significance level of $p < 0.05$). We also used a classification and regression trees (CRT) to examine the predictive capacity of five independent variables (data source, logic, semantic units; contexts of a performance) of emotional states. The results reveal that the comments ($n = 132$) were mostly oriented toward well-being states ($n = 70$; 53%), The internal cooperative logic of the Human Towers enhances the intense interpersonal relationships of socio-emotional well-being.

Keywords: ethnomotricity, intangible cultural heritage, traditional sporting game, motor praxiology, human towers

INTRODUCTION

The European ludic tradition has provided an extraordinary variety of ways of dialogue and relationships among citizens. Traditional Sporting Games (TSG) are a mirror of the social, linguistic, and cultural richness of the different territories and they become intangible cultural heritage (ICH). UNESCO (2003) states that TSG are part of the ICH and are a symbol of the cultural diversity of our societies.

The Human Towers (HT) is a ludic practice that is deeply rooted in the territory of Catalonia (Spain) where it has historically been present in the festivities of Catalan towns and cities. To build a HT requires the motor collaboration of a group of participants that can exceed several hundred people. The socio-motor and cooperative nature of the HT (Parlebas, 2001) fosters fundamental

skills for today's society: teamwork, commitment to the collective, tolerance, solidarity, and the spirit of self-improvement (Coordinadora de Colles Castelleres de Catalunya, 2012). These universal human values allowed UNESCO to recognize HT as Intangible Cultural Heritage (ICH) on 16 November 2010 (UNESCO, 2010).

This article aims to identify the castellers as a community or micro-society (Parlebas, 2001) that, by participating in the construction of HT, elicites different emotional experiences among its members. Accordingly, it will be possible to verify that this community of social relationships is also an emotional community (Costes et al., 2021).

Playing a Game Means Learning to Live Together and to Feel Emotions

There is currently scientific consensus on understanding emotions as biological states of the nervous There is currently scientific consensus on understanding emotions as biological states of the nervous system brought on by neurophysiological changes variously associated with thoughts, feelings, behavioral responses, and a degree of pleasure or displeasure (e.g., Panksepp, 1982; LeDoux and Hirst, 1986; Ekman, 1992; Damasio, 1998).

From this point of view, players who participates in a game or sport not only has to overcome challenge of motor nature, but also engages in an emotional goal in order to manage their emotions intelligently (Lavega et al., 2014). Poor management of their emotions (e.g., feeling excessive fear, when the construction of a Human Tower is unbalanced) can distort the appreciation of the distance, duration, or difficulty of the task. However, carrying out a task with pleasure can lead the players to develop their motor and affective potentialities (Parlebas, 2001).

For the sociologist Kemper (1981), emotion depends on the interpretation of the situation in which it is expressed. When a situation appears as a relevant stimulus for the players, it brings them well-being and therefore satisfy their expectations. Then the actors feel positive emotions such as joy. If, on the other hand, the situation causes discomfort and does not fulfill their expectations, the emotion that arises is negative, such as fear, anger, rejection, or sadness (Bisquerra, 2003; Lavega et al., 2018).

Collins (2009) indicates that the exchange of "emotional energy" in social interactions facilitates the emergence of social structures. According to this view, TSG could act on an exchange of relationships and also of emotions, based on giving and receiving affection in which the protagonists share successes and failures, positive and negative emotions, rewards and deprivations, prizes, and punishments.

Physical activity professionals have an extraordinary tool for interpreting the social construction of emotions: TSG. This is a legacy that can be observed in any society whose relationship structures favor a social construction of emotions based on features of local culture (Lavega et al., 2016).

In the process of learning to be social beings, the TSG has a fundamental role. By participating in TSG, the person discovers the pleasure of living with others, the search to "live together," to communicate and to share common emotions according to features of the local culture. The TSGs act as

extraordinary ecological mechanisms (Milton, 2005) in the "emotional alphabetization" of their people. By playing we are constantly accumulating affective experiences in which coexistence with others is essential in the process of socializing the cultural guidelines established by a community. Each person generates their own emotions and experiences in two directions while playing: on the one hand, toward themselves, bearing witness to the subjective process of this experience, and on the other hand, building a network of emotions shared and complemented by the other participants, which fosters the learning of ways to dialogue and to feel emotions regarding significant social events (Keltner and Haidt, 1999).

To Study the Emotions Originated in the TSG Under the Light of Ethnomotricity

To interpret the existing relationship of the distinctive features of the game (internal logic) with the local culture (external logic), motor praxeology incorporates the concept of ethnomotricity (Parlebas, 2001) referred to "the field and nature of motor practices, considered from the point of view of their relationship with the culture and social environment in which they have been developed" (p. 227).

All TSG has an internal logic, an identity card that provides specificity, since it triggers an internal order that requires participants to adapt to a way of relating to other participants, with space, with material and with time (Parlebas, 2003). The internal logic of any TSG corresponds to the system of obligations imposed by the rules, or convention of any motor situation. That is why, "despite appearances, playful behaviors are not anarchic, but are strongly determined by the reason of the rules" (Parlebas, 2002, p. 147).

The internal logic of games is an excellent mirror to observe the set of social-emotional relationships and learning that activate the TSG. Recognizing the connection of the TSG with the local culture means considering that the internal logic of a TSG can be reinterpreted from the outside, by an external logic associated with sociocultural conditions that attributes new, unusual, or specific symbolic meanings to it (Parlebas, 2003). Internal logic focuses on the study of the properties of four types of internal relationships based on the rules of a game (Lagardera et al., 2018): the type of motor interaction among the participants (in the HT everyone performs as playmates and they intervene with the same rights and prohibitions); the relationship with space (depending on the type of human tower there will be a certain number of floors and people on each floor); the relationship with time (in the HT there are two main phases of loading and unloading the human tower); the relationship with the material (in the HT the use of the *gralla*[1] and the use of the sash that helps the *castellers*[2] to perform their HT ascending actions.

The internal logic of the HT is constituted by a network of cooperative motor communication (Parlebas, 2001) associated with a set of positive and interdependent

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[1]*Gralla(s)*: a popular wooden musical instrument with a truncated cone shape that produces sound by blowing through the reed.
[2]*Casteller(s) - a(s)*: person who participates in the construction of Human Towers and who belongs to a group.
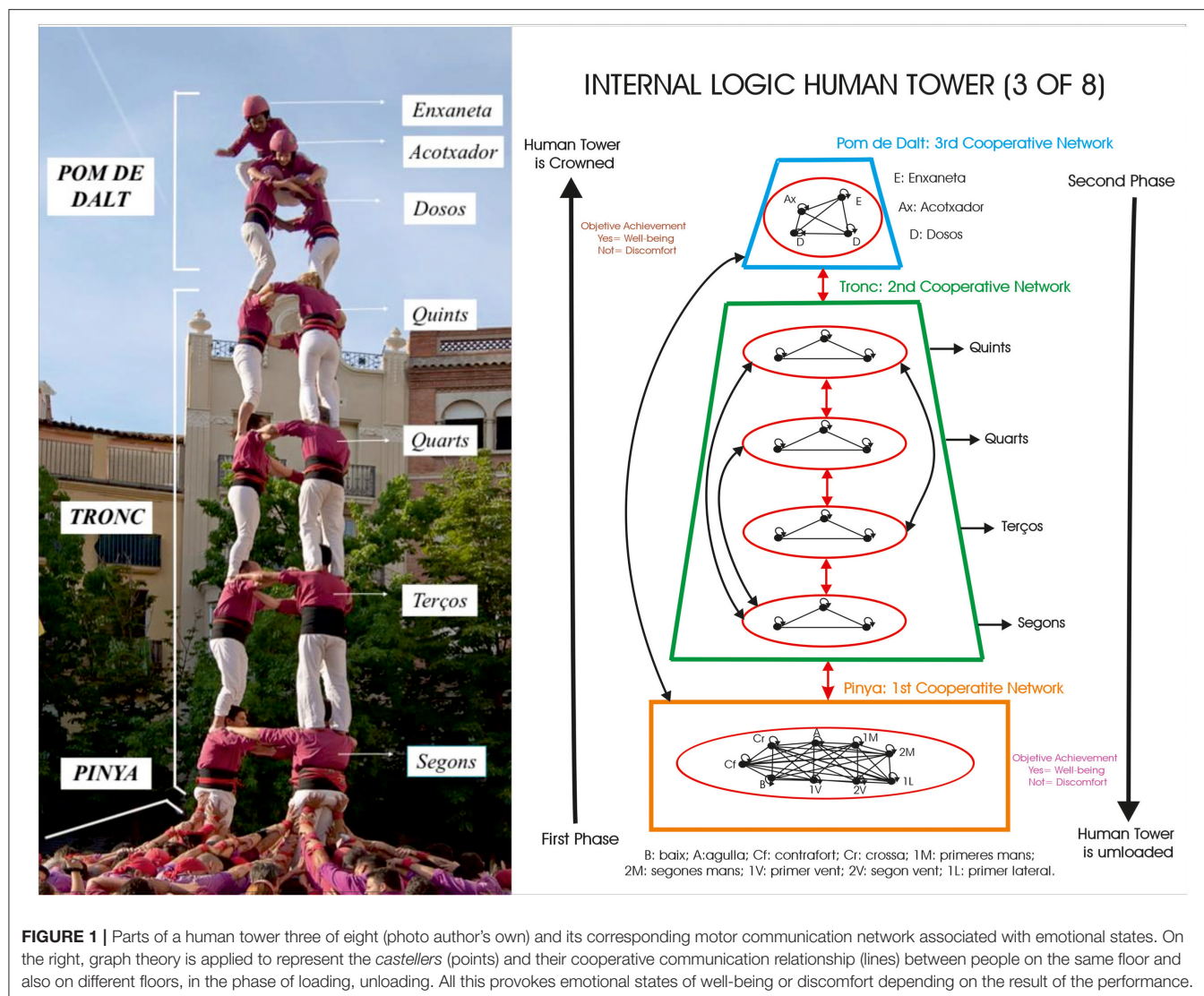
FIGURE 1 | Parts of a human tower three of eight (photo author's own) and its corresponding motor communication network associated with emotional states. On the right, graph theory is applied to represent the *castellers* (points) and their cooperative communication relationship (lines) between people on the same floor and also on different floors, in the phase of loading, unloading. All this provokes emotional states of well-being or discomfort depending on the result of the performance.

interactions among the people on the different floors or motor communication sub-networks (MCN): The *castellers* who are on *the pinya*[3] (1st MCN) build the solid base of the human tower; *the tronc*[4] (2nd MCN) and the *pom de dalt*[5] (3rd MCN) collaborate doing the construction on the vertical in order to achieve the common goal of loading and unloading the human tower (Costes and Lavega-Burgués, 2019) (**Figure 1**).

The link between the game and the local socio-cultural context or external logic can be revealed through the characteristic

traits of the conditions of practice (Lagardera et al., 2018): the characteristics of the protagonists: age and sex (in HT people of different ages and sex participate in all floors: in the *pinya* the *castellers* are adults and elderly people; in the *tronc* the protagonists are adult people; and in the *pom de dalt* only children are involved); playing areas (HT are built in the square and also in the training center); moments (HT usually follow a festive calendar); materials (each *colla*[6] wears clothes and materials with colors that identify them as a singular community). At the same time, the external logic also refers to the values and meanings given by each person or social group, for example, the emotional and relational meaning that the *castellers* give to the experience of being a *casteller* and building HT.

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[3] *Pinya*: part of the human tower formed by a group of people who make the base of a human tower, touching the feet to the ground.

[4] *Tronc*: part of the human tower that comprises from the ground floor that is below the *segons* to the floor immediately before the *dosos*, and which outlines the structure of the Human Tower vertically.

[5] *Pom de dalt*: Part of the human tower made up of the *dosos* floor, the *aixecador* floor and the *enxaneta* floor.

[6] *Colla*: Organized group of *castellers* under the same name, the same shirt colour and led by a *cap de colla*.

From this ethnomotor perspective, when building a human tower, the participants adapt to the internal logic of this practice, in a contextualized way, i.e., in accordance with the features of the local culture of their community or external logic. In each of the moments that make up the experience of being a *casteller* (e.g., in the training and in the performances in the square), each *casteller* experiences emotions (Panksepp, 1982; Ekman, 1992; Levenson, 1992; Izard, 1994). These are momentary experiences, emotional states associated with each moment, which gradually weave an affective imprint on the actors (Kemper, 1981; Lavega et al., 2016, 2018). In other words, the HT construct emotional meanings from a subjective point of view, but also collectively in accordance with their social norms. This union of emotion with local culture allows us to affirm that the social norms of the HT are also emotional norms for that community (Hochschild, 1979). For all these reasons, it seems reasonable to affirm that the practice of HT favors the social construction of emotions.

Taking the theoretical reference framework as a starting point, this research aimed to study the emotional states experienced by the group of Castellers de Lleida at different stages of the construction of the human towers in the main square of the city of Lleida, the Paeria Square.

METHOD

Design

This research corresponded to an ethnographic case study (Martins, 2006; Hernández et al., 2014). Regarding the type of analysis, it is a mixed methods investigation (Anguera et al., 2014; Lagardera et al., 2018) since the statistical analysis of quantitative data is combined with the qualitative analysis of narrative data.

Participants

Seventeen key informants participated voluntarily: 16 *castellers* representing the main positions in the human tower modality called three of *eight* (a building composed of three pillars and eight floors). Among these informants, 8 people (5 men and 3 women, age range 34–67 years) were representatives of positions on the first floor of the human tower, called *pinya*; 5 informants (3 men and 2 women, age range 22–46 years) were representatives one from each floor of the *tronc*; and 3 informants were representatives one from each floor of the *pom de dalt*, respectively, from the floor of *dosos* (boy who was 11 years old), *acotxador* (girl who was 10 years old) and *enxaneta* (girl who was 8 years old). The other key informant was 1 person (man, 30 years old) who had had the institutional function of *cap de colla*[7] in the past. All gave informed consent to participate in this study. In addition, this research was approved by the Clinical Research Ethics Committee of the Sports Administration of Catalonia (08/2019/CEICEGC).

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[7]*Cap de colla*: person who commands and directs the technical work of all the *castellers* of a *colla*.

Procedures

Two ethnographic strategies or procedures were used to obtain data:

Participant Observation

In this procedure, the researcher in the fieldwork combined the role of observer and participant as a *castellera* of the *colla*. This process was developed systematically for 3 years in the *colla* de Castellers de Lleida, following 9 performances of HT in Paeria Square in Lleida the context on which we focused our attention in this study.

(a) **Observer**. This was the first phase of observation of the participation of the members of the group in a performance in Paeria Square, the notes were taken at the same time as they happened.

(b) **Participant**. In the second phase, as a *castellera* participant, the researcher took notes of her participation in the performances in Paeria Square after the end of each performance.

Oral Sources

Semi-structured individual interviews were carried out in the university premises where the study was carried out. The script of the interviews was linked to the position of the *castellers* in the human tower, in this case we chose a specific modality, the human tower three of eight as a reference for all the interviews.

Instruments
The Field Diary

The notes from the participant observation were recorded in a field diary. Narratives referring to information on a day's performance in Paeria Square were noted down; the stages of the performance were described; the types of human towers that were performed; the use of the space once in the square; the relationship between *castellers* and spectators, the expressions and comments that the *castellers* made during the performance with the researcher. In the second phase as a *casteller* participant, the researcher wrote down ethnographic information, describing in first person what happened during the performance, the use of space, the relationship between players, the perception of the spectators, the emotional states she felt at each moment, among other elements.

The Semi-Structured Interviews

The script of the semi-structured interviews was linked to the position of the *castellers* in human tower three of eight (**Table 1**). The interviews sought to gather information about their intervention in each of the sequences or situations in which they intervened (before, during, and after the construction of the human tower three of eight). These interviews were conducted by the researcher himself, who audio-recorded them with the permission of the participants and later transcribed them textually.

Code	Meaning
E.1	Semi-structured interview (SI) *casteller—agulla* position
E.2	SI *casteller—enxaneta* position
E.3	SI *casteller—contrafort* position
E.4	SI *casteller—primeres mans* position
E.5	SI *casteller—quart* position
E.6	SI *casteller—segon vent* position
E.7	SI *casteller—baix* position
E.8	SI *casteller—quint* position
E.9	SI *casteller—segones mans* position
E.10	SI *casteller—crossa* position
E.11	SI *casteller—dosos* position
E.12	SI *casteller—acotxador* position
E.13	SI *casteller—terç* position
E.14	SI *casteller—primer lateral* position
E.15	SI *casteller—primer vent* position
E.16	SI *casteller—segon* position
E.17	SI *casteller—ex cap de colla*
N.l.	Researcher's notes on participant observation

Data Analysis

A narrative database was created that allowed the content analysis of the field diary and the interviews to be carried out using Atlas.ti software (version 8.4.4) in the same hermeneutic unit.

The semantic units of meaning of the interviews and the field diary were identified, associated with different situations of the internal logic of the construction of a Human Tower (preparation, *pinya*, *tronc*, coronation, going down). Different contexts of the external logic of the HT were also analyzed (from the social premises to the plaza, celebration of the HT). To analyse the emotional states of well-being and discomfort, we followed the procedure indicated by Lagardera et al. (2018) on qualitative methodology in the study of traditional play. To identify the basic emotions, we followed the biopsychological models of Panksepp (1982), Ekman (1992), Levenson (1992), and Izard (1994), which currently have the most empirical support (Lavega et al., 2018). These models identify five basic emotions: one positive emotion, joy; and four negative emotions (anger, sadness, fear, and rejection).

Subsequently, a SPSS database was developed where: (a) descriptive statistical techniques were used; (b) cross tables with Pearson's Chi-square values, starting from the significance level of $p < 0.05$. Special attention was directed to adjusted residuals (AR) > 1.96 or < -1.96; and (c) classification and regression trees (CRT) (Liu et al., 2016) to examine the predictive capacity of five independent variables (data source; logic; semantic units; contexts of a performance) of the emotional states of the *castellers* performance. The dependent variable corresponded to comments oriented toward the expression of emotional states. When the orientation was directed toward reflecting positive emotions it was categorized as well-being

(e.g., you feel very happy when you stand in your position), when the orientation was oriented toward negative emotions it was associated with discomfort (e.g., if the castle falls you feel frustration and anger). Finally, when the comments had a neutral emotional orientation, i.e., no clear orientation toward positive or negative emotions, it was called the category of affectivity (e.g., in Paeria Square it is twice as emotional as elsewhere). The multivariate technique (CRT) divides the nodes dichotomously, allowing the data to be explored and modeled appropriately (De'ath and Fabricius, 2000). The Gini impurity measure was applied (Thornton et al., 2016), and cross validation was implemented. The statistical analysis was performed with the software package SPSS version 24.0 (SPSS Inc., Chicago, IL, USA).

This study provides an original contribution by combining a qualitative and a quantitative analysis. The content analysis together with different statistical tests allows a better understanding of the interpretation of the study of the emotional states experienced by the *castellers*.

RESULTS

The Human Tower performance in Paeria Square originated 132 comments mainly oriented toward states of well-being ($n = 70$; 53%), followed by discomfort ($n = 49$; 37.1%) and affectivity in general ($n = 13$; 9.8%). Positive emotions were mainly triggered when the performance of the 3d8 HT was successful both in the phase of loading and unloading this human tower (e.g.,: "and when you go down you hug everyone because you feel very happy to be able to perform a 3d8 human tower" E.8; "when the 3d8 finishes you feel very happy, satisfied, very proud" E.5). Negative emotions were present when the *castellers* were not able to achieve one of their goals (e.g.,: "when the human tower falls you feel angry" E.13; "when we are unable to carry the human tower you feel very frustrated" E.1). On other cases, the *castellers* expressed an emotional engagement when participating in the building of 3d8 HT; however, these comments were not always oriented toward positive or negative emotions, which is why we considered data referring to affectivity in general (e.g.,: "in Paeria Square you feel more emotions than in other squares" E.6; "When I was not the leader of the *colla* I felt the human tower in a different way" E.4).

The Emotional States Raised in the Contexts of a Performance in Paeria Square

The results showed that the description of the emotional states were originated mainly from the construction of the HT (internal logic) ($n = 97$; 73.5%) (**Figure 2**). Cross-tables indicate that HT significantly ($p < 0.001$) elicited states of discomfort ($n = 45$; AR $= 3.7$; 34.1%) and well-being ($n = 43$; AR $= -3.3$; 32.6%) although in the opposite direction.

FIGURE 2 | Emotional states originated by human towers.
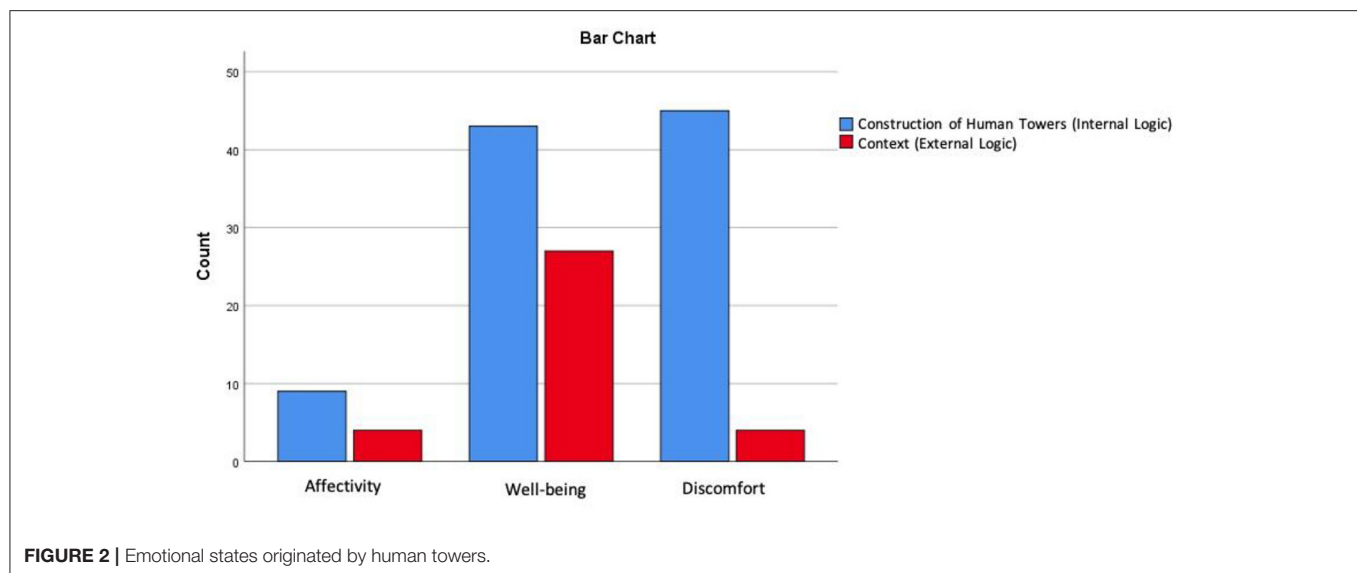
Predictive Capacity of Ethnomotor Variables on Emotional States

The CRT only identified 2 predictive variables: semantic units; and logics (internal logic and external logic) (**Figure 3**). The result correctly classified 60.6% of the categories well-being, discomfort and affectivity.

The first predictive variable was the semantic units with significant differences (improvement = 0.070) between the celebration, with a predominance of well-being ($n = 25$; 86.2%) and absence of discomfort, and the rest of units with a slight predominance of discomfort ($n = 49$; 47.6%) compared to well-being ($n = 45$; 43.7%). At the second level, the tree found significant differences (improvement = 0.013), between node 3, *pinya* units and square preparation, and node 4, consisting of the rest of units. In node 3, comments of discomfort ($n = 29$; 51.8%) and well-being ($n = 19$; 33.9%) predominated. This trend is reproduced in a similar way at nodes 5 and 6 of the next level of the tree.

Node 4 had an inverse behavior, as well-being ($n = 26$; 55.3%) predominated over discomfort ($n = 20$; 42.6%). This behavior was similar in node 8 and was emphasized in node 7 represented by the unload the HT unit where well-being clearly predominates over discomfort.

DISCUSSION

The aim of this research was to study the emotional states experienced by the group of Castellers de Lleida at different stages of the construction of the HT in the main square of the city of Lleida, the Paeria Square. This is the main context in which this *casteller* community performs.

Statistical analyses of the comments revealed that the construction of a Human Tower (internal logic) is the

unit that gives rise to the greatest number and variety of emotional states.

The Internal Logic of the Human Towers. The Cooperative Network Activates Collective Emotional States

By cooperating in the construction of a HT, each *colla* puts into action a HT playful community that behaves like a micro-society (Parlebas, 2001) constituted by an intertwined union of the different floors. So that each floor constitutes an emotional network that is also part of another network or emotional floor. Cooperating and sharing emotions are two sides of the same phenomenon that elevate the *castellers* to a network of cooperative and also emotional networks.

> Of course, in Paeria Square you feel much more nervous, you are already nervous from the beginning... (E.6)

The analysis of the comments reveals that the construction of a Human Tower triggers nerves and tension. These negative emotions are not always in fact disruptive feelings, since they help the *castellers* to enter into a situation (Kemper, 1981; Lavega et al., 2018). On the one hand, these were emotional states that showed the levels of activation experienced by the castellers when they are deeply committed to overcoming the relational and emotional challenge of building a human tower. On the other hand, tension and nerves were also associated with fear of the uncertainty of the outcome of their intervention or of possible damage to their physical integrity. At the same time, when the objective was not achieved, it was easy to identify expressions of emotional discomfort associated with sadness or anger. In general, a predominance of well-being corresponding to the emotion of joy was observed in the different phases of the construction of HT.

FIGURE 3 | Classification and regression tree (CRT): predictive variables of emotional states.
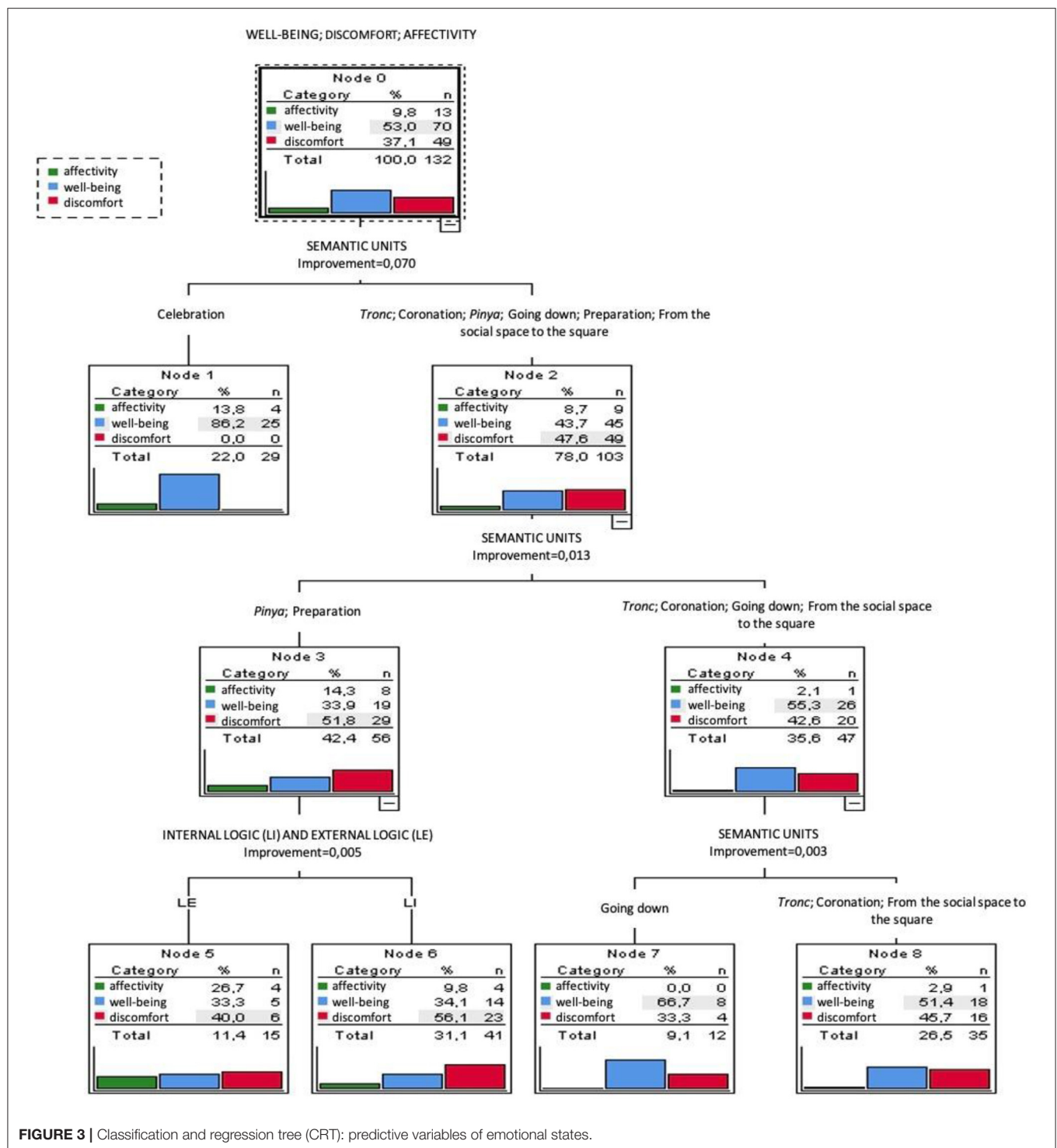
The Preparation in the Square. When Performing in Your Square Intensifies Emotions

Upon reaching the square, each *casteller* knows where to go; as pieces of a great cooperative puzzle, each person places themselves in their rightful place. The *castellers* of the *pinya* and the *tronc* look for their companions who share the same position

in the HT. The *canalla*[8] team goes to a room inside the City Hall, there, in a relaxed atmosphere, they are protected from the emotional pressure that comes from being in the square. The

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[8]*Canalla*: group of the youngest *castellers* of the *colla*, formed by les *enxanetes*, *aixecadors* and *dosos*.

children will go out to act just as they are called. At the same time, the staff of the HT (*caps de colla*), meets, within the City Hall, to organize and define some strategic rules for the performance of that day; players called *cap de pinya*[9] and *cap de tronc*[10] stand in the square in order to check if all the *castellers* of the respective positions are there.

The players take advantage of these moments to initiate a very important cooperative action, putting on their sashes with the help of another *casteller*. This cooperative action is a testimony to an important casteller ritual. The sash symbolizes strength to withstand the physical effort; cooperation, as it will allow the castellers to ascend it; and identity, as it has traditionally been a very important element in traditional Catalan culture (Costes and Lavega-Burgués, 2019).

> When you arrive at the square you look for your companions, we the players of the same position usually met each other... Then we start the ritual of wearing the sash. The sash has to fit well, very well-adjusted, because it's a very important element. You have to feel good! (E.7)

The *grallers*[11] and *tabalers*[12] are usually located on one side of the square. Finally, the spectators take up the free spaces of the square.

This preparation of the HT is a context of maximum social intensity (contact with colleagues, with *castellers* from other *collas*, with the public). This extraordinary social energy also originates an emotional energy (Collins, 2009), where pressure and nerves confirm this intense social-emotional meaning for the *castellers*.

> Building a Human Tower in Paeria Square is always complicated. This is complicated by the pressure we create for ourselves. (E.4)
>
> Nerves, we feel pure nerves. We are very nervous because it is our square...(E.10)

The Pinya. Transforming Nerves into Cooperative Efforts

The construction of the HT begins with the placement of the members of the *pinya*. As with any playful activity, each game, each performance is associated with a different experience, the result of which is unknown a priori. This circumstance, combined with acting in the square, causes nerves that each person experiences differently.

> At first I get nervous because I want it to go well. These are healthy nerves, in other words, they are nerves that cheer you up. You feel the nerves in your stomach, and as if it were a voice that encourages you: go! go! (E. 9).

At that moment, when the first pieces of that big puzzle start to fit together, the *castellers* who make up the *tronc* also tell of

[9]*Cap de pinya*: person who directs the technical work of the *castellers* de la *pinya*.
[10]*Cap de tronc*: person who directs the technical work of the *castellers* del *tronc*.
[11]*Graller(s)*: person who plays the *gralla* instrument.
[12]*Tabaler(s)*: person who plays the *tabal* instrument.

experiencing nerves. Some of them explain strategies that help them to relax while the *pinya* is being closed.

> ... the *pinya* is almost finished, and you are very nervous. And you go looking for the Human Tower to be well prepared. You talk and ask, do you see it well, do you see it well? Yes of course! (E.8)
>
> In the place where I am, I feel nervous, and I try to get relaxed. Looking ahead, I analyse if I see that the Human Tower is well prepared. This action relaxes me because I feel so much nervousness. (E.5)

At this phase, the statistical technique of the CRT shows a predominance of comments expressing states of discomfort in comparison with welfare stories.

At this point, the *castellers* of the *pinya* emphasize the importance of relationships with other colleagues. It helps a lot to know with whom you are going to cooperate directly, to generate the necessary confidence to do a good team work. It is very important that all the *castellers* feel comfortable. It is a good time to talk, greet each other, agree on small movements to ensure the position and feel that everyone is comfortable. All of this will be merged and will transform the motor action into emotional states.

> When we go to the Human Tower, the names of the companions are indicated, and they are assigned to different positions at the *pinya* floor... in those moments each person observes who is on both sides; David is on the right, Ramón on the left... If they are the same ones you train with, you have confidence, it is an added positive element for the Human Tower. (E.7)
>
> I always try to observe, to see if I receive a new partner, I try to know his name in case I need to ask him for something. Also, we all look at each other, to confirm that we are all well placed and comfortable. If it is necessary to take a step to the right, we talk to each other and we do it together... sometimes we shake hands depending on who, especially the first laces, is cool, there are looks, there is a very nice feeling (E.9)

The tronc. A Position to Activate the Emotional Flow

The *tronc* is the second cooperative network of a HT. The comments are oriented in the opposite direction to the *pinya* phase, as confirmed by the classification tree. The narratives show that the *castellers* of the *tronc* live their function intensely, with concentration, with pleasure and even disconnecting from the outside environment, that is, activating the sensation of flow (Csikszentmihalyi, 2014).

> It's like a total disconnection. Sometimes I notice that we have built a human tower and when it is finished I don't remember any comments or anything that has happened. I have disconnected, I have been centred on the HT. (E.8)

The different floors are part of the same system of a cooperative motor communications network (Parlebas, 2001). Hence, while the *castellers* of the *tronc* express well-being, the *pinya* expresses feelings of nervousness as the companions of the *tronc* go up and build the HT.

You feel a lot of nerves, because as the HT is moving as the companions go up. You notice how goes up… and then you disconnect or think that the HT falls. (E.10)

Castellers put themselves to the test to overcome the physical risk (Collard, 2002, 2014), associated with the possible damage that can be done by *castellers* if the HT falls down. This may be due to a person getting on or off the HT, or because the HT is not consistent enough. Sometimes a *casteller* has not been able to withstand such physical effort. It is then that energy, decision, relationship and emotion become intertwined (Lavega-Burgués et al., 2020).

The sense of responsibility of *castellers* leads them to worry about the negative consequences (pain) that they may cause in the members of the community.

When you see that something is wrong, the first thing you think about is that it doesn't end up worse. So for me it is to protect the *crossas*, to hold the HT, in order the HT doesn't beat me because there are many people there holding and each one has to do his job. I have to hold there as long as I can in that moment so that it doesn't fall down because I can't hold… then you have to hold it. (E.7)

The Human Tower Is Crowned. The Effervescence of Collective Emotions

It is at this time, when the HT is about to be loaded, that the *castellers* experience the most nerves. When the HT is crowned and the *enxaneta*[13] raises its arm, there is an effervescence of collective emotions. At that moment the sound of the *grallas* and *tabals*[14] announces the coronation, so that all the *castellers* join in the emotional euphoria. The communion with the audience is maximum and they confirm the collective joy with applauses. The emotional states of previous moments are transformed: tension is replaced by joy, which is often accompanied by a need to cry.

It is very curious, at that moment when the HT is loaded, the audience applauds, and for me it is the moment of greatest nervousness. And when the audience applauds you feel a "UFF" (E.5)

When you hear the fin and you see the reaction of the people, it's like Barça has scored a goal, it's brutal, everyone applauding, it's very, very nice. (E.9)

When the HT l is crowned, everything is emotion. Sometimes I would cry, I would cry! It is an emotion that explains everything we have achieved; it also shows that the effort we are making is worthwhile. (E.6)

Going Down the Human Tower. A Network of Networks that Makes Well-Being Emerge

Then, it is time to go down the HT. This action causes an intense state of well-being in all *castellers*, regardless of the position they occupy. It is the result of a great physical, relational effort that finds a translation into intense positive emotions. All this

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[13] *Enxaneta*: child crowning a Human Tower.
[14] *Tabal(s)*: percussion instrument that consists of a cylindrical wooden box where the bases are two tight skins.

generates a state of collective well-being, which is underlined by all the informants.

And when you start to go down, you start to relax and when you download, it is the joint joy of everyone because yes those who go up are the ones that are seen, but really the HT We all do it, it's a lot of joy, I don't know. (E.5)

The External Logic of the Human Towers. A Context that Activates Collective Emotions

The analysis of the comments identifies two key emotional units of a HT performance: the collective movement from the *colla* to the square (beginning of the ritual) and the collective celebration after the construction of the HT.

From the Social Building to the Square. The Cooperative Casteller Emotional Contagion Begins

The emotional contagion (Collins, 2009) in the *Castellers* community begins from the same moment in which all together move from the social building to the square. The *grallas* and *tabals* are at the forefront of the group, leading this festive emotional contagion with their songs. The children go in a group, with the rogue team. The other people move through affinity groups that are normally related to the parts of a HT or by some family relationship.

On the day of the performance, we have the ritual of coming to the venue. Here we meet and all go down together, that is, in parades to the Paeria Square. We go down the main street and well, it is to walk around your house, through your city, it is all a pride, let's go! (E.7)

This study confirms the Lagardera et al. (2018, p. 35) findings in identifying the emotional map of semantic units of emotions elicited in cooperative games with competition. Emotional well-being and discomfort are activated by key factors as cooperation, the emotional climate of the group, the efficiency of cooperation and the uncertainty of the outcome of the performance. Therefore, we can state in accordance with the CRT (node 2) well-being and certain discomfort are an inseparable binomial: relaxed comments, applause, chants, greetings to family and friends trigger the first emotions of the day: joy, humor, satisfaction, security. At the same time, negative emotions also appear: nerves, anxiety, intrigue, insecurity, fear of possible falls…

The day you perform at home, since the moment you wake up you know you're going to perform in the Paeria… I love to move around with the kids. I love that they see us, I love that they live the party… the truth is that everything is really nice. (E.9)

I usually talk to my mother, my sister, I talk to people to keep myself distracted. Besides, I don't want to think, because there in Paeria Square there have been many falls… children have fallen down many times. (E.10)

Celebration. The Ecstasy of Cooperative Well-Being

At the end of a construction, when the collective celebration is made, as the results show (node 1, CRT), there is an intense predominance of the emotional state of well-being.

> At that moment we want to celebrate it. We celebrate that moment by singing, jumping, hugging, kissing. We can do whatever it takes (laughs), yes. (E.10)
>
> Yes, in that moment you embrace with everybody, it doesn't matter who it is... it's the joint joy of everybody because yes those who go up are the ones who are seen, but really the Human Tower is made by all of us and you embrace with everybody and you feel a lot of joy. (E.5)

Regardless of the position of the *castellers*, all the *castellers* are united by the joy they share with their companions.

CONCLUSIONS

The emotional states in the Human Towers (HT) are the result of all the interpersonal experiences that take place before, during and after building a HT. All this, in a unitary and intertwined way, are different dimensions of the same festive phenomenon characterized by relational and emotional contagion, that is, the *casteller* ritual of a performance in the square.

This study contributes to a better understanding of the HT's condition as an intangible cultural heritage of Catalonia. The emotional contagion confirms the sense of identity and cultural belonging that HT transmits in the protagonists and also in the spectators of the *casteller* phenomenon.

The statistical analysis of the quantitative data combined with the qualitative analysis of the narrative data allows us to understand the emotional states in the *casteller* context. The nature of the emotions is conditioned by the nature of the social situation in which these emotions are experienced. According to Kemper (1981) the biological nature of emotions is accompanied by the social nature of the situation, so that a necessary link is identified between affective subjectivity (the actor) and objective social situation (in our case, the HT).

The statistical technique of CRT shows the union of semantic units of internal logic and external logic in the same node, that is, they trigger the same emotional experience. This finding confirms the ethnomotor condition of the HT (Parlebas, 2001), where both the motor building of the HT (internal logic) and the relational exchanges in other contexts (external logic) are dimensions of the same socio-emotional phenomenon.

With a view to future research, it would be interesting to know whether these tendencies in emotional states are repeated in other contexts where HT are built, that is, in performances in squares in other cities and in the rehearsals in the place of the *colla*.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Ethics Committee for Clinical Research of the Catalan Sports Council. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

SD-S, CF, and PL-B: substantial contribution to study conception and design and preparation and participation in the empirical work. SD-S, CF, QP, RL-P, and PL-B: preparation of the document for approval by the ethics committee. SD-S, CF, QP, RL-P, AR-A, US, AC, and PL-B: database revision. SD-S, CF, QP, RL-P, MP, and PL-B: discussion of data analysis strategies. SD-S, CF, MP, QP, RL-P, AR-A, US, AC, and PL-B: writing of the manuscript. All authors: contributed to the article and approved the submitted version.

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Emotional Well-Being and Traditional Cypriot Easter Games: A Qualitative Analysis

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The aim of the current study is to examine the effect of the Traditional Easter Games of Cyprus on the emotional well-being of the participants. Data were collected using a qualitative analysis. It consisted of interviews from 51 participants aged 32–93 years old, and observations were made from audiovisual material of the Traditional Cypriot Easter Games being played by a sample of 20 children aged 6–14 years old and 43 adults aged 18–65 years old. Demographic data were collected by using interviews and analyzed using IBM SPSS program. The observations of the audiovisual material focused on the emotions of the participants and were grouped into prevailing and secondary emotions according to frequency and duration. The results indicate that games produce emotions such as joy, excitement, and euphoria. Emotions such as embarrassment, frustration, and anger were also observed occasionally, specifically in situations of competitiveness and defeat. In addition, the differences and similarities between adults and children were recorded. The findings of the present study extend previous work by demonstrating the positive impact of the traditional games on children's and adult's emotional well-being.

Keywords: emotional well-being, tradition, Cyprus, Easter Games, qualitative analysis

INTRODUCTION

Emotional Well-Being

Feeling good about one's life may be a core asset in one's mental and physical health, which, according to the new trend of Positive Psychology, is better described by the term of *emotional* or *subjective well-being*. Emotional well-being is a theoretical multidimensional construct, which among others includes experiencing positive emotions and a sense of fulfilment, satisfaction, and meaning in life (Houben et al., 2015; Pezirkianidis and Stalikas, 2020).

Following Seligman's innovating model of well-being, which is being recognized by the "PERMA" acronym, well-being is more than just a philosophical idea and it is better explained, and even measured, under the form of five elements (Seligman, 2011): *Positive emotions (P), Engagement (E), positive Relationships (R), Meaning (M), and Achievement (A). Positive emotions* are to describe one's happiness and what boosts optimism and hope in life, such as pleasure, joy, ecstasy, comfort, warmth, fun, and so on (Kun et al., 2017). *Engagement (E)* is a sense of thrill in being occupied with a pleasant task, or else described as a new state of mind, a sense of "flow," being carried away and being absorbed by something, or a sense of almost losing consciousness in it. *Positive Relationships (R)* are about supportive, loving, and secure connections with family, peers, friends, and all kinds of social cycles, while *Meaning (M)* and *Achievement (A)* is a state of being productive and insisting in fulfilling one's personal dreams, meeting challenges, and accomplishing goals (Shoshani and Slone, 2017).

