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Boredom: The elephant in the room

Edited by
Doris Sommer, Robert D. Austin, Alexandra Vuyk, David M. Ndetei, Nicolas Prevelakis, Pier Luigi Sacco and Josefa Ros Velasco

Published in
Frontiers in Sociology
Frontiers in Education

ISSN 1664-8714
ISBN 978-2-8325-5176-9
DOI 10.3389/978-2-8325-5176-9

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Boredom: The elephant in the room

Topic editors

Doris Sommer — Harvard University, United States
Robert D. Austin — Western University, Canada
Alexandra Vuyk — Universidad Católica "Nuestra Señora de la Asunción", Paraguay
David M. Ndetei — University of Nairobi, Kenya
Nicolas Prevelakis — Harvard University, United States
Pier Luigi Sacco — University of Studies G. d'Annunzio Chieti and Pescara, Italy
Josefa Ros Velasco — Complutense University of Madrid, Spain

Citation

Sommer, D., Austin, R. D., Vuyk, A., Ndetei, D. M., Prevelakis, N., Sacco, P. L., Velasco, J. R., eds. (2024). *Boredom: The elephant in the room*. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-8325-5176-9

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frontiers | Frontiers in Sociology

TYPE Editorial
PUBLISHED 05 July 2024
DOI 10.3389/fsoc.2024.1443980

OPEN ACCESS

EDITED AND REVIEWED BY
Hannah Bradby,
Uppsala University, Sweden

*CORRESPONDENCE
Robert D. Austin
raustin@ivey.ca

RECEIVED 04 June 2024
ACCEPTED 27 June 2024
PUBLISHED 05 July 2024

CITATION
Austin RD, Sommer D and Sacco PL (2024) Editorial: Boredom: the elephant in the room. *Front. Sociol.* 9:1443980. doi: 10.3389/fsoc.2024.1443980

Editorial: Boredom: the elephant in the room

Robert D. Austin[1]*, Doris Sommer[2] and Pier Luigi Sacco[3]

[1]Western University, London, ON, Canada, [2]Harvard University, Cambridge, MA, United States, [3]University of Chieti-Pescara, Chieti, Italy

KEYWORDS

boredom, boredom antecedents, boredom and transgression, domestic violence, intimate partner violence, COVID-19, pandemic (COVID-19), pandemic lockdown

Editorial on the Research Topic
Boredom: the elephant in the room

Boredom is the worst sin because it is the father of other sins…when people are bored, they commit sins. – Charles Baudelaire, Flowers of Evil

This Research Topic originated from our reading in press reports that cases of domestic violence spiked during the COVID-19 lockdowns (Porter et al., 2021; Uzobo and Ayinmoro, 2023). People who had spent swaths of each day apart, involved in productive activity (work, school), were suddenly forced together in their homes, with little or nothing gainful to do. A result, *pandemic boredom*, was posited as a cause (Sommer et al., 2021), an apparently intolerable stressor that incited violence from apparently mild-mannered (likely mostly male; Walby and Allen, 2004) people. The specifics of how and why were not described in the press, but the consequences were: physical or emotional harm, fear and dread in people (likely mostly female) captive to their domestic situations, places where they had formerly felt safest. The governments that forced this isolation seemed caught off guard, helpless to address these unexpected problems. This Research Topic, then, was conceived to inquire into boredom as a trigger of harmful social effects.

But our focus on the dark side of boredom drew immediate protest. Boredom also, it was pointed out, leads to valued outcomes. It is particularly implicated in creative and artistic expression (Mann and Cadman, 2014; Gomez-Ramirez and Costa, 2017). A description, drawn from our past research interviews, of the beginnings of a renown artist's creative urges, summarizes this positive boredom dynamic:

> When I was ten years old…we were visit[ing] my two maiden aunts…going down their street, and although it was a relatively old street, all the houses on it looked the same. And—I can remember this as clear as day—I said to my mother, "When I grow up, I'm going to be an architect, so that people won't have to live in houses that all look alike!"… I thought, "It's so boring. Everybody should have an interesting house, a different one.

Boredom, another artist once told us, "[makes me] look for the surprise, the alteration of the process that is slightly out of my control, thank goodness, and that keeps the whole thing alive."

Two of our submissions offer theoretical framing of this Research Topic. Sommer draws on philosophies of human development to investigate the link between boredom and violence; importantly, she suggests that violence and aesthetic activity can be considered

alternative responses to boredom, and she argues that the latter, obviously preferred response could (should) be actively encouraged. If creative activities are outlets for boredom and therefore deter violence, then providing support for those activities of "symbolic violence" (art) might be granted by governments as a responsibility for harm-prevention.

Levine conceptually maps the idea of boredom, in its negative and positive potentialities. Boredom, it turns out, is not a simple idea. He credits Seneca with first identifying the pattern in which busy life turns to idleness, combines with frustration, mingling self-dislike with feelings of confinement and drooping spirits, to yield to unsteadiness of mind, and jealousy of others' progress. Who or what is responsible (thus what can be done about it) varies with interpretations of the idea. Is boredom a problem in the mindset of the individual that can, given sufficient strength of will, be opted out of? Or does it follow inevitably from the design of human conditions imposed externally (e.g., from alienation from one's labor, as in Adorno, or from one's station in life, as in Virginia Woolf)? Is it moral failing (a choice of idleness when industriousness is viable, thus a sin, according to Baudelaire)? A religious failing (estrangement from God)? A physical disease (humors out of balance)? Then there are positive elements: The urge to flee boredom alerts us to the inadequacy of a current state and provides impetus to something else better. It can be a deserved critique; a thing can deserve the description "boring" and thus petition for variation. It can be revealing of an important truth (e.g., the temporariness of life). Perhaps it even encourages us to do things for the sake of it, rather than to have accomplished it, thus, to live more fully.