Emotions also resemble moods. Yet emotions differ from moods, in that emotions refer to personally meaningful circumstances (i.e., they have an object), are typically short-lived, and occupy the foreground of consciousness. In contrast, moods are typically free-floating or objectless and more long-lasting occupy the background of consciousness (Lewis, 2008; Tugade et al., 2014).

Traditional Games

Studies on traditional games show that games and sports were an integral part of humanity (Gelisli and Yazici, 2015; Harteveld and Suarez, 2015; Asmara and Syobar, 2018; Türkmen and Useev, 2019; Fitri et al., 2020). Through the years, different games appeared depending on the climate and geography of each region (Dehkordi, 2017; Fitri et al., 2020). Games related with religion and cultural celebrations contribute to the acquisition of intimacy of individuals with their environment (Groll et al., 2015; Türkmen and Useev, 2019; Fitri et al., 2020) and appear to be a reflection of the society that created them, a "mirror of society" as it is characterized by a study of Nefil et al. (2021). Traditional games are part of cultural heritage (Türkmen and Useev, 2019; Fitri et al., 2020; Luchoro-Parrilla et al., 2021) and they enable individuals to understand and incorporate the moral values passed on from previous generations (Aisyah, 2017; Popeska and Jovanova-Mitkovska, 2017). In addition to this, play can teach children to reduce their egocentrism, appreciate individual differences, and respect the rights of others (Fitri et al., 2020). MacLean et al. (2017) also argue that higher levels of well-being are measured in cultures where cultural values are still preserved, which is an important argument for the perpetuation of Traditional Games.

Traditional Games and Emotional Well-Being

Additional studies support that traditional games promote physical and emotional well-being and individuals are overwhelmed by satisfaction, energy, euphoria, and joy, enabling the player to be more creative and sensitive as well (Fitria, 2018; Fitri et al., 2020; Nur et al., 2020). Subsequently, experiencing anxiety, anger, and depression can be reduced (Craft and Perna, 2004; Lotan et al., 2005; McKinty, 2013) meaning positive effects on health and well-being when a person engages in playing (Tolks et al., 2019).

Games, which are played in the natural environment, contribute to children's social development and have a positive impact on their emotional intelligence, reinforce interpersonal relationships, and increase levels of happiness and emotional well-being (Kovačević and Opić, 2014; Bazaz et al., 2018). Moreover, games which are played with more than one player tend to create a sense of social interaction, emotional satisfaction, and flexibility and at the same time they enable players to develop a sense of discipline and conformity to rules (Lestari and Prima, 2017; Fitri et al., 2020). At the same time, they offer children the opportunity to experience a variety of emotions, sense of accomplishment, and cultivate a positive character (Aisyah, 2017; Tolks et al., 2019), since traditional

games can contribute to the diminution of antisocial behaviors (Fitri et al., 2020).

Bazaz et al. (2018), who examined the effects of traditional games in regard to social development and emotional intelligence in preschool children, concluded that these kinds of games help participants improve on their social and emotional development, a finding that is supported by Rombot (2017) as well. These kinds of games enable children and adolescents to develop a sense of "belonging" (Weiss and Smith, 2002; Agans et al., 2018; Nur et al., 2020). However, the significant impact of play is not limited only to childhood. In older ages, play is considered a kind of amusement, which increases well-being, social interaction (Howard et al., 2017; Nur et al., 2020), and quality of life in general (Woodyer, 2012; Rogerson et al., 2013; Gelisli and Yazici, 2015). It is not a coincidence that play is defined as a form of human activity that follows a person throughout their early childhood (Howard et al., 2017) and continues to follow them throughout their life (Kovačević and Opić, 2014; Nur et al., 2020).

Emotions and Type of Game

In regard to the nature of games, there are studies that have extensively examined the emotions experienced, taking into consideration the type of game (psychomotor or sociomotor/co-operative, opposition, and co-operation opposition) where sometimes the element of competition was measured as well (Alcaraz-Muñoz et al., 2020). The "specific state of affairs" of each game is also a specific state of affairs in terms of social relationships; the traditional games are suitable to create new social relationships (Parlebas, 2020). When the source of this uncertainty is based on the motor communication that takes place between players, four different motor domains can be established: (a) the psychomotor domain, in which the participant performs the task alone without any motor communication with others, as in a sac race competition and frog; (b) the cooperative domain, in which participants share a common language involving clear messages of assistance, as in the schini and mantili game; (c) the opposition domain, in which participants share a language of confusing signs, of messages that hide their true intentions, thereby enabling them to deceive their adversary, as in the case of ziziros; and (d) the cooperation-opposition domain, characteristic of those traditional games that combine opposition between rivals with collaboration among teammates as in schini and skoupa (Lavega et al., 2014). For example, the game of sakoulodromies – sack races (psychomotor plus competition) may produce joy in students, depending on whether they have won. The game of Schini (Rope) is a game cooperation–opposition with competition, because it is a game with having people in the different team and in the same team. In the game of ziziros (opposition without competition), they may experience joy when tagging another player, whereas the person who is tagged may feel anxiety (Lavega et al., 2014).

Competition and cooperation are elements that help participants interact with other people and have a more effective game (Cagiltay et al., 2015). It is considered to be a process that develops enthusiasm, motivates, and draws attention to the desire of a person to participate in a game (Cagiltay et al., 2015). In general, it was found that team games (sociomotor) cause more positive emotions than psychomotor (individual) games

(Lavega et al., 2013) along with the element of competition when included. Through play, it is observed that it develops pleasure to succeed, especially when other people are there, strengthening individual responsibility (Lavega i Burgués and Navarro, 2015). Even though competitive games are characterized as more exciting, including the experience of more negative emotions when loss occurs, in case of winning, positive emotions outweigh the negative in terms of both frequency and quantity (Lavega et al., 2014). Besides, people who participate in such games tend to prefer social relationships related to competition (Lavega i Burgués and Navarro, 2015).

Summarizing, the experience of high levels of positive emotions and low levels of negative emotions constitutes a key aspect of emotional well-being (Houben et al., 2015). Taking as a fact that positive psychology emphasizes in subjective well-being and the role of flourishing, meaningful activities in any age, this could easily reinforce the argument that engaging in all kinds of such activities could lead to happiness in life (Waters, 2011).

Categorization and Identification of Emotions

As previously mentioned, Seligman's (2011) model includes positive emotions in regard to well-being meaning a group of emotions that have a positive impact on one's well-being. Subsequently, on the other hand appears the category of negative emotions (make us feel discomfort/dysphoria) (Alcaraz-Muñoz et al., 2020). In order to study emotions, according to the literature, there are more ways in which they can be categorized, such as "primary emotions" (anger, surprise, fear, joy, sadness, and disgust) and "secondary emotions" (anxiety, irritation, aggression, rage, and hopelessness) (Leyens et al., 2001; Ednie, 2005).

Additional literature divides and categorizes emotions based on their intensity (Lavega et al., 2014, 2017; Alcaraz-Muñoz et al., 2020) and/or frequency (Martinent et al., 2012) as well. Hence, emotions that appear more in terms of duration and frequency could be stated that they prevail (to be frequent) under certain circumstances. The word "prevail" usually refers to something (in this instance, the emotions) that appears more frequently and lasts longer under the circumstances they appear.

Each emotion can be identified based on verbal and non-verbal expressions, such as facial expressions, gestures, posture, especially when identifying anger, sadness, and happiness (Coulson, 2004), and vocal cues (Ekman et al., 1971; Bassili, 1979; Juslin and Laukka, 2001; Sauter et al., 2010; Volkova et al., 2014; Wolf, 2015; Melzer et al., 2019). Furthermore, Alcaraz-Muñoz et al. (2020) refer to emotional scenarios which differ depending on the type of the emotion a player experiences, the intensity of that emotion, the personality and preferences of the player, and the rules of the game played (type of game).

PURPOSE OF THE STUDY – HYPOTHESIS

What inspired the implementation of this study was the Folklore Group «KTHMA» in Cyprus whose aim is to maintain and preserve the play of Traditional Cypriot Easter Games in Cyprus.

Thus, the purpose of the current study was to study the emotional experiences of children and adults while taking part in the Traditional Cypriot Easter Games and how these experiences influence their emotional well-being, while focusing on the emotions that emerge while playing these games. This study is important to the literature as it appears to be one of the first studies to provide information on how different Traditional Easter Games are played in Cyprus nowadays, with an emphasis on the emotional well-being of the players.

Based on the purpose, the following hypotheses were developed:

H1: It is expected that Traditional Easter games will cause more excitement and euphoria in adults than children, as adults are expected to be more engaged during the games.

H2: In competitive games, more intense anger and frustration of defeat is expected to be observed.

Research Design
Participants

The study used a qualitative analysis consisting of interviews and observations.

In the first part of the study, interviews with close-ended questions were carried out to 51 participants (32 men and 19 women) aged 32–93 years old.

In the second part of the study, audio-visual material was collected from people playing Traditional Cyprus Easter Games during Easter celebrations in April 2019. The sample consisted of 20 children, 6 girls and 14 boys, aged 6–14 years old (M_{age} = 10.45) and 43 adults, 12 women and 21 men, aged 18–65 years old (M_{age} = 42.16). Participants who took part in the second part of the study consisted of people who took part in the first part of the study and people from the surrounding areas who wanted to take part in the Easter Celebrations.

Demographic information and information on the various Traditional Cyprus Easter Games played in their villages were acquired by participants from 10 different villages around the Paphos district in Cyprus.

The study was reviewed and approved by the University's Research Ethics Committee. All participants provided their written informed consent to participate in this study before the beginning of each part.

Procedure and Materials

The study was divided into two parts. In the first part (Part A), interviews were used to gather demographic information on participants as well as useful information on Traditional Cypriot Easter Games (i.e., what games were played, what games are still played, and description of each game). Gathering information on the games that were played and on the games that are still played will lead researchers to the second part of the study (Part B), which is the live demonstration of specific Traditional Cypriot Easter Games (based on information gathered form the interviews) in order to observe verbal and non-verbal expressions and body language of the participants while playing the particular games.

In the first part of the study (Part A), semi-structured interviews with close-ended questions took place with 51 adults,

residents of the 10 villages included in the study. The semi-structured interviews were divided into two parts. Questions in Part A included personal questions to gather demographic data on participants [name, age (M_{age} = 58.86), sex, occupation, village of residence, and years of residence in their village (M = 52.55)]. Questions in Part B aimed to gather information on Traditional Cypriot Easter Games (i.e., what Traditional Cypriot Easter Games used to be played at each village and which of those games are played now and proved a description on each game name). The design was influenced by the gap that appears to be in the literature regarding information on Traditional Cypriot Easter Games. Each interviewee was interviewed on a one-to-one basis. The interviews were 20 min long, all interviews were audio-taped in order to avoid failing to record important information, and they were encoded in a later stage by the researchers. The researchers were responsible for carrying out the interviews, as they were equipped with adequate knowledge and experience to carry out the particular research tool. From the interviews, a list of 30 Traditional Cypriot Easter Games emerged; however, only 15 of them are still playing until nowadays.

The second part of the study (Part B) involved observations of live demonstrations of a number of Traditional Cypriot Easter Games that took place over Easter Sunday and Easter Monday in April 2019 during the First Panpafian Festival, as part of the Easter Celebrations. The village where the recordings took place was Pomos village square in Paphos. These games were recorded and visually studied by the researchers upon the completion of the games. Participants from the first part (Part A) of the study were also invited to participate in the second part (Part B) of the study. For the purpose of the study, it was decided to live demonstrate only 15 games with participants.

In addition to this, the researchers ended up analyzing only six of these games because of the way emotions were expressed (Coulson, 2004; Sauter and Scott, 2007). More specifically, the games that were chosen to be analyzed were those that clearly presented verbal and non-verbal expressions and body language of the participants. These games were Ziziros (Cicada), Schini (Tug-of-War), Vatrachos (Frog), Mantili (Handkerchief), Sakoulodromies (Sack Races), and Skoupa (Broom) (**Appendix 1**). In all of the games, apart from Skoupa (Broom), adults were grouped separately from children. The reason was the low participation on the side of female participants which made it difficult to create two groups based on age. It was not considered as a variable that could affect the study since all participants were either adults or adolescents with a small gap in their age range.

During the implementation of these games, both members of the Folklore Group and this study's researchers were physically present. On the one hand, members of the Folklore Group along with the main organizers of the celebrations ensured that the festive celebrations were running smoothly. On the other hand, the researchers ensured that all games played were recorded (videos and photographs) accordingly in order to enable audio-visual observations to be studied afterward. Therefore, during this part of the study, researchers adopted a passive, non-instructive role, by ensuring that the recordings were going to take place. In order to ensure that all members of the team were in a position to undertake observations, they had to meet specific

criteria. One of the members of the team, who is an academic at the University, is a qualitative researcher; therefore, it was her responsibility to ensure that the rest of the team met the specific criteria. These criteria included: speaking the same language and have the same culture as the participants, as well as be familiar with how the games that were going to be observed. Also, since the rest of the team were students at the University undertaking their MSc in Counseling Psychology, it was also mandatory to have successfully pass the specific course on qualitative research, as well as to have previous experience in participant observation through their training within their MSc. In addition to the above, all the team, before the beginning of the study, watched videos with games being played by adults and children that were uploaded in the internet and used the same observation lists that were going to use in this study in order to get more familiar with the procedure that was going to followed in the study.

Each game was going to be observed twice by all 5 researchers and every 30 s the observers were going to note on verbal, non-verbal expressions (facial expressions and vocal cues), body posture and gestures (Ekman et al., 1971; Bassili, 1979; Juslin and Laukka, 2001; Sauter et al., 2010; Volkova et al., 2014; Wolf, 2015; Melzer et al., 2019) being observed by writing them down. In order to establish reliability, observers had to be consistent. To achieve this, it was made clear that the observers were going to observe only what was important and relevant to the research. In other words, they were going to observe only the group of participants playing the games, ignoring any other behaviors expressed by people around. Another way to establish reliability was to be clear about what was going to be observed. All observers were going to observe verbal, and non-verbal expressions (facial expressions and vocal cues), body posture and gestures being presented only by participants playing the games. Verbal, and non-verbal expressions (facial expressions and vocal cues), body posture and gestures presented by participants who were not taking part in the game being observed, were going to be ignored. Also, in order to ensure that data gathered from observations were reliable, all five members of the research team were present during the observation analysis. All researchers, at the beginning, they observed the recorded videos twice in order to compos their own observation draft lists with expressions, body posture, and gestures presented by participants. These lists were created with the use of Excel program. After that, all five lists were put together, the researchers crossed checked and pointed out only the expressions, body posture, and gestures that were common in all five observation lists. Only these were going to be used in the final observation list and later on in the observation analysis. In this way, the researchers were able whether inter-reliability had been successfully introduced. In regard to intraobserver variability, the leader of the team, who also took part in the whole process, was able to observe material twice and her findings were in agreement with the rest of the team. It is also important to note that the age of participants and the type of game played were also taken into account. When choosing a game, one of the first variables to consider is the nature of its goal. Some games, like sac race, have the goal of winning. Other games have no inherent goal, and so, playing the game is an end in itself. In these "open" games, there are no winners or losers. Research has shown

that the kind of goal can influence the emotional experience of participant (Lavega et al., 2014).

Data Analysis

To be able to decode demographic data gathered from the first part of the interviews, the IBM SPSS statistical analysis program was used.

In the second part of the study, a qualitative content analysis method was used in order to collect information on the emotional experience of the players while playing the games. As mentioned above, for the purpose of the study, only 15 out of 30 games were chosen to be played on that day and only six of them were analyzed.

For the purpose of this study, observations were employed in a descriptive way to identify different emotions presented while participants were playing the games. The observations were structured in order to enable researchers to gather information on different emotions expressed while playing the games. Taking into consideration the nature of the observations and their aim, which was to identify emotions that emerge during participants' participation in the different games, a content analysis method of the observations was necessary to take place. This method enabled researchers to note and study the frequency of the different emotions expressed by participants before, during, and after the completion of each game.

Observation lists were used to identify the emotions presented by participants. Each researcher had collected his information with the help of observation lists. All five lists were crossed checked and created a final list with information about expressions, body posture, and gestures that were common in all of them. Then these information were identified with the corresponding feeling, creating a list of 17 emotions. Similar emotions were grouped together to identify the main emotions that best characterize participants experienced while playing the particular games. Some of these emotions appeared more than once (more frequent) or lasted longer than others. The analysis of our lists based on the frequency of the emotions appeared, served the purpose of the study which is to examine the effect of Traditional Easter games on the emotional well being. Hence, it was necessary to observe whether negative or positive emotions appeared more and lasted longer. Consequently, the two main characteristics the researchers based the configuration of this study were frequency and duration (Martinent et al., 2012) resulting in two main categories created exclusively for the purpose of this study, and named by the researchers as prevailing (appear more frequent and lasted longer) and secondary emotions (appeared less frequent and were shorter lasting). Distinguishing the emotions observed into these categories enables the identification of the prevailing emotions (appear more times) during the games (positive emotions = presence of well-being ⇎ negative emotions = absence of well-being).

The category of prevailing emotions includes joy, euphoria, excitement, impatience, anxiety, and satisfaction. Through the observation of the audiovisual material and the analysis of it, it occurred that these emotions are characterized as more intensive and lasting in terms of duration and frequency. The category of Secondary emotions includes frustration (to defeat),

embarrassment, nervousness, anger, worry/restlessness/concern, and distress. Once more, through the observation of the audiovisual material and the analysis of it, it occurred that these emotions are characterized as less intensive and they last less in terms of duration and frequency (Sauter and Scott, 2007; Sauter et al., 2010).

Emotion Determination

To begin with the prevailing emotions, joy was determined by facial expressions such as smiling, the intensity of their body movement, laughter, and happily shouting especially in moments of victory. Second, euphoria was a combination of positive emotions participants expressed throughout the games and was determined by the constant smile on their faces, their tendency to actively participate in the game and the general happy atmosphere that prevailed. Third, excitement was observed especially when someone won a game as well as when a player of a team made a good move, or gained a victory for the team. More specifically, participants were jumping up and down, clapping fast, yelling, and using expressions such as "Yey," "Good job," "Bravo, you did it!." These expressions were characteristic in terms of the excitement expressed by the participants.

Fourth, impatience was determined by the intense body posture where the player was alert to participate or when his/her turn was coming up. Other body expressions that demonstrate this emotion included the back and forth movement of players and the use of expressions such as "Come on!," "I'm next," "When am I playing?," and "Can I start now?." Fifth, anxiety was observed through their hasty and nervous movements especially when there was a time limit in the game. Trembling of their limbs, fast breathing, nail and lip biting were also observed. Finally, satisfaction was verbally expressed with expressions such as "Yes!" in combination with the appropriate hand gestures, loud voice and was observed mostly when a player or a team-player was winning.
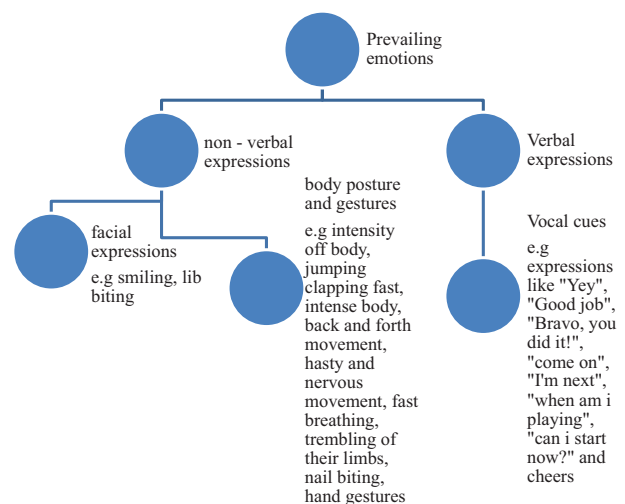
Regarding the secondary emotions, frowns on the faces of participants when they were losing, and less intense movement, were considered as indicators of frustration (of defeat). When

experiencing embarrassment, participants and more specifically children, seemed more reserved or their body movements were more hesitant especially in moments when they did not know how to play the game or what to do next. Nervousness was expressed with lip biting and the need for fidgeting with their hands by playing with their hair and fingers. Anger was visible through facial expressions such as nose wrinkling combined with loud and intense yelling as well as intense foot moving (i.e., kicking) and hand clenching into a fist, especially when someone was losing or did something that cost the team the victory. Worry/restlessness/concern was observed by a mild intensity on the posture of the participants, when they were looking around asking what they should do or how the game is played. Generally, expressions and body movements were similar to those observed in anxiety but less intense and shorter lasting (instantaneously). Distress was a more intense form of anxiety that participants may have experienced during the games. It was the least observed, in matter of frequency, emotion and least intense of all the emotions observed. The moment when this emotion was expressed was when a player was disapproved by other team members or by the audience. In these cases, the participant, especially children, may have felt embarrassed as well, lowered his/her head, blushed, and behaved with hesitation while continuing to play.
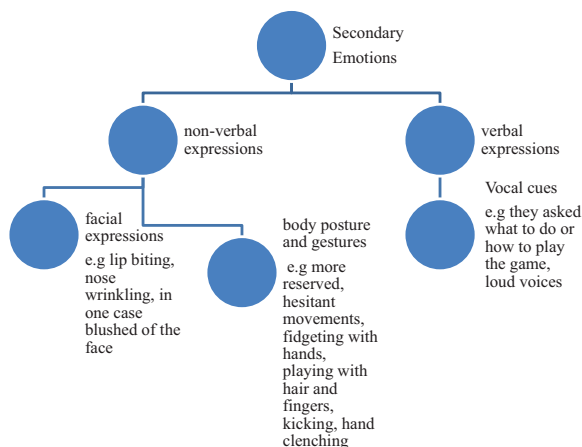
RESULTS

The results of the study concluded that only two games are still played today in all 10 villages: Ziziros (Cicada) and Rope (Tug-of-War). Nine games were played in the past: Afká tou Kolóka (Eggs of Kolokas), Vasiléas (The King), Vasilitziá tziai Myritziá (Basil and Myrtle), Kalispéra Afénti Goúmene (Good evening master Abbot), Koutsó (Hopscotch), Loukkoúin, Próti Eliá (First Olive), Pláka, and Triáppithkia (Jumping Three Times) (Table 1).

Vatrachos (Frog) and Treis énteka treis dódeka (Three eleven three twelve) were played in two villages though today they are both played in only one. Sakoulpdromies (Sack Races), Ditzímin, Linkrín, and Skatoúlika (Small Stones) were played in all 10 villages, while today they are played in nine, seven, one, and four villages, respectively. Avgoulodromíes (Egg Races) was played

in nine villages and now only in seven. Appíisen o Kámilos (Jumping Camel) was played in eight villages though today it is played in only two. Gaourodromíes (Donkey Races) and Kattómougia (Catfly) were played in nine villages but today are played in only one. Gémisma tis stámnas (Filling the Pitcher), Soúsa (Swing), Faratsís were played and are still played today in only one village. Zíziros me Kapélo (Ziziros with a Hat), while in the past was played in seven villages, today it is only played in one. Potamós (River) was played in nine but today it is played now days in five villages; Skýlo kai kókkalo (Dog and Bone) was played in three and today in two villages and finally Sytziá (Fig) was played in only two of the 10 villages examined and continues to be played in two villages (Table 1).

While playing the first game, Vatrachos (Frog), participants experienced feelings of embarrassment, and anxiety. These emotions gradually increased to impatience, joy, and excitement. Adults compared to children experienced more frequently the emotions of joy, excitement, and euphoria from the start of the game. In this case, we observe that we expected that adults would feel these feelings more strongly than children (Tables 2, 3).

While playing the game Mantili (Handkerchief), emotions of excitement, frustration for defeat, euphoria, impatience, and joy were observed. Adults experienced more frequent emotions of excitement and impatience as compared to children. Children experienced worry, higher anxiety, distress, nervousness, and embarrassment. Excitement was the lead emotion in this game, both for children and adults, as well as frustration for defeat. It was also observed that adults were even more excited and more impatient than children (Tables 2, 3).

In Sakoulodromíes (Sack Races), both children and adults experienced joy and excitement. Children seemed to be more impatient right before the start of the game and adults experienced more excitement and joy, after winning the race (Tables 2, 3).

In Ziziros (Cicada), both children and adults experienced emotions of excitement, euphoria, and joy. However, anxiety, embarrassment, and frustration were more commonly experienced by the main players, regardless of age (Tables 2, 3).

In Schini (Rope), frustration was more frequent in both children and adults. A momentary experience of anger was also observed from participants, simultaneously with frustration for defeat. Nevertheless, it is important to mention that both anger and frustration were observed after being defeated by the opposing team. On the contrary, the winning team expressed more positive emotions, as expected, such as joy and excitement. This game is considered a competition, which is why anger and frustration (Tables 2, 3).

In the last game, the Skoupa (Broom), all participants experienced joy. During this game, as the number of participants decreased, the greater the anxiety and nervousness was observed in the remaining participants (Tables 2, 3). Frustration to defeat as well as satisfaction of winning the game was also observed. These emotions can be characterized as short lasting. There were not any differences in regard to the emotions experienced between adults and adolescents. There have not found age differences in ratings of intensity (Birditt and Fingerman, 2003). In their efforts to maintain close

TABLE 1 | Games played in how many villages (present and past).

	Game	No. of villages			Game	No. of villages	
		Present	Past			Present	Past
1	Avgoulodromíes (Egg Races)	7	9	16	Mantili (Handkerchief)	7	8
2	Afká tou Kolóka (Eggs of Kolokas)	0	2	17	Potamós (River)	5	9
3	Appíisen o Kámilos (Jumping Camel)	2	8	18	Próti Eliá (First Olive)	0	2
4	Vasiléas (The King)	0	2	19	Pláka	0	1
5	Vatrachos (Frog)	1	2	20	Dog and Bone	2	3
6	Vasilitziá tziai Myritziá (Basil and Myrtle)	0	2	21	Sakoulodromies (Sack Races)	9	10
7	Gaourodromíes (Donkey Races)	1	9	22	Sousa (Swing)	1	1
8	Gémisma tis stámnas (Filling the Pitcher)	1	1	23	Skoupa (Broom)	1	1
9	Ditzímín (Small Stones)	7	10	24	Skatoúlika (Small Stones)	4	10
10	Zíziros me Kapélo (Ziziros with a Hat)	1	7	25	Schini (Tug-of-War)	10	10
11	Ziziros (Cicada)	10	10	26	Sytziá (Fig)	2	3
12	Kalispéra Afénti Goúmene (Good evening master Abbot)	0	1	27	Kattómougia (Catfly)	1	9
13	Koutsó (Hopscotch)	0	2	28	Triáppithkia (Jumping Three Times)	0	9
14	Linkrín (Small Stones)	1	10	29	Treis énteka treis dódeka (Three eleven three twelve)	1	7
15	Loukkoúin	0	1	30	Faratsís	1	1

TABLE 2 | Emotions observed in each game.

GAME	Emotions											
	Prevailing Emotions						Secondary Emotions					
	Joy	Euphoria	Excitement	Impatience	Anxiety	Satisfaction	Frustration (due to defeat)	Embarrassment	Nervousness	Anger	Worry/ restlessness/ concern	Distress
Vatrachos (Frog)	X		X	X	X			X				
Mantili (Handkerchief)	X	X	X	X			X				X	X
Sakoulodromies (Sack Races)	X		X	X								
Ziziros (Cicada)	X	X	X		X		X	X				
Schini (Rope)							X			X		
Skoupa (Broom)	X			X	X	X			X			

relationships, older adults may attempt to regulate their emotions in ways that minimize the intensity of problems (Birditt and Fingerman, 2003).

Through the description of the games, it turns out that in some games adults show more excitement and euphoria, but there are also games where there are no differences between the two age groups.

DISCUSSION

In this research, a variety of emotions were observed in participants through the audio-visual material collected. This wide emotional array was varying in frequency and duration. Emotions such as fun (joy), euphoria,

and children's anticipation of their turn to play again (impatience) indicate the range of positive emotions that the Traditional Cypriot Easter Games offer. An evidence supported by a study that examined the level of well-being male children experienced when participating or not participating in traditional games and found that children in the second category, reported distress, and stress problems (Gulia et al., 2020). Nonetheless, Traditional Cypriot Easter Games seem to entertain both children and adults.

Emotions Experienced by Participants

Consistent with this research hypothesis, it was found that emotions such as euphoria and excitement were the most commonly positive emotions experienced in adults. For

TABLE 3 | Emotions in each game according to age group.

Game	Emotions	
	Adults	**Children**
Vatrachos (Frog)	More intensely the emotions of joy, excitement and euphoria from the start of the game	At first, they experienced emotions such as anxiety and embarrassment, but then they decreased and their position I got feelings of joy, impatience and excitement. Also, children compared to adults experienced less frequent feelings of joy, excitement and euphoria
Mantili (Handkerchief)	more intense emotions of excitement and impatience as compared to children even more excited and more impatient than children.	Experienced, higher anxiety, nervousness and embarrassment. Excitement was the lead emotion in this game, both for children and adults, as well as frustration for defeat.
Sakoulodromies (Sack Races)	Both children and adults experienced great joy and excitement experienced more excitement and joy, especially after winning the race.	Seemed to be more impatient right before the start of the game
Ziziros (Cicada)	X both children and adults experienced emotions of excitement, euphoria and joy	Anxiety, embarrassment and frustration were more commonly experienced by the main players, regardless of age
Schini (Rope)	Frustration was more intensive in both children and adults. Anger was also observed from participants, but in the sense of frustration for defeat both anger and frustration were observed after being defeated by the opposing team the winning team expressed more positive emotions, as expected, such as joy and excitement.	in children and adults it was observed how the feeling of frustration occurred more frequently, Also along with frustration, in individual moments the feeling of anger was observed for both age groups, especially if they were in the losing team
Skoupa (Broom)	The adults felt joy. When participants started to reduce the anxiety and nervousness appeared in both age groups. Frustration and satisfaction were feelings presented in a short period of time	Children felt the same joy as adults. As in adults so in children, when reduced the participants felt anxiety and nervousness for children frustration and satisfaction was presented the same as in adults

instance, Zizyros (Cicada) is a game that manifests emotions that enhance the well-being of the participants with adults displaying euphoria and joy when they participate in this game. Perhaps this finding is attributed to the fact that the Traditional Cypriot Easter Games were an opportunity for them to relive their childhood, feel free and escape from the responsibilities of adult life, reconnect with their roots and bring forth pleasant memories of that time, whereas the children's notion was that they were participating in games their grandparents used to play as children. Additionally, it is interesting the fact that adults even temporarily cast aside their role as parents and enjoy the games like children. Normally, their parenting role drives them to regulate how, when and for how long their children will play baring in mind the safety and health of their children (Howard et al., 2017) something that has not been observed when they participated in the Traditional Games during the celebrations of Easter.

Adults were observed to be more competitive and enthusiastic (excitement) than children in the majority of the games, as well. It was evident that they were enjoying the experience and were dedicated to the game and to the whole process. The opportunity to play the same games as they did when they were children, consequently helps them reconnect with their childhood and the pleasant memories of that time since the context in which the games took place worked as an alibi for them to engage in playing, something they don't consider acceptable to do as adults (Deterding, 2018).

Adults' and Children's Emotional Experience

As for the differences, or similarities, between children and adults, it was observed that adults seemed to have more fun (joy) and displayed less negative emotions. Nevertheless, adults were once in the position that children are now, therefore they were already exposed to the games and they had the chance to experience them as well as experience the positive effects they offer (Gelisli and Yazici, 2015; Nur et al., 2020). This finding is in accordance with Vygotsky (1967) statement that adults are accustomed to adhere to the rules, which are present in every game. Adults are therefore able to be exposed to games and can easily adapt to them, because, as children, they learned to follow the rules given to them (Lestari and Prima, 2017; Fitri et al., 2020). Also, through participating in the game, the development of well-being, self-esteem, and the reduction of stress levels are observed in both groups (Treadaway et al., 2014).

Emotions Experienced and Type of Games

The results of this study are also consistent with the second hypothesis. Through the analysis of the audiovisual material, it was noted that emotions change according to the nature of the game (Lavega et al., 2017; Alcaraz-Muñoz et al., 2020). When the type of result is loss, games with more competitive nature have been found to develop negative emotions more frequently (e.g., anxiety, anger) than non-competitive games under the same circumstances (Lavega et al., 2014). Of course due to

the competitive nature of the game, when win occurred, more positive emotions were expressed.

On the other hand, the research also found that in the game Schini (Tug-of-War) that is still played today and has a competitive nature, healthy competition is kept alive. Simultaneously, observations revealed a moderate and momentary frustration due to defeat. The presence of frustration due to defeat could be justified by the competitive nature of the game and the type of result (winning team and defeated team) (Lavega et al., 2017). Meanwhile, the aspect of short lasting presence of this emotion could be explained by the fact that the context in which players participated was for fun. Consequently, the effect of defeat is minimized, since participation alone can cause positive emotions (Lavega et al., 2013).

Even though in their majority of emotions expressed were positive, in the game Mantili (Handkerchief) it was observed two negative emotions that were not observed in other games, worry and distress. Both of these emotions occurred when the player was unable to offer the victory to their team gaining their momentary disappointment. This observation has to do with the competitive nature of the game and the fact that this game belongs to the sociomotor category (team game) where the actions of the player affect the whole team.

Limitations

The sample was studied through audiovisual material where observations on the emotions of children and adults were made. The results were analyzed through a qualitative content analysis method and all five researchers took part in the observations, audiovisual material was observed twice, and for the analyses the researchers used only the emotions that were in common in all observations lists. This way of analyzing minimized the risk of researchers being influenced by their subjective experience. A use of a questionnaire in this case would eliminate even more the possibility of observers being influenced. However, taking into consideration the nature of the study and the aim of the study which was to capture the emotions of participants while playing the games and analyze them, the qualitative content analysis method seemed to be the best method to be used, and as it appeared from the results, the research team was able to carry the study and continue with the analysis without any problems. This procedure would have been difficult to be carried out if a questionnaire was used in order to capture emotions expressed by participants while playing the games, when losing and when winning a game. These emotions can be captured best when observing participants while playing the different games, rather than completing a questionnaire before and after playing the games.

Therefore, future research could use methods such as self-report questionnaires and interviews to identify and measure the participants' emotions about Traditional Cypriot Easter games.

Moreover, these emotions were observed in the cultural context of Cyprus, therefore, it is uncertain if the findings of this study can be generalized to reflect other cultures as well, even though research suggests that basic emotions are universal (Sauter et al., 2010). Future research may

explore the universality of different cultures' emotions, about traditional games.

Future Research

The differences in emotions between the two sexes could be compared more extensively, because research indicates that emotions are different between the genders when participating in games (e.g., men are more competitive and display anger upon defeat) (Lavega et al., 2014). Women express more positive emotions in games which are based on social relationships. Furthermore, women express less negative emotions in competitive games as compared to men. We could also refer to the effects that modern games (video games) have compared to traditional games.

CONCLUSION

In recent years, there has been an increased amount of observations in the scientific literature that indicate the benefits of the Traditional Cypriot Easter Games as well as their contribution to emotional wellness. However, the present study is innovative, since it is the first study that provides information about the Traditional Easter Games of Cyprus, focusing on the emotional well-being of the participants. In other cultures, studies have been done in the past to investigate the effect of traditional games on an individual's emotional well-being, but this is the first to be conducted in Cyprus.

It can be concluded that Traditional Cyprus Easter Games will constitute a valuable treasure for the future generations to come and a valuable attribution to the understanding of society since traditional games and their cultural identity are characterized as "the mirror of society" (Nefil et al., 2021). For instance, as it was seen in the game Skoupa, which was played only by women of different ages, characterizing the winner as the "best housewife" a fact that reflects the role women had in the earlier ages. Through the study of such cultural games, we can gain a deeper understanding of different societies and their deeper values that govern them. By studying them and perpetuating them, the tradition of Cyprus will be preserved and, at the same time, a different way of entertainment, socialization, and understanding as well, will be established, through the traditional games, both for adults and children.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Human Research Ethics Committee – Neapolis

University Pafos. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

All authors designed the study, conceived the manuscript, conducted data analysis, wrote the drafts, and edited the manuscript.

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APPENDIX

TABLE A1 | Game descriptions (Papanikolaou, 2017).

GAME	DESCRIPTION

Ziziros (Cicada)

A (main) player stands with their left palm open under their right armpit while their right hand covers their right eye so that they cannot see the other players who stand a short distance behind them. Another player is chosen to slap the main player's left palm. The main player immediately turns around trying to guess which player slapped them. At the same time, all the other players attempt to deceive the main player by raising their right index finger and making the sound of the cicada "zzzzzzzzz". If the central player discovers the culprit, he returns to his place in the group, otherwise he remains in the same position and the same procedure is repeated until they accurately identify the slapper.

Schini (Tug-of-War)

Two teams are formed. Each team stands and holds each end of a long and thick rope marked on the middle of its length with a sign. The floor is marked with a line aligned with the sign on the rope. A referee gives the mark to start the game saying "GO" and each team pulls their end of the rope. The team who wins is the one that manages to pull the other team towards them beyond the set point.

Vatrachos (Frog)

The rules of this game are the same as any other race game with the only difference that contestants need to frog-jump their way to the finish line.
A frog is drawn on the ground with a line in the front and contestants need to stand behind that line. The game finishes when the first contestant reaches the finish line. Traditionally, only single and married men played this game, a tradition which is continued still today.

Mantili (Handkerchief)

Two teams are created with the players standing in semi circles. Teams stand opposite to each other leaving enough space in the middle. The referee stands in the middle of the field holding a handkerchief up. Then, each team choses a player who, on the referee's mark, has to run and pick the handkerchief before the other player does. Then the one who did not catch it, chases the other. If they catch them before they make it to their team, they win, otherwise the player who catches the handkerchief gives the victory to their team.

Sakoulodromies (Sack Races)

Each participant takes a sack, places his feet inside holding the sack on top and stands in front of the starting line. On the referee's mark they start to jump while wearing the sack. The goal is to finish the race first without losing their balance. In case that multiple races are held, winners of each round compete again together in order to get the top winner of all races.
Usually the first three players compete again
This game can be played with at least two players but the ideal number of contestants is 10 to 15.

Skoupa (Broom)

This game is played by both single and married girls/women in order to find out who is the best housewife. Participants form a circle and one of them holds a broom. As soon as the traditional music starts they quickly pass the broom to each other until the music stops. Then, the participant holding the broom when the music stops, leaves the circle. The game is repeated until only one participant is left. Then, the winner, in addition to the prize, also wins the broom.

The Effect of Traditional Opposition Games on University Students' Mood States: The Score and Group Type as Key Aspects

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Playing traditional games has a direct impact on the mood states of the players, and this is the reason why physical education is an ideal setting for teaching how to recognize them and be aware about how they can swing. The objective of the study was to determine if participating in traditional opposition games causes changes to the participants' mood states. A total of 102 students participated. Each participant recorded the intensity of the mood state experienced at the beginning and at the end of the sessions, using the validated Profile of Mood States (POMS) instrument. The pedagogical experience was planned as 4 sessions with 6 and 5 opposition games each: (a) with competition in mixed groups, equally and unequally mixed; (b) without competition in mixed groups, equally and unequally mixed; (c) with competition in same-gender groups; and (d) without competition in same-gender groups. When comparing the different mood states according to session (with or without competition), the mood states of the depression, fatigue, and vigor dimensions were significantly different ($p < 0.05$), with higher scores in the sessions with competition for the mood states of vigor ($M_{competition} = 7.27$ and $M_{no\_competition} = 3.10$) and fatigue ($M_{competition} = 4.08$ and $M_{no\_competition} = 1.80$). Also, when comparing the mood states depending on session grouping and group type, the results showed differences in the scores obtained for the dimensions fatigue and anger, and general mood state ($p < 0.05$). These differences were found at the start of the session and at the end, with the dimension fatigue being the only one with differences in both situations when comparing the same-gender, equally-mixed, and unequally-mixed groups for the two types of traditional opposition games compared. In addition, after an analysis of the mood states depending on gender was performed, the results and therefore the significant differences found, were very similar to those obtained according to group type. Lastly, it was concluded that the type of group (equal, mixed & same gender), and gender were decisive, causing variations in the mood states of the students. This provides valuable information for teaching professionals about the structuring and organization of PE sessions, aiming to promoting positive motor experiences.

Keywords: physical education, opposition games, motor action, mood swings, POMS

INTRODUCTION

Different studies have confirmed the positive effects of different motor practices on affective well-being (Rovira et al., 2014; Muñoz et al., 2017; Sáez de Ocaríz et al., 2017; Serna et al., 2017; Duran et al., 2019). The emotional processes that are unleashed by different motor practices in Physical Education (from here on PE) classes should be considered, as these sessions provide a good setting for positively influencing the student's mood states. More specifically, playing traditional games has a direct impact on the mood states of the players, and this is the reason why physical education is an ideal setting for teaching how to recognize them and be aware about how they can swing (Parlebas, 2001; Lagardera and Lavega, 2004).

For McNair et al. (1971), mood states (MS) are fluctuating transitory affective states, while for Rubinstein (1981), these are indeterminate general states. However, by taking into consideration the different classifications analyzed, Shuare (1990, p. 77) defines them as "a general and indeterminate mood state of the personality, which influences the cognitive process and behavior with respect to the medium and oneself; it is variable and experiences of differences types, connotation and intensity cohabit within it." Also, they appear as responses to global assessments about everything that revolves around a subject (Bisquerra, 2000). In MS stimuli are slow and cumulative, but the duration of the responses is long-lasting and pre-dispose cognition, thereby influencing information processing (Gallardo, 2006).

Therefore, the MS can become chronic and established as personality traits (Bisquerra, 2000). Favoring the acquisition of the positive features of personality must be important for every PE teacher who wagers on a modern and innovative perspective. In this sense, a pedagogy of motor conduct would be the basis for any intervention when considering all the personality dimensions of the students: the corporal, the cognitive, the relational, and the affective dimensions (Lagardera and Lavega, 2004). When integrated into the whole of a person, affectivity becomes an indispensable part of motor action (Alonso et al., 2018). Given that affectivity is the key to motricity (Parlebas, 1970), teaching motor conduct in PE classes is indispensable. Considering the internal logic of the motor practices, PE teachers can regulate educational experiences.

In this sense, traditional games can be an ideal medium for regulating education experiences through PE sessions. These games offer a great variety of possibilities of motor actions (Parlebas, 2020), and bring possibilities of emotional self-control.

Sporting Games and Mood States

There is a correlation between motor practice, MS and well-being, as the different types of motor practices have different effects on the MS, of the participants (Lavega et al., 2011, 2014; Oiarbide et al., 2014; Muñoz et al., 2017; Serna et al., 2017). This indicates that the effect on MS can be different if students participate in motor games than in sports. Therefore, PE should pay close attention to the internal logic of each motor game to promote a state of well-being in the students, given that the type of domain that predominates in PE can determine the mood

swing with which the session ends (Lagardera and Lavega, 2011; Lavega et al., 2013a,b, 2014; Muñoz et al., 2017; Serna et al., 2017; Parlebas, 2020). Thus, PE teachers orient the motor practice to well-being, they would guarantee the educational experience in the different types of domains, so that the participants are able to control their emotions through varied motor experiences. In this sense, it would be interesting to understand the effects of traditional games practices on the MS, games that are frequently played as cultural traditions and determined by social entities (Parlebas, 2001). At the same time, it would be interesting to know the effects of these motor actions domains on MS changes.