Zeißig echoes Sommer's idea that boredom suggests a choice we can make between negative and positive alternatives, in the domain of learning; like Levine, she notes the complexity of the idea, and that different facets of its meaning suggest different impacts on children in school. Tempelaar and Niculescu argue, also, for a multifaceted concept of boredom and derive evidence of the need for such a conception from a detailed empirical study of university students. Other contributors address specific educational contexts. Vuyk et al. study how boredom appears to affect talent development in mathematically capable students in Paraguay. Johnson et al. measure curiosity among Kenyan adolescents. Xu reviews a monograph that examines the impacts of boredom in foreign language classrooms.

Three pieces address the broader societal impacts of boredom. In an opinion piece, Ndetei et al. explore the effects of boredom across African contexts. Miranda-Galarza and Mayer-Foulkes describe responses to the COVID lockdown from people with disabilities in Mexico, documenting negative tendencies toward violence but also more positive outlets in art and activism. Torvisco et al. conduct a textual analysis that mines Spanish newspaper reporting for insights into violence exercised by children against parents.

Two final contributions focus directly on what to do about harmful boredom. Velasco argues that many common claims about boredom and what we know about it are false; we know much more, he says, than is usually claimed, thus the starting point for dealing with the boredom's negative effects is to confess its "myths." In a final piece, Talbert brings us full circle by casting the negative effects of boredom into the context of criminology, developing a restorative justice approach based on creativity that addresses the antecedents of boredom-incited crime.

The broader subtext of our writing about pandemic boredom is that we humans appear to live in an uneasy relationship with ourselves. Being too much alone with ourselves disaffects us (Alberti, 2019; Hemberg et al., 2019). Pascal attributed "all of the unhappiness of men" to their inability to "stay quietly in their own chamber" (Pensées, 139; though he possibly confounds solitude and boredom—which can surely be achieved in crowds—it is the boredom that arises from solitude that seems most relevant to lockdowns designed to prevent crowds). There is hope, however, in his suggestion that we can learn "how to stay with pleasure at home." Literature offers positive models. Smilla, the creation of Danish author Peter Hoeg, describes solitude as the "light of grace." "I never close my door behind me," she says, "without the awareness that I am carrying out an act of mercy toward myself."

Together, these varied explorations illustrate both the complexity of the idea of boredom, and provide insights into the significance of it impacts. Perhaps they also offer clues about how we (men especially) might come to know and like ourselves better when are forced to stay alone (or nearly so) in our chambers.

Author contributions

RA: Conceptualization, Writing – original draft, Writing – review & editing. DS: Writing – original draft, Writing – review & editing. PS: Writing – review & editing.

Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Education

TYPE Opinion
PUBLISHED 15 February 2023
DOI 10.3389/feduc.2023.1131196

OPEN ACCESS

EDITED BY
Doris Sommer,
Harvard University, United States

REVIEWED BY
José Luis Ortega-Martín,
University of Granada, Spain

*CORRESPONDENCE
Kexin Xu
✉ 107242021200658@stu.xisu.edu.cn

SPECIALTY SECTION
This article was submitted to Educational Psychology, a section of the journal Frontiers in Education

RECEIVED 24 December 2022
ACCEPTED 19 January 2023
PUBLISHED 15 February 2023

CITATION
Xu K (2023) Book review: Boredom in the foreign language classroom: A micro-perspective. *Front. Educ.* 8:1131196. doi: 10.3389/feduc.2023.1131196

Book review: Boredom in the foreign language classroom: A micro-perspective

Kexin Xu*

School of English Studies, Xi'an International Studies University, Xi'an, China

KEYWORDS

academic emotion, foreign language classroom boredom, English majors, micro-perspective, second language learning and teaching

As the most common academic emotion, boredom permeates many learning settings. It refers to a silent, impalpable, distressing, and pernicious emotional state that has motivated large numbers of studies in philosophy, literature, and educational psychology. However, research on boredom in L2 learning and teaching is still slightly deficient, and most is quantitative research representing a macro-perspective. That is part of why this monograph "*Boredom in the Foreign Language Classroom: A Micro-Perspective*" is dedicated to Miroslaw Pawlak, Joanna Zawodniak, and Mariusz Kruk. The main purpose of this monograph is to approach the occurrence and dynamic characteristics of boredom from interrelated theoretical and empirical angles and uncover the causes leading up to the variations of L2 learners experiencing boredom in the Polish learning context.