The evaluation of the MS can be different when some type of interaction exists (sociomotor: opposition, collaboration, collaboration-opposition) as compared to participating without interacting with others (psychomotor). At the same time, when interaction exists, it can be different when this interaction is in opposition, collaboration and/or collaboration-opposition. In an opposition, at least two adversaries face each other to achieve the motor objective, and in collaboration, at least two classmates collaborate to achieve the motor objective. Lastly, in collaboration-opposition at least two classmates collaborate and another one faces them to achieve the same or a different motor objective. Ultimately, both the psychomotor and the sociomotor practices can favor the acquisition of affective well-being (Gelpi et al., 2014; Lavega et al., 2014). In this sense, the different types of motor practices create unequal MS. On the one hand, in the practices where the presence of opposition does not exist (psychomotor and cooperation), positive MS are unleashed, and they are key to the regulation of affectivity (Serna et al., 2017). On the other hand, in cooperation-opposition games, changes in the general MS can occur (Oiarbide et al., 2014), and when opposition is the case, the distress factor increases (Reigal et al., 2013). Thus, it is interesting and important to continue discovering the effects of opposition on the MS of the game participants: traditional, opposition games give more importance to each participant, due to their structural characteristics.

Competition and Mood States

When participating in motor games, which include the motor communications of cooperation and competition, the intensity of positive MS increases. Meanwhile, in the motor games lacking motor communication or competition, the intensity of negative MS increases (Muñoz et al., 2017). Well-being seems to depend on playing these games and everything else around it (Lavega, 2018). Therefore, aside from the type of practice and domain, another variable that PE teachers should be aware of, as related to the internal logic of the motor game, is the presence or absence of competition. This is defined through the score system and mirrors the achievement of the coded objectives of a sports game (Parlebas, 2001). In this sense, Lavega et al. (2013a) have described the different effects of the presence or absence of competition on MS, and more specifically the affective intensity in the participants caused by the presence of competition. Therefore, positive effects for life in general and co-habiting are found when there is competition, given that the participants learn how to manage victory and defeat (Ames, 1984). Due to this, the PE teachers should also pay attention to the presence (with

competition) or not (without competition) of the final score, and understand the effects produced on MS.

In cooperation games, Muñoz et al. (2014) observed high value of "vigor" factor, with competition being a determining factor. In fact, Molina (2016) stated that cooperation games, with or without competition, were excellent pedagogic resources for improving MS. In this study, the players did not show initial differences when playing games with or without competition, however, differences were found at the end of the session with respect to factor fatigue in games with competition. This demonstrates that participation in motor practices determines the emotional state, as in games with competition participants make the maximum effort to win, resulting in a considerable increase in "fatigue" (Oiarbide et al., 2014; Molina, 2016). In psychomotor games, Costes et al. (2014) observed changes in MS. General MS improved, but when the games had a competition factor, a great increase in the MS was produced, which was identified with "vigor."

Didactic Logic and Mood Swings

When considering the gender variable, previous studies have provided different conclusions on the experience of MS. When participating in different types of games, boys and girls experience unequal MS (Etxebeste et al., 2014; Muñoz et al., 2017), although they could also experience the same MS (Serna et al., 2017). These differences could be conditioned by the type of motor game, the sporting profile of each participant, or the cultural stereotypes (Muñoz et al., 2017; Serna et al., 2017; Duran et al., 2019); they could also be accentuated depending on the presence or absence of competition (Lavega et al., 2014; Muñoz et al., 2017); ultimately, it is important to promote co-education to guarantee equality to both genders (Torres, 2005; Sáez de Ocaríz et al., 2017).

Similarly, PE teachers should consider other aspects of the internal logic of the motor games that have a direct relationship with the state of well-being, such as the type of group (Muñoz et al., 2017; Serna et al., 2017; Duran et al., 2019). When discussing the type of group, we can differentiate between mixed groups (groups composed of students of different gender) and segregated groups (groups composed by students of the same gender), as gender determines the preference for the type of practice (Etxebeste, 2012). On the one hand, when participating in expressive psychomotor situations in segregated groups (same gender groups), girls perceived the MS of "anger-hostility" with less intensity than boys; and when participating in mixed groups the intensity of the "vigor-activity" factor increased for both genders (Duran et al., 2019). On the other hand, when participating in psychomotor or sociomotor games of cooperation in a segregated group, a greater intensity was observed for the "fatigue-immobility" factor when there was no interaction, as compared to when the participants cooperated, while no differences were observed when participating in mixed groups (Muñoz et al., 2017). Therefore, the didactic logic of the educators will also be a determinant factor in promoting a modern PE class, as previous studies have shown the possibilities offered by group organization into mixed groups for promoting the experience of positive mood swings and the reduction of the

negative ones (Solmon, 1996; Lavega et al., 2014; Muñoz et al., 2017).

Given that traditional games offer unique structural possibilities of opposition that grant more importance to the players, it is necessary to know what changes in their MS are produce. Therefore, the main objectives of the study were: (a) To analyze what occurs with students' MS when they participate in sessions of traditional opposition games; (b) To determine what occurs as a function of the presence or absence of competition in these traditional games and lastly; and (c) To determine how the gender configuration of group influences the levels of activation of the MS during the traditional opposition games with or without competition.

MATERIALS AND METHODS

Design and Participants

A descriptive cross-sectional method was utilized, with a pretest-posttest design with different samples. The selection of the sample was performed through non-probabilistic convenience sampling (Hernández-Sampieri et al., 2010). A total of 102 university students participated, with a mean age of 20.14 ± 1.48. Of these, 78 of them were men [20.26 ± 1.6 years old (76.5%)] and 24 were women [19.75 ± 0.94 years old (23.5%)]. For conducting the sessions, the sample was divided into three groups as a function of gender, in the following manner: same group, composed entirely by 24 men (M = 20.17 ± 0.92 years old); equally-mixed, composed by a total of 21 participants, both men and women (N_{women} = 11, N_{men} = 10, M = 20.29 ± 1.52 years old); and an unequally-mixed group (N_{women} = 12, N_{men} = 45, M = 20.07 ± 1.67 years old).

Measurements and Materials

Profile of Mood State Questionnaire

The participants completed the Spanish version of the questionnaire Profile of Mood States (POMS) from McNair et al. (1971), in its reduced, adapted, and validated form (Fuentes et al., 1995). This version of POMS questionnaire has a total of 29 items grouped into five factors (Balaguer et al., 1993; Arruza et al., 1998). "Tension-Anxiety" (TA) (6 items): tense, restless, uneasy, nervous, anxious, restful. "Depression-Dejection" (DD), (6 items): helpless, sad, unhappy, discouraged, unfortunate, bitter. "Anger-Hostility" (AH) (6 items): angry, grouchy, annoyed, furious, on-edge, resentful. "Vigor-Activity" (VA) (6 items): energetic, lively, vigorous, full of pep, active, hardy.And "Fatigue-Inertia" (FI) (5 items): bushed, exhausted, fatigued, worn out, tired. The score for each of the items was recorded with a Likert-type scale ranging from 0 to 4, where 0 = "not at all" to 4 = "high intensity or extremely." For each identified factor a mean value of MS intensity experienced was obtained. Through the sum of all the scores obtained, this instrument allowed obtaining a generic score for each factors. Lastly, an overall score of the general mood state (GMS) was obtained with Equation (1) (McNair et al., 1971). This GMS score was calculated based on the establishment of an initial value of 100, to which the score found for the dimension VA (defined as a positive dimension) is added to, with the scores found for

the other dimensions subtracted from it (TA, DD, AH and FI, considered as negative). This instrument was shown to have the same psychometric quality as the original version with 58 adjectives, with the Cronbach's Alpha index for each of the dimensions ranging from 0.78 to 0.83.

$$GMS = 100 + VA - TA - DD - AH - FI \qquad (1)$$

Traditional Opposition Game Sessions

In order to select the games to be play, the following procedure was followed: (a) a review of the existing literature related to traditional motor games; (b) identification of traditional sports games in Spain without a gender bias; (c) determination and selection of traditional motor games BELONGEN TO the motor domain of opposition; (d) selection of traditional sports games that could be implemented in standardized sport spaces; (e) selection of traditional motor games not require an excessive amount of sports equipment; and (f) selection of games that are easy to play.

In relation to the selection procedure, traditional games are classified according to the interactions between players. The opposition domain is a domain in which a player faces at least one other player. In this type of motor situations, the participants share a language of confusing signs, of messages that hide their true intentions in the game, in order to deceive their adversary (Parlebas, 2001; Lavega et al., 2014). On the other hand, traditional motor games were also classified according to a categorization based on the possibility or not of obtaining victory within the practical motor situation developed (Parlebas, 2001). This allows differentiating between two types of game sessions: (a) sessions with competition or competitive games (SCG). Those traditional motor games were identified with the presence of a final score or result within the game, which allows the player to obtain or not victory at the end of the practical situation. As a result, players are classified as winning or losing; (b) sessions without competition or non-competitive games (SWC). Those traditional motor games do not have a final score. Therefore, there is no final score that classifies the players based on obtaining victory or not within motor practice, as they are not based in competition (Parlebas, 2001; Etxebeste et al., 2014; Gea et al., 2016).

Four practical sessions were conducted, with the first and third sessions corresponding with SCG, while the second and fourth sessions included SWC. In the first session, the university students participated in the following traditional opposition games: Black and white, Chinese soccer, Standoff, Pepe captures you, and Coconuts. In the second session, the traditional opposition games were: Copy-Chase, Gone with the wind, Hare to the wall, The clap, and Land, sea and air. Then, the third session was composed by the games: Tail thief, The handkerchief, Touch, Raspall, Musical chairs and Capture with ball. Finally, in the fourth session, the traditional opposition games played were: The princess, Take the broom, The mill, The labyrinth, The earthquake, and Letter envelope. All of these traditional games are well-known and commonly used in PE classes in Spain. An example of some of the traditional opposition games

is shown in **Table 1**. The traditional opposition games were developed following the rules as stated by Lavega and Olaso (1999). Each of these sessions had an average duration of 90 min, and was conducted in the same sports space and at a similar hour which was agreed upon with the participants. The sessions were separated by a period of 7 days.

Lastly, the SCG were composed by a total of 11 different games, divided into five games in the first session and six games in the fourth session. In the case of the SWC, the total number of the games was also 11, divided into five games in the third session and six games in the fourth session.

Procedures
Previous Information and Informed Consent

The following protocol was established to guarantee a similar collection of data in each and every session during the study. In first place, students enrolled in the 2nd year of Physical Education and Sports Science (PESS) Degree were contacted.

After students accepted to participate in the study, a second meeting was conducted. On this occasion, they were provided with all the documentation necessary for them to understand the reasons and benefits for their future teaching practice provided by these interventions within the education sphere. In this meeting, the researchers explained the process that would take place and responded to all the doubts that emerged related to the measurement protocol to be followed. At the same time, an adequate schedule was agreed upon with the participants that was similar with respect to the days and the times for the sessions. Afterwards, the participants signed a voluntary participation informed consent form. The study was conducted in agreement with the ethical principle of the Declaration of Helsinki for human research (World Medical Association, 2013), and was approved by the institutional review boards of the participating Universities.

Initial Familiarization and Distribution of Groups

In first place, all the participants attended a session of practical training that lasted 1 h. In this session, the participants received training on emotional education, in order to correctly identify the MS experienced at the theoretical, as well as the practical level. In this same session, a practical simulation was conducted that allowed the participants to familiarize themselves with the POMS questionnaire that would be used posteriorly in the practical sessions (Lavega et al., 2011, 2013a,b, 2014; Gelpi et al., 2014; Gea et al., 2016; Muñoz et al., 2017).

As for the creation of the intervention groups, three types of groups were established for the intervention. The first group was a same group (unmixed). In the second group, the intervention was conducted with an equally-mixed group (mixed), where both genders participated (males and females), and with the number of participants being the same for both genders. Lastly, in the third group, the intervention was conducted with an unequal-mixed group (unequal). This was also comprised by students of different genders, with the number of participants according to gender being unequal.

TABLE 1 | Description of the traditional opposition games used in the study.

		Traditional opposition games		
	Description	Network		Score system
		Motor communication	Sociomotor roles	
SCG				
Standoff (Session 1)	Each player places a foot forward and alongside one of the opponent's feet. After this, both players take each other's hands and try to push the opponent off balance, without their own feet moving. When a player's foot moves, a point is awarded to the other player. The winner is the first player to achieve 5 points.	Exclusive and stable.	Symmetric duel.	With Memory. Score limited.
Black and White (Session 1)	In pairs, face to face, placed one meter from each other. Each player is assigned a name (black or white). The teacher says one of the two names at random. The named player tries to catch the adversary before he or she reaches the end of the track. The winner is the one who catches the other player or escapes without being caught more times.	Exclusive and stable.	Symmetric duel.	With Memory. Score limited.
Tail thief (Session 3)	Each player has a handkerchief or piece of cloth that is placed on the back of the pants. The objective is to get as many handkerchiefs from the other players. The one with the most wins.	Exclusive and stable.	Dymmetric duel.	With Memory. Time limited.
Touch (Session 3)	Two players challenge each other to try to touch the posterior part of the adversary's body (shoulder, back, legs, etc.) as many times as possible. The winner is the first player to achieve 5 points.	Exclusive and stable.	Symmetric duel.	With Memory. Score limited.
SWC				
Copy-Chase (Session 2)	One participant moves around the playground in whatever way he/she wishes. The others players must copy the first player's movements. The first player must catch one of the rest of the players, and then they switch roles.	Exclusive and unstable.	Permutation.	Without memory.
Gone with the wind (Session 2)	All participants except one are sitting in a circle. One participant is placed in the center of this circle. That player must say "it is so windy that it takes away everyone who wearing a...." At this moment, all the players who comply with that requirement must get up and change their place. The player who is left without a place goes to the middle to give the next instruction.	Exclusive and unstable.	Permutation.	Without memory.
The princess (Session 4)	Groups of 5 in a circle. One of the participants plays the role of the prince or guardian, while the rest are thieves. A cone or similar object, which will the "princess" is placed in the center of the circle. The prince or guardian will try to protect the princess from the "touch" of the thieves.	Exclusive and unstable.	Permutation.	Without memory.
The labyrinth (Session 4)	In a large group. The players move about the field trying to immobilize the rest of the participants. The way to immobilize is through touching or contact with the right forearm of the player. Afterwards, the player is immobilized (knee to the ground).	Exclusive and stable.	Disymmetric duel.	Without memory.

SCG, sessions with competition games. In this case, each player competes against an adversary; SWC, sessions with games without competition. There is no winner or loser at the end of the game. Results are not compared. Players exchange roles during the game.

In order to carry out the different sessions of traditional games, the groups and the participants remained the same in the all sessions.

Measurements

Before starting each session, each participant was provided with a booklet that contained the POMS questionnaire. Although the participants were already familiarized with the questionnaire, the teachers proceeded to briefly recall the structure and sections to fill out at the beginning of each of the sessions. The university students proceeded to fill in the questionnaire at the beginning the session and immediately at the end of each the sessions. For the collection of data through the POMS questionnaire, each student proceeded to complete the questionnaire individually and in silence. Finally, to calculate a total score obtained in each session, grouped according to their categorization, which was based on the possibility or not of obtaining victory, the average value was calculated for each MS. The total resulting scores were named as follows: Competition_T (average value sessions 1 and 3), and No_Competition_T (average value sessions 2 and 4).

The same teacher directed each and every session. To homogenize the playing of the games conditions in all the sessions, the teacher always gave the same instructions prior to the start of the sessions. Likewise, the games were explained to the participants in such a manner that the students were not encouraged, exhorted or motivated during any of the different games played.

Statistical Analysis

The descriptive data for the different variables of the study are shown as the mean and standard deviation. The Kolmogorov-Smirnov test was utilized to verify data normality. Data did not

have an homogeneous distribution. Hence, non-parametric tests were applied in the statistical analysis. To detect the differences in MS scores as a function of the session and moment in which the questionnaire was given (prior to the start or after the end of the session), the data were analyzed with the non-parametric Friedman test, with the *post-hoc* Wilcoxon test for pair-wise comparisons. Lastly, for studying the variations in intensity shown in the MS as a function of the group type and gender, the non-parametric Kruskal-Wallis test was utilized, together with the *post-hoc* non-parametric Mann-Whitney U-test for posterior pair-wise comparisons in the cases where this was necessary. Effect size was calculated with Rosenthal's r (Rosenthal, 1991; Lenhard and Lenhard, 2016) and η^2 (Tomczak and Tomcak, 2014) [0.1–0.3 (small); 0.3–0.5 (medium) and >0.5 (large) effect]. A significance level of $p < 0.05$ was accepted for statistical comparisons, except in the case of the multiple comparisons a posteriori for the comparison of independent variables, where the significance level was set at $p < 0.008$. All calculations were performed with SPSS Statistics for Windows, Version 24.0 (IBM Corp., Armonk, NY).

RESULTS

As shown in **Figure 1A**, the different dimensions that comprise the POMS scale obtained intensity values that were significantly different before the start of each of the sessions.

More specifically, significant differences were found when comparing the intensity described by the university students for the Competition_T and No_Competition_T score for all the MS dimensions before participating in the game sessions ($p < 0.05$). For the TA ($\chi^2 = 9.91$, $r = 0.42$), DD ($\chi^2 = 70.04$, $r = 0.79$), and AH ($\chi^2 = 12.23$, $r = 0.27$) dimensions, the levels of activation recorded for the MS were lower in the average competition total score. On the other hand, for the rest of the dimensions [FI ($\chi^2 = 40.05$, $r = 0.59$) and VA ($\chi^2 = 69.18$, $r = 0.78$)], the results showed higher scores prior to the sessions. Similar results were found in the GMS, obtaining the highest general score of activation in the competition total score ($\chi^2 = 45.37$, $r = 0.73$) (**Figure 1B**).

Next, when comparing the scores obtained for the MS after the interventions with traditional sports games sessions, significant differences were found in DD, FI, and VA dimensions, as well as GMS ($p < 0.05$) (**Figure 1**). More precisely, the FI ($\chi^2 = 53.06$, $r = 0.67$), VA ($\chi^2 = 77.44$, $r = 0.84$), and GMS ($\chi^2 = 23.77$, $r = 0.49$) total scores increased after the competition traditional sports games, while the DD dimension total score increased after the no_competition traditional sports games ($\chi^2 = 42.67$, $r = 0.65$).

Finally, when pairwise comparisons were made, the POMS scores showed significant differences between TA ($\chi^2 = 48.23$, $r = 0.65$, $p = 0.000$), DD ($\chi^2 = 45.43$, $r = 0.67$, $p = 0.000$), AH ($\chi^2 = 11.46$, $r = 0.37$, $p = 0.001$), VA ($\chi^2 = 4.64$, $r = 0.17$, $p = 0.031$), and GMS ($\chi^2 = 40.09$, $r = 0.64$, $p = 0.000$) before and after the implementation of traditional sports games with competition. Whereas, for the implementation of traditional sports games without competition, significant differences were

only found in the TA dimension ($\chi^2 = 11.38$, $r = 0.32$, $p = 0.001$) and GMS ($\chi^2 = 10.67$, $r = 0.27$, $p = 0.001$) (**Figure 1**).

On the other hand, **Table 2** shows the significant differences found for all the levels of intensity recorded for each of the dimensions that compose the MS as a function of type of session (competition and no_competition), and type of group.

More specifically, before the start of the sessions, significant differences were only observed for the F1 dimension in both types of session ($p < 0.05$, $\eta^2_{\text{SCG}} = 0.09$, $\eta^2_{\text{SWC}} = 0.04$), and in the GMS for the competition total score ($p < 0.05$, $\eta^2_{\text{SCG}} = 0.05$). In the pairwise comparison, it was observed that the score obtained for the FI dimension was lower and significantly different for the equally-mixed group as compared to the other two groups. On the other hand, when comparing the type of group after the end of each type of session, differences were observed for both cases in the scores obtained for the MS in the FI dimension ($p < 0.05$, $\eta^2_{\text{SCG}} = 0.09$, $\eta^2_{\text{SWC}} = 0.09$). More specifically, in the case of games with competition, the pairwise comparisons showed significant differences between the same-gender, equally-mixed groups, with the resulting score being much higher for the same-gender group. On the other hand, in relation to the GMS, the pairwise comparisons showed differences between the scores obtained by the same-gender and equally mixed groups, with a lower score found for the same-gender group.

Lastly, when referring to the games without competition, significant differences were only found for the AH dimension after the end of the different sessions of traditional games of opposition ($p < 0.05$, $\eta^2_{\text{SCG}} = 0.06$). More specifically, when comparing the same-gender and equally-mixed groups, the resulting score for this dimension obtained a higher value in the same-gender group.

The results obtained as a function of the gender of the participants for the scores obtained in the different dimensions of the MS will be analyzed as a group (**Table 3**).

When comparing the intensities recorded for the MS as a function of gender, before the sessions, significant differences were only found in the case of the average of the competition total score for the FI dimension and GMS ($p < 0.05$). For the games with competition, as well as those without competition, the male participants obtained higher scores for the FI dimension, as compared to the female participants ($p < 0.05$). However, for the GMS score, the differences according to gender were only observed for the games with competition session, with the score obtained being higher for the female participants. Lastly, once the sessions had ended, significant differences were only found for the FI dimension in the average of the no-competition total score ($p < 0.05$). In this specific case, the male participants obtained higher scores for the FI dimension than the female participants.

DISCUSSION

This study was conducted with the intention of discovering how traditional opposition sports games could influence the MS experienced by the PESS university students when they arrive to class, as a function of the presence of competition or not and the type of group.
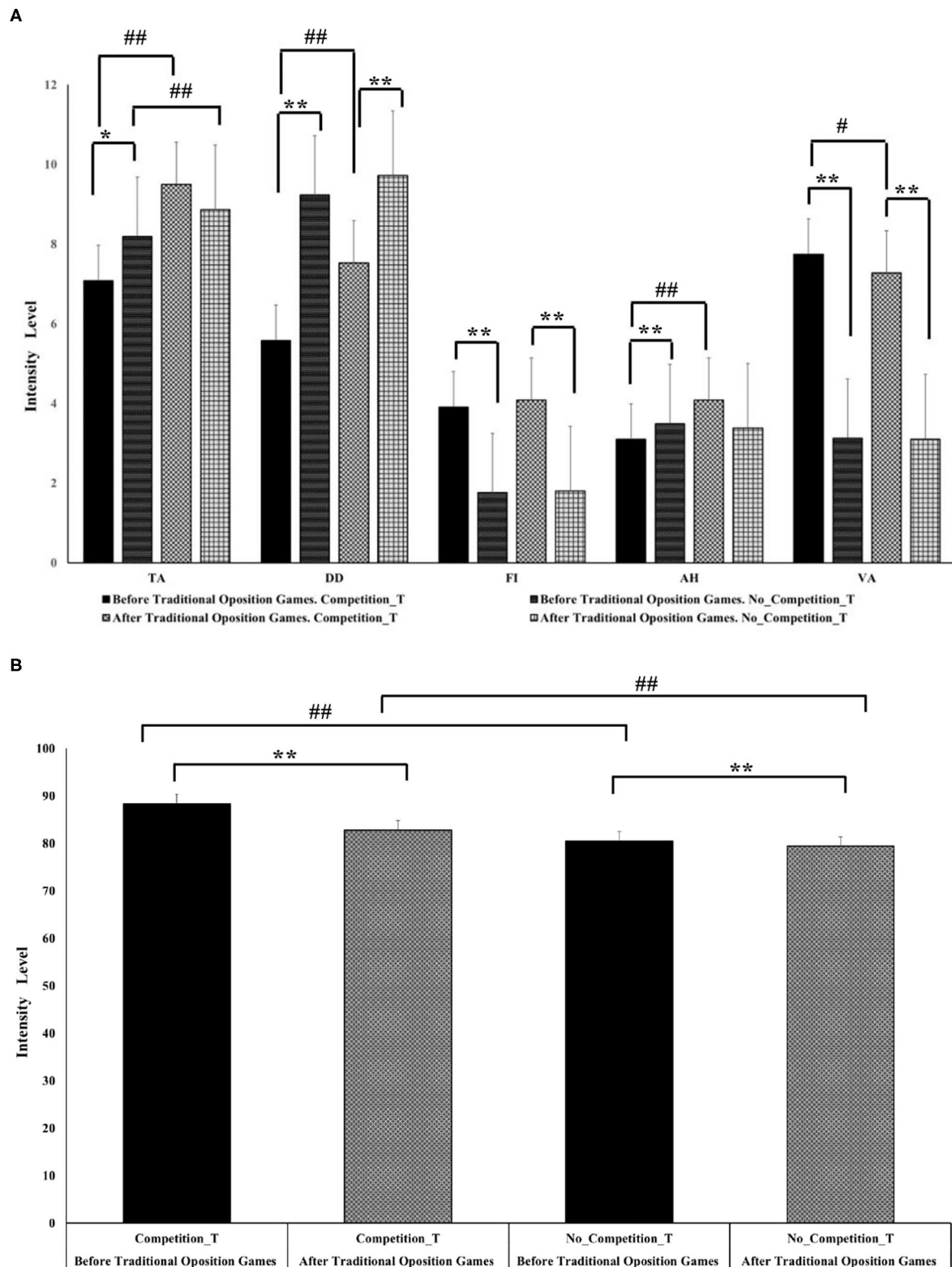
FIGURE 1 | Recorded intensity for individual and general score of mood states in each type of traditional sport games session. **(A)** Intensity recorded per session in the mood states. **(B)** Intensity recorded per session for the overall score of the general mood state. Error bars indicate standard error. * = significant difference between the score of mood states at every step of the measurements. $p < 0.05$. # = significant difference between the score of mood states between the pairwise before and after the intervention. $p < 0.05$. ** = $p < 0.01$, ## = $p < 0.01$.

TABLE 2 | Intensity registered as a function of the type of group for the different dimensions of the mood states.

	Mood states recorded according to dimension for each of the sessions as a function of the type of group													
	Before traditional opposition games session							After traditional opposition games session						
	Same gender		Equal mixed		Unequal mixed		*p*	Same gender		Equal mixed		Unequal mixed		*p*
	M	SD	M	SD	M	SD		M	SD	M	SD	M	SD	
TA_Competition_T	6.63	2.25	7.48	1.90	7.12	2.68	0.319	9.27	4.22	9.29	2.84	9.84	3.71	0.564
TA_No_Competition_T	8.15	2.66	8.30	2.03	8.17	2.76	0.948	9.04	2.94	9.90	1.93	8.49	3.00	0.110
DD_Competition_T	5.65	2.89	5.02	2.01	5.75	2.90	0.577	8.06	3.31	7.12	2.73	7.46	2.99	0.804
DD_No_Competition_T	9.06	2.90	8.83	1.99	9.45	2.98	0.488	10.19	3.32	10.38	2.61	9.29	3.22	0.396
FI_Competition_T	4.83[b]	3.78	1.98[a,c]	2.40	4.24[b]	3.88	0.017*	5.06[b]	3.41	2.43[a]	1.39	4.28	3.30	0.034*
FI_No_Competition_T	1.92	2.83	0.59[c]	1.59	2.12[b]	3.12	0.046*	2.69[b]	3.42	0.21[a,c]	0.66	2.02[b]	3.01	0.004**
AH_Competition_T	3.21	2.63	1.57	1.32	3.62	3.54	0.050	4.08[b]	2.90	2.55[a]	1.53	3.82	3.33	0.034*
AH_No_Competition_T	4.04	2.99	3.12	1.79	3.40	2.72	0.549	3.96	2.80	2.33	1.95	3.52	2.63	0.077
VA_Competition_T	6.33	2.80	8.31	3.45	8.13	2.94	0.050	7.04	4.29	7.31	2.88	7.36	3.54	0.820
VA_No_Competition_T	3.25	3.36	3.00	2.67	3.12	3.37	0.948	3.31	3.96	1.95	1.96	3.43	3.28	0.165
GMS_Competition_T	86.3[b]	7.25	92.26[a]	5.98	87.73	9.15	0.014*	80.56	7.38	85.93	4.94	81.96	9.06	0.051
GMS_No_Competition_T	80.08	6.53	82.30	3.89	79.97	6.88	0.256	77.44	7.32	79.12	4.27	80.11	7.12	0.919

TA, tension-anxiety; DD, depression-dejection; FI, fatigue-inertia; AH, anger-hostility; VA, vigor-activity; GMS, general mood state; Competition_T: average value for scores obtained in sessions 1 and 3; No_Competition: average value for scores obtained in sessions 2 and 4; significant post-hoc differences between groups: [a]same gender, [b]equal mixed, [c]unequal mixed. **p < 0.01; *p < 0.05.

TABLE 3 | Intensity registered as a function of the gender for the different dimensions of the mood states.

	Mood states recorded according to dimension for each of the sessions as a function of the gender											
	Before traditional opposition games' session						After traditional opposition games' session					
	Male		Female		*r*	*P*	Male		Female		*r*	*p*
	M	SD	M	SD			M	SD	M	SD		
TA_Competition_T	7.07	2.59	7.11	1.87	0.027	0.789	9.69	3.95	9.27	2.50	0.025	0.800
TA_No_Competition_T	8.21	2.72	8.11	2.10	0.012	0.906	8.82	2.90	9.21	2.65	0.073	0.462
DD_Competition_T	5.58	2.73	5.58	2.80	0.032	0.743	7.59	3.13	7.33	2.62	0.032	0.743
DD_No_Competition_T	9.38	2.77	8.73	2.77	0.115	0.245	9.76	3.17	9.60	3.10	0.053	0.594
FI_Competition_T	4.31	3.73	2.60	3.44	0.222	0.019*	4.39	3.30	3.08	2.34	0.168	0.090
FI_No_Competition_T	2.10	3.05	0.65	1.63	0.296	0.003*	2.21	3.16	0.48	1.26	0.308	0.002*
AH_Competition_T	3.25	3.05	2.63	3.21	0.129	0.194	3.70	2.93	3.38	3.15	0.056	0.547
AH_No_Competition_T	3.62	2.74	3.08	2.21	0.078	0.431	3.55	2.73	2.81	1.97	0.092	0.352
VA_Competition_T	7.64	3.02	8.08	3.37	0.047	0.638	7.31	3.81	7.15	2.73	0.020	0.984
VA_No_Competition_T	3.29	3.31	2.60	2.87	0.100	0.310	3.17	3.46	2.88	2.58	0.018	0.852
GMS_Competition_T	87.54	8.54	91.09	7.22	0.202	0.043*	81.94	8.26	84.08	7.67	0.012	0.117
GMS_No_Competition_T	79.97	6.57	82.13	5.23	0.116	0.108	78.82	6.97	80.77	5.71	0.132	0.182

TA, tension-anxiety; DD, depression-dejection; FI, fatigue-inertia; AH, anger-hostility; VA, vigor-activity; GMS, general mood state; Competition_T, average value for scores obtained in sessions 1 and 3; No_Competition, average value for scores obtained in sessions 2 and 4; **p < 0.01; *p < 0.05.

In first place, before the start of each of the sessions, it was observed that there was a great variability in the intensity recorded for each dimension. At the start of each session, for the different dimensions of the POMS, significantly different intensities were recorded. When comparing the intensity experienced by the university students for the dimensions TA, DD, and AH, lower scores were observed in the session with competition. However, related to dimensions FI, VA, and GMS, higher scores were observed in the session with competition. Therefore, the changes in MS are not only determined by the type of motor activity, but also by the physiological aspects and the subjective perceptions of well-being possessed by each player (Reigal et al., 2013). In this sense, although there was a correlation between motor activity and mood swing, more research is needed to find the cause for this (Balaguer et al., 1993). It is believed that the cause could be that the good MS experienced makes the

students want to participate in motor activities and thus improve their well-being, but also that the motor activities make them be in a good MS and therefore have an improved well-being.

Subsequently, in the scores obtained in each of the final sessions, it was observed that the intensity of the positive AV mood increased with the presence of competition in traditional opposition games. This was also found in the study by Muñoz et al. (2017): when the students participated in psychomotor and cooperative games the intensity of the positive mood swings only increased when there was competition. In the case of cooperation games, Muñoz et al. (2014) also observed an increase in VA dimension, with the presence or not of competition being a determining factor. Just as Costes et al. (2014), it was also observed that the presence of competition created and increased MS related with VA. On the other hand, it was observed that the intensity of negative FI factor increased with the presence of competition and decreased with its absence. The same result was found in the work by Molina (2016), as the players showed an increase in FI dimension in competition games.

Significant differences were found for all the dimensions of the MS (except for dimension FI), as well as for GMS scores. When comparing the MS scores obtained before and after the intervention, in the dimensions TA, AH, and DD, higher intensities were recorded at the end of the sessions with competition. These results agree with those by Reigal and Videra (2013), who stated that the students, feelings of depression, anxiety and confusion increased after a session of physical activity. This could be due to the fact that in opposition games, there is interaction with other participants (Lagardera and Lavega, 2004) the achievement of the objective, victory or defeat, does not depend on oneself, so that there could be greater demands in the game that result in the increase of these MS. Perhaps having to play against an adversary does not allow the participants in opposition games to decrease their states of tension and hostility. In any case, as these were different motor activities, it would be necessary to continue research along this line to understand the general MS in each domain (Lavega et al., 2011).

As other research studies contribute, these differences could be due to the characteristics of the internal logic of the game and the subjective logic of the participants (Parlebas, 2001; Muñoz et al., 2017). On the one hand, the internal logic of the game demonstrates that PE intervention determines the mood swing, because in games with competition the participants make the greatest effort to win, resulting in a considerable increase in fatigue (Oiarbide et al., 2014; Molina, 2016). On the other hand, the subjective logic of the participants could be the cause of the students experiencing the MS with a lesser intensity when participating without competition. As these were PESS students, they could have a sports background highly related to competition (Lavega et al., 2011; Muñoz et al., 2017; Duran et al., 2019). Thus, if PE teachers intend to have a positive influence on the mood swings of the students, they should consider the characteristics of the motor activity, as well as the sports background of each student (Muñoz et al., 2017). The results

presented provide evidence on the importance of PE teachers when offering a wide range of traditional motor games to the students. A great variety of motor and affective experiences can allow the students to be more prepared in their later adult life. Also, they can allow for consolidating or re-orienting affective experiences as a function of the planned motor situations and their relationship with their sports background.

In this study GMS score decreased independently of the presence or absence of competition. These results coincide with those obtained by Costes et al. (2014), given that they demonstrate that students increased their MS factors when not competing in psychomotor games. Although both studies were conducted with PESS university students, the motor conditions were different. Perhaps this is why not much variability was observed in the results from the Costes et al. (2014) study, as opposed to the study presented herein. In the present work, sociomotor situations of opposition were planned, and therefore the variations in the MS were not dependent only on the person itself, as in the case of the psychomotor situations, but on the presence of adversaries as well.

Another finding related to the traditional opposition sports games was that they type of group that participated in the SCG determined the experience of the MS in the FI dimension. When the group was the same-gender group, FI increased. However, in VA the type of group did not determine changes in the MS of the participants. This was not observed in the study by Muñoz et al. (2017), as the authors attested that there was an increase in intensity in the VA dimension when participating in same-gender groups with respect to mixed groups. These changes in MS could be due to the level of physical conditioning of the participants. Physical conditioning could be different in males and females, so it could determine the intensity when participating in an equally-mixed group (Torres, 2005). Costes et al. (2014) stated that VA factor was the only which increased when competition games were played. As opposed to this, in this study, the results show that the type of group does not determine VA dimension. The difference in results could be because the games played in Costes et al. (2014) were psychomotor in nature, and perhaps the mood swing was exclusively dependent on the participating individual. However, in opposition games the MS can be affected by the motor conduct of the adversary. When playing against an adversary it is necessary to continuously decode the intentions of the other, while at the same time thinking about possible strategies to stop or avoid the adversary, and therefore achieve the objective. This must also be performed quickly to anticipate any response or behavior from the other player.

Thus, if the intention is to reduce the feeling or experience of negative MS when participating in opposition sports games, PE teachers should wager on a mixed group. This highlights the importance of co-education when planning games that increase the positive effects on the MS of the participants (Lavega et al., 2014; Muñoz et al., 2017). In this sense, gender must be an aspect to consider, as the male participants increased FI value with the presence and absence of competition when participating in

traditional games of opposition, to guarantee the equality of both genders (Torres, 2005; Sáez de Ocaríz et al., 2017).

CONCLUSIONS

Although the MS were highly variable, it can be confirmed that with experience, the students learned to be aware of the abilities and limitations of the game in affective education. Also, it allowed them to understand and evaluate the changes in their MS if they won or lost, and if they achieved the objective or not (Costes et al., 2014). Oiarbide et al. (2014) affirm that the mood swings depend on everyday processes and the situations experienced modify the MS, and therefore, the internal logic of the different domains in the PE classes could modify the MS of the students. Each study participant could extrapolate his or her experience to the PE classes once they become teachers, with the aim of building a road toward well-being and happiness, although this should be further studied. If future PE teachers understand the benefits of traditional motor games through their personal experience, their awareness is made possible in our society, through their practice in the area of education.

Lastly, the conclusions extracted, which define the findings based on the previously-posed objectives, are:

a) Traditional games of opposition offer a great variety of on emotional experiences. The experience of future PE teachers can result in the re-orientation of planned motor situation.
b) Traditional games of opposition with competition increase the "tension-anxiety," "depression-dejection," and "anger-hostility" MS. Therefore, PE teachers should consider the internal logic of practices to guide the experience toward positive states. The score of the games is key to improving mood swings.
c) Participate in mixed groups can reduce the emotional intensity of negative MS in traditional games of opposition. For this reason, the PE teachers should have in mind the didactic logic when designing social motor games.

This study provides valuable information for professional educators about the structure and organization of PE sessions which aim to promote positive motor experiences. If future PE teachers reflect on the practice through their own experience, they could make changes that are guided toward emotional PE.

The main limitation of this study was the profile of the participating students. As the sample was not as representative of the general population, the results cannot be extrapolated to the Compulsory Education stages. Another limitation was the exclusive use of a quantitative research design. A qualitative research design could have allowed external validity, allowing for the generalization of the results, as the study aimed to identify the profound nature of the realities experienced. If both quantitative and qualitative methods had been used, perhaps the biases from the quantitative procedure could have been corrected. Aside from the qualitative analysis of the MS of the students, it would have been interesting to know and understand what this experience meant for the participants, to complement these results and improve future lines of research.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by The University Ethics Committee of Murcia University reviewed and approved the research in accordance with the principles set out in the Declaration of Helsinki. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

MC and JA conceptualized and designed the study. GG-G, JY, and VA-M recruited the subjects. GG-G, JA, and VA-M collected the data. JA and MC organized the database. JY and GG-G carried out the statistical analysis. MC, JA, GG-G, VA-M, and JY wrote the first manuscript draft. MC and GG-G developed the final manuscript draft, the English proofreading, reviewed, and edited the final version of the manuscript. All authors contributed to the manuscript revision and approved the definitive manuscript.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2020.589323/full#supplementary-material

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Student Moods Before and After Body Expression and Dance Assessments. Gender Perspective

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Body expression and dance are activities that contribute to the integral well-being of people. In an educational context, the process of evaluating our students implies variations in their moods. This study tackles the states of mind that students perceive before and after the evaluation of a practice in the subject of *Body expression and dance*, developed through choreographies, that were, previously rehearsed, and later presented to the rest of the class in a specific session. Our main interest was the obtention of information on the states of mind of the students prior to the evaluation of their choreographies (cooperative task), and again once they had been performed. The study design consisted of two phases: two different choreographies separated by an interval of 2 months. The students were asked about their moods before and after performing their choreographies, which were evaluated. The participants, 167 in total, 35 women (20.5%) and 132 men (79.5%), aged 18 to 22 years old, filled out a POMS (Profile of Mood States) questionnaire, before and after the evaluation of each occasion. Differences were found in the stress-anxiety, vigor-activity, fatigue-immobility scales and the total mood score (PGMS). In all of them, except for the fatigue-immobility scale, we found a decrease in scores after the performance, compared to scores before. For the Stress-Anxiety factor, lower values were observed in the post-tests in comparison to the pre-tests, and also lower values in the pre- and post-test scores regarding the second choreography. We conclude that the practical evaluation of the subject through choreography modifies the mood states of the students, favoring their well-being after its execution, which is why evaluation through practice is considered a positive element in the educational process.

Keywords: body language, well-being, mood, physical education, assessment, dance

INTRODUCTION

Body expression and dance contribute to the emotional well-being of those who practice them, due to the extraordinary cultural diversity of the practices, the interpersonal relationships that they generate, and the intelligent decisions that are made during their practice (Stinson, 2000; Mau, 2015). World dances constitute a cultural heritage of great value to humanity (Goulimaris et al., 2014; Fauntroy et al., 2020).

Dance, Dances, and Cultural Diversity

Culture in different parts of the world manifests itself through widely varied productions and through different expressive languages: plastic, musical, literary, audiovisual and, among them, also expressions related to human motor skills (Perez and Thomas, 2000). In this sense, human expression is also available through the expression of bodies, games, and dances of different cultures. Each dance form in each country or area of the world shows diverse forms of expression and communication (Stuckey and Nobel, 2010). Human motor skills are enriched with the different forms of relationship with other dancers, with the space used to dance, with the different rhythmic structures, and with the objects that are sometimes used in dances (Mateu, 2010). Dance reveals the poetic, symbolic and referential function of human expressiveness.

In addition to this cultural richness, a specialized literature review helps explaining aspects of physiological and emotional well-being at an individual level (Douka et al., 2019), as well as at a sociological and community level, which are derived from the practice of dance. There are numerous studies on traditional dances, folk dances, jazz dance, among other dance modalities, and the benefits that they bring from an emotional standpoint to all ages, conditions or social statuses, including all kinds of disabilities (Bremer, 2007; Alpert et al., 2009). The dance experience is not only or simply a beneficial physical experience recommended by institutions such as the British Heart Foundation National Center for Physical Activity and Health, but it also offers a way to be sociable, to have fun promoting a spirit of community, and educating in cooperation and peace. It is a language without words, that promotes equal opportunities, with enormous potential as a cooperative activity. Dance is a world heritage, as manifested by organizations such as the International Dance Council, a collaborating entity of UNESCO, the United Nations organization for education, science and culture. Dance is part of local traditions, and it generates its own internal rules of participation.

Currently, there are many projects that aim to preserve the ephemeral heritage of dance. These projects aim to document, archive and therefore preserve the history of dance for future generations. Among them, the non-profit organization Diehl + Ritter is worth mentioning. Recently, it has launched a website[1] to facilitate access to funds from the German Federal Cultural Foundation for artistic projects dedicated to the cultural heritage of dance. The European Heritage Awards/Europa Nostra Award is likewise worth highlighting, whom, in their research section award outstanding research projects that lead to tangible effects in the conservation and enhancement of cultural heritage in Europe (European Union, 2020). In 2016, Tanzfonds Erbe was one of 28 winners from 16 countries to receive the EU Prize for Cultural Heritage/Europa Nostra Awards in the category Education, Training and Awareness-raising for its achievements in preserving and communicating the cultural heritage of dance.

Also, the project Terpsichore[2] aims to study, analyze, design, research, train, implement and validate an innovative framework

for affordable digitization, modeling, archiving, e-preservation and presentation of Intangible Cultural Heritage (ICH) content related to folk dances, in a wide range of users as dance professionals, dance teachers, creative industries and general public (Doulamis et al., 2017; Rallis et al., 2018). This intangible (ICH) can be extended to other types of dance: classical, contemporary, and urban, among others, which also constitute a heritage of great value in the history of humanity. Our study is developed in relation to creative dance along university students who use this resource as a form of individual and collective expression.

Internal Logic of Body Expression and Dance Activities

Many authors place motor expression practices among the domains of motor action, which were labeled as Artistic Physical Activities by Parlebas (2001). We define them as cooperative psychomotor or sociomotor practices in which a praxis and a symbolic dimension are combined (Mateu, 2010; Mateu and Bortoleto, 2011; Torrents et al., 2011; Mateu and Torrents, 2012; Mateu and Lavega, 2017).

Through their internal logic (Parlebas, 1988, 2001, 2017), we observe different possibilities for interpersonal relationships. In this sense, the contribution of authors such as Urdangarín (2009), on Basque dances, or Mateu (2010) on collective dances, are worth highlighting, specially from the perspective afforded by Professor Pierre Parlebas regarding the science of motor action.