The monograph consists of five chapters, which are thematically interconnected. Chapter 1 explores boredom from a theoretical angle and presents an overview of boredom by elaborating on its definitions, sub-types, and antecedents, together with a sketch of its crucial components, such as disengagement. It then suggests some ways of coping with this negative emotion. Chapter 2 provides a panoramic review of empirical research on boredom. First, a description of studies in educational psychology is offered, most of which are quantitative and thus provide inadequate insights into this complex emotion. This is followed by a close examination of the handful of empirical studies on boredom as an indirect or direct object in L2 learning and teaching. The former is referred to as "a by-product of examining other aspects of L2 instruction (e.g., authentic materials, grammar teaching, and demotivation)" (p. 20), while the latter directly addresses boredom with respect to its types, causes, consequences, fluctuations, coping strategies, and intricate relationships with other individual factors. Results of the panoramic review of prior empirical studies on L2 teaching and learning pinpoint a need to tap into this complex and multifaceted construct from an "insider" view. In light of this necessity, Pawlak et al. (2020) adopt a mixed-methods approach to provide some quantitative and qualitative evidence for boredom. The ensuing three chapters report on the mixed-methods project on foreign language classroom boredom. Chapter 3 summarizes the methodological foundations of the project performed by the authors in the Polish educational setting and gives a very in-depth introduction to the aims of the research project, its research design, data collection, analysis, and different instruments applied to examine the dynamic characteristics of boredom and factors contributing to two groups of Polish English majors' experience of this unpleasant emotion. Chapter 4 outlines a detailed presentation and discussion of the findings of the research project intended to explore the ups and downs as well as impact factors of boredom in two regularly scheduled integrated skills English classes taught to two groups of final-year undergraduates majoring in English in a Polish university. The quantitative data are based on questionnaires regarding general information about the subjects and their self-ratings on the boredom grid of 5-min intervals. Qualitative data are gleaned from the students' short narratives about their experienced boredom during each class and an interview about their thoughts on the two classes taught. Statistical analysis revealed that not only did the boredom levels vary significantly in the two classes but they also tended to fluctuate within the tasks and activities a single class included or within individual students. In addition, there was a mismatch of the fluctuations in boredom

levels between individual students and the average group data. The authors argued for this phenomenon that self-reported individual boredom variations may sometimes deviate from general patterns due to the combined action of innumerable internal and external factors. Moreover, the results also showed individual and contextual factors conspiring to the variations in boredom levels including classes and language activities, non-language-related issues, and other courses. The results of the project are in line with the conceptual assumptions of the proposed models in Chapter 1 (p. 8). As proposed in the monograph, boredom is a dynamic system in time and space that is subject to the modes of class organization, the complexity of language tasks, and class components. For instance, the observed variation in boredom levels implies that students are typically more bored in repetitive, monotonous grammar classes than in speaking classes with manifold topics and tasks. Finally, several limitations, conclusions, and pedagogical implications are offered (Chapter 5).

The monograph has manifold merits. First, it offers a systematic and detailed overview of boredom from both theoretical and empirical perspectives, which has revealed the complexities and multidimensionality of boredom. For instance, the authors introduce a variety of definitions, sub-types, and antecedents of boredom in Chapter 1 and then present the practice of applying the theoretical framework of boredom in educational psychology, L2 learning, and teaching. It could be favorable for readers to have more in-depth insights into the conceptualization and characteristics of boredom. Second, the research project in this monograph approaches boredom in the spirit of the micro-perspective that puts a considerable emphasis on multiple sources of quantitative and qualitative data (e.g., a background questionnaire, self-ratings on the boredom grid of 5-min intervals, a semantic differential scale, a semi-structured interview, students' narratives, and lessons plans with annotations), and thus uncovers both individual trajectories and general patterns. Due to most existing studies being mainly based on quantitative designs involving large samples of participants in L2 learning and teaching, such an innovative micro-perspective could be more reliable than using only a quantitative or qualitative method and may offer the opportunity for readers to gain a profound insight into the fluctuations, causes, and complex interplay with other variables of this pervasive and distressing emotion in specific points in time. The results obtained from this nuanced and comprehensive perspective could be conducive to teachers' after-class reflection.

Unfortunately, this monograph is not without limitations. First, the link between the theoretical underpinnings and the research project could be strengthened. For instance, although the previous two chapters offer a comprehensive review of typology and models intended to clarify the nature of boredom, the findings of identified types and causes of boredom in the project fail to pay much attention to relating those to the models highlighted earlier. Second, it would be good to extend the time span. The project investigated the dynamic characteristics of boredom by drawing on data from two 90-min lessons presenting a snapshot of L2 teaching. Studies spanning a whole semester might be undertaken to delve deeper into the thorough description and dynamic development of boredom. Third, participants had to respond to the regular beeps in a single class, which may change the ways the related activities proceed as planned. The collected self-ratings data on the boredom grid of 5-min intervals might be affected.

All in all, this monograph, through an extensive review of the theoretical framework and empirical research on the much-overlooked subject of boredom in a logical manner, as well as the valuable findings of a research project implemented in a specific context, offers a timely addition to the emerging field of boredom in L2 learning and teaching, provides more food for thought and will be an essential resource and a very thought-provoking reference for both L2 teachers and researchers who are dedicated to tapping into the dynamic experience and prevention of boredom.

Author contributions

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

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Original Research
PUBLISHED 08 March 2023
DOI 10.3389/fsoc.2023.985173

OPEN ACCESS

EDITED BY
Alexandra Vuyk,
Universidad Católica "Nuestra Señora de la Asunción", Paraguay

REVIEWED BY
Francisco Javier Rodríguez-Díaz,
University of Oviedo, Spain
Edurne Elgorriaga,
University of the Basque Country, Spain

*CORRESPONDENCE
Monica Pellerone
✉ monica.pellerone@unikore.it

SPECIALTY SECTION
This article was submitted to Gender, Sex and Sexualities, a section of the journal Frontiers in Sociology

RECEIVED 05 August 2022
ACCEPTED 06 February 2023
PUBLISHED 08 March 2023

CITATION
Martínez Torvisco J, Wichrowska M and Pellerone M (2023) Filio-parental violence analyzed through the Spanish press (2010–2020). Child-to-parent violence: A case of family violence. *Front. Sociol.* 8:985173. doi: 10.3389/fsoc.2023.985173

Filio-parental violence analyzed through the Spanish press (2010–2020). Child-to-parent violence: A case of family violence

Juan Martínez Torvisco[1], Monika Wichrowska [2] and Monica Pellerone[3]*

[1]Department of Psicología Cognitiva, Socialy Organizacional, Universidad de La Laguna, Santa Cruz de Tenerife, Spain, [2]University of Warsaw, Warszawa, Poland , [3]Faculty of Human and Social Sciences, Kore University of Enna, Via Cittadella Universitaria, Enna, Italy

Violence exercised by children against their parents has increased significantly, affecting society both directly and indirectly. This type of violence is one of the least investigated and least exposed by the media. The aim of this work is to examine how the media have portrayed this problem, by means of a qualitative methodology and a multidimensional analysis of journalistic and literary texts. News related to violence committed by children against parents published from 2010 to 2020 were sourced from the following Spanish newspapers: El País, ABC, El Día, El Mundo, La Vanguardia, El Periódico, La Provincia, Canarias 7, 20 Minutos, and Diario de Avisos. The text corpus was subsequently analyzed with the open access software IRaMuTeQ. The results show a total of 204232 words (number of occurrences), of which 4561 appear only once (number of hapaxes). The words "violence," "father," and "son" are those that appear most frequently in the analysis of the texts and present a strong co-occurrence among them. It should be noted that child-to-parent violence is described as a problem confined to the family environment. The importance of prevention strategies against violence within the family context is shown in this paper.

KEYWORDS

violence, child-to-parent violence, newspapers, family relationships, parents, qualitative analysis

1. Introduction

Family violence is a very important problem in society. It has various facets and can be carried out in various ways. Among them, the best-known types are child violence and gender violence, in particular violence against women (Souza-Leal et al., 2018), which has been studied for many years and against which there has been major opposition. In the last decade, aggressions perpetrated by young people against their parents or caregivers have also become a source of social alarm.

In recent years, more recognition has been given to this type of violence, which is known as filio-parental violence (hereinafter FPV). Although there have been some research teams studying the subject (Calvete et al., 2011; Ibabe and Jaureguizar, 2011; Cano-Lozano et al., 2021), and 2013 saw the establishment of the Spanish Society for the Study of Filo-Parental Violence (SEVIFIP), this type of family violence was the least studied in the last decade and seemed to have less weight in media coverage.

Today, because of an increase in cases of FPV, more research is being carried out to understand its possible causes and what the most effective interventions are, above all for its prevention and treatment. The limited research there has been on this topic is probably due to some methodological issues in the identification of the aggression itself: some research demonstrates both verbal violence that concludes with threats and attacks that lead to physical injuries; likewise, other research considers the subjective perception only of verbal threats or abuse (Franchini et al., 2020). Furthermore, there are difficulties in identifying instruments for detecting the violence suffered.

However, evidence has been found of screening instruments with psychometric properties suitable for use in correlational and quasi-experimental studies. For a systematic review, see the research by Ibabe (2020) as well as the application on Spanish adolescents of the Child-to-Parents Violence Questionnaire (CPV-Q) by Contreras et al. (2019) and its adaptation to Chilean youth by Bueno et al. (2020). Furthermore, there is a meta-analytic review carried out by Gallego et al. (2019).

The reasons why the term FPV is becoming more widely known are diverse. Jiménez (2017) proposes that there is "a greater social awareness regarding family violence, due to the increase in the number of complaints, due to their mediation, due to legislative advances or due to new institutional figures and specialized services" (p. 16). Although there is no such legislation for this type of violence in Spain, there is a regulation (1/2,010) issued by the State Attorney General's Office (Fiscalía General del Estado) on the treatment of minors who mistreat their progenitors.

However, attention should be paid to how the concept of FPV has evolved over time, since it has not always been treated in the same way. Early definitions used at the end of the 20th century were very vague and not so descriptive. In the United States, at the end of the 1970's, the term "battered parent syndrome" appeared in reference to those parents who suffered physical attacks and threats, both verbal and non-verbal (Harbin and Madden, 1979). In Spain, Urra (1994) groups the behaviors young aggressors present in terms of tyrannical attitudes (the purpose of which is to cause permanent damage through threats and aggressions), use (especially in economic terms), and detachment (to convey that they are not loved). Cottrell (2001) defines FPV as any harmful act to gain power and control over parents, adding that it can be physical (hitting, punching, pushing, throwing objects, etc.), financial (theft of belongings or money, getting into debt, destroying property, etc.), or psychological (privacy, threatening, blackmailing, etc.). Therefore, FPV is exercised by the child intentionally with the desire to cause damage, harm, and/or suffering to their parents, repeatedly, over time, and with the immediate end of obtaining power, control, and dominion over their victims to get what they want through psychological, economic, and/or physical violence (Aroca, 2020).

In general, youth-to-parent aggression (YPA) can be defined as abusive behavior perpetrated against a parent by a legally recognized child who usually lives in the family home (Holt, 2016; Ibabe, 2020).

Moreover, it is necessary to add the final definition of FPV proposed by the SEVIFIP Group of Experts, cited by Pereira et al. (2017, p. 220): "repeated behavior of physical, psychological (verbal or nonverbal) or economic violence, directed toward the parents or the people who occupy their place. Excluded are one-off aggressions that occur in a state of diminished consciousness which disappear when upon recovery (intoxications, withdrawal syndromes, delirious states or hallucinations), those caused by (transient or stable) psychological disorders (autism and severe mental deficiency) and parricide without history of previous aggressions."