Urdangarín (2009) states that, for example, Basque dances are social activities and that, in this sense, they do not only establish a relationship with non-dancers or with their audience, but they also build a relationship for the dancers themselves (in their compositional demands such as meeting in pairs, the type of motor interaction that is requested, or the adoption of sociomotor roles). An analysis of the different ways in which dancers have to collaborate with each other, through body contact or in the use of objects is specially interesting. In relation to the interaction with other dancers, Mateu (2010) explains that one can find dances with contact or without contact, psychomotor, commotor, or sociomotor dances, and/or with a invariable partner or with a changing partner.

There are also studies on the internal logic (Parlebas, 2001) of the different types of dances, in relation to collective dances (Larraz, 1989; Plana, 1993), contemporary dance (Guerber Walsh et al., 1991; Comandé, 2002), classical dance (Troya, 2015), Spanish dance (teachers at the Professional Dance Conservatory of the Institut del Teatre de Barcelona), capoeira (Jaqueira and Araujo, 2013; Ríos, 2015), or urban dances (Bérillon and Ramires, 2014). In all of them, the different forms of interpersonal relationships that can be established stand out, in addition to the various forms of relationships with the space, time, and objects involved.

In addition, in recent years, some studies have delved into the moods and emotions generated by these interrelationships in cooperative motor-expression practices and, in our case, through the experiences of university students (Romero-Martín et al., 2015, 2017). Sáez de Ocáriz et al. (2014) studied the emotional

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[1] https://tanzfonds.de/en/home/

[2] http://terpsichore-project.eu/

experience that the practice of expressive motor situations of cooperation provokes in university students in Sciences of Physical Activity and Sports. Lavega et al. (2017), also explored the effect of gender and group gender composition in emotional experiences of men and women when participating in different individual and cooperative games. In a study by Romero-Martín et al. (2017), the effects of three types of psychomotor practices were analyzed, that is, not including motor interaction (motor games, motor expression and motor introjection) on the state of positive, negative and ambiguous emotions in women and men.

Body Expression and Dance in the Physical Education Curriculum

The Spanish Physical Education curricula (Generalitat de Catalunya, 2015; Ministerio de Educación y Ciencia, 2015) incorporates a "contents block" dedicated to Expression-Communication. Among the objectives of compulsory secondary education in Spain, one finds the goal to: «appreciate artistic creation and understand the language of different artistic manifestations, and use various means of expression and representation» (Boletín Oficial del Estado (BOE), Ministeri d'Educació, Cultura i Esport, 2015:9). The titles for these block of contents vary depending on their focus on diverse activities at a national level: *Expression and Dance, Body Expression, Dance and Circus, Physical or Body Expression Activities, Artistic Activities*, among others; or, for example, *Communication and body expression* in Catalonia (Generalitat de Catalunya, 2015). Each one of these meanings responds to the work on the dimension of body communication and expression.

One of the elements of the curriculum is evaluation. The evaluation is layed out in relation to the objectives, contents, evaluation criteria and basic competences of the subject. The evaluation process is characterized by: collecting information, analyzing this information and making judgments, making decisions in accordance with the judgment issued, related to two types of purposes: aimed at regulating the difficulties and errors that arise throughout a process of teaching-learning and, related to the assessment of the results of a teaching-learning process (Sanmartí, 2007, 2010).

Regarding the pedagogical moment in the evaluation of the students, most studies coincide in underlying the importance of developing it as an additional educational moment, within the whole pedagogic process. A source of concern for us was found in the process of obtaining information based on the emotional management of our students, given that some of them might experience it negatively. In this sense, we aimed to understand the educational meaning that this moment could afford. As Ruffin (2016) points out, the presentation of a collective performance in front of others classmates constitutes a strong emotional commitment. Presenting one's choreography in public means establishing a privileged connection with fellow spectators, to transport them to an imaginary world. The challenge for each student is based on maintaining this connection despite of their own emotions, risk perception, and presence unforeseen events.

In Physical Education, most of the times, all practices are the object of an evaluation, taking into account the performance and the level of mastery of the activity as shown by the students. But body language and dance represent areas of discovery and experimentation of emotions unknown to the participants. These activities can be the basis of work on symbolic expression and the communication of emotions (Debois et al., 2007). Artistic activities can be an opportunity to become aware of the emotions felt in front of others: for example, during the presentation of a choreographic sequence, fear and, pride of being in front of one's classmates arise, and develops along the presentation in front of teachers and their judgments.

Within the Body Expression and Communication contents block, and within the section referred to the evaluation of the activity, most educational syllabi contains practical evaluative proposals (Ortíz, 2002; Romero, 2015) under various designations (choreography, scene, representation, creation, product, performance, among others). In 1984, Baffalio-Délacroix, Orssaud-Flamand proposed the coupling of *expression as process and/or expression as result*, inviting an analysis of the pedagogical consequences of a subject such as Physical Education, including progressive sessions without finalist presentations, or rather the educational nature that can be assigned to the choreographic representations during certain moments of the evaluation process.

The different subject syllabi in Spanish Faculties of Physical Activity and Sports Sciences, as well as the teaching programs for subjects in Compulsory Education and Baccalaureate centers, usually incorporate choreographic performances in their student assessments. In our study, a group choreography is performed at a certain moment of the course, and another group choreography when the course is ending, both using a cooperative methodology, and within the qualifying evaluation of the subject of Body Expression and Dance.

Mood States in the Evaluation of Students

For the purpose of this study, we define "mood state" as a series of feelings, ephemeral in nature, that vary in intensity and duration, and which generally involve more than one emotion (Lane and Terry, 2013). Some authors have illustrated how they perform their subject assessment for "emotional practices" (Hargreaves, 1998; Steinberg, 2008). However, in the literature regarding evaluation and emotion, it is generally the teachers' emotions that are discussed. This shows that further research is needed for a better understanding of the ways in which students' evaluations can be interpreted as an "emotional practice."

Some literature also refers to the mood modifications caused by viewers attending dance and circus shows, and explores some of the components of the experience, along the effects that they could have on attendees and performers both at physical and emotional levels (Rueda et al., 2017). This is also the case of some studies in art education, that focus on esthetic emotions and their assessment in behalf of art students, undergraduate and postgraduate students (Mohammad, 2018).

However, we have not been able to find any research on the emotions that students experience during subject assessment. A qualitative study sought out the moods of students who studied

at the Royal Academy of Dance, through the administration of a POMS (Profile of Mood States) questionnaires before and after the students' performative evaluation (Tedesco et al., 2017). In this particular study, the authors underline the need for further research in order to improve any approaches to subjective states involving practice, previous dance training, and performance evaluation, since they all have been neglected in terms of academic research.

Another interesting aspect that affects students' moods when performing body language and dance tasks is whether or not they are observed, and by whom. The emotional affectation varies depending on whether the "spectator" is a pair of students, half of the class-group, the entire class-group, or if it is an external público. Likewise, it varies depending on it being a task with beforehand preparation or an improvisation task (Canales-Lacruz, 2011).

In order to be able to speak properly about the educational contribution of this unique moment, both regarding individual and the group's pedagogical processes, we asked ourselves which were the states of mind of the students who had to carry them out. We also wondered if there were variations before the staging of the choreographies and after their completion, aiming to detect any possible differences between genres, while paying special attention to how the moods of the participants evolved during the time between scenes. The proposed evaluation activity (group choreography) therefore constitutes a cooperative sociomotor task, which is carried out in front of spectators-classmates and the teachers of the subject.

We understand the incorporation of each scene/choreography at specific moments in the development of the subject as a moment belonging to the pedagogical process of each individual and group of students. In this sense, these scenes/choreographies represent an "especially educational moment." From the point of view of the teachers, who know and recognize the moods of their students in each moment, this allows a more intelligent management of the student's evaluation, in the broad sense of the term.

Dance and Gender Perspective

In previous studies on the experience of emotions in cooperation-opposition games, carried out with in elementary school students, the causes that originated the experience of positive emotions are underlined. In the comments, the boys mainly referred to the winning in the game to justify their emotional experience, while the girls, in addition to this aspect, simultaneously relied on contextual factors such as having fun or laughing during the motor practice. The girls highlighted the motor relationship between developed among peers, the need to cooperate in a group and not feel rejected, mainly by male participants (Alcaraz et al., 2017). Likewise, Muñoz Arroyave et al. (2017) conclude that negative moods are more present in solo games, without competition, as they are practiced by men, and are organized in separate groups.

A study by Gelpi et al. (2014) focused on identifying whether the motor tasks in expression-dance of a psychomotor and cooperative nature elicited the same tendencies of emotional experience among students, examining whether there were

differences in emotional intensity based on gender. No significant differences were found in emotional intensity between men and women. The aforementioned study by Lavega et al. (2017) focused on exploring the effect of gender and group gender composition on the emotional experiences of men and women when participating in different individual and cooperative games. In a study by Romero-Martín et al. (2017), in regards to gender, men registered more intense emotional values than women in motor games, as well as in negative and ambiguous emotions, while they had a similar emotional behavior in training practices. expression and introjection.

Working in dance in pairs or mixed groups is an opportunity for both boys and girls to experience feelings of joy and not of confrontation, of comparison with each other. This is also a way to bring out their moods, to find their own authenticity (Debois et al., 2007).

Aims

The aims of the study are the following:

(a) To obtain information about the pre-mood and post-mood states, before and after performing two group choreographies based on body expression, before a group of classmates and teachers.
(b) To verify if there are differences between the moods prior to a first group choreographic performance (phase 1), and the moods prior to a subsequent group choreography performance (phase 2), after an interval of 2 months.
(c) To analyze the possible differences between men and women in their mood expression before and after performing a choreography of body expression and dance.
(d) To relate the moods shown after the choreography with the explanation of the "desire to show the scene," and the "sense of security" shown before the evaluation.

The effects of three independent variables were studied:

(a) The beginning and the end (pre-test before the choreographies, and post-test after the choreographies).
(b) The adaptation to the evaluation (the pre-tests of both choreographies and the post-tests of both choreographies).
(c) The gender (female, male), on the intensity of the dependent variables corresponding to the five mood states (MS): [Negative] MS: stress-anxiety, depression-dejection, rage-hostility, fatigue-immobility, and [Positive] MS: vigor-activity.

Our initial hypotheses are:

(1) The moods of the students before an evaluation through motor choreography will be emotionally different from the moods once the performance is over.
   Previous studies have shown that there is modification in the moods of students when they are evaluated since evaluation is an emotional practice (Steinberg, 2008; Tedesco et al., 2017).
(2) The performance that takes place 2 months after the first constitutes a training, so that the intensity of the moods compared to the first will show lower values, Evaluation is
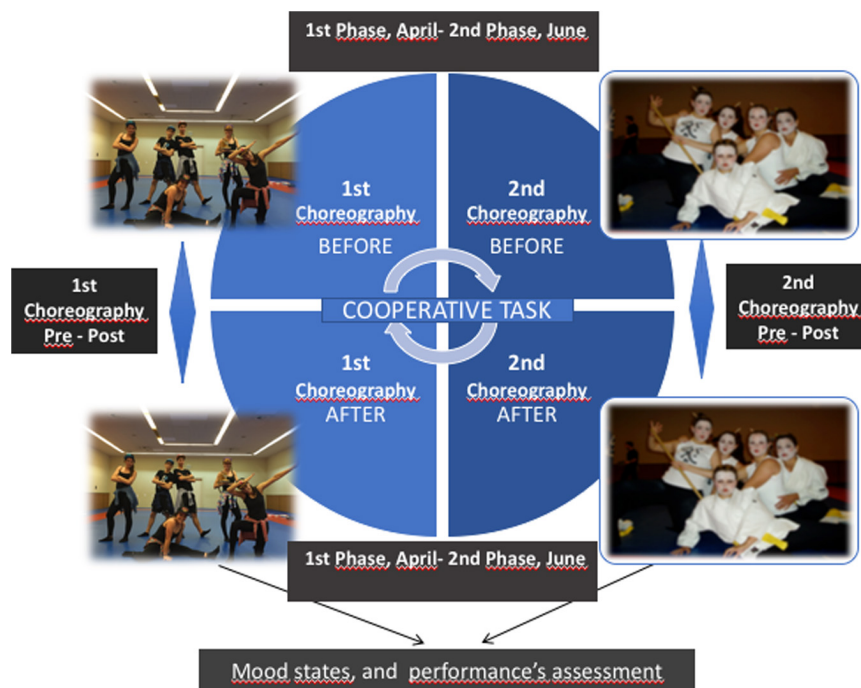
FIGURE 1 | Methodological design.

part of the process and, as an emotional practice, it can be "trained" (Baffalio-Délacroix and Orssaud-Flamand, 1984; Steinberg, 2008).

(3) The moods before and after the scene will have similar values in men and women.

Some previous studies show that there are no differences between men and women in the emotional intensity of cooperative activities from the domain of artistic activities (Gelpi et al., 2014; Romero-Martín et al., 2017).

METHODOLOGY

Two phases were distinguished in this project: the application of the POMS (Profile of Mood States) questionnaire before and after the choreographies of the first scene of body expression and dance in April 2016; and the application of the same questionnaire before and after the completion of the choreographies of the second choreography of body expression and dance in June of the same year (see **Figure 1**).

The first choreography was performed in groups of six-eight people in a preselected space, with a homogeneous musical background, and it did not include the use of any objects. In the second scene, the number of members of the group was free (from 1 to 40 people – all the members of the class –), and included the choice of performative space, musical background, and optional use of any objects. In both choreographies, previous rehearsals were planned, as to avoid improvisation at the time of the performance. The formation of groups was carried out by association by the students themselves, both regarding

the constitution of the groups for the evaluation of the first choreography (limited to 6-8 people) and for the second (free).

Ethics Statement

Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Participants

A total of 166 university students of the Degree in Physical Activity and Sports Sciences from Institut Nacional d'Educació Física de Catalunya at the Universitat de Barcelona, with an initiation level in dance, participated in this pedagogical experience. The sample included 35 women (20.5%) and 132 men (79.5%), aged 20 to 22 years old, $SD = 1,48$.

Instrument

The Profile of Mood States scale (POMS by McNair et al., 1971) validated in Spanish by Balaguer et al. (1993) was chosen for the applied evaluation of the students' mood. The pedagogical experience presented in this work was included in the academic program of the subject Body expression and dance, for which the use of a reduced version of the POMS was agreed. The abbreviated form of 29 items (Fuentes et al., 1995) explains 94% of the total variance in the adaptation of the POMS made up of 51 adjectives. In this version, the participants report on their own mood state in relation to the items in the instrument The scale reports on five mood states: stress, depression, anger, vigor, and fatigue. The scale is highly reliable in terms of internal

consistency (Cronbach's alpha of: stress = 0.83, anger = 0.85, vigor = 0.83, fatigue = 0.00.82, and depression = 0.78). The items were assigned a value from 0 (not at all) to 4 (very much), and were grouped into five factors: stress-anxiety, depression-dejection, rage-hostility, vigor-activity and fatigue- immobility. In addition, a global score of mood (PGMS) is obtained. This score is acquired by adding the values of the four factors that are directly related such as tension, depression, hostility, fatigue, and subtracting vigor.

The description of each of these moods, their description, along their number of items and their statement (short version of 29 items), is as follows:

Stress-Anxiety: it is a continuous feeling of physical or emotional stiffness. It can come from any situation or thought that makes one feel frustrated, angry or nervous (Sandín, 2003). Tension is defined by adjectives that reflect increases in musculoskeletal tension. In the short versión here are 6 items that compose it: uneasy, restless (observable psychomotor manifestations), agitated, nervous, tense (that reflect states of diffuse anxiety), and relaxed. Depression-Dejection: persistent feeling of sadness and loss of interest (Lane and Terry, 2013). It constitutes a depressive state, accompanied by a feeling of personal inadequacy. It consists of 5 items: helpless, hopeless, depressed, wretched, sad. Rage-Hostility: in this case, the scales show a state of anger and antipathy directed toward others. It consists of 8 items: furious, annoyed, fighter, irritable, embittered, bitter, angry, and short-tempered. Vigor-Activity: persistent mental and physical activation, predisposition to invest effort and persistence, even during difficulties (Medrano et al., 2015). It is composed of 5 adjectives that suggest a state of mind of vigor, euphoria and high energy: energetic, full of energy, animated, vigorous and active. Fatigue-Immobility: it is a state of chronic physical and psychological exhaustion, the result of an excess of personal demands and continuous mental stress. It is the feeling of being emotionally exhausted and exhausted, due to the situations that surround us (Pedraz-Petrozzi, 2018). It corresponds to a state of dejection (wear), inertia and low energy levels. The following 5 items refer to it: surrendered - exhausted-, inattentive- apathetic-, tired, exhausted and fatigued.

Likewise, the participants were asked dichotomously (Yes-No) about their "desire to carry out the performance" and the "feeling of security" regarding the performance for each scene.

Process

Initially, a training session was held to explain the procedure and to explain the POMS questionnaire. Some of the competences to be acquired in the subject of Body expression and dance were evaluated through the presentation of two different choreographies to their peers of the rest of the group-class. The choreographies were performed in groups with a time difference of 2 months between them. It was therefore a matter of socio-motor cooperation tasks. The groups included 6 to 8 people, and therefore between 20 and 22 choreographies were performed in each one of the phases. For the students, the first of the choreographies (first phase of the study during April) was the first time in which they performed in front of the rest of their classmates. It was therefore his first public performance. The

second choreography in front of their companions, was presented 2 months later (second phase of the study in June). The POMS questionnaire was administered in each of the two phases of the study (months of April and June), before and after the performance of the choreography in front of the rest of the class.

Once the group of 40-42 students had been prepared to perform their respective choreographies in small subgroups, they completed the questionnaire (pre-test) fifteen minutes before starting the evaluation session itself. After performing their choreographies, the 40-42 students spent fifteen minutes filling in the questionnaire again (post-test). The questionnaires were completed by all members of the class (166 students), organized into subgroups of about 40 students (four successive groups). Between 20 and 22 choreographies were performed and evaluated in April, and 20-22 new choreographies 2 months later, in June. It should be noted that the students completed the POMS questionnaire for the post-test without knowing the result of the evaluation of their choreography by the teachers. The conditions necessary for the participants to complete the questionnaires were guaranteed at all times. They also signed an informed consent document.

In addition to filling in the POMS questionnaire, two more questions were asked to complete the information on how they faced the evaluation that they were going to undergo, through the interpretation of it choreographies: (a) Do you feel like performing the choreography? And (b) do you feel safe or secure when performing the choreography? These questions were answered dichotomously with a yes or no.

Data Analyses

The analyses were carried out using SPSS statistical program, in its 23rd version. A descriptive analyses of the different variables was carried out in terms of means, standard deviations and percentages. Non-parametric Wilcoxon signed-rank test was applied in order to assess the possible differences between the scores obtained on the POMS scales before and after the representation of the dance scenes, as well as to test the possible differences of means between the scores obtained in the two phases of the study (April and June). Likewise, Mann-Whitney U was applied to analyze the possible differences between men and women on the POMS scales. Finally, the relationship between various dichotomous variables was analyzed using chi-square.

RESULTS

This section presents the results obtained in the analysis of the states gathered before and after the two choreographies of body expression were performed, in the two phases of the study (Phase 1 1st choreography, April, and Phase 2 2nd choreography, June).

We have chosen to pursue a description of the results based on the effect on the different mood factors (dependent variable) of each of the independent variables:

(a) the before-after of each one the choreographies (start or pre-test before the choreography, and end or post-test after the choreography);

(b) the adaptation to the assessment: the pre and post of the first choreography (Phase 1 in the month of April), and the pre and post of the second choreography (Phase 2 in the month of June); and,

(c) gender (feminine, masculine).

Given that the POMS questionnaire identifies 5 factors, the results referring to negatively oriented moods are first described.

(a) Effects of the independent variable Before-After, on ^{Negative}MS (SA, DD, RH, FI) and on ^{Positive}MS (VA).

In first phase, the mean difference analysis shows that there are statistically significant differences in various items on the POMS scales, as pictured in **Table 1**. More specifically, differences were found in the stress-anxiety, vigor scale-activity, fatigue-immobility and the total mood score (PGMS). In all of them, except for the fatigue-immobility scale, there was a decrease in the scores obtained after the scene compared to the scores before the scene. However, it should be noted that no statistically significant differences ($p > 0.05$) were found on the depression-dejection and rage-hostility scales between before and after the choreography representations. There is also a decrease in the vigor factor in the post-test.

In the second phase of the study, the possible differences in the POMS scales between the moment before and after the representation of the scene (choreography) were analyzed again. In this case, statistically significant differences were found in all scales, as well as in their total (PGMS), producing a decrease in all of them except for the scores obtained on the fatigue-immobility scale, in which the scores obtained after the scene were superior to those obtained before it (see **Table 2**). We observed a decrease in the vigor factor in the post-test indicating a loss in physical energy and disposition, probably due to physical fatigue.

FIGURE 2 | Factor Stress-Anxiety (S-A) mean scores before (pre) and after (post) 1st and 2nd choreography.

Stress-Anxiety is the only one of the negative factors that descends in the second choreography both (see **Figure 2**) before the execution of the choreography (pre) and after the choreography (post).

(b) Effects of the independent variable Adaptation to assessment, Phase 1 (April) and Phase 2 (June), ^{Negative}MS (stress-anxiety, depression-dejection, rage-hostility, fatigue-immobility) and on ^{Positive}MS (vigor-activity).

With the aim of analyzing the mood of the participants before the dance and body expression choreographies, a comparison analysis of means between the scores obtained between phases 1 and 2 was performed, considering only the mood states reported before the performance. The analyses show that there are statistically significant differences between the two phases on the stress-anxiety scales ($Z = -2.418$, $p < 0.05$), depression-dejection ($Z = -2.920$, $p < 0.01$) and rage -hostility ($Z = -2.780$, $p < 0.01$). Scores decreased in phase 2 compared to phase 1 on the stress-anxiety scale, but increased on the depression-dejection and rage-hostility scales, as can be seen in **Figure 3**.

Likewise, the possible differences between phases 1 and 2 were analyzed in terms of the emotions reported after the scene was performed. In this case, no statistically significant differences were obtained in any of the POMS scales or in the global PGMS index between both moments (see **Figure 4**).

Regarding the ^{Positive}Mood, in the Vigor-activity scale in the first phase the post-value (14.40) is practically the same as the pre-value (14.41). And in the second phase, the post-value increases (13.39) compared to the pre (12.6) possibly due to the fact that the groups had intervened in a more creative way in the preparation of their choreography, which in this sense was more original and proper, and remained both mentally and physically activated even after completion.

(c) Effects of the independent variable Gender on ^{Negative}MS and ^{Positive}MSIn order to analyze a possible gender-related effect on the different mood scales, the scores obtained from men and women were compared. The only differences related to gender were found in the depression-dejection scale in the first phase and before the representation, being the men ($M = 1.07$,

TABLE 1 | Scores obtained on the POMS scales before and after the choreography, in the 1st phase.

	Before M (SD)	After M (SD)	Z	p
Stress-Anxiety (SA)	9.87 (3.77)	5.42 (3.17)	−9.885	<0.0001
Depression-Dejection (DD)	0.97 (1.61)	0.78 (1.89)	−1.925	0.054
Rage-Hostility (RH)	4.15 (2.66)	3.82 (3.25)	−1.729	0.084
Vigor-Activity (VA)	14.41 (3.98)	12.60 (5.24)	−4.127	<0.0001
Fatigue-Immobility (FI)	2.88 (3.15)	4.56 (4.37)	−4.582	<0.0001
Mood score (PGMS)	103.47 (8.34)	101.97 (9.59)	−2.459	0.014

TABLE 2 | Scores obtained on the POMS scales before and after the choreography, in the 2nd phase (2 months later).

	Before M (SD)	After M (SD)	Z	p
Stress-Anxiety (SA)	9.25 (4.39)	5.40 (3.46)	−9.072	<0.0001
Depression-Dejection(DD)	1.50 (2.28)	1.12 (2.61)	−2,560	0.010
Rage-Hostility (RH)	5.04 (3.70)	4.11 (3.90)	−3.993	<0.0001
Vigor-Activity (VA)	14.40 (4.10)	13.39 (4.91)	−2.270	0.023
Fatigue-Immobility (FI)	2.91 (3.31)	5.06 (4.73)	−5.098	<0.0001
Mood state (PGMS)	104.29 (11.23)	102.29 (11.05)	−2.629	0.009

FIGURE 3 | Scores obtained on the POMS scales before the choreography, in phases 1 and 2 (2-month interval): stress-anxiety; depression-dejection; rage-hostility; vigor-activity; fatigue-immobility.
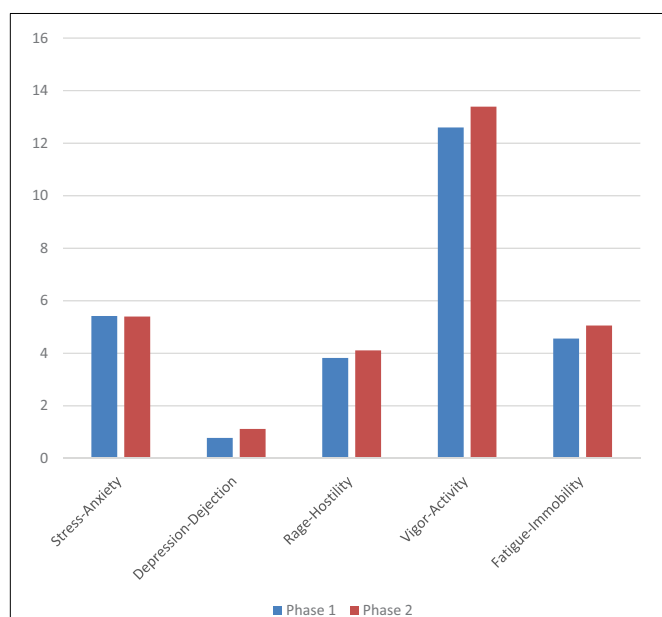
FIGURE 4 | Scores obtained on the POMS scales after the choreography, in phases 1 and 2 (2-month interval between the two): stress-anxiety; depression-dejection; rage-hostility; vigor-activity; fatigue-immobility.

$SD = 1.72$) the ones to show higher scores, compared to women ($M = 0.58$, $SD = 1.00$; $U = 1533.50$, $p < 0.05$). No differences were found between men and women in any of the other scales or times.

Similarly, in relation to negative mood states, no differences were found between men and women on the Vigor-Activity scale.

Relationship of Mood and Complementary Questions

At the same time, the possible association between the "desire to carry out the performance," the "feeling of security" before the performance of each scene, and satisfaction for each of the moments of evaluation was analyzed.

Considering the results obtained in phase 1, no association was found between the "desire to carry out the performance" prior to the performance with the satisfaction of the participants after the performance. However, greater "safety before representation" was significantly associated with greater satisfaction after representation ($p < 0.05$).

Regarding the results obtained in phase 2, it should be noted that a statistically significant association was found between "the desire before the performance" and the satisfaction after it, both individually ($p < 0.05$) and group ($p < 0.05$). In the same way, in phase 1, a greater "security" before the scene was related to a greater satisfaction after ($p < 0.0001$).

Finally, the comparison of the scores obtained in phases 1 and 2 showed that there was indeed an association between the "desire to carry out the scene" in both time points ($p < 0.05$), the "feeling of security" in the performance of each scene ($p < 0.0001$), and individual satisfaction ($p < 0.05$).

DISCUSSION

This research examined the effect of evaluation through of two choreographies, performed at the beginning and at the end of two sessions, developed in two different moments in time, and also according to gender, regarding the moods of university students. Some significant differences were observed according to the variables studied. Regarding our initial hypotheses: (1) the moods of the students before an evaluation through motor choreography will be emotionally different from the moods once the performance is over; (2) the performance that takes place 2 months after the first constitutes a training session, so the intensity of the moods compared to the first one will show lower values; and (3) the moods before and after the scene will have similar values in men and women. We can state the following:

The first hypothesis is confirmed, and we can affirm that, even inserted in an evaluation context, the assessment through choreography acts favorably on the perception of positive moods. They act in reducing values such as depression and anger, which demonstrates their potential to positively interact on the students' mood regarding body language and dance. These results confirm the findings obtained by other studies in which it is found that in relation to emotions, regardless of the type of motor practice that is pursued, positive emotions are perceived with greater intensity than negative or ambiguous ones; especially in cooperative games (Martínez and Valero, 2018). Likewise, the practice of communicative tasks has triggered expressions related to the positive emotion of love, and the use of objects used in some choreographies, seems to facilitate a relaxed environment and humor (Torrents et al., 2011). It also coincides with the statement that cooperative expressive motor practices arouse intense positive emotions in students that allow the development

of social skills and abilities to improve school coexistence (Sáez de Ocáriz et al., 2014). This is also reproduced in the study by Miralles et al. (2017), in which it has also been established that in a non-competitive situation, the intensity of our emotions is very high as well, especially regarding positive emotions.

Relating to others generates a greater intensity of emotions, especially when we relating from cooperation. Likewise, and even in the case of physical education and sport students, and not dance students, we find a great parallel with the results found in their research with dance students from the Royal Ballet, with appliance the POMS questionnaire (Tedesco et al., 2017). Vigorous activity is one of the mood factors evaluated by the POMS, which suggests synonyms for animation, energy, or activity. A decrease in the vigor factor was also found among these students in the post-test, indicating a loss of physical energy and disposition, probably due to physical fatigue, and with an increase in the fatigue-immobility factor. Regarding possible negative moods and/or emotions, the literature suggests that sport and dance improve subjective well-being but identify negative feelings of competence and ability (Mansfield et al., 2018). The quantity and quality of published evidence on dance and sports interventions to improve subjective well-being is little.

The second hypothesis is also confirmed, especially in relation to the stress-anxiety factor that decreases in the second phase (choreography evaluated in June), compared to the first phase (choreography evaluated in April). The values of the stress-anxiety factor decrease both before and after the evaluation. This leads us to think that there has been an adaptation, a training of this factor, which leads to a decrease in the stress-anxiety factor in this second evaluation. This also coincides with Tedesco et al. (2017), when explaining that stress is associated with a situation prior to the evaluation, and is related to expectations of performance, competence and fear of not being prepared. This statement coincides with the responses of our students in their desire to perform the choreography, and the greater or lesser degree of security that they felt while performing it. The tension, according to Rebustini and Machado (2012), points toward a clear downward trend in the value after the activity. It should also be noted that in our study, the vigor-activity factor does increase in the second phase compared to the first, possibly due to a greater participation in the creation of the choreography by the students, compared to the first choreography that was more limited by teachers. This sense of authorship and even a certain empowerment through the choreography, could influence the fact that the vigor-activity factor remained high after the performance, despite the fatigue. We also relate this result of the vigor-activity scale with the concept of "academic engagement," a central construct to promote learning, performance, interest, enjoyment and psychological well-being among students (Medrano et al., 2015).

The third hypothesis is also confirmed in the sense that in our study, there are no significant differences with respect to the gender variable, in relation to the evaluation in Body expression and dance through a choreographic presentation. This result agrees with previous studies in which there are no differences between male and female university students, in relation to expression and dance practices (Gelpi et al.,

2014; Romero-Martín et al., 2017). Details regarding adolescent attitudes toward dance, for example, and how they may vary with age and gender, are scarce (Sanderson, 2001). In previous studies with adolescents, the analyzes showed little change in attitudes between the ages of 11 and 16 and no interaction of age with gender. The absence of interaction between age and gender suggests cultural rather than school influences on attitudes. Similarly, Gaoa et al. (2014) examined whether childrens' enjoyment of physical education varied as a function of learning activities. The results revealed that children reported significantly higher scores on enjoyment of interactive dance games than traditional games. In addition, girls showed greater enjoyment with the interactive dance games than the boys. However, no gender differences emerged in the enjoyment of traditional games. Ayyildiz and Gokyürek (2016) researched the levels of satisfaction in leisure of individuals who attend dance activities as a recreational activity in the dance course, in relation to the levels of satisfaction in leisure. There are no statistically significant differences between gender and the level of satisfaction with dance in leisure time.

On the other hand, there are studies that show differences between boys and girls in relation to the dance technique that is used. Amado et al. (2016), analyze motivation toward dance by comparing two teaching methodologies within the educational context. According to gender, the study revealed that girls felt more secure under the *Direct Instruction Technique* because they considered that they had the necessary resources to perform the movements successfully. On the other hand, under the Creative Inquiry Technique, they felt more ridiculous when they saw what they were doing and they believed that they were not doing it efficiently. The boys felt more secure under the Creative Inquiry Technique because they considered that they knew what they were doing and it was easier for them because they adapted their choreographies to their level of performance. Nevertheless, with the Direct Instruction Technique, they felt incompetent because, despite knowing the movements and repeating them, they believed that they were not efficient in their execution. And this suggests that teachers may need to apply a different treatment depending on gender.

In different studies, motor expression practices activated high values of positive emotions in students. The cooperative domain originated more intense positive emotions than the psychomotor domain. No significant differences were found in emotional intensity between men and women (Gelpi et al., 2014). Romero-Martín et al. (2017), conclude that the motor practices studied (psychomotor, expression practices and introjection practices) promote positive emotional experiences, highlighting the expression practices and games, which trigger the most intense positive emotions. Regarding gender, men registered more intense emotional values women in games and in negative and ambiguous emotions, while they had similar emotional behaviors in expression and introjection.

The internal logic of all cooperative games (such as our purpose of evaluation through choreography) requires that their protagonists interact, dialog, agree and speak to solve the group challenge that is presented to them. These processes associated with mutual help and empathy are the carriers of

pleasant experiences of subjective and social well-being, as it has been shown in other studies based on traditional games, with and without competition (Lavega et al., 2011; Jaqueira et al., 2014), and also in non-competitive cooperative areas of motor expression (Sáez de Ocáriz et al., 2014), and of sensitive self-exploration or motor introjection (Rovira et al., 2014a,b).

The internal logic of this type of motor task provokes different behaviors in modifying moods, depending on whether cooperation is associated with competition or it is done in the absence of a final score (Muñoz Arroyave et al., 2014). Although this type of practice entails well-being and pleasant experiences that increase the vigor and activity of its protagonists, it can also increase or decrease other emotional factors such as stress, dejection, anger or fatigue depending on the cooperative challenge that is perceived and lived.

Likewise, our study would confirm the iceberg configuration studied by Morgan and Pollock (1977), who analyzed the differences in mood states between those who practiced and did not practice sports, and suggested that athletes present more positive mood profiles than non-athletes. The mood profile obtained by those who practiced sports presented the following characteristics: lower values than non-athletes in stress, depression, anger and fatigue, and high vàlues in vigor. Morgan (1980), who worked on his studies with male population, described this configuration as the "iceberg" profile. In our study, the vigor-activity scale, which shows only positive mental states, reflects that the scores are above other scales (stress-anxiety, depression-dejection, hostility-rage and fatigue-immobility).

We agree with Gelpi et al. (2014); Gómez-Carmona et al. (2019), when they conclude, in their study, that the motor practices of expression, characterized within the logic through the use, expression and communication of emotions, they constitute a family of motor practices that unleashes intense values of positive emotions.

Limitations

Some limitations regarding the questionnaire itself should be noted. In Arce et al. (2000) the psychometric analyzes revealed that, relative to the original description of each mood state, some of adjectives have their original meaning and have been associated to a different mood factor. Another concurrent problem is the different usage of the number of items and their scale assignment (Morfeld et al., 2007). Possible variables such as, for example, the gender of the student body members of the different groups that showed their choreographies were not contemplated. The grouping by gender (men, women or mixed), according to Lavega et al. (2017), was not considered in our study as a variable to control. Therefore, we do not know, if the fact that they were homogeneous groups of men, homogeneous groups of women or mixed groups, could influence the moods before or after the performance of each choreography. Another possible variable is the level of security in the presentation of the choreography. It is possible that a choreography that is not overly rehearsed, or insecure, entails different states of mind than those of a rehearsed and thoroughly worked choreography, that the students want to show. Another consideration to be made regards the type of task that the evaluations entail. Even in the case of motor cooperation,

a certain component of "challenge" or "competition" could be considered with oneself or in relation to the other groups that are also evaluated. It would be necessary trying to find out if the emotional experience of the students under evaluation with cooperative tasks of a socio-motor type goes through any experience of "competition." On the other hand, although much of the research that uses the POMS questionnaire as a means for data collection instrument has been influenced, not all research follows the same procedures to collect information; some of them use the GES Games and Emotions Scale for study motor experiences (Lavega et al., 2018) in a unique way or in a complementary way, so caution should be exercised when comparing results.

CONCLUSION

Cooperative games (among them, motor expression activities and also the use of choreography in some moments of the evaluation) constitute a domain or family of motor games of great interest for their contribution to the modification of the states of mind of the students. The POMS (Profile of Mood States) questionnaire allows information to be obtained on pre-performance and post-performance moods, as well as to compare them at two different times.

The mood states of the students before an assessment situation through motor choreography will be emotionally different from the state of mind once the performance is over. The practical evaluation of the subject through choreography modifies the states of mind of the students. It favors and increases the development of the subjective and collective well-being of the people who carry them out, which is why it is considered a positive element in the educational process.

We therefore noted differences in each of the choreographies, before and after each performance, and in the overall score awarded to both choreographies. The results indicate a decrease of the scores in all the scales, except for the fatigue-immobility scale, after the choreography. Because of this, we consider that the practice increases the emotional well-being of the students after performing their choreographies.

Although we anticipate a possible "training to the moods generated by the evaluation" in the performance of the choreographies, the stress-anxiety factor, the pre- and post-moods are similar in the first and second choreographies. We can highlight that the stress-anxiety scale is somewhat lower "before" the second choreography. Therefore, we can speak of a "training" of all students on this scale.

Regarding the moods before and after the scene will have similar values in men and women, we could not establish any differences between genders, although divergencies were found on the depression-dejection scale on this same variable, during the first phase and prior to performance.

The desire to show the choreography and the feeling of security prior to its performance contributed to a greater satisfaction after performing it. Motor expression activities, and specifically the evaluative moment of the same through representations, are manifested as an educational resource that

favors and increases the development of subjective and collective well-being among the participants who carry them out. In this case, the cooperative nature of the activities mobilized positive emotional intensities, higher than other expressive psychomotor proposals.

This research confirms the relevant role of dance, as well as the emotional repercussions of its evaluation, for university students. The evaluation of the emotional state of fellow spectators is pending, before and after esthetically perceiving the choreographies of their classmates (Cross et al., 2011), that are probably linked to positive emotions. That is why educating the expressive dimension of the body through dances, and the values associated with their practice, should be one of the objectives of training programs in Physical Education. The findings of this research provide relevant information for physical education professionals in relation to the effects of evaluating dance and body expression practices.

It is clear how important it is for Physical Education teachers to know the emotional experience generated by evaluations according to the type of tasks that they introduce to their students, thus being able to guide their teaching-learning process. To promote a correct emotional education from a physical education area, it is necessary to teach students to recognize, control and understand their own emotions in different motor situations. From this point of view, it is essential that future teachers in this subject experience for themselves the emotions that they provoke through different forms of evaluation that they suggest to their students in the future provoke, in order to recognize them and be able to work on them with their students.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

MM involved in the design of study, data collection, data analysis, and manuscript writing. SG contributed to the data collection and field work, data analysis, and manuscript writing. LS assisted data acquisition. AA contributed to data analysis, run analysis of results, and manuscript writing. EF contributed to manuscript writing and review of the document. All authors contributed to the article and approved the submitted version.

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Joy in Movement: Traditional Sporting Games and Emotional Experience in Elementary Physical Education

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Through games a motivating learning climate is provided, generating mainly positive emotions among the students by the very nature of the game. However, while the early stages are the most important for emotional well-being development, research about scientific knowledge of emotional physical education in children is still scarce. The aims of this study were to analyze the intensity of emotions (positive or negative) produced when players took part in games of different social structure, with or without competition (winner or loser), with or without sport experience and to examine the explanations given by the participants for these emotional experiences. Participants ($N = 152$) were recruited from two Spanish elementary school. We applied Student's t-test and one-factor ANOVA. Students' subjective comments were classified through content analysis in macro-categories and we used the Chi-square Automatic Interaction Detector (CHAID, implemented in SPSS^{TM} Answer Tree$^®$ 13.0). The application of a mixed-methods approach identified statistically significant differences in four variables: (a) the type of emotion, (b) motor domain, (c) type of outcome (winning, losing, and non-competitive), and (d) sport experience. The intensity of positive emotions was higher ($M = 3.71$, SD $= 0.893$) than negative emotions ($M = 1.18$, SD $= 0.253$, $p < 0.001$). Furthermore, negative emotions were felt with different intensities ($F_3 = 3.82$, $p = 0.011$, ES $= 0.071$), depending on the motor action domain. Comments referring to negative emotions were more frequent in individual games. Winning was associated significantly ($p < 0.05$) with the highest intensity ratings of positive emotions, whereas losing produced the highest values for negative emotions. The intensity ratings for positive or negative emotions not were different between non-competitive games and competitive games. The sport experience relativizes the mean of emotional intensity, both positive and negative. The present study brings the value of considering games as a key role to promote a physical education addressed to the education of social-emotional well-being in schoolchildren, as the basis of academic training. Furthermore, the results could benefit teachers as well as coaches have scientific input to organize teaching content, generating the desired motor behaviors together with positive experiences.

Keywords: emotional well-being, traditional games, interpersonal relationships, emotions, physical education

INTRODUCTION

When a child is playing, he makes decisions, establishes social relationships, responds with motor actions and lives a unique emotional scenario. The interaction of each of these dimensions (cognitive, social, physical, and emotional) is what is known according to Parlebas (2018) as the "*pedagogy of motor behaviours.*" The mechanical concept of movement is replaced by motor behavior loaded of meaning. The motor skills are not the main reference, but instead the person who moves, making decisions, acting by emotional impulses, and interaction with other players (Lavega, 2018).

Each game has an internal logic that offers the player relations with other players, space, material, and time. The emotional experience is conditioned by the very nature of the game, offering various motor behaviors (Shahid et al., 2008). The players' characteristics, their fears, worries, hobbies, or sport experience (Gea et al., 2016), understood as the external logic of the game, will also influence their emotions (Alcaraz-Muñoz et al., 2017) and even their degree of enjoyment of the game (García et al., 2010). In the same game, the players act differently, for example, in hide-and-seek, there are children who prefer to remain hidden until the last moment to avoid being caught, whereas others, on the contrary, more enjoy assuming the risk of being caught.

In motor praxeology, Parlebas (2001) proposed the domains of motor action to classify the games according to the social relationships between players: (a) the psychomotor domain, in which the player acts by himself in the game, without any motor communication with others, such as when playing with a spinning top or hopscotch; (b) the cooperation domain, in which players jointly participate to achieve the game's goal among all of them, such as a relay race or the parachute game; (c) the opposition domain, in which players only act as adversaries to prevent the rest of the players from achieving the motor objective, as in black and white or arm wrestling; (d) The cooperation-opposition domain, which combines opposition between rivals with collaboration between teammates, as in the prisoner's ball or the ultimate.

When choosing a game, another relevant aspect to be analyzed due to its influence on the players' emotional experience is the way it ends (Harvey and O'Donovan, 2013; Serna et al., 2017). When referring to games that end when they fulfill an inherent purpose determined by the rules of the game (internal logic), we imply competition games. On the contrary, when games stop due to some aspect that is external to the rules of the game, such the players' decision, the atmospheric weather, snack time, etc. (external logic), we are referring to games without competition (Suits, 1978).