These definitions display different characteristics, such as the intention to cause harm, the presence of a legally recognized child, or a cohabitating parent in the same house. Unfortunately, in the last decade, the use of different conceptual and operational definitions to study YPA has affected the ability to identify risk factors for this type of abuse (Simmons et al., 2018).

In addition to the conceptual aspects, it is important to address the research implications of this complex phenomenon arising from the difficulty in obtaining objective data of subjective facts. This probably explains the limited research on this topic, i.e., the identification of the source of aggression; most studies have obtained data from a single source of information (parents or children).

The topic of "violence" is diverse and can be analyzed in various ways, but the aggression of young people toward their parents or caregivers has become a cause of social alarm in the last decade.

To this end, the bibliographic review by Calvete and Perreira (2019) is interesting, as it brings together the main research conducted from 2010 to 2018, underlining how most of the studies—in the Spanish context—have obtained data from a single source of information (i.e., parents or children). The authors underline the enormous variability of the phenomenon because of gender and age variables and, above all, the source of information, since in some cases the informants are the children themselves and in others the parents. Del Hoyo et al. (2020) highlight the complexity of the variables involved in the development of CPV.

As for age, there are variations depending on "the methodology employed, the sample inclusion parameters and the criteria used to determine the age of the children" (Aroca et al., 2014, p. 163). Research conducted through the analysis of reports of violence indicates that the peak age of children who commit FPV is between 14 and 17 years, decreasing in frequency at higher ages (Simmons et al., 2018). Research on the phenomenon distinguishes between the adolescent and young adult phases, which are characterized by distinctive elements in the manifestation of aggressive or violent behavior, such as impulsivity (Ibabe et al., 2007; Calvete et al., 2011), difficulty controlling anger (Cuervo and Rechea, 2010; González-Álvarez et al., 2011), and low frustration tolerance (Cuervo et al., 2008; Cuervo and Rechea, 2010); this is evident in the characteristics of the victims and in the predictive psychosocial factors (Suárez-Relinque and del Moral Arroyo, 2020).

In this study, we will demonstrate this topic's academic background and a list of a few studies and also engage with the various statistics gathered on FPV. For example, the literature emphasizes that during adolescence, sons tend to manifest physical and, above all, psychological violence. Notably, the study of Boxer et al. (2009), which examines 232 mother–adolescent dyads in

detail—with sons and daughters ranging from 11 to 18 years old—employs data that is drawn from a database of families referred for clinical treatment of emotional and behavioral problems in their adolescent children. The results of this research, which examines only the parents' perspective, demonstrate that 35.2% of mothers declared violence committed by their sons and 29.1% by daughters, and 28.7% of fathers reported violence committed by their sons and 15.5% by daughters.

In contrast, the study of Calvete et al. (2011) reveals that in a group of 1,427 teenagers (728 girls and 682 boys; 12–17 years), 7.2% manifested physical violence and 65.8% psychological violence toward their parents. The results show that while verbal forms of aggression are relatively frequent, physical attacks are committed by few minors. However, although these percentages are small, they are significant given the nature of the behaviors included. Notably, the data are similar to those obtained in samples from other countries. Similarly, Calvete et al. (2013) show that in a group of 2.672 teenagers (of which 52% were girls) between 12 and 18 years of age, 10.7% committed physical violence and, above all, 92.7% committed psychological violence toward their parents. Furthermore, Ibabe (2014) evaluation of 485 adolescents (of which 55% were boys; 12–18 years) showed that adolescents committed emotional (46%) and psychological (31%) violence, and to a lesser extent psychic (21%) and economic violence (19 %). It was also found in this study that adolescent physical violence decreased with age; that is, many adolescents who begin to show antisocial behavior during adolescence do not continue to do so in adulthood. However, in contrast, it has also been found that other adolescents exhibit antisocial behavior early on, which persists throughout their life (Moffitt, 1993); this study confirms that behavioral problems increase with age (at least during adolescence), and these results are consistent with those of previous studies.

More recently, Calvete and Veytia (2018) study on 1.417 teenagers (57% girls; 14–19 years) reports a rate of 6.4% of physical violence toward mothers and 6.1% toward fathers, and 87.2% of psychological violence toward mothers and 72% toward fathers. Data analyses have supported the existence of two types of violence: psychological aggression and physical aggression, both toward the mother and/or the father. On the other hand, few studies have revealed the presence of violent behavior among young adults toward their parents; for example, Lyons et al. (2015) study of a group of 365 university students (18-24 years) shows the occurrence of psychological violence (75,8%) and physical violence toward mothers (6,3%) and fathers (5.5%).

In relation to the gender variable, Ibabe et al. (2020) conducted a study on a group of 847 college students, ranging from 18 to 25 years of age, which when using technical abuse criteria shows that daughters were more frequent perpetrators of psychological child-to-parent violence (CPV) than sons. This result is consistent with the findings of another study by Rico et al. (2017), which examines a sample composed of 934 students aged between 13 and 21 years. This study confirms the previous literature (Calvete et al., 2011) that demonstrates how adolescent boys tend to physical violence while adolescent girls perform more acts of verbal or psychological violence.

Furthermore, the recent study by Cano-Lozano et al. (2021) has measured CPV in a group of 2245 young people (52.8% girls) aged between 18 and 25 years, showing that more than half of the youths reported having exercised violent behavior toward their parents within at least a month (65.2% toward the mother and 59.4% toward the father). The type of violence manifested is mainly psychological, characterized by behavior of control (36.5%) and domination (43%), followed by economic violence (which ranged from 12 to 16.6%). More girls than boys exercised psychological violence toward fathers and mothers and controlling/dominating behaviors toward mothers. Conversely, more boys than girls exercised physical and economic violence against parents. The study confirms interesting results on gender differences—specifically, the self-assessments reveal differences in psychological aggression against the mother, which occurred at a higher percentage in the group of girls than in the group of boys.