According to Lazarus (1991) and Bisquerra (2003), the emotions experienced can be classified as positive or negative. Positive emotions, such as joy, happiness, good humor, and love (understood as affection) are experienced in situations of well-being, whereas negative emotions such as anger, sadness, rejection, fear, and shame, are triggered in situations of discomfort. The same game is a different emotional scenario for each player, depending on the type of emotion felt, the degree of intensity experienced, his or her personality, preferences, fears,

interactions with other players, and even the rules of the game itself (Frijda, 2007; Diener et al., 2009). For example, in the game of black and white (opposition with competition), each player can experience joy or sadness, depending on whether he has won by catching his opponent more times or has lost for being the most frequently caught player. In the game of steal-the-hanky (opposition without competition), the person who manages to catch the handkerchief of an adversary will feel joy, whereas the person who has lost the handkerchief may feel sad. Emotions, whether they are triggered by favorable or unfavorable situations, play a very important role in people's motor intervention.

From the educational perspective, the most important thing is for teachers to achieve an adequate relationship between the educational objectives and the proposed games. Understanding this relationship allows them to reflect on their practice, make decisions and propose games based on empirical evidence to produce different emotional experiences in their students depending on the type of game (Parlebas, 2001; Puig and Vilanova, 2011). In addition, these types of motor experiences not only stimulate students' development on a cognitive and physical level, but also on a social and emotional level (Bailey et al., 2009). The fact of participating in games arouses different emotions that must be recognized by the players, thus increasing their emotional awareness, a key aspect for the development of social skills and other emotional competencies (Bisquerra, 2003; Laborde et al., 2015; Zysberg and Hemmel, 2017). In this sense, physical education plays a key role because of its inseparable relationship between games and emotions (Lavega et al., 2014; Cañabate et al., 2018; Duran and Costes, 2018). In addition, regarding children's psycho-evolutionary and social development, the stage from 6 to 12 years is the period in which the capacity to acquire personal autonomy develops, and intrapersonal and interpersonal relations increase. Thus, it is essential for physical education teachers to have scientific knowledge of emotional physical education from early stages. We need to teach children to know and understand their own emotions and those of others (Shahid et al., 2008).

Through games, a motivating learning climate is provided, generating mainly positive emotions among the students (Light, 2008; Howard et al., 2017). Positive emotions have always been rated with higher intensity in the different domains of motor action (Lavega et al., 2014; Miralles et al., 2017; Duran and Costes, 2018). Sociomotor games present a higher emotional intensity, especially cooperative games where common challenges are established and pacts or negotiations with the other players are required (Fredrickson, 2001; Desivilya and Yagil, 2005; Waugh and Fredrickson, 2006), followed by the cooperation-opposition games and lastly, by opposition games. The presence or absence of competition is another factor to consider in the intensity of the emotional experience. Negative emotions are more intense than positive ones when there is a possibility of finishing the game as the winner or the loser, mainly due to the increase of conflicts or fouls during the games (Helmsen et al., 2012).

Based on these theoretical arguments, the present research proposed two main objectives: (a) to analyze the intensity of the emotions (positive or negative) felt by the players in different domains of motor action (psychomotor, cooperation, opposition,

and cooperation-opposition); in non-competitive games, and in competitive games when they are winners or losers; with or without sport experience and (b) to examine the players' comments about the most intense emotions experienced in the four domains. From these objectives the following hypothesis are extracted: (1) traditional sporting games encourage the experience of positive emotions; (2) each domain of motor action generates a certain type of emotions in the players; (3) the presence of competition increases the emotional intensity experienced by schoolchildren; and even more positive emotions if they are winners and negative emotions when they lose; and (4) when players have sports experience, they experience emotions with greater intensity.

MATERIALS AND METHODS

Design and Participants

A descriptive and cross-sectional study design with on-probability-based sampling was used. The participants were 152 students of Elementary Education (72 boys and 80 girls; age range = 8–12 years, M_{age} = 9.72, SD = 1.18), belonging to two Spanish schools. Of them, 41 participants practiced sports in federated clubs at least three times a week, 63 performed physical activity once or twice a week and 48 participants did not perform physical activity. The fathers, mothers, and/or legal guardians of the children—all minors—gave their consent to participate in the study, which was also approved by the University's Research Ethics Committee.

Measurements and Materials
Games and Emotions Scale for Children Questionnaire

The intensity of the emotions experienced in each game was assessed by the Games and Emotions Scale for Children (GESC), validated by Alcaraz-Muñoz et al. (in review). This version of the GESC questionnaire used had a total of nine items, which were grouped in two factors of emotions identified as: positive emotions (four items: joy, humor, affection, and happiness) and negative emotions (five items: sadness, fear, anger, rejection, and shame) (Lazarus, 1991; Bisquerra, 2003). Each of these items related with the two factors of emotions was measured through a Likert-type scale ranging from 0 (*I did not feel anything*) to 4 (*I felt a lot*). For each identified emotion (positive or negative) a mean value of emotional intensity experienced was obtained.

In terms of reliability, the Cronbach alpha value indicated that the internal consistency was good both for positive (α = 0.85) and negative (α = 0.77) emotions. Confirmatory factorial analysis adequately reproduced the scale structure and showed good fit indices [minimum χ^2/df = 1.35; Tucker-Lewis index (TLI) = 0.98; incremental fit index (IFI) = 0.98; comparative fit index (CFI) = 0.98; mean quadratic approximation error (RMSEA) = 0.048 (LO90 = 0.000 – HI90 = 0.086)].

Selection and Application of Games

Four 1-hsessions were conducted by the teachers in charge of Physical Education at each school in the same order. The games

used (**Table 1**) were selected based on the following criteria: (a) they were well-known games within the Spanish culture; (b) the games represented the four domains of motor action; (c) each session was dedicated to the domain of motor action, combining a non-competitive and a competitive game (with winners and losers) in all sessions in the same way; (d) the habitual practice carried out by schoolchildren in their real Physical Education context was respected; and (e) the pedagogical principles for the training of the students in games were maintained, such as the equal participation of all the students. The sequencing of the sessions was established following an increasing order of decision complexity determined by the motor action domains of each game: psychomotor games, cooperation games, opposition games, cooperation-opposition games.

Finally, when classifying each of the games, their categorization was taken into consideration based on the possibility or not of obtaining victory within the practical motor situation developed (Parlebas, 2001). This allows to differentiate between two types of games: (a) games with competition or competitive games, which are those traditional motor games that are identified with the presence of a final score or result within the game, which allows the player to obtain or not victory at the end of the practical situation, and therefore, be classified as a winning or losing player; (b) games without competition or non-competitive games, which are those traditional motor games that do not have a final score, and therefore, there is no final that classifies the players based on obtaining victory or not within motor practice, not being its base the competition (Etxebeste et al., 2014; Gea et al., 2016).

Procedures
Initial Familiarization: Students' Emotional Awareness

Students participated in a 1-h session, which provided them with theoretical and practical knowledge about emotions based on the models of Lazarus (1991) and Bisquerra (2003). In this session, the children learned how to identify their own emotions, first, by commenting on everyday situations where they had noticed emotions such as joy, happiness, affection, humor, sadness, anger, fear, shame, and rejection. To facilitate the correct identification of emotions, a theoretical introduction was made with examples of each emotion and a simulated daily life situation (for example, "*on your birthday, you receive the toy you wanted as a gift, the possible emotion associated with this situation being happiness*" or "*You are playing with your favorite toy when suddenly it falls and breaks, possibly triggering an emotion of sadness*"). Secondly, in order to extrapolate the identification of emotions to the situations of motor game, they participated in a game focused on the dramatization of these emotions, and then in the game of stealing-stones (cooperation-opposition with competition) to simulate the situations of games of the rest of sessions (**Table 1**). At the end of this game, they were asked to describe a specific situation of the game in which they had identified one of the emotions that had been explained earlier, for example, joy when stealing a stone from the opposing team, sadness when they were caught, etc. The students were also taught how to respond on the scale of emotional experience expression.

TABLE 1 | Description of the games used in the study.

Type of game		Description
Emotional awareness games	Dramatization game	Nine children are chosen randomly and assigned one of the nine emotions without them knowing what it is. Once the emotion is assigned, they will be given a card, which they will hold behind them (without it being seen by them at any time). These players will be placed distributed throughout the playing space. The rest of the participants, grouped in pairs, must go through each area and mimic the emotion that the child who occupies that place is supposed to represent. At the end, the child who does not know the emotion should name aloud the emotion that he thinks it represents and why he believes it.
	Stealing-stone	The playing field is divided into two equal parts. In each field a team is placed with its respective stones (balls or similar material) placed at the bottom of the field of play. The purpose is to accumulate the largest number of stones. To do this, teams can choose to: (a) place players in their own field, which makes them defenders. Its function is to prevent the opposing team from stealing stones, for this the mechanics of a tag game will be followed, so that when touching a rival player he must be placed in the same area of the stones, being able to be saved if a teammate crashes their hands with it, or (b) the players can choose to go to the opposite field, which makes them attackers, their main function being to try to steal a stone or free a caught teammate. At the end of the game, the number of stones that each team has obtained is counted, giving the victory to the one with the highest accumulated number of stones.
Psychomotor games	Jump, jump, little lobster (non-competitive)	Each player has a jumping rope for free-form jumping. When the teacher claps, the players must jump forward, two claps, they should jump back, and three claps, they jump on one leg.
	Quick kangaroo (competitive)	In pairs. The players compete with each other trying to achieve the highest number of rope-jumps. In the second part, the players occupy parallel zones to race while rope-jumping. The general winner is the player who gets the most wins per round.
Cooperation games	Pass and receive (non-competitive)	Teams of five players in circles. Each team tries to achieve the objective of the game by improving their score each time. Players must pass a ball to each other, dribbling once on the ground, and avoid passing it to the classmate on their right or left side. The goal is to achieve the highest number of passes. To increase the difficulty, a second ball is used.
	Pass and win (competitive)	The dynamics of the previous game are maintained, but the results between teams are now compared. The winning team is the one that manages to make more passes per rounds.
Opposition games	Steal-the-hanky (non-competitive)	The players stand in two facing rows, located at a distance of 10 m. Each player is assigned a random number depending on the number of players per row. The teacher stands in the center of the two rows holding a handkerchief. The teacher says a number aloud and the players of the two rows that have that number assigned to them run out to grab the handkerchief. The player who manages to grab it must return to his or her row without being caught by the other player.
	Black and white (competitive)	In pairs, face to face, situated 1 m from each other. Each player is assigned a name (black or white). The teacher says one of the two names at random. The named child tries to catch the adversary before he or she reaches the end of the track. The winner is the one who catches the other player or escapes without being caught more times.
Cooperation-opposition games	Killing ball (non-competitive)	Players are located within a 15 × 15 m space. One player moves out of this space with a ball. The goal is to try to hit the other players with that ball. The player who is hit must leave the delimited space and join the hitter. The game ends when there are no players left in the space.
	Square mate (competitive)	Two teams. The team playing the zombie role is located within a delimited space. The players of the other team (the hunters) move around outside of this space, passing a ball to each other to try to hit the zombies. The hit zombies remain seated while trying to touch the ball to rejoin the zombies. The teams change the roles after the set time, at the end of that time, the seated zombies are counted. The winning team is the one who manages to seat more zombies.

Measures

Four practical sessions were developed corresponding to the four motor action domains. Although the participants were already familiar with the questionnaire, the teachers proceeded to briefly recall at the beginning of each of the sessions the structure and sections to fill out. At the end of each game, the students marked on their personal copy of the GESC the level of intensity (from 0 to 4) that they had felt for each of the nine basic emotions enumerated (Lazarus, 1991; Bisquerra, 2003), according to the graphic representations of the degree of intensity of each emotion. Immediately afterward, they were asked to write a brief explanation of why they thought they had felt the most intense emotion, and to draw the aspect of the game that they had found most striking, with a pleasant and/or unpleasant connotation.

Statistical Analysis

Quantitative Data Analysis

Descriptive data are presented as means and standard deviation of the mean. The Kolmogorov–Smirnov test was used to test for normality. All the data had a homogeneous distribution. Hence, we applied parametric tests: Student's t-test for independent samples and related samples with categorical variables with two groups, and one-factor repeated measures ANOVA for categorical variables with more than one group. A Bonferroni *post hoc* test was used to explore the differences among the conditions. Greenhouse–Geisser correction was used to check the sphericity assumption. We used a p-value of 0.05 for all statistical tests. We also calculated the effect size (ES) results of the interactions between the variables, using partial eta square (ηP^2) and Cohen's d [0.2 (small); 0.5 (medium), and >0.8 (large)

effect]. All analyses were performed using the Statistical Package for Social Sciences version 22.0 for Windows.

When examining the data analysis, the correlations between variables were: (a) type of emotion (positive or negative), (b) type of motor action domain (psychomotor, cooperation, opposition, and cooperation-opposition), and type of game (not competitive or competitive). For independent samples, the correlations were: (a) type of outcome (winning or losing), and (b) type of emotion (positive or negative), and (c) type of motor action domain (psychomotor, cooperation, opposition, and cooperation-opposition). Intra-subject relationships were: (a) type of emotion (positive or negative), and (b) type of motor action domain (psychomotor, cooperation, opposition, and cooperation-opposition).

Qualitative Data Analysis

Students' subjective comments about the most intense emotion were firstly classified through content analysis in macro-categories: aspects referring to the internal logic and aspects related to the external logic of the game. Next, we analyzed the presence or absence of micro-categories referring to the internal or external logic.

Internal logic: (A) internal time: allusions to the end of the game "*winning*," "*losing*," or to "*competition.*" In games without competition, comments on the duration or the objective of the game, changes of role (e.g., "*It is fun to switch from hare to hunter*"); (b) internal space: terms relating to the play field or more generic comments on the positions of the body in space and their postures (e.g., "*It was difficult to run while jumping*"); (c) internal relationship: comments on the motor interaction with other players (e.g., "*My classmates passed me the ball*"); (d) internal material: allusions to the objects (ball, handkerchief, rope) (e.g., "*Hitting with the ball was difficult*"); (e) rules: presence or absence of terms about the agreements (e.g., "*The rules are complicated*") or the game in general (e.g., "*The game is fun*").

External logic. (a) External time: comments on temporal aspects external to the rules of the game (e.g., "*It was very early*"); (b) external space: terms relating to the facility or play field (e.g., "*The sports hall was dark*"); (c) external relationship: allusions to permanent personal attributions (e.g., "*I was playing with my friend*"); (d) external material: comments on the type of material used for the elaboration of the objects (e.g., "*The ball was hard*"); (e) persons (external): allusions to people's transient states (e.g., "*We laughed a lot*") (Lagardera et al., 2018).

A coding manual was developed for observers that included (a) the category system, (b) the code for each category, and (c) several examples. Six observers completed a minimum of 40 h of training on how to code the data, following the guidelines of Muñoz et al. (2018). To assess the reliability of the data, each of the six observers analyzed 100 comments. These data were compared, and inter-observer reliability was measured using the Kappa Index, which yielded values ranging from 0.78 to 0.84.

Using data obtained, descriptive statistical tests were performed to determine the distribution of frequencies of the variables. In parallel, a statistical model of a comprehensive classification tree (Morgan and Sonquist, 1963) was applied. Classification trees are a freely distributed procedure for conducting exploratory analyses, which show the relationship between variables according to different levels of importance. We used the Chi-square Automatic Interaction Detector (CHAID, implemented in SPSS^{TM} Answer Tree® 13.0) classification tree method because it can build non-binary trees, that is, trees that can include more than two branches or divisions of data on each node, depending on the categories to be explained.

A comprehensive classification tree was generated to examine the predictive power of the different variables of the children's comments about the game (winning, losing, and not competing) for the motor action domain (psychomotor, cooperation, opposition, and cooperation-opposition), according to the criterion of their presence or absence.

RESULTS

The results derive from three relevant interactions: (a) type of emotion and type of motor action domain; (b) type of emotion, type of outcome (winning, losing, or non-competitive game), and type of motor action domain; and (c) type of emotion and sport experience.

Type of Emotion X Domains of Motor Action

Student's t-test for related samples showed that positive emotions scores obtained higher intensity ($M = 3.71$, SD $= 0.893$; $p < 0.001$) than negative emotions ($M = 1.18$, SD $= 0.253$) ($t = 32.16$, $p < 0.001$, ES $= 2.61$). The Type of emotion X Motor-action domain interaction showed that positive emotions were experienced with the same high intensity ($F_3 = 1.83$, $p = 0.114$, ES $= 0.015$) in all four domains of motor action: psychomotor ($M = 3.59$, SD $= 1.128$), cooperation ($M = 3.72$, SD $= 1.065$), opposition ($M = 3.73$, SD $= 1.043$), and cooperation-opposition ($M = 3.79$, SD $= 1.057$) (**Figure 1**).

The results of the intra-subject relations showed that the negative emotions were felt with different intensities ($F_3 = 3.82$, $p = 0.011$, ES $= 0.071$), depending on the motor action domain. The intensities in the psychomotor games were significantly higher ($M = 1.28$, SD $= 0.006$) than those of the opposition games ($M = 1.14$, SD $= 0.293$, $p = 0.05$) and the cooperation-opposition games ($M = 1.14$, SD $= 0.298$, $p = 0.012$), whereas no significant differences were found with the cooperation games ($M = 1.16$, SD $= 0.358$, $p = 0.051$) (**Figure 1**).

Type of Emotion X Type of Outcome X Domains of Motor Action

With regard to the interaction between type of emotion, type of outcome, and type of motor action domain, in competition games, Student's t-tests for independent samples showed that winning produced significantly higher scores for positive emotions in all four domains of motor action: psychomotor ($M = 4.05$, SD $= 0.998$, $p = 0.000$), cooperation ($M = 4.18$, SD $= 0.999$, $p = 0.000$), opposition ($M = 3.92$, SD $= 1.094$, $p = 0.049$), and cooperation-opposition games ($M = 3.98$, SD $= 1.100$, $p = 0.013$). Losing was associated with significantly higher scores for negative emotions in the case of psychomotor

FIGURE 1 | Positive and negative emotional intensity by motor-action domain. Data as shown as mean. **$p < 0.01$; *$p < 0.05$.
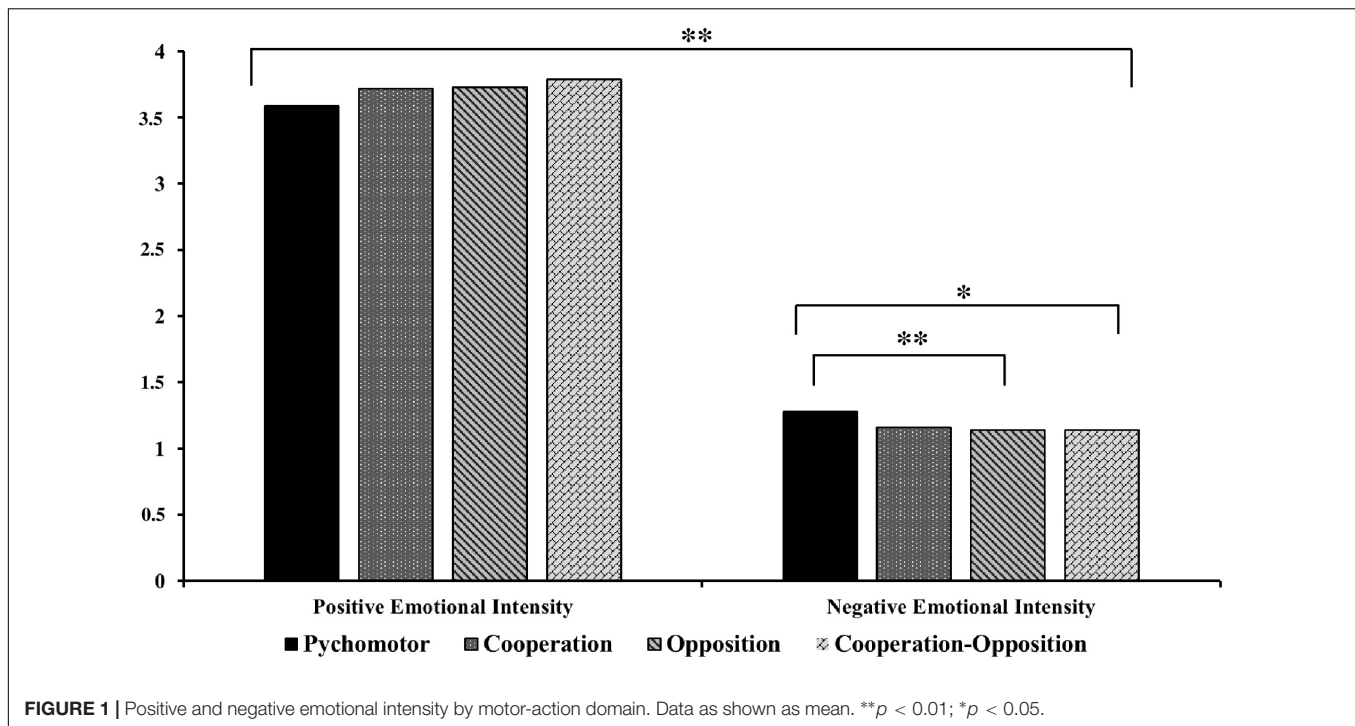
($M = 1.49$, SD $= 0.784$, $p = 0.005$), cooperation ($M = 1.25$, SD $= 0.490$, $p = 0.010$), and cooperation-opposition games ($M = 1.31$, SD $= 0.583$, $p = 0.002$), whereas in opposition games, the level of intensity of negative emotions was similar, without significant differences either for winning ($M = 1.10$, SD $= 0.339$, $p = 0.265$) or losing ($M = 1.17$, SD $= 0.468$, ES $= 0.17$) (**Table 2**).

Significant differences were observed when comparing the scores obtained for positive and negative emotions in competitive (ES $= 0.946$) and non-competitive games (ES $= 0.956$) ($p < 0.05$). In competitive games, the mean value of positive emotions

was 3.7, while for negative emotions it was 1.16 ($p = 0.000$). In non-competitive games, positive emotions were experienced with a mean value of 3.69, while negative emotions it was 1.2 ($p = 0.000$). However, significant differences not were observed when comparing the score obtained for positive emotions between competitive ($M = 3.70$, SD $= 0.950$) and non-competitive games ($M = 3.72$, SD $= 0.918$, $p = 0.618$, ES $= 0.02$). Similarly, negative emotions not were experienced with higher scores in competitive games ($M = 1.20$, SD $= 0.310$) than in non-competitive games ($M = 1.16$, SD $= 0.240$, $p = 0.053$, ES $= 0.14$) (**Figure 2**).

Type of Emotion X Sport Experience

Regarding the Type of emotion X Sport experience interaction, Student's t-tests for independent samples revealed no significant differences in positive and negative emotions, regardless of whether or not the students performed extracurricular physical activity. However, when extracurricular physical activity was not practiced, children's emotional intensity was greater both for positive ($M = 3.86$, SD $= 0.962$, $p = 0.167$, $d = 0.24$) and negative emotions ($M = 1.22$, SD $= 0.296$, $p = 0.169$, $d = 0.23$), whereas children who did practice extracurricular physical activity obtained lower scores both in positive ($M = 3.64$, SD $= 0.856$, $p = 0.167$) and negative emotions ($M = 1.16$, SD $= 0.229$, $p = 0.169$).

Content Analysis

Of the 1578 comments, 67.4% were related to internal aspects of the game (internal logic) and 32.6% to external aspects (external logic). The statistical analysis of the 10 micro-categories of internal and external logic showed that the rules were the

TABLE 2 | Mean emotional intensities according to type of emotion, outcome, and motor action domain.

Outcome	Motor action domain	Type of emotion			
		Positive		Negative	
		Mean	SD	Mean	SD
Winning	Psychomotor	4.05	0.998	1.18	0.466
	Cooperation	4.18	0.999	1.08	0.271
	Opposition	3.92	1.094	1.10	0.339
	Cooperation-opposition	3.98	1.100	1.06	0.214
Losing	Psychomotor	3.03	1.413	1.49	0.784
	Cooperation	3.28	1.297	1.25	0.490
	Opposition	3.52	1.300	1.17	0.468
	Cooperation-opposition	3.46	1.355	1.31	0.583
Non-competitive	Psychomotor	3.59	1.202	1.24	0.506
	Cooperation	3.78	1.100	1.14	0.399
	Opposition	3.69	1.207	1.14	0.334
	Cooperation-opposition	3.83	1.124	1.11	0.308

FIGURE 2 | Positive and negative emotional intensity according to type of game (competitive, non-competitive) and motor action domain. Data as shown as mean. **$p < 0.01$.

most frequently mentioned variable, although people (23.6%) and internal time (21.3%) were also frequently mentioned in the comments (**Figure 3**).

The subsequent statistical application of classification trees examined the predictive power of gender-independent variables, type of outcome, type of motor action domain and sport experience to predict comments related to internal time. We found that the outcome (winning, losing, and not competing) was the only explanatory factor of comments related to internal time (**Figure 4**).

Comments about positive emotions were more frequent and alluded to aspects of "*game rules*," "*transient states*," and "*internal time*," whereas negative emotions were present in comments concerning "*internal time*," "*transient states*," and "*internal relationship*."

DISCUSSION

Through a mixed-method approach that includes quantitative and qualitative analyses, we fulfilled the main objectives of the present study of: (a) to analyze the intensity of the emotions (positive or negative) experienced by the participants in different domains of motor action (psychomotor, cooperation, opposition, and cooperation-opposition); in non-competitive games and when winning or losing in competitive games; with or without sport experience and (b) to examine players' comments about the most intense emotions experienced in the four motor action domains. The results obtained in the two types of analyses were compared with those of previous studies (Puig and Vilanova,

2011; Miralles et al., 2017) to determine how players interpret their emotional experience during the game. The data may differ in other social or cultural contexts.

Emotional Experience in Relation to the Domains of Motor Action

Quantitative analysis showed a significant relationship between the emotions experienced and the game, according to its nature. The results confirm that games can be an ideal resource to teach within a motivational and pleasant context (Parlebas, 2001; Light, 2008; Etxebeste, 2012). During the different sessions, positive emotions obtained intensity values that were significantly higher than those of negative emotions, as reported in previous studies with university students (Lavega et al., 2014), secondary students (Duran and Costes, 2018), and elementary students (Howard et al., 2017; Cañabate et al., 2018). Affect is a fundamental aspect in the teaching-learning process (Parlebas, 2001) because learning depends on emotions, and the experience of positive emotions will increase motivation to learn (MacPhail et al., 2008). Although we must be aware that experiencing negative emotions is as necessary for the process of human formation than positive emotions. Teaching schoolchildren from an early age to be aware of the negative emotion they are feeling, such as anger, frustration, fear, or shame, and learn to regulate it effectively, will allow them to improve their general emotional state in adult life (Goleman, 2013).

When examining the domains of motor action, we can state that the psychomotor games and the sociomotor games of cooperation, opposition, and cooperation-opposition both
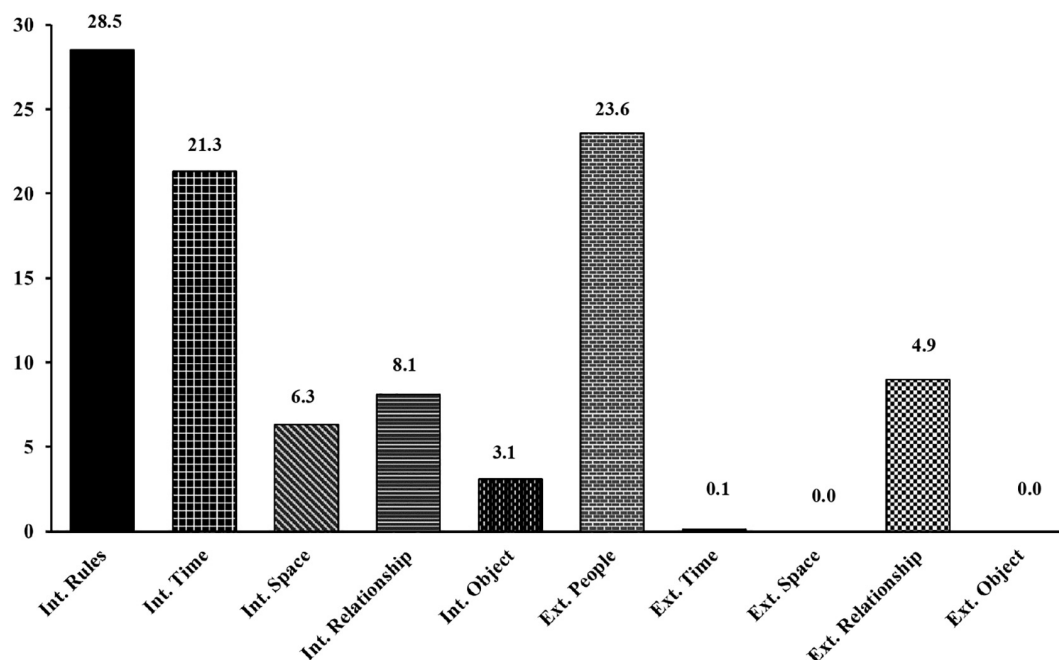
FIGURE 3 | First-level content analysis of game comments. Data as shown as percentage.
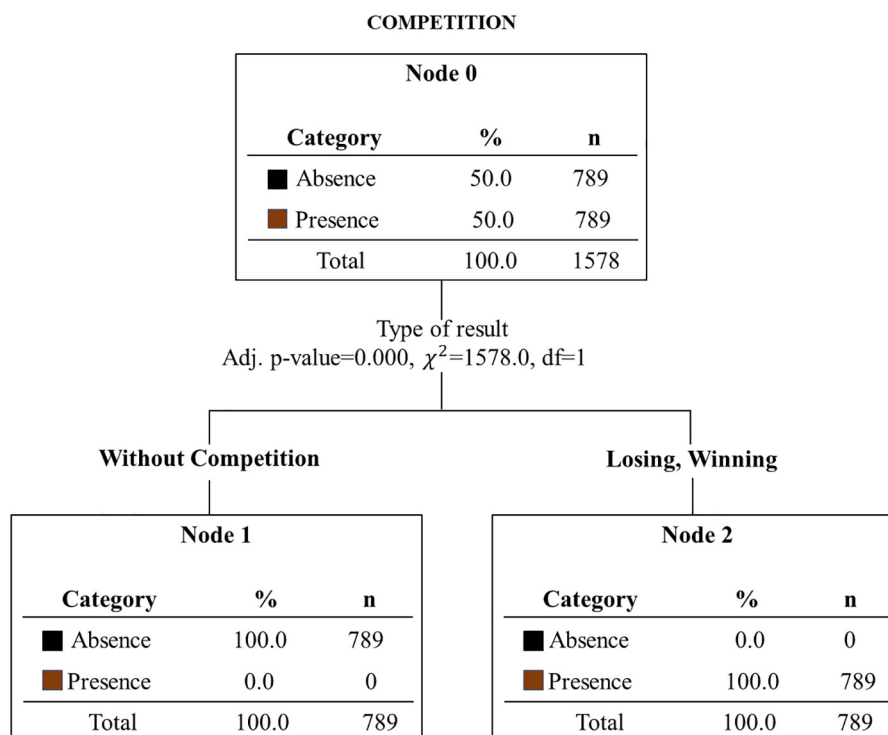
FIGURE 4 | Internal time comments classification tree. Adj. *p*–value, adjusted *p*-value; χ^2, Chi-square; df, degrees of freedom; %, percentage; *n*, number.

generated positive emotions, with no significant differences in the players' emotional intensities. Nonetheless, the psychomotor domain had a lower mean than the sociomotor domains, as

in other studies (Lavega et al., 2014; Duran and Costes, 2018). This may be due to the fact that sociomotor games implicitly provide a series of social relationships among the players, such

as negotiations, pacts, or even common challenges, that are close to the social reality, thus promoting an ideal environment for feeling positive emotions with greater intensity (Desivilya and Yagil, 2005; Helmsen et al., 2012).

The results show that, within the sociomotor games, despite the absence of significant differences between the three domains of motor action, the cooperation-opposition games generated a higher positive emotional intensity, followed by the opposition and cooperation games. Perhaps due to the age of the study participants, since they are in a stage of psycho-evolutionary development focused on continuous observation and comparison with the characteristics of the other (Blakemore, 2010). Although in similar studies (Lavega et al., 2014; Miralles et al., 2017), the cooperation domain generated more positive emotional intensity compared to the domains of opposition or cooperation-opposition. This fact, together with the results obtained in the present study, confirms the key role played by social interaction in intense emotional experience (Frijda, 2007; Diener et al., 2009). Emotional intelligence cannot be contemplated without social intelligence (Laborde et al., 2015). In fact, play is considered an emotional and social learning laboratory (Parlebas, 2001; Lagardera and Lavega, 2003).

However, negative emotions did obtain significantly different values between motor action domains. The highest negative emotional intensity was experienced in the psychomotor domain, unlike other studies (Lavega et al., 2014; Miralles et al., 2017; Duran and Costes, 2018) that reported that the most intense negative emotions were generated in sociomotor games. The key to this emotional experience may be the individual participation of the psychomotor games, as at early ages, children are accustomed to situations that require greater social participation with others (Shahid et al., 2008; Alcaraz-Muñoz et al., 2017). Therefore, psychomotor games can generate children's emotional discomfort, making them feel embarrassed or afraid of making mistakes or that other classmates will make fun of them, sadness, feeling rejection, or anger in situations of frustration because of their lack of skill. The studies of traditional children's games in Spain indicate that non-competitive psychomotor games are much less common than sociomotor games (Etxebeste, 2012). The fact that elementary school children experience negative emotions with greater intensity in the psychomotor domain is interesting as a future perspective to be studied more deeply. The purpose will be to know in more detail to what this experience is due, and to contrast the information with other studies where the rating of negative emotions is higher for sociomotor games.

In the sociomotor domains, the most intense rating of negative emotions was experienced in the cooperation games, as in the study with schoolchildren of Miralles et al. (2017). When a player makes a mistake during a game, the feeling of guilt is greater than in opposition or cooperation-opposition games, because in these games, there is a motor interaction with adversaries that relativizes those emotions of discomfort in the face of failures (Shahid et al., 2008; Zysberg and Hemmel, 2017). However, these results do not coincide with those obtained in the studies with university and high school students of Lavega et al. (2014) and Duran and Costes (2018). These studies reported that the negative emotional intensity increased in proportion to the relational complexity of the game, first in opposition games, where players interact with adversaries, and secondly, in cooperation-opposition games, which adds the motor relationship with a partner. In both these domains, the adversary is present, generating a greater sense of emotional discomfort than if one cannot win due to one's own inability. However, the key to these differences may be the participants' age, because, as age increases along with their psycho-evolutional development, children tend to pay more attention to the characteristics of the other players and even to compare themselves with them (Howard et al., 2017). These results suggest that, at early ages, when teachers wish to improve their students' interpersonal and intrapersonal relationships, they should consider cooperation-opposition games before cooperation games (Fredrickson, 2001; Waugh and Fredrickson, 2006). If players make mistakes in cooperation games, peer rejection and their own sense of guilt is greater, unlike in cooperation-opposition games, where these feelings are relativized.

Emotional Experience in Non-competitive Games or in the Presence or Absence of Competition

Both the quantitative and the qualitative analyses have shown that the variable "type of outcome" is a key aspect of emotional experience. The emotions felt vary depending on whether the player wins or loses. When winning, positive emotions are rated with higher intensity, whereas negative emotions obtain lower ratings. On the contrary, when losing, negative emotions obtain higher intensity scores, and positive emotions obtain lower scores. In non-competitive games, the pattern of outcomes for positive emotions resembles that observed in games that are won, although with lower the intensity ratings. On the contrary, the intensity ratings for negative emotions remain low, even lower when winning. It seems that the competitive factor increases players' interest and levels of satisfaction compared to non-competitive games (Chen and Darst, 2001; Serna et al., 2017). These results do not coincide with previous research (Lavega et al., 2014), which indicated that non-competitive games maintained the same pattern of scores for positive emotions as lost games, although in the case of negative emotions, the values were not as high as when losing, like in the present study. These results suggest that non-competitive games are more suitable for Physical Education classes when the children have serious difficulties performing motor skills, as children will always experience negative emotions with low intensity and positive emotions with similar patterns to motor situations when winning. The way in which Physical Education teachers structure competitive motor situations directly affects the experience of the students (Harvey and O'Donovan, 2013). It is necessary to convey to teachers the importance of making appropriate use of competition in Physical Education classes, in order to teach students to learn through competition, and not only in a competitive environment. It is as necessary to teach through games with competition as without

competition, to learn and experience a variety of motor and emotional situations.

Emotional Experiences and Sport Experience

Emotional experience (positive or negative) in young players is not significantly influenced by the practice of extracurricular physical activity, unlike the case with adolescents and university students (Gea et al., 2016). The main difference between young children and adolescents or university students may be due to the fact that, although children perform physical activity regularly, they have not been doing it for enough time for it to have created a sport experience or pattern in them. This sport pattern in adolescents and university students generates significant differences in emotional intensities (positive and negative), and these intensities are lower in players with sport experience. This shows the importance of learning emotion regulation when practicing competitive, physical activity regularly in daily life. It is about learning to manage anger when losing a decisive match, the joy of scoring a goal and sharing it with one's teammates, the fear of not performing a long jump correctly. These individuals are constantly accustomed to this type of situations with a high level of demand and emotional commitment. According to Lazarus (1991), people with and without sport experience behave and react differently because their emotions are organized hierarchically, such that the greater the importance of the objective to be reached, the greater will be the emotional intensity experienced. Players with greater sport experience grant less importance to motor situations in the educational area, because the objective is less relevant than the goal they have set for the season at the competitive level. These results show the need for teachers to transmit to their students the importance of practicing physical activity regularly throughout life, to promote not only active people but also emotionally intelligent people (Frijda, 2007; Bailey et al., 2009). In addition, physical education teachers are advised to know the sports profile of students, since it can be a variable that with their development can favorably influence the emotional experience of schoolchildren, when they participate in traditional sporting games.

CONCLUSION

Based on the results obtained, we can state that these physical education sessions are presented as a motivating learning climate for students, generating high values of positive emotional intensity independently of the motor domain, emphasizing games of cooperation-opposition, opposition, and cooperation. On another hand, the experience of negative emotions is also present, although with lower values, with the psychomotor domain generating a significantly higher intensity. These results are evidence to be considered by Physical Education teachers to determine their pedagogical practices aimed at minimizing the experience of negative emotions (Puig and Vilanova, 2011). However, when Physical Education teachers consider competitive or non-competitive games in their classes, they must also pay attention to the experience of emotions depending on their outcome. When players win, they feel considerable positive emotion, unlike in non-competitive games, which also allow them to experience emotional well-being, but with lower values. However, when players lose in competitive games, they feel negative emotions with a greater intensity, different from any non-competitive or competitive situation where they win.

Games seek the student's motor, social, cognitive, and emotional development, and the study of emotions is a key aspect. However, given the multidimensional and complex nature, not only of motor skills (Parlebas, 2001; Etxebeste, 2012) but also of emotions, social, and cognitive (Lazarus, 1991; Bisquerra, 2003; Frijda, 2007; Light, 2008), it is important to consider the findings obtained in this article as an initial contribution for early ages, which require more interdisciplinary studies.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary materials, further inquiries can be directed to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by The University Ethics Committee of the Murcia University (UM) reviewed and approved the research in accordance with the principles set out in the Declaration of Helsinki (Code: 1684/2017). Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

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New Images for Old Symbols: Meanings That Children Give to a Traditional Game

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Traditional games are considered agents of enculturation. This article explores the procedure to access the cultural meanings transmitted in a traditional game. The goal is to understand what children aged 6–11 make of the game called 'the chained bear' and to compare the meanings retrieved with those of different traditional versions of the game. For such a purpose, through an exploratory cross-sectional study, cartoons depicting people playing the game were exhibited and viewers (n = 359; age range: 6–11; Mean age = 8.79; SD = 1.81) were asked to interpret them as a drama play, as well as contributing a title, a plot and saying how they would name the characters. The results show that, beyond the individual images that each child created in their mind, most of them coincided in stories about harassment and defense and theft and protection. These plots match those of the ludic tradition, showing that the actions evoke different pictures to each individual, but share common cultural meanings in turn. The study shows a procedure to access the meanings that traditional games transmit and confirms that games contain pieces of culture, which makes them agents of enculturation.

Keywords: traditional sporting games, intangible cultural heritage, ethnomotricity, cultural meanings in games, children's culture, enculturation

INTRODUCTION

As Parlebas (2020) points out: 'Traditional games are the fruit of a history that has shaped their structures according to the values and collective representations of each region. So, we can expect that universals be in the image of the culture they belong to: Games' morphology entails cultural meaning'. Many studies have tried to investigate how games collaborate in enculturation processes (e.g., Roberts et al., 1959; Roberts and Sutton-Smith, 1962; Parlebas, 1988). In this article, following Pelegrín (1996) hypothesis of games as traditional gestural drama text, our aim is to understand the interpretation that primary school children make of a traditional game and to look for relationships with the meanings of the game in the ludic tradition. To this purpose, we posed two research questions:

- What do boys and girls interpret when observing the development of a traditional game as if it were a drama performance?
- Do their interpretations have any relation with the plots of the ludic traditions as reflected in the old titles of the games and rhymes that accompanied them?

The initiative, led in the middle of the 20th century by Murdock (1940), to create a database ('Cross-Cultural Survey Files') with monographs on different cultures of the planet enabled several comparative studies about different cultural topics. As far as games are concerned, he promoted studies seeking relations between the types of games developed in each cultural context and the culture of reference (e.g., Roberts et al., 1959; Roberts and Sutton-Smith, 1962; Chick, 1998; Peregrine, 2008). Later studies would show that those classifications on which the above research was based could even be more complex (e.g., Parlebas, 1988) and that the complexity of the cultural plots showed limitations in this type of correlations (Mkondiwa, 2020). In any case, as to the old suggestion that games could be an agent of enculturation, formulated by Malinowski in his first ethnography of 1922 (Malinowski, 2014), all these studies advanced an idea that Parlebas (1988, p. 114) summarizes well by saying that 'when playing, children learn their social universe, unknowingly witnessing the culture to which they belong.'

Although the socialization mechanisms have been well-defined in a number of educational psychology studies (e.g., Elkonin, 2005; Bruner et al., 2017), the mechanisms to understand certain cultural values and meanings through play still remain unclear (Mkondiwa, 2020). To access said cultural meanings, linguist and semiologist Ana Pelegrín suggests that games may be analyzed as drama plays, since they may transmit certain cultural messages. This hypothesis may be supported in cultural psychology works such as Elkonin (1985) when highlighting that, in children's evolution, access to rules is gained through plot-based dramatized play (inspired by Vygostky, Elkonin, 2005, would delve into the issue of symbolism and the relationships among the object, the word and the action in play). Moreover, Pelegrín's proposal would inspire in symbolic anthropology (Turner, 1974) when highlighting that the ritualized gesture remains in the repertoire of traditional gestures, as successive players repeat the non-verbal code types transmitted with as many transformations as the group may recreate and with the inherited symbolic implications. But what are those inherited 'symbolic implications' suggested by Pelegrín or the 'cultural meanings' mentioned by Parlebas? Can we access them?

Much is the literature in which play is picked as a metaphor to describe different life and social situations (e.g., Khayyam, 2003; Tan, 2006; Cortázar, 2008; Gracián, 2014). Different aspects of life are frequently compared with play (Gozzi, 1990). In turn, games and sports have been analyzed as metaphors of different cultural aspects (e.g., Ching, 1993; Jansen and Sabo, 1994; Segrave, 2000; Geertz, 2009). Crawford (2003, p. 29) and Parlebas (2008), each of them from a different viewpoint, seem to agree that play, in some sense, represents something from the non-play universe and therefore is a metaphor. As pointed out by Murray (1997, 136) 'games can also be read as texts that offer interpretations of experience.' This is the path pursued by Pelegrín and which we are using in our study: considering the 'ludic scene' as a non-verbal representation of a storyline to be interpreted by spectators upon request so that, their interpretations may later be compared with the titles and children's songs of ludic tradition. For such a purpose, we are choosing a game that has left a historical trace in Europe (as area of cultural diffusion, e.g., Gillmeister, 2009;

Lidström and Bjärsholm, 2019; O'Brian, 2019) since the 1st century at least. We are talking about a game that has been called *navero,* 'chained bear' (Pelegrín, 1996) or 'the bear and its guardian' (Parlebas, 2008), similar to 'frog in the meadow' or 'frog in the middle.' Pelegrín (1998) has found documentary evidence of the game in different paintings and literary works since the 16th century. As for Parlebas (2008), he has tracked its presence in frescos of Pompeii (dated back to the 1st century), a sarcophagus in the Vatican (3rd century), in Bruegel's artwork (16th century) and in a tapestry in Paris (18th century) (**Figure 1**).

A round of this game would consist of one player crouching in the middle, by whom another player stands touching the crouching one's head. The other players stand out of reach of these two. Those out-of-reach players attempt to touch the crouching one while avoiding being touched by the standing person to the side. Where any of these players gets touched by the standing one, they will have to assume the crouching player's role. In some traditional versions of the game the link between the crouching player and his or her defender is established with a rope that marks the defender's radius of action. In other versions, it is a circle marked on the ground that demarcates the defender's movement.

MATERIALS AND METHODS

Design
Given that this is a first approach to this phenomenon, an exploratory study (Singh, 2007) has been chosen and, in order to know its manifestation at different ages, a cross-sectional design has been developed (Cohen et al., 2012).

Participants
The sample was selected by non-probabilistic convenience sampling. A total of 359 schoolchildren from three Spanish cities took part in this study (18 groups of children from 6 grades of primary education, **Table 1**).

The cities in which the information was collected are cities of different sizes (one of 160,000 inhabitants, another of 500,000 inhabitants and another of 6 million inhabitants). In the three schools, located in middle-class neighborhoods of the respective cities, the students belong to varied socio-cultural contexts (in all three, there is a mixture of families with higher, middle and lower educational qualifications). Two of the schools in the sample were chosen because two of the researchers have been working there on a weekly basis for years. The school in the big city was chosen because one of the researchers worked there.

None of these children knew the game in advance.

Informed consent was duly obtained from their schools and families. The study was approved by the Ethics Committee of the University of Valladolid (code: PI 19-1920NOHCUV) in accordance with the Declaration of Helsinki.

Instruments
Based on previous studies (Segrave, 2000; Elkonin, 2005), a video of some characters playing the game was elaborated. This game was chosen because of the possibilities of tracing it throughout

FIGURE 1 | Different representations of the 'chained bear.' The gestures have remained the same for centuries, could some parts of the unrevealed symbolic plot be maintained as well?

history. This facilitates the comparison of the students' opinions with tradition. After viewing such a video, participants were asked to answer some questions about the video on a worksheet.

- Three phases were followed in the elaboration of the video used.

First: filming. The characters filmed were university students. With the aim of reducing any potential bias, all characters were dressed in the same colors (sports clothes without logos or prints) and showed neutral facial expressions. The image background was a light color wall on which the actors' figures stood out. The video showed a group made up of 5 individuals. One of the individuals was in a crouch. Another person, standing beside the crouching one, was touching the latter's head. Finally, the three remaining individuals were standing around these two. These three individuals, forming a semicircle, would attempt to get closer to the crouching character and try to touch them, while avoiding being touched by the one standing by.

Second: the video was transformed into cartoons through an image processing application (*Clips* app).

Third: The video was previously tested with two focus groups of 20 children aged 7–9 ($M = 8.5$, $SD = 0.93$; $M = 8.4$; $SD = 0.95$). Participants had to watch the video twice and, after that, give a title to the scene, describe the storyline and name the characters. In this previous test, actions, facial gestures or clothing did not reveal significant bias. Also, the video was provided with the proper length for viewers to capture the necessary information without becoming tired or distracted.

- The data collection worksheet was elaborated from the analysis categories suggested by Pelegrín (1998), including a schematic drawing of the players (without facial expressions or specific clothes) and some sections for the children to add a title to the video, write a brief narration of what was happening and a description of the relationships between the characters, name the different characters and rate their actions as "good" or "bad." After its initial design, this instrument was validated by 5 experts (Fleiss' κ = 0.95). Following the procedure proposed by Escobar-Pérez and Cuervo-Martínez (2008), each section of the worksheet was evaluated ("does not meet the criterion," "low level," "moderate level," and "high level") in three aspects (clarity, coherence, and relevance). Following that, the worksheet was tested on a focus group of 15 children aged 7 and 8 ($M = 7.81$; $SD = 0.53$) and the necessary amendments were made. The new changes were again validated by a group of 5 experts (Fleiss' κ = 1). The drawing of the first version showed people with neutral facial expression, even so, some children attributed emotional states to them; to avoid this, the drawings were replaced by human silhouettes without facial expression. Furthermore, in the preliminary test it was found that the space for the answers could be small given the size of the children's font (**Figure 2**).

Procedure

The physical education teachers, together with the researchers, designed a teaching unit about traditional games. The initial task of the first lesson consisted in collecting the students' opinions about the meanings they gave to the game of "chained bear" after watching a video in which some people played it. After this task, the students play the game themselves and, in teams, modified some rules to make it more inclusive and safer.
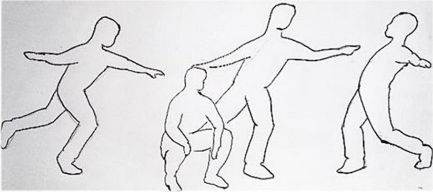
Data collection was performed in the classrooms of the different schoolchildren involved, as follows:

- A researcher explained to the group that they were going to watch a story on video. After that, they would have to find a title for the story and tell what they thought was happening there, while insisting that there was not any right solution and that it was just a way to see what each of them had in their mind.

TABLE 1 | Sample data.

Grade	n	Mean age (SD)	Boys	Girls
1° grade	58	6.31 (SD = 0.63)	32 (55.17%)	26 (44.83%)
2° grade	56	7.34 (SD = 0.59)	31 (55.36%)	25 (44.64%)
3° grade	62	8.41 (SD = 0.58)	30 (48.39%)	32 (51.61%)
4° grade	64	9.21 (SD = 0.64)	33 (51.56%)	31 (48.44%)
5° grade	60	10.32 (SD = 0.54)	26 (43.33%)	34 (56.67%)
6° grade	59	11.15 (SD = 0.66)	30 (50.85%)	29 (49.15%)
Total	359	8.79 (SD = 1.81)	182 (50.7%)	177 (49.3%)

FIGURE 2 | English version of the worksheet used for data collection.

- The video was played for the first time.
- The children were reminded that they should find a title which reflected what was happening in the story and that they could think of the role each actor was playing.
- Next, the children watched the video for a second time.
- Followingly, they were given out sheets and explained their different sections.

The researchers and the teachers were watchful of any children with difficulties to understand the task or even to write (specially the children aged 6–7). Many participants left questions unanswered (each child left different questions unanswered). After confirming that they had properly understood the task, some pupils simply did not know what to answer and were allowed to write a response to any questions that they wished in order to avoid forced answers.

TABLE 2 | Names given by the study participants to the different characters, sorted out by ages and the positive or negative rates awarded.

Characters' names given by the 6-year-olds

Attackers				Defender				Crouching player			
Positive		Negative		Positive		Negative		Positive		Negative	
Name	No.	Name	No.	Name	No.	Name	No.	Name	No.	Name	No.
'Saviors'	5	Spies'	3	'Protector'	5	'The evil one'	4	'Boy'	4		
'The good ones'	3	'Superpunches'		'Carer'	4	'Wolf'		'Girl'	2		
'Touchers'	3	'Punches'		'Squire'	3	*'Push-asider'*		'Baby'	3		
'Blowing colors'		'Iron fist'		'Defender'	2	'Guard' 3	3	'Princess'			
'Children playing'	2	'Fire fists'		'Guardian'	6	'Witch' 3	3	'Sleepyhead'			
'Twisters'		'Thieves'	4	'Police'	6	'Dragon'		'The sick one'			
		'Attackers'	3	'Father'	3			'Mate'	3		
		'The evil ones'	5	'Mother'	2			'The drowned one'			
		'Mosquitoes'	2	'Guard'				'Snowman'			
		'Bees'		'Wind'				'Turnip'			
		'Wolves'	4	'Spinning girl'				'Flower'			
		'Mice'		'Protecting kid'				'Bloke'			
		'Pirates		'Cat'				'Lightbulb'			
								'The good one'			
								'Dog'	4		
								'Puppy'			
								'Frog'	2		
								'Owl'			
								'Food'			
								'Cheese'			
								'Treasure'	2		
								'Lion'			
								'Bear'			
15 (25.86%)		28 (48.27%)		36 (62.06%)		13 (22.41%)		36 (62.06%)			

Characters' names given by the 7-year-olds

Attackers				Defender				Crouching player			
Positive		Negative		Positive		Negative		Positive		Negative	
Name	No.	Name	No.	Name	No.	Name	No.	Name	No.	Name	No.
'Touchers'	2	'The evil ones'	3	'Mosquito hunter'		'Toucher'		'The good one'	2		
'Adults'		'Enemies'	3	'The good one'	2	'Guard'	2	'The little one'			
'Parents'		'Dog attackers'	3	'Guardian'	6	'Doctor Flux'		'Mate'	2		
'Children'	3	'Thieves'	5	'Defender'	7	'Warden'		'Rock'	2		
'Happy girls'		'Attackers'	6	'Shield'		'Monster'		'The sleepy one'			
'Supergirls'		'The evil ones'	3	'Protector'	4			'Kid'	6		
'Girls playing with a dog'		'Fools'		'Toucher'				'Girl'	3		
'Sailors'		'Murderers'	2	*'Touchator'*				'Baby'	3		
'Fishers'		'Fight'		'Superman'				'Food'			
'Incredibles'		'Wolves'	2	'Civil guard'				'Frog'	2		
'Rescuing cops'		'Skeletons'		'Kid'				'Dog'	8		
'Rescuers'		'Monsters'		'Dog owner'				'Fish'			
		'Pirates'		'Animal-protecting guardian'				'Machine'	2		
		'Mosquitoes'	3	'Dog guardian'				'Treasure'	4		
				'Dog-protecting kid'				'Prisoner'	3		
				'Spider'	2			'The sick one'	2		
15 (26.78%)		35 (62.5%)		32 (57.14%)		6 (10.71%)		43 (76.78%)			

Characters' names given by the 8-year-olds

Attackers				Defender				Crouching player			
Positive		Negative		Positive		Negative		Positive		Negative	
Name	No.	Name	No.	Name	No.	Name	No.	Name	No.	Name	No.
'Touchers'	2	'Infectors'		'World savior'		'The evil one'	2	'King'	2	'The jailed one'	
'Children'	2	'The evil ones'	4	'Soldier'		'Terrorist'		'Queen'			
'Treasurers'		'Aggressors'		'Catcher'		'Kid'		'Princess'			
'The good ones'		'Disturbers'		'The good one'	2	'Witch'		'Beautiful house'			
'Prisoner's friends'		'Attackers'	12	'Kid'	2			'Kid'	10		
'Children'	4	'Punchers'		'Protector'	8			'Baby'	2		
'Girls'		'Teasers'		'Batman'				'Mate'			
'Parents'		'Mosquitoes'	2	'Defender'	9			'The good one'			
		'The *pain-in-the-necks*'		'Guard'	4			'Trapped kid'			
		'Thieves'	6	'Referee'				'Protected kid' 'Scared kid'			
		'Muggers'	4	'Guardian'	8			'Prisoner'			
		'Wolves'		'Doctor'				'Treasure chest with golden coins'			

(Continued)

TABLE 2 | Continued

Characters' names given by the 8-year-olds								
Attackers				**Defender**				**Crouching player**		

Positive		Negative		Positive		Negative		Positive		Negative	
Name	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**
		'Lions'	3	'Father'				'Chest'			
		'The Creeper'		'Mother'				'Treasure'	4		
		'Family'		'Dog owner'				'Jewel'	2		
		'Thieves' family'		'Galactic guardian'				'Energy stone'			
		'Attackers from the future'						'The protected one'			
		'Tornado'						'The annoying one'			
		'Kooks'						'Defenseless man'			
		Botherers						'Captain America'			
		'Galactic fighters'						'The weak one'			
								'Precious stone'			
								'Table with food'			
								'The secret'			
								'Frog'	2		
								'Dog'	5		
13 (20.96%)		45 (72.58%)		43 (69.35%)		5 (8.06%)		47 (75.8%)		1 (1.61%)	

Characters' names given by the 9-year-olds								
Attackers				**Defender**				**Crouching player**		

Positive		Negative		Positive		Negative		Positive		Negative	
Name	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**
'Friends'		'Thieves'	6	'Cop'	2	'Bad hoarding child'		'Roman king'		'Burglar'	
'Two generous children'		'Children'	2	'Protecting man'		'Devil'		'King'	2	'Local traitor'	
'Superheroes'		'The evil ones'		'Protector'	6			'King's defender'		'Magic stone with powers to transform you'	
'Family'		'Deer hunters'		'Mother'				'Friend'	2		
'Girls'		'Kidnappers'		'Defender'	12			*Silly-person*			
'Runners'		'The *pain-in-the-necks*'		'Lifesaver'				'Prisoner'			
		'Attackers'	11	'Doctor'				'Prisoner'	5		
		'Bullies'		'Carer'	2			'Kid'	6		
		'Harassers'		'Guardian'	7			'Sad kid'			
		'Pesterers'		'Guard'	4			'Kid whose' watch others' want to steal'			
		'Mosquitoes'		'Magician'				'Little thing'			
		'Crazy catchers'		'Kid'				'The sick one'			
		'Gluttons'		'Protecting kid'				'The weak one'			
				'Child that has gone kind'				'Scared deer'			
				'Helping kid'				'Bull'			
				'Catcher'	3			'Frog'			
				'Cook'				'Dog'			
				'Seller'				'Father's money'			
				'Gardener'				'Last *rukifruc* (worth a fortune)'			
								'Golden statuette with powers'			
								'Golden stone'			
								'Wedding ring'			
								'Special thing'			
								'Star'			
								'Lucky statue'			
								'Valuable stone'			
								'Diamond'			
								'Stone'	2		
								'Food pot'			
								'Chocolate'			
								'Food'			
								'Cabbage'			
6 (9.37%)		29 (45.31%)		48 (75%)		2 (3.12%)		44 (68.75%)		3 (4.68%)	

Characters' names given by the 10-year-olds								
Attackers				**Defender**				**Crouching player**		

Positive		Negative		Positive		Negative		Positive		Negative	
Name	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**	**Name**	**No.**
'Children'		'The evil ones'	2	'Friend'	14	'The evil one'		'Kid'		'Hostage'	
'Cops'		'Evildoers'		'Defender'	14	'Buddy'		'Friend'	2	'Thief'	
		'Wrongdoers'		'Carer'	4	'The touchy one'		'Mate'		'Magnet stone'	
		'Thieves'	6	'Protector'	10			*Defendman*			
		'Attackers'	16	'Guardian'	5			'Cutie'			
		'Buddies'		'Catcher'	2			'Hostage'	4		
		'Children'	2	'Children'	4			'Prisoner'	5		
		'Virus carriers'		'Doctor'				'Prisoner girl'			
		'Viruses'		'Beekeeper'				'Boulder'			
		'Harassers'						'Flag'			

(Continued)

TABLE 2 | Continued

Characters' names given by the 10-year-olds											
Attackers				Defender				Crouching player			
Positive		Negative		Positive		Negative		Positive		Negative	
Name	No.	Name	No.	Name	No.	Name	No.	Name	No.	Name	No.
		'Bullies'						'Jewel'			
		'Twister'						'Power stone'			
		'Wisecracks'						'Base'	2		
		'Hagglers'						'Sheep'			
		'Idiots'						'Dog'			
		'Bear'						'Frog'	3		
								'Penguin'			
								'Pineapple'			
								'Honey'			
2 (3.33%)		38 (63.33%)		42 (70%)		3 (5%)		30 (50%)		3 (5%)	
Characters' names given by the 11-year-olds											
Attackers				Defender				Crouching player			
Positive		Negative		Positive		Negative		Positive		Negative	
Name	No.	Name	No.	Name	No.	Name	No.	Name	No.	Name	No.
'Mate'		'Thugs'		'Mate'	4	'Abductor'		'Mate'	2	'Statue'	2
Touchator		'Thieves'	4	'Friend'		'Monster'		'Friend'		'Magnet'	
'Parents'		'Attackers'	15	'Doctor'				'The one everybody tries to kill'			
'Horses'		'Aggressors'		'Bodyguard'	6			'Protected'	4		
'Children playing'	9	'Fidgeters'		'Defender'	14			'Kid'	6		
Head-poker		'Guys who are trying to kill'		'Shepherd'				'Kidnapped kid'			
		'Murderers'		'Guardian'	10			'Prisoner'	2		
		'Bullies'		'The bitter one'				'Victim'			
		'Wolves'		'Mr *do-not-let-others-ride-the-mare*'				'Treasure'	4		
		'Children'		'Catcher'	6			'Sheep'			
		'Fans'						'Donkey'			
		'Horses'						'Mare'			
								'Frog'	2		
								'Famous frog'			
								'Diamond frog'			
								'Flag'			
								'Valuable rock'			
								'Golden stone'			
								'Meteorite'			
								'Statue'			
								'Doorbell'			
14 (23.72%)		29 (49.15%)		45 (76.27%)		2 (3.38%)		35 (59.32%)		3 (5.08%)	

During their explanations, the researchers avoided using words which could contain connotations about the characters or the situation (e.g., 'attacker,' 'defender,' 'protect,' etc.), thus restricting themselves to define them just by their location in the space.

All groups completed the task in less than 15 min.

Analysis

The results were sorted out in a table by ages. Atlas.ti 8. software was used to facilitate the categorization and analysis of the content. The analysis of results followed Pelegrín (1996) proposal to study the semantic and pragmatic planes of the subjects' interpretations in a contrast between the level that Turner (2005) calls exegetic (the subjects' own perspective) and the positional one (the researchers' interpretation to unveil the meaning). In this case, a positional analysis would lie in the contrast between the subjects' interpretations and the traditional ludic plots or maps as collected in Pelegrín's works (1996, 1998). Independent significance analyses were performed by each of the researchers and consistency amongst researchers was tested (Concordance = 98.2% [no. agreements − no. disagreements) × 100/Total no. of concepts]). According to Van Dijk (1990), these plots, maps or frameworks denote a certain conceptual structure in semantic memory and represent a part of our knowledge about the world, relating convention to experience. Following this author, discourse shows not only cognition, but also the speaker's cultural contexts of reference.

RESULTS

With the aim of enhancing the exhibition and discussion of the results, we shall refer to the person in a crouch as the 'crouching person or player,' the standing person next to the latter as 'the defender' and the rest of the participants as 'the attackers'.

Table 2 shows the names given by the study participants to the different characters, sorted out by ages and the positive or negative rates awarded.

As can be seen, there is a wide range of names, as well as negative and positive ratings for the characters. In all ages, the widest range of names can be found in the crouching player's column, despite the fact that they do not actually move. The largest number of ratings can be found between 8 and 9 years old.

Images evoke different associations in each observer, some of which reflect the current cultural environment of these children ('pirates,' 'batman,' 'galactic fighters,' etc.).

Among the children who have provided an answer, the crouching player is hardly ever associated with negative values.

The attackers tend to be perceived as negative and the defender is mostly regarded as positive.

The crouching player: this character has been given names that relate to their size and position ('dog,' 'frog,' 'stone,' 'kid,' 'baby,' 'snowman,' etc.), on their defenselessness and trapped nature ('baby,' 'the sick one,' 'the weak one,' 'prisoner,' 'defenseless man,' 'scared kid,' etc.), on a possible connection with power ('king,' 'queen,' 'princess,' 'bear,' 'bull,' etc.), or with worth ('gold,' 'jewel,' 'diamond,' 'treasure,' etc.) and on something to be stolen ('food,' 'cheese,' 'turnip,' 'cabbage,' etc.). Some children have explained the fact that attackers feel attracted to touch the crouching player by defining the latter as a magnet, or else a powered or a magical stone which transforms everybody who touches it.

Attackers: most meanings awarded to these characters are associated with harassment and aggression ('mosquitoes,' 'fire fists,' 'bees,' 'wolves,' 'bullies,' 'stalkers,' 'fans,' etc.), theft ('thieves,' 'mice,' 'pirates,' 'kidnappers,' etc.) or, on the contrary, rescue ('family,' 'friends,' 'rescuers,' 'saviors,' 'cops,' etc.).

Defenders: this character is usually regarded as a protector or carer ('doctor,' 'father,' 'mother,' 'shepherd,' 'protector,' 'defender,' 'protecting kid,' 'carer,' etc.), or even as a keeper ('cop,' 'beekeeper,' 'guardian,' 'guard,' 'gardener,' 'seller'), although this last connotation can also be regarded negatively ('warden,' 'abductor,' 'bad hoarding child,' 'witch,' 'terrorist,' etc.).

These names define the main plot lines and themes: protection and defense against harassment, defense of property, person or animal, and rescuing someone who has been captured. However, there are some troubling themes imagined by participants, in which the attackers see themselves attracted to their ruin by the central characters. As shall be analyzed below, these plots match different versions of this game in the ludic European tradition.

DISCUSSION

Games are considered enculturation agents. This study explores how to potentially transmit culture through play. Following Pelegrín (1996) hypothesis of games as traditional gestural drama text, our aim is to understand the interpretation that primary school children make of a traditional game and to look for relationships with the meanings of the game in the ludic tradition.

In this section, we shall compare our results with the document sources cited, especially Pelegrín (1996, 1998), with the aim of analyzing whether this game can show some permanent meanings.

The crouching character is a major focus of attention, as happens in the tradition (Pelegrín, 1996). This character is the central part of the scene, where all players' actions converge. Their importance is evidenced by the fact that this character appears in the title of many of the traditional versions of the game ('chained bear,' 'pot,' 'penguin,' cucula, 'frog in the middle'). The connotations awarded by the subjects are similar to the traditional ones. The character's defenselessness (poiré, 'kid,' and 'attacked'), worth ('honey pot,' 'fruit,' and 'vegetable') or power ('chained bear,' 'tied bull,' cucula, and 'chained devil'), as well as some other specific names of the ludic tradition match those

awarded by the subjects ('kid,' 'frog,' 'penguin,' 'honey,' 'bull,' 'turnip,' and 'cabbage').

The meanings given to the attackers are also related to those of the ludic tradition ('thieves,' 'attackers,' and 'aggressors'), except the connotation provided by some of the subjects of this study as rescuers or helpers of the crouching player. It could be inferred that, even though this scene can be construed like this when observed as a representation, when analyzing it as a game, it can be clearly appreciated that the attackers' aim is not to help, despite the fact that their actions result in an indirect way of helping (they put themselves at risk and, if they are captured, replace the crouching character in their position). This new view introduced by the participants of this study may be revealing a cultural change, according to the process described by Elschenbroich (1979) or Elias and Dunning (1992) in other forms of physical practices. Strong and aggressive contact was most frequent in traditional games (V. A., 2001) and, in fact, games played in a circle around a central character were likely to end up in harassment and mockery ('botfly,' 'guess who poked you,' 'amusement,' poiré; V. A. 2001, Pelegrín, 1998).

Furthermore, the defender is usually conceived by the ludic tradition as a protector and guardian in the shape of the owner of the 'bear,' 'the owner of a monkey,' 'truck gardener,' 'gardener,' 'seller,' or 'guardian of the pot' (Pelegrín, 1996, 1998). However, the tradition does not show any negative connotations about this character (at least, directly).

The plot lines and themes, to wit, protection and defense against harassment, defense of property, person or animal, and rescuing someone who has been captured, match those of the ludic tradition. That does not happen with the idea of helping the captive. Bonhome (1989, op. cit in Pelegrín, 1996) deduces that the game layout may evoke certain rites of Ancient Greece and Rome, where a messenger from hell would transfer their powers to whomever touched them, something represented by the participants when they called the crouching person a 'statue,' 'magnet,' or 'stone which transforms you,' guarded by a 'witch,' 'monster,' or 'devil'. As indicated by Pelegrín (1996, p. 96), play is a reflection of 'inexhaustible ancient images full of symbolism; even when their meaning is uncertain, symbols open a vast network of possibilities for imagination.'

The results show that the actions evoke a different image in each person. Nonetheless, the plot meanings seem to be reduced to just a few ones, common amongst the participants and also to those of the tradition. Beyond any personal connotations, common cultural patterns and shared meanings can be perceived, which evidences that these traditional meanings exist in our society, since, as suggested by Turner (2005) they are still understandable and recognizable by children nowadays.

This experiment would contribute evidence to Pelegrín's hypothesis: traditional games evoke cultural images, stories and meanings through spatial and gestural display. That is where one of the values of preserving traditional games arises, since, as stated by Parlebas (2001, p. 223), 'games are in accordance with the culture which they belong to, especially as regards the features of their internal logic, features that illustrate values and symbols underlying the said culture.' This is possibly due to the

fact that play always revolves around interpersonal relationships and their social-historical background, as suggested by Elkonin (1985) and Vygotsky (2016).

Besides, this study shows a procedure to access some of these meanings evoked in the participants by the ludic actions. To better understand these meanings, the plot lines of the game should be addressed from concept frameworks such as those used by Propp in the study of tales, which has already been used to analyze symbolic games (Navarro, 2005).

This could be suggested as a future line of research in view of the existing relationship between meanings and emotions. A relation has been found between certain types of games and certain emotions (Lavega et al., 2014; Hedegaard, 2016; Alcaraz-Muñoz et al., 2020) and future studies could perfectly address links between the meanings of the games and the emotions awakened in participants (following Turner's (2005), notion of symbols as stimuli of emotions).

Although the study shows that children observe common cultural patterns and shared meanings with the tradition from observing the game, it remains to be seen whether these meanings are the same when observing a game and when playing the game. Cultural immersion is a process in which both phases (first observation and then participation and transformation) normally occur, but this question opens up new directions for inquiry. Nowadays, we are studying how perceptions toward a game becomes different once it has been played, in other words, how participants call the game itself and the different roles played in it.

DATA AVAILABILITY STATEMENT

The original contributions generated for this study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Valladolid University Ethics Committee. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

AG-M: theoretical background and design. AG-M, HR-N, and DB-G: data collection, data analysis, and writing of the final manuscript. All authors contributed to the article and approved the submitted version.

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Sports Teaching, Traditional Games, and Understanding in Physical Education: A Tale of Two Stories

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Unlike Dickens's novel, this is not a tale of light and darkness, order and chaos, good and evil... It is, though, a story worth to be told about two standpoints about games and sports, teaching and research, physical education simply put, that have pursued similar interests on parallel tracks for too long, despite their apparent closeness and shared cultural grounds. The objective of this conceptual analysis is to try and reconcile two perspectives, namely motor praxeology and teaching games for understanding (TGfU), born in the last third of the XX century in France and England with the intention to rethink the foundations of physical education (PE) and sports teaching. Pierre Parlebas, from the French side of the English Channel, claimed in 1967 that sports make part of PE, that team sports must be considered from a specific, sociomotor point of view, and that motor conducts (i.e., the significative organisation of motor behaviour), not sports techniques, are the corner-stone of PE and sports coaching. In the early 1980s, from the English side of La Manche, Almond, Thorpe, and Bunker made a plea for a shift in the way to teach games (sporting collective duels mostly), deeply concerned by the negative impact of the traditional technics-centred approach on motivation, competence and attained level of the least able in school situations. Our conclusion is that TGfU, or game-based approaches to sports coaching and teaching, can take great advantage of the motor-praxeological rationale for three reasons: firstly, because concepts like understanding, game sense and action principles are operatively, semiotically linked to the reality of the playing process; secondly, because the inner structures of the games that constrain players and guide their motor conducts, permit to integrate games in the general system of sporting games, no matter their level of institutionalisation; finally, because any motor intervention process is better thought of and more systematically developed upon the operational concepts of internal logic and expected practical effects of game playing. This time, Paris could be the place to go to in search of solutions, not the city to run away from in hope of consolation.

Keywords: traditional game, physical education, philosophy of sport, learning transfer, motor praxeology, TGfU, semiotricity

GAMES, TRADITIONS, AND PHYSICAL EDUCATION

Traditional sporting games, those activities collected by Brueghel the Elder (1560), Stella (1657); Gomme (1894), and Grupos Etniker Euskalerria (1993), constitute a major asset for physical education (PE) in three ways at least: *epistemologically*, they allow us to think about what human action and motricity are in relation to culture, history, and society; *pedagogically*, they let us consider what our options are when proposing aims and designing curricula; and *didactically*, they impel us to question what our resources can be when teaching in PE and sports. The troubled waters of the 1960s, a decade that started with the fall of an "iron curtain" and finished with the rise of humankind to the moon, also stirred the way games and sports were considered on both sides of the English Channel in regard to PE. In this sense, we intend to reflect on those three topics while trying to find an answer to a question we have put some thought on lately: Why are traditional games absent from the Teaching Games for Understanding (TGfU) rationale?

In *mai 68*, another revolution was *en marche* in the Midlands that would definitively affect for the better the way that hundreds of thousands of pupils around the world confront games and sports at schools. It is well known how Thorpe et al. (1986; Sánchez-Gómez et al., 2014) gathered in Loughborough a group of PE teachers, lecturers, and scholars concerned by the way *games* were being used in primary and secondary schools. Over time, that project developed by "the games team" became one of the most recognisable currents in contemporary PE and an inspiration for interesting academic debates, no matter how close they may be to the original project (Kirk, 2017). Presented originally by Thorpe and Bunker as a model for teachers, TGfU's six phases of instruction is a fruitful combination of pedagogical concerns, didactical needs, and theoretical reflections that harnessed and channelled the interest of many PE professionals in the English-speaking world. On his part, Pierre Parlebas spent *the Beatles decade* in Paris lecturing and training Olympic athletes at the *École Normal Supérier d'Éducation Physique* (Parlebas, 2014) and getting a degree in psychology and other minor qualifications in sociology, linguistics, and mathematics to develop the project of a scientific physical education sketched in his first, visionary paper: *Éducation physique et éducation philosophique* (Parlebas, 1959). Twenty-five years later, he successfully applied for the position of professor at the Faculty of Sociology of *La Sorbonne*, after having obtained at it his state doctorate claiming, in front of an egregious panel, that "sporting game and motor action belong to a specific field of research endowed with an original scientific pertinence" (Parlebas, 1985b, p. 90). In proving so, he has given us the conceptual and methodological resources to act and reflect on PE in the form of a scientific framework, and enough evidence of the richness and importance of motor traditional games for school pupils, university students, PE practitioners, and coaches alike (Parlebas, 1985a, 1998, 2001, 2003a,b, 2010a,b).

Unlike Dickens's novel, this is not a tale of light and darkness, order and chaos, good and evil... It is, though, a story worth to be told about two perspectives on games and sports, on teaching and research, on physical education simply put, which may have been inspired by similar aims, but driven on parallel tracks for too long despite their geographical closeness and shared historical backgrounds. Therefore, our main objective is to try and articulate two perspectives, namely, "teaching games for understanding" (Thorpe et al., 1986) and "motor praxeology" (Parlebas, 2013), both born in the last third of the twentieth century to *rethink* the foundations of physical education (PE) and sports teaching. It is somehow a *what if* kind of story in the vein of Stolz and Pill (2016), a fictional game sometimes, but not useless nor stupid: *What would TGfU be like today if Thorpe, Bunker, Almond, and Parlebas had met at the right time?* As we hope to prove, this is a pertinent search of conceptual clarification and mutual enrichment in which those humble, youthful traditional sporting games play a key role when looking into three main questions of PE and TGfU: what those activities we call games are, what the consequences of their inclusion in PE can be, and what the principles for their teaching should be.

ON GAME'S DEFINITION AND GAMES' CATEGORIES

Game and *sport* are extremely polysemic words. Probably not by chance did Wittgenstein chose "game" to illustrate his theory of meaning: "Consider for example the proceedings that we call 'games.' I mean board games, card games, ball games, Olympic games, and so on. What is common to them all? – Don't say: 'There *must* be something common, or they would not be called *games*' – but *look and see* whether there is anything common to all. – For if you look at them you will not see something that is common to *all*, but similarities, relationships, and a whole series of them at that" (1953: Wittgenstein, 1963, p. 31). Wittgenstein claimed that we can use a word properly without being able to produce its proper definition, as we do with numbers. However, competent use of a word is just the first level of *clarity* we can attain, as Charles S. Peirce believed: "Merely to have such an acquaintance with the idea as to have become familiar with it, and to have lost all hesitancy in recognising it in ordinary cases, hardly seems to deserve the name of clearness of apprehension" (Peirce, 1878, p. 2). Peirce, possibly the greatest North American philosopher, identified *definitions* as the second level of clarity: "By the *contents* of an idea logicians understand whatever is contained in its definition. So that an idea is *distinctly* apprehended, according to them, when we can give a precise definition of it, in abstract terms" (Peirce, 1878, p. 3).

TGfU is a real academic endeavour (Werner and Almond, 1990; Hopper and Bell, 2001), but it is hard to find in its vast literature a proper discussion about what is understood when the word "game" is uttered in this field, no matter how consistent the use of the word "game" may be. The members of the *games team* were committed to the practice of PE but did not lack influence and inspiration by key academics, such as the philosopher Bernard Suits, the educational thinker Lawrence Stenhouse, and the psychologist Jerome Bruner (Harvey et al., 2018). Precisely, Bernard Suits, whose *What is a game?* (1967) and *The Grasshopper* (1978) are still today fruitful in the philosophy

of sport, has been acknowledged as a major influence in the construction of TGfU, which makes this apparent absence of reflection on the nature of game even more intriguing, and certainly due to something else than lack of awareness or interest. It looks like the early authors of TGfU did not need to define *what a game is* because everybody knew *what we are talking about*: "Physical activities using an object that are played in society, for example football, tennis, golf, and softball" (Hopper and Bell, 2001, p. 14), or, as Mauldon and Redfern said in their *Games teaching*: "An activity in which a minimum of two people, themselves on the move, engage in competitive play with a moving object within the framework of certain rules" (Mauldon and Redfern, 1969, p. 1).

Nonetheless, the inquiry on the nature of game-playing is as controversial as helpful for PE thinkers in terms of curriculum building and teaching practice because it is not a simple one: Suits declared that "play, game, and sport" are a *tricky conceptual triad* (1988) when it comes to characterising different ludic experiences and activities, so tricky as to lead him and his contender Meier (1988) to commit in Schneider's opinion a "category mistake" (Schneider, 2001, p. 151). The Gordian problem of game's definition was resolved by Parlebas with a clear-cut, new referent: "For us, a sporting game is any motor situation of regulated confrontation, so-called 'game' and 'sport' by social organisations. [. . .] Certainly poor regarding its notional content, this definition serves mainly identifying purposes, pointing at repertoires of practices proposed by federal or educational organisations" (Parlebas, 1986, p. 46), and leading to some interesting *logical* consequences: board games, like chess, are not sporting games; sporting games are legal entities that regulate human motor action; and playing tags and playing football belong to the same category of "sporting game," no matter their level of institutionalisation.

As shown in **Figure 1**, "ludomotricity" (Parlebas, 1999, L:56)[1], the total of situations associated with playful motor situations, can be categorised using a few but distinctive traits, giving as a result what Parlebas described as a *spectacular ludorama* (Parlebas, 2008):

- Swimming, jogging, skating, etc., are free, self-organised actions that impose no restriction whatsoever on the agents, reason why they cannot be properly called games, but "quasi-games."
- Hand clapping games, like *My mummy sent me shopping* and *A sailor went to sea*, or more recent games like *the cup challenge*, are the minimum expression of the class "motor game," that is, activities that impose on the players prefixed bodily behaviours that can be valued accomplished or not without establishing a true competition, that is, without calls by referees or umpires.
- Athletics, football, tennis, and the likes are "sports": institutionalised motor competitions, sporting games with

constitutive rules for players and roles for rules-making and disciplinary action.

- The largest part of "sporting games" are not institutionalised, or they are administrated by local or regional governing bodies: in this case, we can call them "quasi-sports" (i.e., Highland games or traditional bowling games), or "traditional games" when they show no level of organisation at all (i.e., hide-and-seek, tags, etc.). Besides, "street games," like self-organised basketball (Bordes et al., 2013), and certain "videogames," the so-called exergames, for instance, belong to this ample category too.

This system of ludomotor categories addresses two capital questions on games and PE: their motor nature and the different levels of constriction that operate on the players. *Motor situations* constitute a special case of Goffman's *situation*: "I would define a social situation as an environment of mutual monitoring possibilities, anywhere within which an individual will find himself accessible to the naked senses of all others who are 'present,' and similarly find them accessible to him. According to this definition, a social situation arises whenever two or more individuals find themselves in one another's immediate presence, and it lasts until the next-to-last person leaves" (Goffman, 1964, p. 135). What makes them special is that both the process and the result of a ludomotor situation depend on the bodily configuration of the agents' behaviours, which always are connected to the overall meaning of the encounter. For this reason, any element of the situation receives "motor" as a family name because their bodily, physical nature is the essence of this unique kind of experience that characterises PE.

Swimming or climbing, hand-clapping or playing tags, fishing of racing, and playing soccer or rugger are all *motor actions* consisting of processes "of accomplishment of the motor conducts of one or more individuals acting in a determined motor situation" (Parlebas, 1999, A:1), embodiments of a kind of human action that owns very specific properties (Bordes et al., 2007): it is constrained by the physical and biological laws that operate on individuals, species, and material world; it is constitutive to the task to perform, which disappears if the action is not accomplished (means and results are equally necessary); and it is real action, not symbolic (like in board games) nor substitutive (like in competitive videogames). Game-playing is meaningful in itself and independent of its technical sophistication or skill development: the Sunday round of four pals over handicap 20 makes so much sense for the players as the afternoon singles in the last Ryder Cup, and playing darts is as bodily an action as figure-skating.

Having said so, sporting games are not only *physical* but also *cultural realities* independent of what agents can think they are. Sporting games are linguistic, juridical entities that create specific action spheres easily transmitted by word (Martínez-Santos, 2018). TGfU pays paramount attention to "rules": linguistic utterances whose function is to orient and regulate human action (Robles, 1984), because not only games are created by rules, but teaching activities too. The capability to play games relies on a general linguistic competence that makes games interpretable and transformable into bodily conducts, which is

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[1]This book is online at https://books.openedition.org/insep/1067; the reason why all references will be related to this online edition, and any citation, will be identified by the initial letter of the term in French, the chapter it is included in, and the ordinal number of the paragraph: L:56 is the 56th paragraph in chapter L.
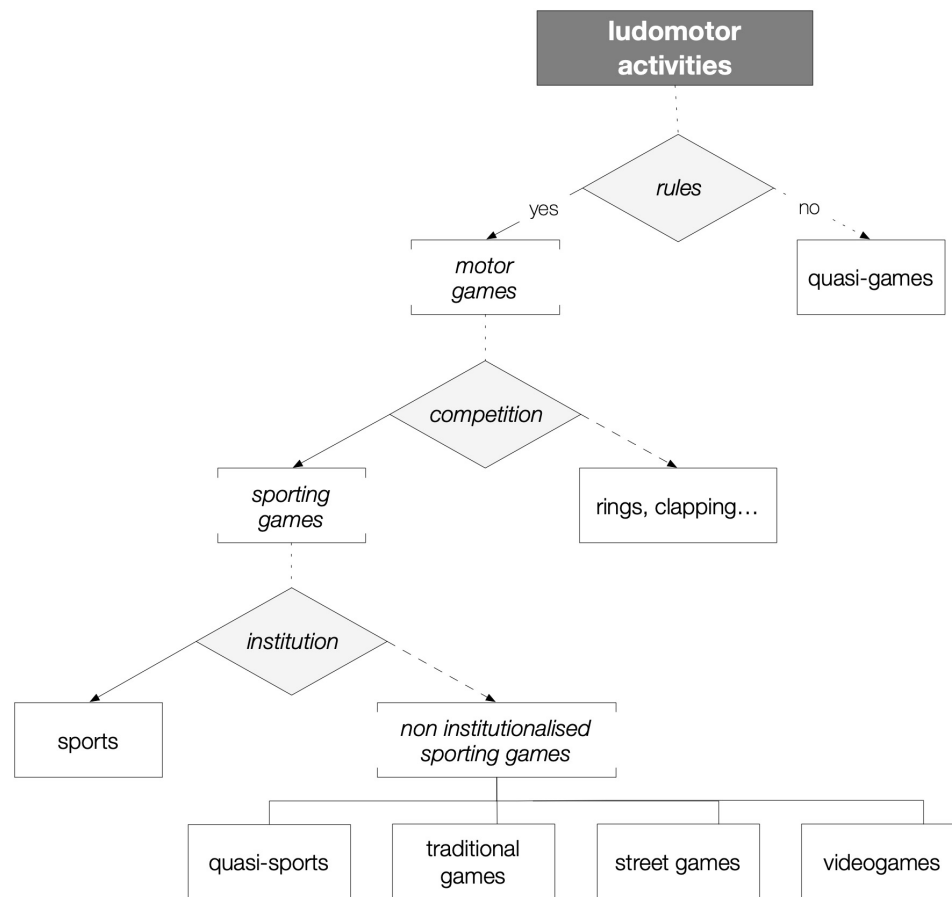
FIGURE 1 | System of categories of ludic motor situations (Parlebas, 2008).

the same competence that allows teachers to *make understand* the game (Martínez-Santos and Oiarbide, 2020). Briefly put, rules are *necessary* to decree the elements of the game, that is, to create competition: the accepted motor procedures and the consequences associated with acts and results. "Consequences" are, in fact, the most important part of these juridical systems we call games: on one side, they value acts and keep a record of the players' merit to outperform; on the other side, they establish how agents must proceed in case of infringement. Any moral value of game playing depends on the acceptance of its internal consequences and the development of the juridical intelligence that wraps tactical awareness, which in the games we are dealing with is based on the "principle of sanction" (Robles, 1984): rule-breaking has as consequence damage that sometimes affects one's score (i.e., volleyball and judo) and some others does not (i.e., basketball and hockey). Moreover, this juridical nature allows circumventing the *annoying* thesis of the "logical incompatibility" (Morgan, 1987) between breaking the rules and the existence of the game.

It may seem a minor question, but these three criteria, namely, motricity, regulation, and institutionalisation, help us mitigate Wittgenstein's blurriness and advance in Peircean clarity when it comes to exploring *physical* activities. Sports are institutionalised sporting games that "have been selected and consecrated by social

institutions that have put them into their structures of production and consumption" (Parlebas, 1986, p. 46). There is no doubt that *games* in TGfU are motor competitions, but it seems very clear as well that they are *only* competitions managed by international governing bodies, and there is a chance that sports federations and school institutions have different understandings of what *production and consumption* are or should be.

ON GAMES IN PHYSICAL EDUCATION

Sports are a tradition in PE. We are so accustomed to their presence that it is felt natural, inevitable, and indisputable. However, as we have learnt above, acquaintance is just the dimmest level of clarity, and conceiving PE as school sports practice would be no definition but a mere description of the research object we would eventually like to understand. Peirce translated the third and highest level of clarity into his famous *pragmatic maxim*: "Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object" (Peirce, 1878, p. 20). Our educational decisions, theoretical classification systems, conceptual or empirical diagrams, hypothesis and beliefs, etc.,

are examples of *practical bearings* that Peirce considered to be signs of intelligence in action. In this sense, understanding what sporting games are also depends on discussing why they belong to education, firstly, and what the consequences of our including sports in PE are, secondly.