Therefore, the Spanish literature emphasizes the absence of significant gender differences in CPV perpetration, except in psychological aggression, which is more characteristic of girls than boys (Ulman and Straus, 2003; Calvete et al., 2011, 2013; Ibabe, 2015). However, when the violence is severe, boys appear to be the most frequent perpetrators (Moulds et al., 2019), while with respect to mild physical violence, differences between boys and girls are not found or are very small (Ibabe and Jaureguizar, 2011).

As for the data emerging from interviews with parents, the results underline the presence of greater physical aggression perpetrated by boys compared to girls. Moreover, consistently with the data emerging from the interviews with the children, adolescent boys tend to use more physical violence while adolescent girls commit more acts of verbal violence, and mothers experience more verbal violence than fathers, and this is more so from daughters than from sons (Walsh and Krienert, 2007; Aroca et al., 2014).

Another Spanish study reveals that other than the prevalence of physical aggression against mothers, which was higher among girls, there were no significant differences in physical aggression against parents (Calvete et al., 2013). This may be due to the fact that physical assaults are perceived differently, i.e., in a more pronounced way when exercised by boys, because they generally have greater physical strength, making their attacks more threatening and harmful.

These results lead to the hypothesis that gender differences related to CPV change according to the age of the offender, suggesting greater differences in the transition from adolescence to young adulthood, and according to the sources consulted (mother, father, and/or or children).

Certainly in this latter respect, the bibliographic review by Calvete and Perreira (2019) highlights the presence of a single study among those collected from the period between 2010 and 2018, whose source of information is both the parents and children (Calvete et al., 2017). The main objective of this study was to examine the consistency between the parent reports and child reports when reporting on child-to-parent violence in a community sample. There is less data obtained from parents than from the children, except in the cases of psychological and severe physical aggression against the father. These results suggest that parents may underestimate the violence they suffer, as has been suggested in the few previous studies that evaluated discrepancies between these reports (Pagani et al., 2004, 2009). Parents may downplay some of their sons" and daughters' behaviors, as occurs in other forms of

abuse, such as gender-based violence. Additionally, some parents may feel uncomfortable admitting that their sons and daughters treat them unfairly.

1.1. Victims and family context

FPV is usually a problem that does not spread outside the family environment, which is believed to be due to shame, rejection by society, or even fear of the reaction that the children may have. As a result, in order to protect the family environment, the victims prefer to keep quiet and to not transmit domestic occurrences outside the home (Martínez et al., 2015). Within this environment, many women who have decided to be single mothers—those who are separated or divorced and are therefore more likely to raise their children alone—thus assume responsibility for the upbringing and education of their children. They often have feelings of guilt when they cannot control their children's attitudes and believe that their children's behavior is determined by their relationship with them (Pérez and Pereira, 2006). These abusive attitudes on the part of the children include insults, threats, harm, physical and psychological violence, and attempts at humiliation, which can cause devastating short- and long-term damage to the human being. These damages include emotional discomfort, physical and mental health problems, work difficulties, and problems in social and family relationships (Holt, 2016).

Currently, when children make intense displays of negative behavior such as shouting, insults, and scandals, parents tend to maintain a conciliatory attitude to reduce stress at home. Parents become frustrated and more rigid, and these expressions in the family environment cause irritability in the children. The children, knowing the extent of their power, increase both the frequency and intensity of their violent behavior, making their parents feel powerless. These hostile interactions can continue to escalate: they begin with insults, evolving into threats and breaking objects, and over time they become increasingly serious physical attacks (Pereira and Bertino, 2009). The more extreme the children's behaviors, the greater the tendency for parents to give in to maintain calm. This is the so-called circle of children-to-parents violence. In most cases, these aggressive behaviors only occur in the family context (Aroca et al., 2014). As for the variables that may be related to the aggressor themself, the most studied have been gender and age. As aforementioned, studies on violence against fathers and mothers have not found significant differences between genders (Ulman and Straus, 2003; Ibabe and Jaureguizar, 2011).

Although there has been some variability in the findings up to this point, gender is a variable in which there is increasingly less difference being detected, mainly due to egalitarian education. The vast majority of research indicates that boys and girls exert violence against their fathers and mothers to the same extent. However, there are differences in terms of the type of violence exercised, with sons exercising the most physical violence (Walsh and Krienert, 2007) and daughters exercising the most psychological violence (Aroca et al., 2014). Similar results were obtained in a recent study conducted on FPV during the COVID-19 pandemic (Abadías-Selma, 2020). This difference is probably due to the fact that boys show higher levels of impulsivity than girls: girls, in the first phase, reach the highest levels of sensation seeking, and thereafter the search for sensation diminishes rapidly; in contrast, boys manifest an increased impulse control more gradually than girls (Shulman et al., 2015; Ballarotto et al., 2017).

Victims of FPV are usually mothers (although it is the fathers who receive the highest degree of hostility) who, as a consequence of the aggressions, suffer stress and tension, as well as feelings of frustration, helplessness, and fear (Sempere et al., 2006; Aroca et al., 2014; Wilcox and Pooley, 2015b). Both mothers and fathers are reluctant when it comes to reporting the situation for various reasons, including having been threatened by the aggressors, fear of the consequences that the report would bring, or wanting to maintain their image in the social environment (Jiménez, 2017). In addition, and especially in the case of mothers, due to double victimization and stigmatization, it is considered in the societal context that they have failed due to not having adequate parenting skills (Wilcox and Pooley, 2015a). In fact, the literature emphasizes that experiences with caregivers during childhood and the resulting attachment styles are linked to capacities for emotional regulation (Heshmati and Pellerone, 2019).

The role of the media in the dissemination and prevention of this type of violence has not been very significant. Violence in the family environment, as well as gender violence, have a long history of research that analyzes their relationship with the media; however, this is not the case with FPV. The media exert great influence over people, and although this is not enough to produce changes in beliefs or behavior, from one day to another, the effect caused by the messages emitted repeatedly and continuously over time must be considered (Rolle et al., 2014). In fact, social media use can be considered a "way of being," especially for young people (Griffiths and Kuss, 2017).

Moreover, as Wilcox and Pooley (2015a) point out, the self-guilt experienced by some parents who are victims of FPV can be amplified by the messages transmitted by the media. Indeed, media outlets report on topics that they deem appropriate (either due to the novelty, severity, or evolution of events) in accordance with their ideologies and orientations, and in cases of violence, they do so in a superfluous way. This allows the recipient to be informed of the most basic aspects, but it simultaneously shields them from the full reality of the problem, so as not to cause them anguish (Valdemarca and Bonavitta, 2011).

Although it is true that FPV does not have as much resonance in Spain as gender violence may have, it has been openly addressed on TV shows such as "Hermano Mayor," which has been broadcast since 2009 with a share of 2 million viewers and with an average audience share of 11.2% during its broadcast with Pedro García Aguado and Sonia Cervantes. The protagonists of the program are young people aged between 18 and 25 years old—who have problems with violent behavior and, sometimes, drug use—and their relatives. This program intends to provide the viewer with a frame of reference to help them in the education of their children.

The study of language in the written press is not new—it is sometimes called lexicometry. Tiscareño-García and Miranda-Villanueva (2020) have already used qualitative content analysis and framing as a conceptual framework, establishing categories for the language of violence against women. Moreover, during our exploration of reports in the Spanish written press, we observed that despite the varying amounts of news about FPV published among

the different newspapers, the number generally increased over the years. However, FPV appears to remain a taboo subject in Spanish society, with little research and visibility. The media can provide a means of attracting attention to this problem and expanding the transmission of information to society (Bullock, 2007).

1.2. Objectives

The objectives of this study were to reflect the vision of FPV given in written press reports, which were collected through lexicometric analysis; to learn, through the aforementioned analysis, the words that were chosen to describe FPV in the Spanish written press in the years from 2010 to 2020; to analyze the news related to this violence in different Spanish newspapers, including "ABC," 'La Vanguardia," "El País," "El Mundo," and "20 Minutos" (mainland) and "La Provincia," "El Día," "Canarias7," and "Diario de Avisos" (islands); and to discover if there were differences between newspapers in the treatment of FPV and to discern the relationship between the terms "father" and "violence" based on the studied variables together with the texts. Furthermore, we were interested in understanding the "clusters," lexical classes, or categories that were formed when studying the full text corpus.

2. Materials and methodology

In order to explain the results, we almost always appeal to what happened in the past, which, although a good predictor, may not coincide with our results. The introduction given to previous research (Ibabe et al., 2007, 2020; Ibabe, 2020; Tiscareño-García and Miranda-Villanueva, 2020) and its results is meant to highlight the wider interest in our topic of research. The literature emphasizes how current the FPV phenomenon is, and therefore an analysis that differs from the purely descriptive one obtained through questionnaires or open interviews makes sense. The present paper is presented through the perspective of journalistic discourse analysis. For the analysis of discourse from lexical parameters, we used the IRaMuTeQ software, which, through a system of coding and statistical multidimensional analysis, allowed us to deepen and categorize the lexical worlds present in the media discourse. The use of software is not a method of data analysis in itself, but a tool to process the data; therefore, its interpretation is a crucial responsibility of the researchers.

The data were interpreted through lexicometric statistical analysis with terms from the same subject. The aim was to highlight the "usual lexical worlds". A lexical world is the statistical trace of a place in the vocabulary, which is usually considered important to a writer. Lexical worlds (not probabilistic, i.e., for convenience) can then be studied through the analysis of the organization and distribution of co-occurring main words in the simple sentences of a text. This methodology focuses on the statistical distribution of successions of words that make up the sentences of a text; this does not consider the syntax of the discourse, but only the "co-occurrence" or simultaneous presence of several main words (nouns, adjectives, verbs) in the same sentence, eliminating relational words from the analysis—namely, conjunctions, prepositions, and articles (Reinert, 1983). A clear three-step model for text analysis has been provided: data collection, data modeling, and data analysis.

2.1. Text corpus

The preparation and tabulation of the text was conditioned by the presence or absence of the concept of FPV; therefore, only those texts in which the concept explicitly appeared were selected. To prepare the text, we used the procedure of selecting main words, verbs, and nouns, and the analysis software lemmatized the words to ensure there was no overlap; however, we applied the root for the final count.

The selection of the terms for analysis was carried out jointly by the authors, together with the research team with whom we worked during the textual statistical analysis. The terms were chosen by a majority of the members; if a word created uncertainty or had a double meaning, it was eliminated from the text. The perspective guiding the choice was a clear relationship with the phenomenon of domestic violence. Although the program detected words that were irrelevant to this type of violence, as the authors of the texts were responsible for selecting the texts, they were kept as referents of the newspapers where they were published regardless of their ideological tendency.