In a world as utopian as *The Grasshopper's* kingdom imagined by Bernard Suits (Suits, 1978), The Monty Python comedy troupe depicted a British government with a *Ministry of Silly Walks*. This memorable sketch (The Monty Python, 1970) depicts an applicant trying to show and prove that his gait is as silly as to deserve public funding, and a public servant analysing his merits in a very professional way: "It's not particularly silly, is it? I... I mean, the right leg isn't silly at all, and the left leg merely does a forward aerial half-turn every alternate step." The postulant's initial disappointment turns into joy when he is offered "a research fellowship on the Anglo-French silly walk": *La marche futile!* Isn't it possible that to many a *ministry of PE and sports* be as comical and useless as the one created by The Monty Python, apparently to criticise the Concorde's project? Maybe, but it is almost sure that to many, and not only to those fans standing on the bleachers, traditional sporting games are childish, minor games in comparison to pay-per-view sports. However, quite on the contrary, there could be a point in thinking that any uncritical inclusion of sports artificial techniques in PE might reduce any allegedly educational game to nothing more than another silly walk in search for a generous, even sillier public servant to be turned into a fan.

On Sports and Physical Education

"To those advocates of TGfU derivates that seek to produce excellent games players in specific sports coaching contexts, such as Games Sense, Bunker and Thorpe were not, at least originally, ever concerned with sports coaching pedagogy. For those who claim that TGfU emerged without a substantial theoretical framework, the problem Bunker and Thorpe were seeking to resolve was practical and pedagogical, concerned with institutional school physical education." He who reminds us of this is Kirk (2017, p. 19), deeply interested in making clear that "TGfU-informed games teaching was intended to fit into same spaces that sports-techniques based physical education occupied" (p. 21) after the English 1946 Education Act. This Act raised compulsory education to 15 years of age and boosted the development of the PE curriculum for "mass secondary education." Before WW2 "women had dominated physical education teaching as a profession until the 1940s, but these post-war developments required the training of a large number of male physical educators" (p. 20): the extension of schooling included the puberty period, which is why "the dominant and deeply gendered form of physical education at this time, based on gymnastics and movement, made single-sex classes seem highly appropriate." As Kirk accounts: "The men preferred a sports-based form of their field in contrast to the female-dominated gymnastics past, and a massive reconfiguration and reconstruction of school physical education was underway" (Kirk, 2017, p. 20).

To Ellen Singleton: "Games are such a large and integral part of the content of PE classes that any change in the pedagogical approach to games indicates changes to our shared educational philosophy about student's needs – their methods of learning, their interests and attitudes, and their physical capacities" (Singleton, 2010, p. 27). This is the key question about any activity included in PE classes, and her narration of how games made their way into Canadian PE indicates that it was related to the Deweyan conception of play, "games, dance, and sports" in primary, while it was a chance for PE secondary teachers to "justify the introduction of more intense forms of competition, particularly into classes for males students" (p. 24). As a consequence: "Intense competitive team sports were, by the middle of the century, mainstay in American and Canadian males physical education programs [...]. Over time, the emphasis on games in physical education has shifted from the question of whether games should be included in the curriculum, to questions about how games should be taught" (p. 25). Mauldon and Redfern's experience seems mostly congruent: "The subject of Games is one which, as yet, has merited little genuinely serious attention. It is, of course, part of that plethora of multifarious activities which collectively are known as Physical Education, but whereas other major branches of this (notably dance, gymnastics, and swimming) have received certain amount of consideration in respect of education, the teaching of games continues in the main to be carried on along traditional and even stereotyped lines, with few questions asked as to the reasons for its inclusion in the curriculum" (Mauldon and Redfern, 1969, p. vi).

Sport is the product of the institutionalisation of games occurred in England in the nineteen century (During, 1984; Mangan, 1986), and it makes part of PE because they are motor activities whose practice can produce valuable effects on the multiple dimensions of personality. Even though, *ex post facto* argumentations that try to justify pedagogical decisions that never existed do not take into account that the same beneficial effects can be obtained with other kinds of activities. According to Parlebas (1986, p. 246), institutionalisation is mainly driven by the high economic value of sports competitions as spectacular sources of entertainment, but it is also linked to "foundational ethical imperatives" that seem today as unquestionable as ever: "Sport remains strangely associated with values which it does not respect as a mass phenomenon, but which help to maintain its positive image" (Parlebas, 1999, S:323) and stop many from making sticky questions: *Do we really need to play federation games most often? Do they have a higher educational value than traditional games?* (1978: Parlebas, 2017, p. 349–355).

The answer to this double question is a double no: "Federated games are not characterised by an uninterested educational richness, but by their value as spreaders of a certain power" (1978: Parlebas, 2017, p. 353), and sports prevail "because they are adult games that adjust to the powers with full command, and eventually to some of their counterpowers." Even if, "analysing the sports phenomenon in terms of power does not necessarily imply condemning it: there is no society without an institution, nor an institution without power, and the gratuitous condemnation of sport is as ideological as its blind glorification." The vindication of traditional games does not imply the vilification of sports, for it would be useless and unfair: today, as it was at the time, "it seems almost un-British

to suggest that education could be complete without games!" (Mauldon and Redfern, 1969, p. 2), and no one with sound judgment should try to tackle a whole Empire: "This will be a perfect planet//only when the Game shall enter//every country, teaching millions//how to ask for Leg or Centre" (Gale, 1930, In Mangan, 2012). Should we?

On the Consequences of Institutionalisation

The consequences of our including sports in PE curricula are the consequences of the institutionalisation of sports. In this sense, basketball, a game invented in 1891 by a PE teacher who got inspired by a traditional game, that was proposed in winter to a group of troublemakers as an alternative to the *boring* calisthenics, that in less than a decade spread all over America thanks to an educational institution, that got into the sports show-business by the turn of the century…, makes the perfect example (Naismith, 1941) to understand the intimate relationship between PE and sports. Basketball was such a successful *new game* because it abode perfectly by the sports model: a time-limited duel between two equal teams, quantitative and qualitatively speaking, that binds players together on a relational network based on constant loyalty and equal chances (Parlebas, 2002, p. 211). However, if human relationships in the real world can also be inconstant, unstable, and logically irrational, are sports the best way to learn about the others, about life in society, about the dialectical relationship between individual agency and collective systems? In other words: Can we really be convinced about the contribution of team sports to children's socialisation (Parlebas, 1978a, 2017, p. 357)? Is sports socialisation really better than traditional socialisation (Etxebeste, 2012)?

Structurally speaking, sport is not perforce any better than traditional game. On the contrary, as far as socialisation is concerned, traditional games *put in play* human communication models far more diverse and enriching than sports:

> All sporting games, whatever they may be, can be put at the service of authority, although traditional games, as a whole, are much less favourable than sport to the exercise of centralised and authoritarian power, for two main reasons. The first is that the rules of many traditional games propose uses of space, types of communication, criteria of success and possibilities of group decision that do not favour the establishment of an external, undisputed authority. The second is that the variety of situations generated by these games causes motor behaviours through extremely different exchange systems. A variety of this type, which responds to sometimes contradictory norms and attitudes, makes it difficult to unilaterally channel motor conducts towards a rigid system, towards a strict social shaping of the body (1978b: Parlebas, 2017, 354).

School sports practice can suppose the massive reproduction of just a few of the many relational configurations available, the "reproduction" (Bourdieu and Passeron, 1981) of exclusive-stable communication models that leave aside many other forms of
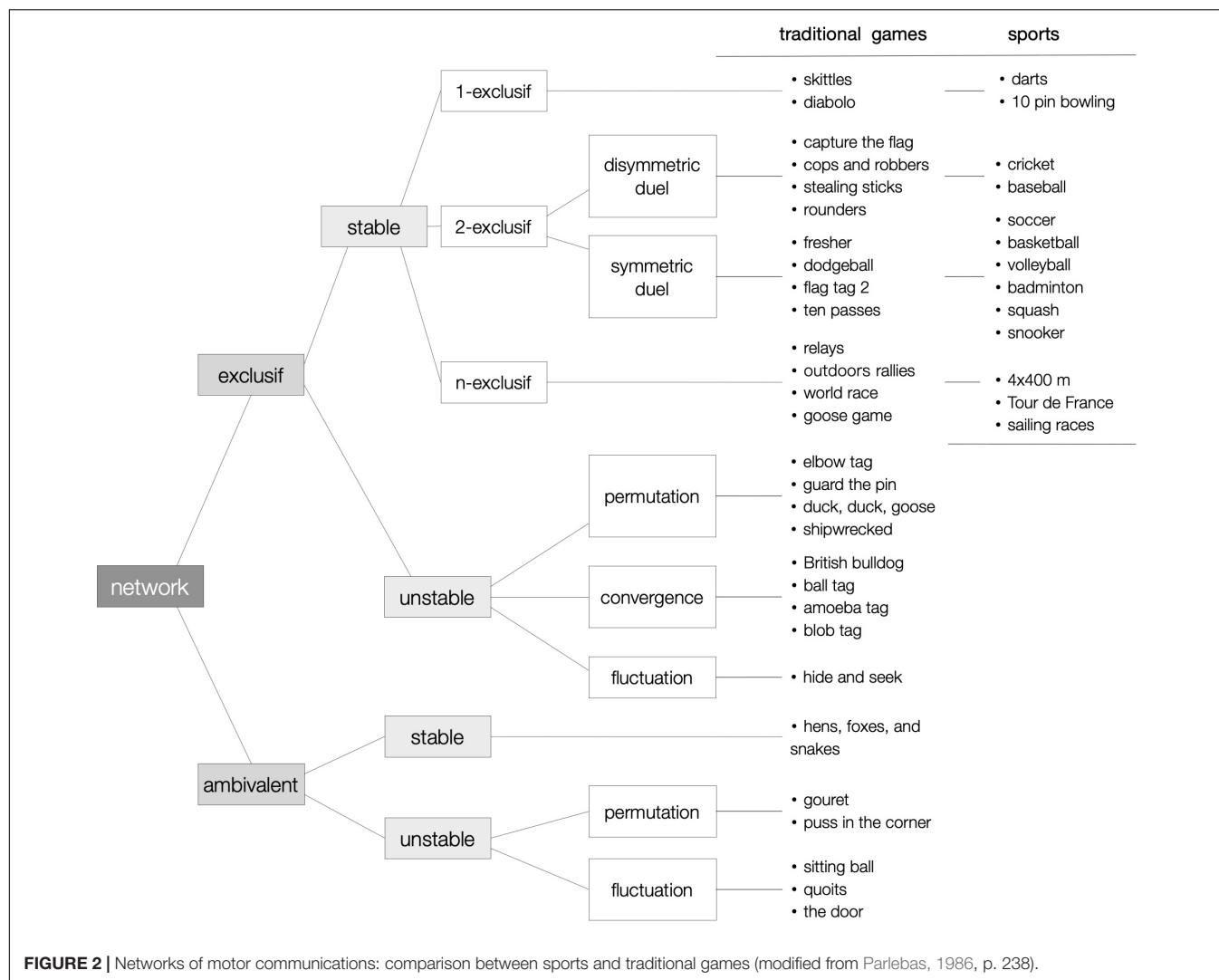
antagonism and cooperation that offer interaction opportunities more suitable to dive into to the depths of human relationships.

As shown above in **Figure 2**, according to their "motor communication networks" (Parlebas, 1999, R:26) and "network of changes of sociomotor roles" (R:50), sports are only present in four of the 10 categories of sporting games, and games in TGfU belong almost only to two of them: symmetric and dissymmetric duels. All sports' communication networks are *n-exclusive* (any two participants cannot be at the same time partners and opponents), *stable* (the initial relationship between any two players is kept unchanged till the end of the competition), *complete* (in sociomotor networks there is always a positive or negative relationship between any two players, never neutral), and *balanced* (intra-team relationships are always positive and inter-team relationships always negative) (Parlebas, 1986, p. 235). Conversely, traditional games accept *instability* (alliances, friendship, and antagonism that change along the time) and *ambivalence* (uncertainty about the others' real intentions to help or harm one's interests), making possible for the players to enjoy the relational possibilities offered by playing situations not fully predetermined by outer institutions.

Many tagging games possess exclusive-unstable networks with three role-changing possibilities: *permutation* of roles between the two players involved in a catch; *convergence* of all tagged players into the chasing role; and *fluctuation* of roles due to role changing without a strict order. Many other games, those which Parlebas (2010b, 2011a) likes to call *paradoxical*, give room for even more liberty to choose: all the fun in a game as simple as "puss in the corner" comes from the choice that any player on a corner can make to be loyal to or betray the *comrades* on the other corners. Can anybody imagine a better way to express oneself than a situation in which any decision is a declaration of hate or love? In this sense, can there be any better way to learn *simple* moral principles than putting them at play? There is no doubt that sports can offer remarkable educational experiences, but from a pedagogical point of view their practice comes along with a double jeopardy we must be aware of from the pedagogical angle: that of reducing action to movement, and that of reducing interaction to obedience. What a challenge!

ON TRADITIONAL GAMES, UNDERSTANDING, AND TEACHING AS COMMUNICATION

Traditional sporting games have helped us make our point about two issues on which later TGfU seems less interested than the *founding fathers*: the nature and classification of motor games, and the educational consequences of disregarding sporting games other than sports. The inquiry on efficiency in games teaching received much attention in the mid twentieth century, not only in France and Britain: for instance, Mahlo (1969), from the German Democratic Republic, developed a remarkable work on the "tactical act" for 6- to 10-year-old socialist students greatly based on the psychologist Sergei Rubinstein's ideas. Thorpe et al. (1986) realised that technical conception of games and teaching is detrimental to the legitimate aspirations of physical

FIGURE 2 | Networks of motor communications: comparison between sports and traditional games (modified from Parlebas, 1986, p. 238).

educationists and the best interest of pupils, that a call should be made "away from a skills-based lesson and towards a more cognitively based approach" (5). Almost two decades earlier, Parlebas defended the same in his first paper: "Philosophical training has familiarised physical education teachers with the universe of meanings, symbols and values, empowering them to not just be technicians or lessons providers; it has taught them to be independent of stereotyped structures by showing the dangers of surrendering to banal techniques, however magnificent they might be" (1959: Parlebas, 2017).

In 1967, Allen Wade, Football Association's Director of Coaching, published a book that, as we know, was revolutionary and inspiring: *The F.A. guide to training and coaching* (Wade, 1979). Written for teachers and coaches alike, it was promoted as follows "The theme of the book takes full account of modern tactical development and emphasises the need for the modern footballer to 'read the game' and understand the systems and tactics that are outlined." There are radical differences between our conceptual model of game-playing and Wade's analysis based on the dyad technique/skill, but his references to *common*

factors, unpredictability, interference of intentions, cooperation and opposition, and decision making (1967: Wade, 1979, p. 180) are an outstanding prove of wisdom and strength for what TGfU would become. In actual fact, the interest gained by the "sports-coaching turn" (Kirk, 2017, p. 19) is far from being inadequate nor unexpected: it is the cornerstone of our double story, because any general proposal for school PE ignoring the internal logic of teaching situations is doomed to grow on wasted lands.

On Understanding as Semiosis

As Wade (1979) pointed out, unpredictability, decision-making, collaboration, opposition, and interference of intentions are the key elements of football-playing, because football and all team duels belong to the "motor action domain" (Parlebas, 1999, D:74) in which *collaboration and opposition* occur at the same time. It is the presence of opponents what willy-nilly generates on the players decisional uncertainty no matter their competence. From the learning side, we conceive understanding as the competence to put in play the principles of game-playing associated with the "internal logic" (Parlebas, 1999, L:4) that emerges from the

interpretation of the game's rules; from the teaching side, we conceive understanding as the competence to assess and increase the level of clarity that the players' conducts show in relation to the internal logic of the situation. From both sides, "uncertainty: Property of unpredictability attached to certain elements of a situation" (Parlebas, 1999, I:1), is the most imperative praxic consequence of the game system, for it determines how games must be solved and how players must be trained in terms of *decision-making*. Generally speaking, the two sources of uncertainty in sporting games, namely, "social" and "spatial," can be operationalised with three binary variables that inform about the presence or absence of uncertainty due to the relationships with "partners," "opponents," or "space." The combination of these tree dichotomic traits results in a classification with eight motor action domains that, individually, propose equivalent experiences, and collectively allow to understand and manage the total of ludomotor activities (Parlebas, 1999, C:1).

TGfU is mostly about *teaching to understand sports opposition* in the form 2-exclusive-stable communication networks networks, that is, duels of teams or individuals: only one of Elli's eight categories (Ellis, 1983), concretely "unopposed target games" like bowling and golf, lacks opposition, and Almond (1986) does not even make such a distinction in his "target games" category. We have seen above (**Figure 2**) that sporting duels are only two of the many cases in sporting games, but it is also true they constitute a subset of motor tasks in which *instrumental praxic communication* reigns: in sporting duels motor interaction is purely strategical, driven by the scoring system, and built semiotically upon the bodily procedures permitted by the rules. Goffman's description of "strategic interaction" is a remarkable account of how antagonising, deceptive interaction works: "In every social situation we can find a sense in which one participant will be an observer with something to gain from assessing expressions, and another will be a subject with something to gain from manipulating this process. A single structure of contingencies can be found in this regard which renders agents a little us all and all of us a little like agents" (Goffman, 1969, p. 81). Although he did not look into their semiotic grounds, his analysis of the so-called "expression games" is as inspiring as accurate his distinction of *unwitting, naïve, covering, uncovering and counter-uncovering* moves.

Peirce defined "semiosis" as *the action of signs*, and Parlebas chose "semiotics" (Saussurean semiology actually) as the cornerstone of his epistemology: "Sport is a world of signs: of signs, not of stimuli. Is it possible to carry on treating players in action as they were stimulus-response mechanisms? Is it possible to be content with analysing their acts from the Pavlovian model of conditioning? Sporting game is a place riddled with immediate, literally *embodied* meanings: each motor behaviour carries a meaning that the other participants must interpret to act appropriately. Sitting-ball players, like basketball players, try to extract tactical meanings from the acts that interweave before them" (Parlebas, 2017, p. 277). "Semiotricity: field and nature of motor situations considered from the angle of the use of sign systems directly related to the participants' motor conducts" (Parlebas, 1999, S:43), really puts "meaning" in the centre of teaching, learning, and research, allowing to

outpace mechanistic, dualistic conceptions of PE, in the first place, and dualistic, technique-based sports coaching at any level of analysis, as a consequence. This semiotic nature of motor conducts makes them the cornerstone of PE, therefore understood as the *pedagogy of motor conducts* (E:11), and casts off any reductionist, dualist conceptions of human beings: "The term 'movement,' so often invoked in physical education still today, is notoriously inadequate and the prove of that old conception, which takes into account the product and not the producing agent. The notion of movement refers to the idea of a bio-mechanical body defined by displacements observed from the outside; it is somewhat concerned with describing gestural 'utterances' from which the subject is excluded as such and whose culmination is 'the' technique, the abstract and depersonalised gestural model" (C:108).

From this angle, any player's "motor conduct: meaningful organisation of motor behaviours" (Parlebas, 1999, C:105) can be analysed as a sign whose *signifier* is the observed motor behaviour, and whose *signified* is the tactical, relational, or referential sense. The semiotor logic of team sporting games is essentially different from the "natural semiotricity" of outdoor pursuits, the "referential semiotricity" of body expression and mime, and the "socio-affective semiotricity" of paradoxical games (S:43), but they all share the same semiotic, cognitive structure. Motor conducts are bodily expressions of a personality in endless interaction with their vital circumstances, signs that can also be interpreted by competent teachers as *a level of competence, a learning outcome, a trait of character, emotional state, relational status, tactical decision, etc*. Nonetheless, the competitive logic of sports *forces* to take them as "motor decisions" (D:5) to be assessed in terms of strategical and tactical efficacies. Semiotor angle is the only valid perspective to address the metacommunicative nature of sports interaction: a game establishes a normative layer of direct motor communication that regulates the material limits of interaction (i.e., tackling, charging, passing, hitting, shooting, etc.), on top of which the players' intentions are built and evolve. This "indirect praxic communication" (Parlebas, 1999, C:65) is a battle of signs called "praxems" (P:26) through which individuals and teams try to outwit their adversaries in a constant game of guesses, deceptions, and make-beliefs. This process, far from being magic, can be traced and trained from very young ages, like in football (Oboeuf et al., 2019).

Understanding is best, if not only, conceived as the semiotic performance that allows players to infer and interfere with other players' intentions on a bodily basis, and *teaching* is best conceived as a thoughtful process of building up semiotor habits that provides the players with the competence to anticipate and pre-act efficiently on pitches and courts where everybody can be fooled. Understanding is interpreting, and interpretation is the outcome that results in "motor conducts" as far as an individual agent is concerned, and in "motor action" as far as the whole situation is concerned. Any motor behaviour, or articulation of motor behaviours, is a Peircean "motor interpretant" (Martínez-Santos, 2007) that participates in a triadic, indexical relationship with the rest of the motor behaviours of the situation. Furthermore, *social uncertainty* and *sociomotor intelligence* are

bound together by the essential randomness attached to subjects; the only certainty attached to opposition games that Koppet (1973) so wisely identified in basketball is that "the essence of the game is deception": the only way to learn to play these games is by understanding that signs never lie, but opponents always try to.

On Teaching as Communication

It is also a tradition to propose traditional games to teach sports. So did Sleap (1984) for mini-sports, and Mahlo (1969) for the tactical act, who surprisingly made compatible disdain and appreciation for them when saying that the relatively simple "little games" prepare for team sports: "A qualitatively superior mean of development and physical education, and an important form of cultural activity of human society" (p. 149). However, team sports, such as football, basketball, and handball, make a perfect *intervention strategy* for a teaching traditional sporting games, and teachers can increase its beneficial effect by using an adequate *teaching style for understanding*. This is what Parlebas and Dugas (1998) were able to prove through a fully controlled piece of experimental research. "Learning transfer: the effect that can be observed when the execution of an activity modifies, positively or negatively, the accomplishment of a new activity or the reproduction of an old one" (Parlebas, 1999, T:90) is the cornerstone of teaching and PE, understood as an after-effects searching, deliberate motor intervention practice.
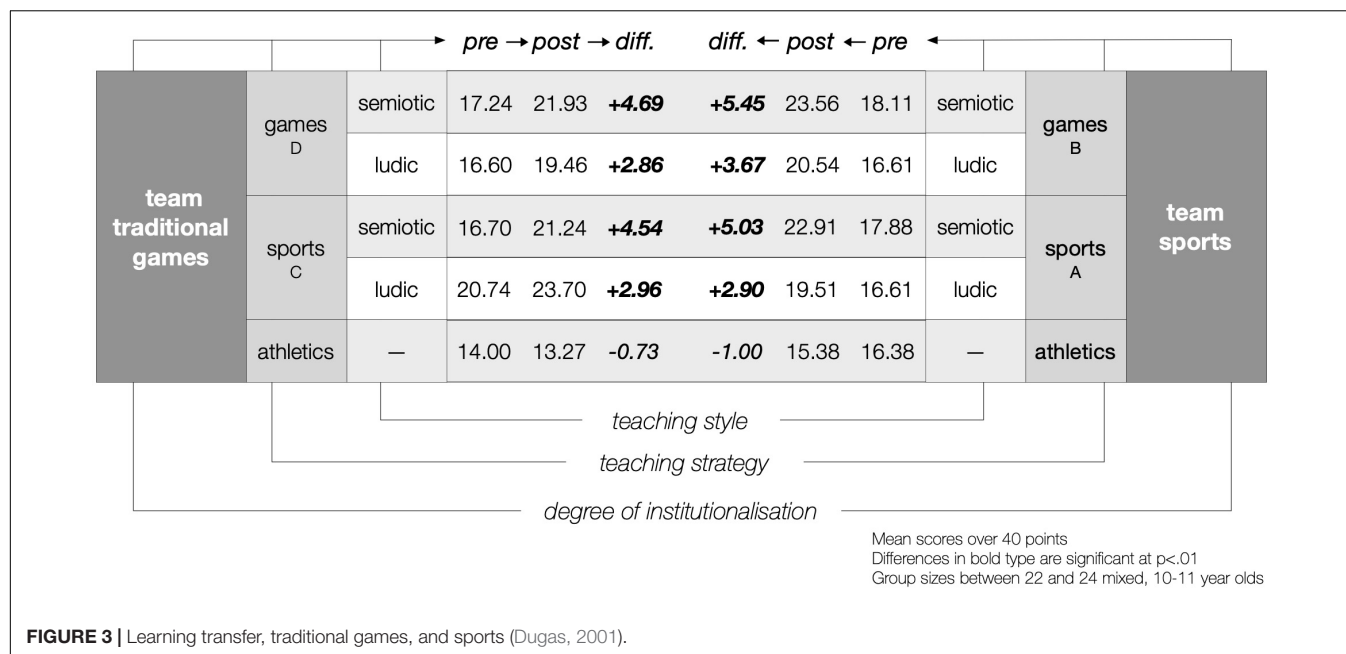
Teaching can be conceived as a communicative process between teacher and learner through practice tasks (Martínez-Santos, 2018): teacher and learner are indirectly connected through the internal logic of the exercises selected by the former, and directly connected by the logic of face-to-face communication between them, as explained by Poyatos (1994). Taken two by two, these three elements (namely, "teacher," "learner," and practice "task") generate the three basic dimensions of any intervention process: the design and selection of tasks, that is, the *strategic dimension*, corresponds to the axis "teacher-task"; the *praxic dimension* corresponds to the motor action the emerges from the axis "task-learner"; the axis "learner–teacher" corresponds to the *stylistic dimension*, the many ways in which educational instruction can be managed. In this vein, TGfU may seem more a style-based proposal, whereas praxeological proposal primarily strategic, but this could be an illusion due to its presentation as a six-ordered-phase model of teaching (Bunker and Thorpe, 1982) and its illustration with teacher–student dialogues (Almond, 1986). Even so, this would not be as bad as the "illusion [that] haunts stadiums and gyms: educators tend to think that the nature of the activities matters little, that it is just a simple means at the service of the chosen educational purposes, that teachers have full powers over them. In fact, the master of the game is not the teacher, but the game: a system of rules that imposes its dictates; a system that has its own logic and defines the universe of actions and permitted conducts" (1979: Parlebas, 2017, p. 383).

Far from any *nature* vs. *nurture* kind of battle, but as close to didactical *falsifiability* as possible, we can be certain that the absence in practice of key aspects of the games makes developing the targeted competences most unlikely. Twenty years ago McMorris concluded: "With regard to which method [TGfU or technical] is the better for teaching games, the evidence

is inconclusive and much more research is necessary. The research into net games suggests that neither method is more successful than the other for those activities. For team games the lack of research makes it impossible to make a definitive statement" (McMorris, 1998, p. 70). We feel concerned too by his conclusions: "Overall it could be argued that TGfU has directly provided little or nothing new to the motor learning literature. [. . .] However, specificity of practice should not be ignored and modifying in TGfU style, e.g., playing 'hockey' without sticks, violates specificity and could lead to negative transfer of training when the real game is introduced [. . .] The decision as to which method the teacher adopts is more a philosophical one than one based on empirical evidence" (p. 71).

Peirce could hardly agree with McMorris' last statement. According to his pragmatist maxim, the highest level of clarity can only be attained by putting concepts like teaching and transfer to the test of learning outcomes' reality. On our part, we must disagree with McMorris because Parlebas and Dugas have provided us of empirical evidence that the content of practice matters (**Figure 3**): athletics is not the basis of all sports, and internal and external logics of games are independent in terms of learning transfer (Parlebas and Dugas, 1998; Dugas, 2001, 2006, 2010). A classic experimental design, with full control over the grouping (i.e., age, gender, sports experience, academic level) and didactical (teaching strategy and style) variables, allowed them to pre-test and post-test the sociomotor competence in traditional and institutionalised team games after eight sessions practising traditional games, sports, or athletics (control groups). The results are crystal clear: firstly, structural similarity between team duels produced positive learning outcome in all groups (A–D), regardless of whether they were tested in sports (A and B) or traditional games (C and D), regardless of whether practice consisted of sports (A and C) or traditional games (B and D); secondly, the practice of psychomotor activities (athletics) produced no change on the sociomotor competence associated with playing team games; and, finally, the *teaching for understanding*, semiotor style produced higher learning levels than a ludic one in all experimental groups ($A_{semiotic} > A_{ludic}$; $B_{semiotic} > B_{ludic}$; $C_{semiotic} > C_{ludic}$; and $D_{semiotic} > D_{ludic}$). Even more, the structure of praxemic interaction, which is the core of the motor competence of teams sports, is the best scaffolding for teachers and coaches to teach players: to be aware of their own intentions, to recognise the playing circumstances, and to articulate their conducts with the other players' intentions (Martínez-Santos, 2007).

In brief, these results are most valuable for three reasons: firstly, they prove that the internal logic of educational activities overcomes the external features of their practice, for example social recognition or economic value; secondly, they show that the internal features of the tasks created by the rules determine the limits of sociomotor learning transfer; and finally, they reinforce the belief that there exists such a thing as *teaching for understanding*. As we said, TGfU seems to lean more on teaching-style than on teaching-strategy, although Almond took great advantage of the distinction that Suits made between games' primary rules (constitutive) and secondary rules (operational) to help his students in games making (Harvey et al., 2018, p. 170). Besides, their remarks on the *praxic consequences* of

			pre → post → diff.			diff. ← post ← pre					
team traditional games	games D	semiotic	17.24	21.93	**+4.69**	**+5.45**	23.56	18.11	semiotic	games B	**team sports**
		ludic	16.60	19.46	**+2.86**	**+3.67**	20.54	16.61	ludic		
	sports C	semiotic	16.70	21.24	**+4.54**	**+5.03**	22.91	17.88	semiotic	sports A	
		ludic	20.74	23.70	**+2.96**	**+2.90**	19.51	16.61	ludic		
	athletics	—	14.00	13.27	*-0.73*	*-1.00*	15.38	16.38	—	athletics	

teaching style

teaching strategy

degree of institutionalisation

Mean scores over 40 points
Differences in bold type are significant at p<.01
Group sizes between 22 and 24 mixed, 10-11 year olds

FIGURE 3 | Learning transfer, traditional games, and sports (Dugas, 2001).

rules modifications (Thorpe et al., 1986) are the very essence of the strategic dimension of teaching based on the praxeological modification of games. We already said that this is a tale about two perspectives *driven on parallel tracks for too long* despite the overwhelming quantity of coincidences.

ONE TALE, TWO STORIES, AND THREE CONCLUSION

Traditional games can produce the same kind of learning outcomes than sports, and there is no difference between their practice regarding the benefits of a semiotic, understanding style of teaching. The development of *thinking players* cannot be an educational objective, but the development of *thinking citizens* can be better attained through the development of the intelligence associated with sociomotor action, a venture in which traditional games have a world to offer. Evidently, we have no answer to the question we asked ourselves in the first place: *Why are traditional games absent from the TGfU rationale?* but we truly believe that TGfU advocates and practitioners can agree with us that traditional games have an immense educational value that should not be taken for granted. The *what*, the *how*, and the *why* of games in PE are better understood if we take traditional games as a contrast, as an option, and as a choice: as a contrast, to notice that sports, that is, institutionalised games, are nothing but a subset of physical games and activities; as an option when it comes to teaching sports, a venture in which traditional games offer outstanding, most transferable learning opportunities; and as a choice, because the structural variability that traditional games offer is remarkable from an educational, cultural point of view.

Teaching-games-for-understanding and motor praxeology represent two different solutions to the scientific-foundations-of-PE problem, although we feel enforced to contest Peter Watson, who asserts in his superb intellectual history of the twentieth

century: "Many continental thinkers, especially French and from the German-speaking lands, were devoted to the marriage of Freud and Marx, one of the main intellectual preoccupations of the century, and maybe the biggest dead end, or folly, which affected, in France most of all, of blinding thinkers to the advances in the *harder* sciences. This has created a cultural divide in intellectual terms between francophone and anglophone thought" (Watson, 2001, p. 753). True as it may be, for one of the most beautiful texts by Parlebas – *Sporting game, dream and fantasy* (Parlebas, 1975) – is built upon the Freudian triad *Id*, *ego*, *and super-ego*, it is also true that he very much looks like a *classic scientist* in the Foucauldian sense (Foucault, 1991, p. 7), for his relentless search for mathematical formalisation and conceptual clarification of sporting games and motor action (Martínez-Santos, 2017).

McMorris eventually accepts that TGfU raises "a number of very important issues that motor learning discipline needs to address" (McMorris, 1998, p. 71), like ecological validity, task complexity and transfer, implicit learning, and transfer of games' principles. However, in doing so, maybe unintentionally, McMorris also reinforces the serfdom so many in the Academy expect from physical educationists. The academic world is made of *fundamental sciences* and self-proclaimed fundamental scientists like anatomists, physiologists, phycologists, sociologists, philosophers, historians, etc., from whom teachers, trainers, coaches, sports monitors, etc., all of them devoted practitioners, must learn and apply concepts, theories, and evidence. TGfU has received critics for its alleged lack of theoretical soundness (Harvey et al., 2018), but it could be argued that none of its *relatives* (Butler et al., 2008) or *contenders* (Renshaw et al., 2015; Jarrett and Harvey, 2016) has shown either much interest in developing an autonomous, specific understanding of what sporting games playing involves from the agent's perspective. We believe that *understanding* in TGfU and game-based approaches

still remains unexplored while admitting, at the same time, that TGfU can perfectly hold out against critics and gain fundamental conceptual insight if opened up to semiotor perspective and traditional games.

In this sense, our last conclusion is that TGfU and game-based approaches can take great advantage of the motor-praxeological rationale for three key reasons: firstly, because concepts like understanding, game sense, and action principles are operatively conceived, that is, semiotically linked to the reality of the playing process; secondly, because the inner structures of the games that constrain players and guide their motor conducts permit to integrate team sports in the general system of sporting games, no matter their level of institutionalisation; and, finally, because teaching practice is better thought of and more systematically developed upon the operational concepts of internal logic, expected outcomes of game playing, and teaching style. This time, unlike in Dickens' novel, Paris could be the place to go to in search of solutions, not the city to run away from in hope of consolation.

AUTHOR CONTRIBUTIONS

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Book Review: La paradoja de jugar en tríada. El juego motor en tríada

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A Book Review on

La paradoja de jugar en tríada. El juego motor en tríada

Miguel Pic Aguilar and Vicente Navarro Adelantado, (Madrid: Bubok Publishing), 2019, 268 pages, ISBN: 978-84-09-13525-7

In the wake of Parlebas' analysis of the inner communication structures of sporting games (Parlebas, 1986), Pic and Navarro coproduce an intriguing book to extend our comprehension of the internal logic of ludomotor situations: *The paradox of triadic game-playing. The triadic motor games.* This work, very much indebted to the doctoral thesis of the first of the authors, brings to light the interaction possibilities that lie beyond the one-on-one, dyadic sporting duels and their unexpected, hard-to-deal-with praxic consequences. Let us admit, to start with, that we are considering here a highly technical, conceptually demanding text with a, severe prose that sometimes requires from the addressees an unusual commitment to carry on reading. However, this difficulty is clearly balanced throughout the text by the authors' passion for traditional games and physical education: "We are convinced that triadic motor games contain a hidden pedagogical message that we must learn to appreciate. Playing triadic games means learning a form of paradoxical, rebalancing situations" (p. 9).

Pic and Navarro present a clearly structured, well-informed text on *ludic triads*: motor games in which three teams play against each other trying to outscore their opponents while not being defeated by the subtilties of the emerging paradoxes. The different academic viewpoints by which the study of triadic relationships is fuelled are presented in the first chapter, although all these lines of analysis (mathematical, social, cultural, and ludomotor ones) are secondary in regard to the works by the American sociologist Theodore Caplow on the dynamics of alliances and collaboration in two-against-one situations. The second chapter is specifically dedicated to the analysis of the mathematical properties of motor team-triads, which I would rather call *N-3 games* after Parlebas' classification of the networks of motor communication of sports: the identification of three main properties of the networks of these tagging games, namely, "circulation," "transitivity," and "interactivity," allows the authors to complete a *census of triads* with 13 functional cases and many interesting nuances. The third, final chapter is dedicated to the empirical study of these games' "playability" and the emergence of paradoxical links in triadic tagging games from an educational point of view: the inclusion of a third competitive agent proves to be fruitful in tactical and relational decisions, and fertile in creativity. Moreover, an extra section contains the descriptions of 20 team games belonging to these 13 playable motor triads that help envisioning the complexity and richness of team motor triads.

However, what makes this book really valuable is the amount of occasions on which its readers will find their knowledge and beliefs challenged and disturbed. My main concern is that the authors have hardly succeeded in making a clear distinction between *pedagogical aims* (the alleged

interest of working on ambivalent, paradoxical relationships), *educational means* (the fruitfulness of traditional games), and *structural analysis* (the communication roles and network properties of team triads). This may explain the lack of discussion of a major question: Why are team triads so scarce in traditional games? This question, the grounds on which they build their passionate research actually, is what justifies in fact the whole project: A sort of ludomotor engineering that tweaks and puts tradition to the test in a methodical, sophisticated way. In section 2.2, for instance, they strive to explain that a triad is always something more than a dyad, however its structural properties or the interpretations of the players. But the example they propose as a sort of transition between a dyad and a triad, the game called The Bear and its guardian, must be severely transformed to be so, and the original Parlebasian meaning of "sociomotor role" apparently reconsidered. There is a chance that this question requires a clearer distinction of the strategical, social roles proposed by Caplow, and the rules-based roles of game-players, who can be different within the same team (i.e., fielder and goalie in soccer; pitcher, catcher, and fielder in baseball, etc.).

Pic and Navarro seem to think of triadic games as an evolution of dyads. To them, triadic social systems seem to be an advanced option, and evolutional possibility. But the starting point could be just the opposite: Monodic or dyadic action systems could be seen as diminished, reduced social systems in which the triadic semiotic nature of reality cannot be fulfilled in terms of motor interaction. Any motor situation in which more than three agents interact leads to triadic motor interaction systems, that is, to motor action systems in which one player's acts must be interpreted as positive or negative in relation to any other two players' relationship. In team sports one's opponent's opponent is always a partner, and one's partner's opponent is always an opponent, but in Sitting ball this logic does not apply because the rules of the game do not enforce so, despite the fact that players in these ambivalent games are as constrained by the rules as players in team duels. Any paradoxical property of the internal logic of N-3 games is as much caused by the rules as its absence in sports, for any ludic paradox is a *praxic consequence* of rational motor decisions that break rationality while playing by the rules. Is there anything more absurd than being penalized by one's own scoring merits?

As I said above, this book has the ability to challenge one's beliefs. In my case, it turns upside down my childhood experience of playing tags and what I believed they are and can be used for. Pic and Navarros tagging triads break up with the socio-affective logic of ambivalent-unstable traditional games in which role-changing semiotricity leads to personal preferences rather than strategic choices. Furthermore, the inclusion of scoring artifacts like hats and cloths to fill in *structural holes* of the motor interaction networks of these games makes me wonder how close these team-triads can get to the logic of sports competition before losing their playful nature. Another paradox we must be aware of.

The paradox of triadic game-playing is a remarkable contribution to the field of motor praxeology because the authors openly aim to connect socially and educationally relevant topics with the inner, objective characteristics of a coherent type of motor tasks. Pic and Navarro have risked to take Parlebas' baton and successfully explored a subset of sociomotor networks from the rules, but beyond the duels. I feel as thankful for their contribution as intrepid to prompt them to considerer a second edition in which the physical educationist's point of view prevail in the presentation of the concepts, the development of the models, the description of the games, and the highlighting of the countless treasures that this *unorthodox* piece of work contains. I look forward to it!

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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Influence of Traditional Sporting Games on the Development of Creative Skills in Team Sports. The Case of Football

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The aim of this present study is to investigate the influence of three learning contexts on the development of motor creativity of young footballers (8–9 years old). In team sport, creativity is a fundamental issue because it allows players to adapt in an environment of high social uncertainty. To carry out this work, we suggest a method for assessing motor creativity into ecological situations based on the analysis of praxical communications. Creativity originates from an interaction between divergence and convergence. In our case, the number of communications (fluidity) and the diversity of updated communications (flexibility) are our divergence indicators. Convergence, understood as the ability to make good decisions, is assessed by two expert judges ($R > 0.90$). Sixty boys' football players ($M = 8.67$; SD = 0.3) coming from three football clubs participated in this research. The study lasted 2 years. Each year, a team of 10 players from each club participated in the research twice a week for 32 weeks (8 months), these groups attended different training sessions: (a) the control group ($n = 20$) followed a classical learning; (b) the decoding group ($n = 20$) attended training focused on learning the praxemes of football; (c) the traditional sporting games group ($n = 20$) followed a training session that was jointly focused on praxemes and the practice of traditional sporting games. The motor creativity of players and groups was assessed both at the beginning and at the end of the year during football matches. Compared to the control group, in the post-test, the group with the highest fluidity is the decoding group ($p < 0.001$) and the one with the highest fluidity is the traditional sporting games group. The latter group is also the one with the best convergence ($p < 0.001$). The results showed that traditional games can help develop players' creative abilities. This research invites us to investigate the complementarity between the different offered training.

Keywords: motor creativity, fluidity, flexibility, praxical communication, praxeme, traditional sporting game, football (soccer)

INTRODUCTION

Creativity refers to the ability to generate new, original work that is meaningful in its context (Amabile, 1996; Runco and Jaeger, 2012; Anderson et al., 2014). Creativity is not limited to the fields of "arts and sciences" or great discoveries (Lubart et al., 2015). It is now accepted that creativity can be found in all sectors: graphic, verbal, literary, social, scientific, mathematical, musical and

also in the field of games and sports (Parlebas, 1999; Memmert et al., 2013; Oboeuf et al., 2019). Furthermore, there are different levels of creativity (Beghetto and Kaufman, 2007). A thought or action may already have been performed by other people while being original, authentic and meaningful to its author in his own life context. This is the case, for example, when a team sports player manages to make a difficult technical gesture for the first time. However, contribution like Fosbury's flop or Panenka's shot can benefit from large-scale recognition by both experts in the field and in the public, helping to make a lasting change in the way we think or act. So there is a continuum that goes from personal creativity (Mini-C), creativity recognized by our different groups of belonging, from our friends (Little-C) or the actors in our fields of expertise (Pro-C), to creative eminence (Big-C).

Irrespective of the field and type of contribution, creative work involves a sequence of thoughts and/or actions called "creative process" (Guilford, 1950, 1967; Lau et al., 2013). Creative act is not spontaneous. It requires cognitive operations that are sometimes unconscious (Cropley, 2006; Vries and Lubart, 2019). Indeed, it is now accepted that creative ideas or actions result from the interaction between divergent thinking (fluency, flexibility, and originality) and convergent thinking (Chermahini and Hommel, 2010; Jaarsveld et al., 2012; Zhu et al., 2019). The diverging phase consists of generating a large number of ideas or behaviors in a given situation (fluency) but also with flexibility, that is, being able to diversify the categories of responses for the same situation (Forthmann et al., 2017, 2019). Originality can be a complementary observation criterion. It allows to focus on the unusualness and statistical rareness of the proposed solutions (Memmert et al., 2013).

The converging phase corresponds, for example, to make the best possible decision in a given situation (Jung and Chang, 2017). It is a global, cyclical process and also a "creative interaction" (Groborz and Necka, 2003). In a particular context, participants or groups that produce the most ideas or actions are often those that take the most adapted and original decisions (Lubart et al., 2013). Creativity has long been thought to be principally associated with certain personality traits (Eysenck, 1993; Furnham and Crump, 2014; Zhang et al., 2018), but it is henceforward known to depend largely on contextual factors (Parlebas, 1999; Memmert et al., 2013; Santos et al., 2016). For example, several studies using the sequential priming paradigm have shown that creativity in a situation increases with the previous environmental stimulations to which the subject has been exposed (Cai et al., 2009; Sassenberg et al., 2017). Bargh (2014) describes priming as part of the process by which sensation is turned into perception. In the field of sport, some studies show that social priming has a positive influence on creativity. If football players are presented with the performance of a creative player, they will tend to have better results on creativity tests (fluency, flexibility and originality) than if presented with the performances of a non-creative player (Memmert et al., 2013; Furley and Memmert, 2018).

In team sports, creativity plays a central, crucial role. Indeed, players frequently adapt themselves to the task constraints by interpreting the behaviors of their partners and opponents (Parlebas, 1999; Furley and Memmert, 2015). To be efficient, players must be unpredictable and adopt new ways to individually and collectively spoil the projects of the opponents (Oboeuf et al., 2009; Furley and Memmert, 2018). However, to our knowledge, there is little or no research dealing with in creativity in an ecological situation (Oboeuf et al., 2019). This is probably due to the difficulty of finding reliable indicators because motor behaviors, unlike verbal activities, occur in the three dimensions of space (Birdwhistell, 1970; Parlebas, 1999; Oboeuf, 2010).

Creativity can be observed in ecological situations (Pic et al., 2018, 2020). The "motor situation" is described like "a set of objective and subjective elements that characterize the motor action of one or more players in a given physical environment when performing a motor task" (Parlebas, 1999, p. 337). In motor games, the motor situation brings together the context and its achievements *in situ*. Creativity is therefore dependent on the context, i.e., the structure of communications to which players are subjected by the rules of the game. We don't communicate in the same way during a football match or a *balle assise* game (Parlebas, 1999; Collard, 2004; Pic et al., 2019). The "framework" (Goffman, 1974) channels motor behavior and helps to understand the strategic choices of players (Pic et al., 2020). The creative player is the one who, in this bundle of constraints, will manage to be unpredictable for the opponent in his communication choices. Football belongs to the same domain as many other team sports and traditional games in which the players must make decisions under strict conditions of social uncertainty (Márquéz Jiménez and Martínez-Santos, 2014). Every player's conduct is always communicative (Parlebas, 1999). The player must have the ability to "read the game," to attribute the right strategic meanings of the motor behavior of other players.

In team sports, praxical communication is divided into two broad interdependent categories (Parlebas, 1999; Dugas, 2005). The first one, is considered a direct communication (DC). It is often the only one of worthy interest, because it is closely related to the achievement of the motor task: it involves either a direct relationship to the object (pass, shot, interception, tackle) or to the body of the partner or opponent (contact). This is the first-degree of interpretation of the players' behavior. In football, this direct communication accounts for 15–25% of communication (Oboeuf et al., 2009). The second category concerns the signs (or praxemes) that are used as support for these direct communications and ensure the overall dynamics of the game. These praxemes are considered as indirect communication (IC). In football, the "ball's call" is a sign: if a player produces a run to request a pass, the "running" behavior will mean it while the message. In other words, the signified will be the request for a pass from the partner. Ball's call, but also holding run, recolocation or body feint, are some of these motor signs (Márquéz Jiménez and Martínez-Santos, 2014). The analysis of these signs is a semiology of the motricity, that corresponds to the semiotricity (Parlebas, 1999; Martínez-Santos, 2007; Ghannouchi et al., 2019; Martínez-Santos et al., 2020). It accounts for 75–85% of communication in team sports (Oboeuf et al., 2009). They are inseparable from the game action.

Praxeme requires an intention to communicate from the part of the partner or adversary. For example, by advancing

toward an opponent who has the ball (focusing run), I want to dissuade him from getting closer to my goal or hinder him in his tactical intentions. Each praxeme can be made up of several clues: position of the supports and of the different body segments, orientation of the bust and head, direction changes, acceleration positioning in space or relatively to other protagonists, and so on. It is these observable elements, these motor behaviors, that will combine together to form a praxeme. The index alone has no communicative value (Winkin, 2001). Praxemes are the "common code," the directory of signs from the rules that players use to communicate in situations. It is possible to identify the praxemes of a team sport because "signs and sign systems are objectifications insofar as they are available beyond the expression of subjective intentions "here and now"" (Berger and Luckmann, 2006, p. 92). Note that each praxeme has variants without changing its meaning (or signified). These variants differ in three directions: intensity, amplitude and speed (Birdwhistell, 1970; Winkin, 2001; Oboeuf, 2010). Below (**Table 1** and **Figure 1**) we present the 5 direct communications and the 14 praxemes recorded in football (Oboeuf et al., 2009, 2019). The reliability of these praxemes was confirmed by means of a generalizability analysis (Márquéz Jiménez and Martínez-Santos, 2014).

Players must adapt to this sign system, "this secret code" (Oboeuf, 2010), by assigning *in situ* the right meanings to the behaviors of other players. Mastering of praxemes and their articulations is a stake to improve motor creativity (Oboeuf et al., 2019). In team sports, motor creativity operationally refers to: (1) a player's ability to mobilize a large number (fluency) and a great variability (flexibility) of praxemes, that is to show divergence. Furthermore, originality of praxemes is also a criterion of divergence. We do not deal with originality here because originality concerns only some rare praxemes but not the global sign system of team sports; (2) the ability to make the appropriate motor decisions on a game time sequence, that is to show convergence. The creative player is the one who both energizes the game by multiplying a variety of praxemes and makes the best decisions. Each motor action being unique, it is the one that proves most able to surprise, to weaken the balance of opponents by proposing new and adapted answers to the context in which they manifest themselves (Lubart et al., 2015; Oboeuf and Parlebas, 2018).

Based on the above considerations, the proposed study had two objectives:

(1) To propose a method to assess motor creativity (divergence and convergence) in an ecological situation.
(2) To use this methodology, to compare the influence of three learning contexts (focused either on technique, praxemes, or on praxemes and traditional sporting games) on the evolution of the participants' motor creativity.

In relation to these objectives, two hypotheses are formulated:

(1) Players' performances in fluidity and flexibility are correlated. In addition, they would be related to

convergence performance. In other words, we think that players who use the most praxemes are also the ones who mostly diversify them. They are also the ones who make the most creative overall services from the experts' point of view.
(2) Training based on learning praxemes and traditional sporting games improves creativity. These games, because of the diversity of their communication structures, can help to develop the decoding abilities of players, their adaptability and ultimately their creativity.

MATERIALS AND METHODS

Study Design

The use of mixed methods allows the study of the scenario of playful specificity due to the relevance of the temporal order of motor events (Arias-Pujol and Anguera, 2017). Mixed methods (Anguera et al., 2018) allow for the full vision of the subject of study, the flexibility of the conceptual framework and the inclusion of new dimensions (Johnson et al., 2007). These methods are suitable for the analysis of motor creativity in its context and complexity. This choice is justified by the work on purely quantitative aspects (number/diversity of praxemes and quality control of data) with the use of qualitative aspects such as the design of an observation grid and the evaluation of convergence by trained judges (Storme and Lubart, 2012). For this, the use of mixed methods was justified by observational methodology, based on the categories of communications (Parlebas, 1999) and the temporal structure of motor actions.

Our observational methodology is a methodological approach adapted to work on the ecological dimension in sport and physical education (Pic et al., 2018). More concretely, a quadrant III observational methodology is applied (Anguera and Hernández-Mendo, 2016). A design was applied that was: (a) nomothetic, as data on different players were recorded; (b) punctual, because the observation were raised in a precise moment, and (c) multidimensional, since different dimensions (criteria) were taken into account (Pic et al., 2018).

Participants

The number of football players was 60 boys between 8 and 9 years old ($M = 8.67$; $SD = 0.3$) from three football clubs in the Hauts-de-France region (France). These three clubs were selected because the coaches agreed to participate in the study and to be trained in new coaching methodologies. The clubs were selected according to accessibility and intentionality (Anguera et al., 1995). The study lasted 2 years. Each year, a team of 10 players from each club participated in the research. Twice a week for 32 weeks (8 months), these groups attended different training sessions: (a) The control group (C; $n = 20$) followed a classical learning as recommended by the French Football Federation (FFF); (b) The decoding group (D; $n = 20$) attended training focused on learning the praxemes of football; (c) The traditional sporting games group (TG;

Direct communications	Categorical core
Interception	Action on the ball by the opponent avoiding him from reaching its destination, cutting the pass line or shot.
Tackle	Action when the opposing player is in ball possession through a struggle or fight which aims to steal it.
Contact	Shoulder to shoulder contact between two adversaries who wish to take the ball.
Pass	Technical action that transmitting the ball by one tap enables the relationship between two teammates.
Shot	All aware throw to the goal in order to make goal.
Indirect communications (praxemes)	**Categorical core**
Slip	Motor action (MA) in which the player, coming from an opponent's back or side of and oriented in relation to the bearer, tries to generate free space for himself for the next action.
Ball's call	MA in which the player anticipates a possible pass making acceleration toward the goal with the intention to speed up the play and/or winning position.
Ball's countercall	MA in which the player does an abrupt acceleration in another direction than the ball's call, which is necessarily above, with the intention to get free spaces generated by itself to the next motor action.
Cross run	MA characterized by a player who crosses by the nearest part of his own goal from one side to another of the bearer's teammate, and whose intention is to destabilize the opposing defense.
Supporting run	MA in which the player in front of the bearer makes a run to provide a pass solution.
Holding run	MA in which the player behind the bearer makes a run to provide a pass solution.
Returning run	Run of a player who just lost the ball and quickly returns to his defensive position to make the progress of the adversaries progress more difficult.
Focusing run	Run of a player into the rival bearer or receiver in order to reduce the maneuver margin of the opposite team.
Tracking run	Run of a player who follows his direct opponent in order to reduce the maneuver margin of the opposite team.
Recolocation	MA characterized by lateral or anterior-posterior movements of the player that tries to be located in a suitable area according to teammates, opponents and the ball.
Fixation	MA characterized by a run oriented to an area defended by two opposing players in order to create a numerical superiority and facilitate the pass to a teammate in a generated free space.
Passing feint	Bearer's MA that makes his opponents believe that he is going to do a pass, while his intention is another one (dodge, fixate, shot or pass to a teammate).
Shooting feint	Bearer's MA that makes his opponents believe that he is going to do a shot while his intention is another one (dodge, fixate, shoot or pass to a teammate).
Body feint	Bearer's MA that makes his opponents believe he is going to go on one side while finally going on another.

$n = 20$) followed a training session that was jointly focused on praxemes and the practice of traditional sporting games. The motor creativity of players and groups was evaluated at the beginning (September) and at the end of the year (June) during football matches. This study was carried out in accordance with the recommendations of *ethics committee* of the University of Paris (France) with written informed consent from all parents or legals tutors of all participants (Declaration of Helsinki).

Procedure

We recruited 3 football coaches who coach players 8–9 years old (Under 9 category). They have been playing football for at least 10 years and have been coaching for at least 5 years at the time of the study. These three coaches followed the formation and qualification given by the FFF and have the mandatory diplomas to coach in this category. For 2 years, each coach offered his players specific training sessions. Two sessions of 75 min were proposed per week.

The coach of the control group ($n = 20$ over 2 years) did not use any specific training. His players attended a classical learning as recommended by the FFF. This training concerned

essentially technical aspects of the game and some tactical contributions. Sessions around ball driving, control, passing, penalty shootout and finally dribbling were preferred. Mostly, during 2/3 of each session, one of these technical aspects was individually addressed with a few motor interactions with partners and opponents. The match time that closed the session (20′). An example of a session is presented in the following table (**Table 2**).

The other two coaches took part in a twenty-hour training course focused on learning praxemes. The decoding group ($n = 20$) only focus on learning and decoding praxemes and therefore, mainly, on playing off the ball. Each session focuses on one of the 14 praxemes presented above ("Ball's call," "Holding run," "Body feint," and so on.). In each proposed situation, we made sure to always consider the decoding signs in order to facilitate their learning. In other words, in every situation, there was always at least one opponent and/or partner whose motor behaviors might be interpreted. Each situation offers social uncertainty. Each session ended with a match time like for the control group (20′). The traditional sporting games group ($n = 20$) participated also in a training focused on decoding praxemes. But one or two training situations were substituted by the practice of
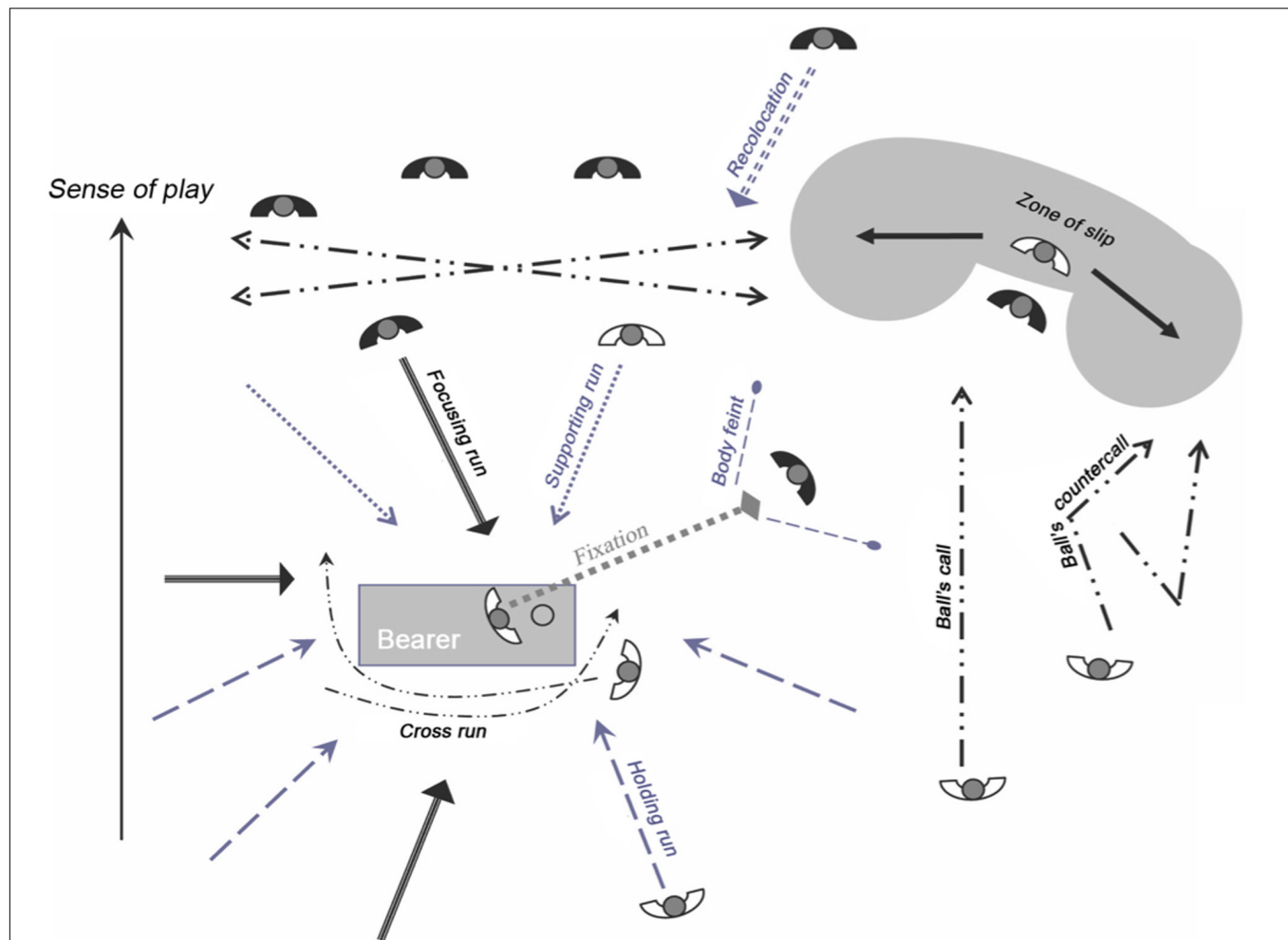
FIGURE 1 | The main praxemes mobilized by footballers during the course of the game. Four praxemes do not appear on the diagram. (i) "Returning run," which is the driving action of a player who returns to his side after his team loses the ball; (ii) "Tracking run," which is the driving action of a player who returns to his side by following an opposing player after the loss of the ball by his team; (iii) "Shooting feint"; (iv) "Passing feint."

TABLE 2 | Description of situations offered to players aged 8–9 during a traditional (technical–tactical) training session on the topic of the pass.

Situations	Descriptions of the proposed situations
Warming up (10′) – Goal: to warm up by progressing in the technical mastery of the object.	Each player trots while driving a ball.
Juggling (10′) – Goal: to progress in the technical mastery of the object.	Each player juggles with his strong foot, then with his weak foot and then with the head.
The bowling game (10′) – Goal: to progress in the accuracy of passes (no opponent).	Players go head-to-head, leaving a distance of 20 meters between them. We position a stud between the two players. In turn, each player must try to touch the plot and score a point if he succeeds. Variation: Reduce or increase distances.
Pass and Follow (10′) – Goal: To progress in the accuracy of moving passes (no opponent).	We separate the group into two equal subgroups that we induct in line face to face 10 meters from each other. The first player in Group A drives the ball and passes to the first player in Group B and then moves to the end of Group B., and so on. Variation: Pass made with a touch of the ball.
Passes and follows (combination) then shoots (10′) – Goal: Progress in the accuracy of passes and build a collective action (no opponent).	Five studs are settled out 5 meters apart. Five players position themselves at each plot, listed from A to E. Player A passes to Player B and then takes his place. Player B passes to Player C and then takes his place, and so on. The last player controls and strikes on goal, and so on. Variation: passes made without control.
Match (20′) – Goal: to put players in situations to contextualize the work done on the pass.	
Return to calm (5′) – Goal: stretch and exchange on the theme of training.	

TABLE 3 | Description of the situations offered to players aged 8–9 during a training session to decode the praxemes on the theme of "ball calling." A traditional game called "4 corners game" also allows you to work on this theme.

Situations	Descriptions of proposed situations
Warming up (10′) – Goal: Learning to spot accelerations.	The players are by 3 and trotted as they please on the field. A player is in possession of the ball. As soon as one of his two partners engages a brief acceleration, the player with the ball transmits to him in the race, and so on.
"4 corners game" (10′) – Goal: to learn how to spot partners' start-ups to act.	We delineate a square of 5 × 5 meters with 4 studs. Initially, a player is in the middle. The game begins when the other four players hold their corners: the foot must touch the stud. You can only go back to your corner after you've occupied another corner or the middle. It's about leaving your corner and finding another one before the middle person catches us. It's a game of races and collective combinations.
The 2-on-1 (15′) call – Goal: to stand out thanks to body feints and ball calling.	A space of 20 meters by 10 meters is delimited for three players. A player owns the ball at one end of the field while his partner is marked by an opponent. This partner must surprise his opponent by using body feints and then a brisk acceleration. The ball carrier must pass the ball to him in the race and the player must manage to retrieve it and cross the line to the other end of the 20 meters without being "caught" by his opponent.
The 3-on-2 (15′) ball call – Goal: stand out in the right tempo to receive the ball in good conditions.	Players leave the middle of the field. The carrier is in the center circle. 10 meters from him, on either side of the halfway line, are an opponent and a partner. One of his partners must choose the right time to engage in a ball call and distance himself from his direct opponent. The carrier must make the pass in the right tempo to put one of his partners in ideal condition. He can choose to shoot at goal or switch to a better-placed partner. All players participate at the end of the action, including the initial carrier.
Theme match (20′) – Goal: to put players in a situation to contextualize the work done on the "ball call." Prohibition of passing the ball to a static player.	
Return to calm (5′) – Goal: stretch and exchange on the theme of training.	

traditional games. The coach in charge of this group knows the traditional sporting games because he holds the Aptitude Patent for The Functions of Animator. He participated in a 5 hours overtime training. Below is an example of a session for this group (**Table 3**).

Data were recorded during football tournaments held at the beginning (pre-test in September) and at the end of the school-year (post-test in June). For each club ($n = 10$ players), two teams of five players were randomly created and participated in the tournament. Consequently, each year (n and n + 1), we had six teams of five players who participated in each tournament. Each team played 4 matches for 12-min games. For example, Team 1 of the Control group 1 played against the two teams in the decoding group and the two teams in the traditional sporting games group. Indeed, players from the same club did not play any match together. The teams were the same during the pre-test and post-test. In each of the four tournaments organized during the 2 years (2 in October and 2 in May), each player was observed for 4 matches of 12 or 48 min. This represents 2880 min of play to be analyzed for all players.

Each match was recorded through the use of two cameras so that it would be possible, in case of doubt in the observations, to resort to a second angle of vision. A single recording was made from the beginning to the end of the game. To carry out the analysis of data, 20 students (football specialists) were trained to recognize practices in a gaming situation. This training includes 6 h of theoretical inputs and 10 h of practice. Each player's direct ($n = 5$) and indirect ($n = 14$) communications were analyzed by two observers to account for their ability to demonstrate fluency and flexibility (divergence). Convergence is an assessment of overall delivery, the ability to make the right decisions. For each player, this was carried out by two trained judges who must assign a score between 1 and 10. A player close to 1 is considered a non-creative: he makes decisions that never surprise his opponents and neither destabilize his partners. The player close to 10 is

considered as very creative: he makes decisions that surprise his opponents and help his partners.

Data Quality

In order to determine the data quality (Márquéz Jiménez and Martínez-Santos, 2014), inter-observer reliability and validity tests were carried out. Once the observers had uploaded the video into the Lince program, they started to record, separately (Gabín et al., 2012). Each time, the observer detects a praxeme or direct communication from the player, he presses the corresponding button to record the information. Pearson and Spearman correlation coefficients were used. Their values always exceeded 0.96, thus indicating a high correlation between the inter-observer measurements. To assess convergence, for each player, two independent raters (soccer experts with longtime coach occupations and high-level trainer certifications) judged global behaviors. They did not know the objectives of the work. The inter-judge reliability coefficient was above the critical limit of 0.80. Indeed, inter-judges correlation coefficients are all greater than 0.90.

Variables

We first computed the sum of occurrences of respectively direct (DC) and indirect (IC) communications for the PRE and POST conditions. The fluency, flexibility and convergence were also computed for participants belonging to all the groups (decoding D, traditional games TG, and control C).

The fluency (FLU) was defined as the sum of all the direct and indirect communications used by the participant. The flexibility (FLEX) is the number of different communications regardless of the number of occurrences of each communication. The convergence corresponds to the mean score awarded to each participant by the experts during evaluations. We also computed DFLU, DFLEX, DCONV the differences between

observed variables values between the beginning and the end of the training.

Data Analysis

Consequently, we obtained from the score six dependent variables (FLU, FLEX, CONV, DFLU, DFLEX, DCONV) with two factors: GROUP which is a three-level factor identifying the group of practices, and PRE/POST which is a two-level factor. To measure the effect of these factors on the dependent variables, we first processed ANOVAs on FLU, FLEX, CONV with the GROUP and PRE/POST factors, and then ANOVAS on DFLU, DFLEX and DCONV with the GROUP factor only, to question the effect of the type of training on the progressions of children. For this last analysis we also estimated the effect size (η^2). *Post hoc* tests with Bonferroni corrections were also made to compare the mean values of variables.

The significance threshold was set to 0.05, and a tendency to significance was determined by a *p* value inferior to 0.1 but not inferior to 0.05.

Materials

Judges recorded the direct and indirect communications with the Lince software (Gabín et al., 2012) and the JASP statistical software[1] was used for statistical calculation and analysis.

RESULTS

Direct and Indirect Communications

The mean amount of direct and indirect communications increased in the three groups. However, this increase seems to be lower in the control group (**Table 4** and **Figure 2** below).

The results of ANOVAs are summarized in the **Table 5** below. The main factors GROUP and PRE/POST are significant for both DC and IC. However, the influence of the type of training depends significantly on the group since the GROUP × PRE/POST interactions are significant. The progression in the mean amounts of DC and IC is not the same in the different groups since the GROUP factor is significant both for DC and IC.

Post hoc tests show that the mean DC and mean IC do not differ significantly among groups for the PRE measure. For the POST measure, the mean DC number of the TG group exhibits a tendency to differ from the mean DC of the control group
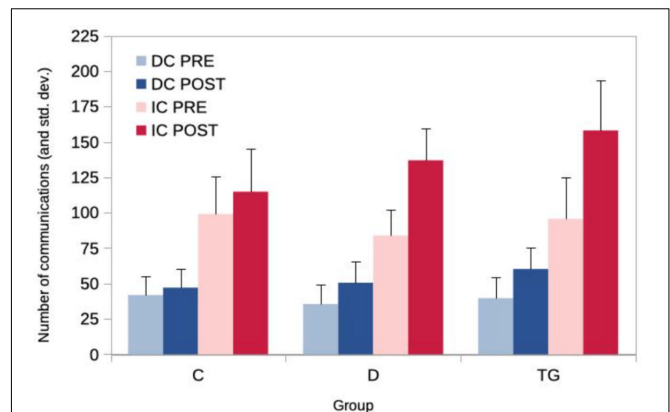
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[1] https://jasp-stats.org/

FIGURE 2 | Mean number of direct (DC) and indirect (IC) communications for the PRE and POST measures in the three groups.

TABLE 5 | Results of the ANOVAs for the direct and indirect communications scores, and for the changes in direct and indirect communications between the PRE and POST measures (progression).

	Scores		Progression	
	DC	IC	DC	IC
GROUP	$F[2,57] = 1.764$; $p < 0.181$	$F[2,57] = 3.23$; $p < 0.047$	$F[2,57] = 6.187$; $p < 0.004$; $\eta^2 = 0.178$	$F[2,57] = 53.5$; $p < 0.001$; $\eta^2 = 0.652$
PRE/POST	$F[1,57] = 57.03$; $p < 0.001$	$F[1,57] = 504.28$; $p < 0.001$		
GROUP × PRE/POST	$F[2,57] = 6.187$; $p < 0.004$	$F[2,57] = 53.5$; $p < 0.001$		

For the DC and IC scores, the effects of the GROUP and PRE/POST factors and their interaction were considered, whereas we obviously analyzed only the effect of the GROUP factor for the progressions.

($p_{bonf} < 0.061$). However, concerning indirect communications, the mean of the TG group differs significantly from the mean of the control group ($p_{bonf} < 0.001$). This was not the case for the D group.

The mean progression of the TG group for DCs was significantly different from the mean progression of the control group ($p_{bonf} < 0.003$) whereas the mean of the D group has only a tendency to be different ($p_{bonf} < 0.094$). For indirect communications, both the TG and D groups exhibit a significant difference with the mean of the control group ($p_{bonf} < 0.001$).

Fluency, Flexibility and Convergence

The scores obtained for fluency, flexibility, and convergence increased in the three groups between the PRE and POST measures. Again, the scores of the control group seems to increase less than the other scores (**Table 6**).

The results of ANOVAs are summarized in the **Table 7** below. Concerning the scores for FLU, FLEX, and CONV, the GROUP main factor was not always significant. However, both the PRE/POST factor and GROUP × PRE/POST interactions were shown as systematically significant for the three variables. This means in particular that the effect of the type of training

TABLE 4 | Means and standard deviations of the number of direct and indirect communications for the PRE and POST measures for the three groups.

GROUP	Direct communications		Indirect communications	
	DC PRE	DC POST	IC PRE	IC POST
C	41,85 (±13,41)	47,1 (±13,13)	99,1 (±26,39)	114,85 (±30,14)
D	35,55 (±13,75)	50,55 (±14,64)	83,95 (±17,84)	137 (±22,71)
TG	39,65 (±14,65)	60,25 (±15)	95,7 (±29,26)	158,05 (±35,21)

TABLE 6 | Means and standard deviations for the fluency (FLU), flexibility (FLEX), and convergence (CONV) for the PRE and POST measures in the three groups.

	Fluency		Flexibility		Convergence	
GROUP	PRE	POST	PRE	POST	PRE	POST
c	140,95 (±33,88)	161,95 (±37,10)	12,25 (±1,48)	13,15 (±1,14)	5,6 (±1,35)	5,95 (±1,15)
D	119,5 (±28,03)	187,55 (±31,39)	12,1 (±1,52)	16,15 (±1,57)	4,8 (±0,95)	6,85 (±0,88)
TG	135,35 (±40,31)	218.3 (±44,06)	12,7 (±1,66)	15,7 (±1,89)	5,25 (±1,45)	7.6 (±1,23)

TABLE 7 | Results of the ANOVAs for FLU, FLEX, CONV and for their progressions between the PRE and POST conditions.

	Scores			Progression		
	FLU	FLEX	CONV	DFLU	DFLEX	DCONV
GROUP	$F[2,57] = 3.351$; $p < 0.042$	$F[2,57] = 8.5$; $p < 0.001$	NS	$F[2.57] = 41.73$; $p < 0.001$; $\eta^2 = 0.594$	$F[2.57] = 17.175$; $p < 0.001$; $\eta^2 = 0.376$	$F[2,57] = 47.28$; $p < 0.001$; $\eta^2 = 0.624$
PRE/POST	$F[1,57] = 393.54$; $p < 0.001$	$F[l,57] = 140.66$; $p < 0.001$	$F[1.57] = 305.66$; $p < 0.001$			
GROUP × PRE/POST	$F[2,57] = 41.73$; $p < 0.001$	$F[2,57] = 17.175$; $p < 0.001$	$F[2.57] = 47.28$; $p < 0.001$			

For the FLU, FLEX, and CONV scores, the effects of the GROUP and PRE/POST factors and their interaction were considered, whereas we obviously analyzed only the effect of the GROUP factor for the progressions.

has an influence on the mean progression on participants. This result was confirmed by the ANOVAs made on progressions of children. The GROUP factor had systematically a significant influence on the mean progressions of all the three variables with a moderate to high effect size (η^2).

Post hoc test with corrections for multiple comparison were used to compare the mean scores and the mean progressions. Results are also displayed of the figures (**Figure 3**). Concerning fluency, the mean scores of the three groups are not significantly different for the PRE measure. But for the POST condition, the mean fluencies of the TG and control groups are significantly different ($p_{\text{bonf}} < 0.001$). The flexibility means scores of the three groups did not differ in the PRE measure, but mean flexibilities of D and TG groups differ significantly from the mean flexibility of the control group in the POST measure ($p_{\text{bonf}} < 0.001$ for both). Concerning convergence, there was no difference between means of the three groups for the PRE measure, but TG mean convergence differs significantly from the mean convergence of the control group.

The progressions in fluency, flexibility, and convergence of D and TG groups differ significantly from the progression of the control group ($p_{\text{bonf}} < 0.001$). However, there was no significant difference in progression between the D and TG groups.

In conclusion, fluency, flexibility and convergence increased in each group. However, this progression is more important and similar for the TG and D groups.

Relationship Between Convergence and Both Fluency and Flexibility

In order to investigate the link between scores in fluency and flexibility, and convergence, and their progression, we looked at the correlation between these three variables independently for the PRE and POST measures. The results are summarized in the **Table 8** below:

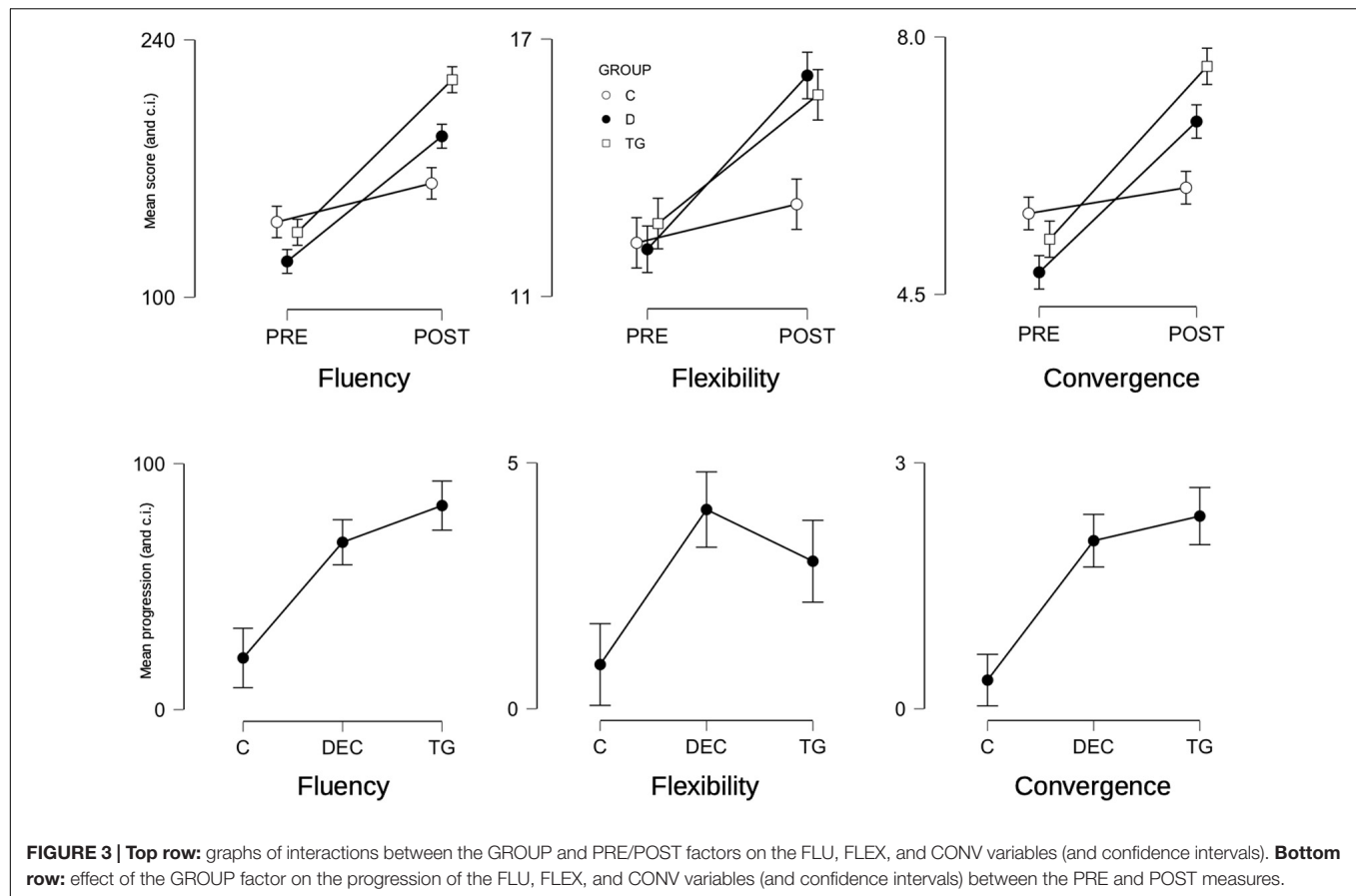**TABLE 8 |** Coefficients of correlation between the FLU, FLEX, and CONV variables in the PRE and POST conditions.

	Scores	
	PRE	POST
FLU × FLEX	$R = 0.527^{***}$	$R = 0.603^{***}$
FLU × CONV	$R = 0.890^{***}$	$R = 0.893^{***}$
FLEX × CONV	$R = 0.504^{***}$	$R = 0.570^{***}$
	Progression	
DFLU × DFLEX	$R = 0.586^{***}$	
DFLU × CONV	$R = 0.784^{***}$	
DFLEX × CONV	$R = 0.457^{***}$	

*The three stars ("***") mark labels a significant correlation (Pearson correlation test) that give a p value inferior to 0.001.*

We found that all these variables are significantly correlated. These results confirmed the correlation already demonstrated in the literature between flexibility and fluency (Forthmann et al., 2017). Concerning the scores, the correlation seems to systematically increase in the POST measure. Progressions are also significantly correlated. The effect size of the correlation is important and the highest between fluency and convergence scores ($R^2 = 0.8$), and fluency and convergence progressions ($R^2 = 0.615$).

DISCUSSION

The goal of the present study was to see if contextual factors, different training types here, influenced the motor creativity of young footballers (8–9 years) in ecological situations. In the field of sport, works on social priming have already shown that creativity can increase with environmental stimulations to which the subject has been exposed (Memmert et al., 2013; Furley and Memmert, 2018). The main limitation of social priming studies

FIGURE 3 | Top row: graphs of interactions between the GROUP and PRE/POST factors on the FLU, FLEX, and CONV variables (and confidence intervals). **Bottom row:** effect of the GROUP factor on the progression of the FLU, FLEX, and CONV variables (and confidence intervals) between the PRE and POST measures.

is that they are mainly carried out in laboratories and not in ecological situations (Doyen et al., 2012; Pashler et al., 2013). However, Bargh (2014) argues that social priming is more likely to have effects on real-world situations than in conventional cognitive tests. Furthermore, few researches, even outside of sport, demonstrated that priming influences creativity in more naturalistic contexts (Berger et al., 2008; Papies et al., 2013). In this study, we proposed a method to assess the influence of the environmental factor on motor creativity in representative settings (Parlebas, 1999; Furley and Memmert, 2018; Pic et al., 2018; Oboeuf et al., 2019; Pic et al., 2020).

Analysis of the rules and repeated observations of the game-playing allowed us to bring out all the communications used by players to be creative, i.e., unpredictable for opponents (Parlebas, 1999; Oboeuf, 2010; Márquéz Jiménez and Martínez-Santos, 2014; Oboeuf et al., 2019). From the recording of communications, we computed two divergence indexes: fluidity and flexibility. The more indirect and direct communications a player uses, the more fluid he or she is considered. The more he/she diversifies them, the more it is considered as flexible. In the literature (Lubart et al., 2015; Forthmann et al., 2017), fluidity and flexibility are always found as strongly correlated ($R = 0.80$ to 0.90). Results from our methodology corroborate those obtained in the literature. The more communications football players use, the more diverse they are. Our coefficients of correlation were $R = 0.527$ ($p < 0.001$) in the pre-test and $R = 0.603$ ($p < 0.001$) in

the post-test. Our methodology highlights the same phenomena than in the literature data. We suggest that correlations are weaker because the players have specific tactical roles (right defender, left midfielder, center-forward, etc.) that can sometimes inhibit the use of some communications. For example, a defender will probably make fewer "shooting feints" than an attacker and *vice versa*, the attacker will make fewer "tackles" than a defender. Defenders are often asked to limit risks, which is to value fluidity at the expense of flexibility. On the other hand, attackers are often asked to take risks, which means valuing flexibility.

Another point is worth asking. It concerns the relationship between divergence (fluidity and flexibility) and convergence. We postulated that during a match, a player who diversifies his communications and performs a large number of them, will be considered as more creative by the expert judges (inter-judge correlation: $R > 0.90$). The correlation coefficients between flexibility and convergence were $R = 0.504$ in the pre-test ($p < 0.001$) and $R = 0.570$ in the post-test ($p < 0.001$). The correlation coefficients between fluidity and convergence were even more important: $R = 0.890$ in the pre-test ($p < 0.001$) and $R = 0.893$ in the post-test ($p < 0.001$). Although our results need to be confirmed by other studies, they seem to underline the fact that there is a strong "creative interaction" linking divergence and convergence in the creative process in an ecological situation (Groborz and Necka, 2003; Chermahini and Hommel, 2010; Zhu et al., 2019).

This methodology has been used to investigate the influence of the contextual factors on the development of motor creativity in young footballers aged 8–9 years. What is the learning environment that promotes the best progression in participants?

First of all, it should be noted that, during the pre-test, the average amount of communications (direct and indirect) does not significantly differ between groups. During the pre-test, this is also the case for the indicators of fluidity, flexibility and convergence. This emphasizes the initial homogeneity of the groups and their comparability. On the other hand, for the sample as a whole ($n = 60$), there is a significant difference in the volume of communications used between pre-test and post-test ($p < 0.001$). The interesting result is that this progression depends significantly on the group and therefore on the learning context proposed in the study ($p < 0.001$). The control group is the least creative: it performs the worst for all three indicators (fluidity, flexibility, and convergence). Traditional training seems to be too focused on learning direct communications, i.e., technical gestures (passes, shooting, ball-driving, etc.), to the detriment of indirect communications, i.e., praxemes. However, it is "in the game without the ball that the dynamics of collective duels are based" (Collard, 2004, p. 6). By working the praxemes only with a fortuitous way, coaches cut themselves 75 to 85% of the updated communication during matches (Oboeuf et al., 2009) and this limits the development of motor creativity. There is a "secret code" (Sapir, 1971, p. 46), made up of praxemes and their joints, which is marginalized in this traditional training form.

The results obtained by the Decoding group (D) differ from those in the Control group (C). This group outperformed the control group in the field of fluidity, i.e., in the number of updated communications *in situ*. In particular, there was a strong significant difference for indirect communications ($p < 0.001$). But it should be noted that it is in the area of flexibility that Decoding group is the best performer (**Figure 3**). The variability in the used praxemes is greater here than for the two other groups (TG and C). Indeed, players used a large part of the available praxemes. The learning of praxemes carried out during training situations is reinvested during matches. This is an indication that an intra-specific learning transfer occurred (Dugas, 2005; Parlebas and Dugas, 2005; Kearney and Judge, 2017). Learning praxemes, i.e., working on semiotricity, is a crucial issue to make the game more dynamic and to develop the motor creativity of participants (Parlebas, 1999). The more players master praxemes, the more accurately they will decode the opposing strategic choices and the more they will be, individually and collectively, creative.

The Traditional sporting Games group (TG) presents also some interesting results. Like the Decoding group, it had the characteristic of being more fluid than the control group, using more significant communications. In fact, this group had the best fluidity. Unlike the Decoding group, these differences also depend on direct communications ($p < 0.003$) and not just indirect communications ($p < 0.001$). In other words, beyond the strong global dynamics associated with praxemes,

these players also made more passes, shots and interceptions. Players of the Traditional sporting Games group were also those who performed the best creative performances, in other words, who had the best convergence (**Figure 3**). As suggested in the literature, there is an interspecific transfer between traditional games and team sports (Dugas, 2005). By being confronted with motivating, complex and varied communication structures (asymmetry and/or imbalance and/or ambivalence and/or instability), players develop their adaptability (Parlebas, 1999; Lavega et al., 2014; Pic et al., 2019). From the point of view of the experts asked to evaluate their performance, they more often surprise their opponents with their motor decisions and ultimately show more motor creativity (Oboeuf et al., 2019). Specifically, if the player "has grasped the interactional system that regulates the participants' game, he can predict the movements a few moments before their actual occurrence" (Winkin, 2001, p. 120). Our study demonstrates that it is possible to teach the player to better anticipate, to pre-act and to make the right strategic choices in an environment of high social uncertainty (Martínez-Santos, 2007; Ghannouchi et al., 2019).

Among the limitations of this study, it should be noted that the number of participants ($n = 60$) could have been greater. It would also be interesting to replicate this study with other audiences and in other sports to determine if the influence of contextual factors on motor creativity is preserved, increased or reduced. Moreover, the link between the development of motor creativity and the communication structures of the proposed traditional games should be deepened. We also suggested above that the relationship between tactical roles of the game and motor creativity could be more fully asked. On the other hand, the influence, at a given age, of the level of physical, cognitive and emotional development of the participants could also help to better define the specific influence of contextual factors on the motor creativity increase. Finally, to better define the involved mechanisms in the strategic choices made *in situ*, we could conduct interviews of self-confrontations with the players (Aiguier et al., 2015; Martinent et al., 2015). This could bring interesting elements to support the development of motor creativity.

CONCLUSION

A methodology for assessing motor creativity in ecological situations has been proposed. Even if its relevance must be confirmed by subsequent studies, the results have highlighted the possibility of designing indicators of divergence and situational convergence. On this basis, we were able to explore the influence of three learning contexts on the motor creativity of players *in situ*. Clearly, the type of proposed training influences the development of creative abilities. The results of this study invite to question the current content of the trainings recommended by the FFF. Learning seems to be too focused on the physical, tactical and technical aspects of the game (Clemente et al., 2016; Gonçalves et al., 2017). These three dimensions offer valuable performance support in group sports, but they can

only be efficient if the participant manages to properly decode the behaviors of other players. The challenge is therefore for young footballers to master the "secret code" of their practice. Finally, our study lays the groundwork for a reflection on the complementarity between these different training forms. We think that new proposals should not neglect the necessary creative dynamics that players must mobilize in order to find solutions to the problems they meet.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

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ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Ethics Committee–University of Paris. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

AO, SH, and JB have contributed to the theoretical and methodological development of the manuscript. CF and LL have contributed with the data analysis. AO, SH, and LL have prepared results and discussion. All authors contributed to the article and approved the submitted version.

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