The database under analysis included news related to FPV that were published between 2010 and 2020 by the Spanish written press. In total, there were 119 news items obtained from 9 Spanish newspapers: El País, ABC, El Día, Diario de Avisos, La Vanguardia, El Mundo, Canarias7, La Provincia, and 20 Minutos.

2.2. Instruments

A statistical analysis of textual data (*analyse statistique des données textuelles*) was used, which is a lexicometric approach that originated in French-speaking countries and is still strongly rooted in continental Europe. It is mainly based on the comparison of lexical profiles and thus on the distribution of word occurrences without going through the direct reading of the text (for this reason, it is also defined as "automatic").

To carry out the statistical data analysis, the Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires (IRaMuTeQ) program was used, which allows the analysis of texts and questionnaires (Ratinaud, 2009). We used version 0.7 Alpha 2 and version 3.2.1 of R (free software), which executes the instructions directly without a prior compilation of the program into machine language instructions. This software was created by the Laboratoire d'Études et de Recherches Appliquées en Sciences Sociales (LERASS) of the University of Toulouse, based on the classification method of Reinert (1983). It performs content analysis, lexicometry, and discourse analysis using the R software interface, which was created by Ihaka and Gentleman (1996) to provide an environment for statistical analysis in scientific research.

The IRaMuTeQ software allows the multidimensional analysis of texts of different natures, such as official texts, web pages, news,

laws, and open-response questions of questionnaires, identifying and establishing the connections that exist between them (Zuur et al., 2009).

2.3. Procedures and analysis of information

Given that this was a lexicometric analysis of texts, the first step consisted of an exhaustive search of all the articles on FPV published in selected Spanish newspapers during the focus years of the study (2010–2020) for analysis by the IRaMuTeQ program. For this, the archives of each newspaper were accessed and, by use of word search filters (violence, child-to-parent violence, newspapers, family relationships) that were limited to the years of publication and the keywords associated with the subject in question, the articles were selected one by one after verifying that they were relevant to the object of study. The FPV manual was incorporated complete with the same coding as the newspapers. Subsequently, so that the categorical variable would be the year of publication, the texts were grouped by year using an 8-bit Unicode Transformation Format (UTF8) to serve as the input for the IRaMuTeQ program as a text corpus, i.e., the chosen set of news items formed the corpus of the text on which the analyses were performed.

The program carries out a stemming process, by which it reduces words to their roots, classifying them syntactically. This process facilitates the analysis and interpretation of the results, since it allows to choose what type of words to include in each analysis. Therefore, in our procedure, several lexicometric analyses were carried out in which both nouns and verbs were included: word frequencies, word cloud, analysis of specificities, descending hierarchical classification (Reinert Method), and analysis of similarities.

3. Results

The results obtained are divided into four sections, which correspond to the lexicometric analyses carried out: frequency and word cloud, specificity analysis, descending hierarchical classification, and similarity analysis. In the first section, we explore the characteristics of the text and the most frequent words. In the second section, we examine the relationship between the most frequent words and the year variable. The third describes the classifications of words found in the corpus, their interdependence, and their importance according to the year. In the last section, a global graphic representation of the words is provided, showing their frequency and co-occurrence.

3.1. Frequency and word cloud

A frequency analysis was undertaken to provide an overview of the analyzed data: number of texts, number of total words, and grammar categories, etc. Some of these data are reflected in Table 1. The analyzed corpus was made up of 11 texts, corresponding to the 10 years analyzed. In total, 204.232 words were obtained (number of occurrences), of which only 4.561 appeared once (hapax number). The number of forms (number of verbs, adjectives, nouns, etc.) was 15.918. When reduced to its generic representation or root (lemmatization), it was 10.108. With these data, the lexical wealth was calculated, dividing the number of forms by the number of word occurrences and multiplying them by one hundred to find the percentage (Capsada Blanch and Torruella Casañas, 2017). A result of less than 20% means the corpus is extensive enough for analysis (Bolasco, 1999); in our case, it was 4.95%.

TABLE 1 Analysis of the text corpus about FPV.

Number of texts (selected from newspapers)	11
Number of classified text segments (93%)	5.337
Total number of text segments	5.739
Number of word occurrences (N)	204.232
Number of forms	15.918
Different words (V)	10.108
Hapax V1	4.561
Lexical wealth (V/N)∗ 100	4.95%
Linguistic refinement (V1/V)∗ 100 (forms)	45.12%
Linguistic refinement (V1/V)∗ 100 (words)	2.23%
Average occurrence per text	17.01933

The symbol ∗ 100 means the percentage value.

Some of the words that appeared most frequently were "violence" (1,410 times), "son" (1,213 times), "father" (1,057 times), "family" (749 times), "case" (657 times), "problem" (503 times), "mother" (480 times), "parent" (437 times), "adolescent" (347 times), and "child" (318 times), among others. These words can be seen in the "word cloud" depicted in Figure 1. The "word cloud" groups graphically organize the most frequent words, which appear in the center and in a larger size; the rest disperse and decrease in size as their frequency decreases. This figure allows the quick identification of keywords in a given corpus.

3.2. Factorial analysis of correspondence (IRaMuTeQ)

The factorial analysis of correspondence allowed the semantic contextualization of the object of study, as well as the visualization of the distances between the textual corpus. As shown in Figure 2, two factors, which are represented on the X and Y axes, were observed: the first factor explains 50.5% of the variability of the total text corpus, while the second factor shows 27.94%. The two-dimensional view clearly presents four distinct areas, which are directly associated with the four classes previously presented.

3.3. Descending hierarchical classification (Reinert method)

The results obtained, both in the descending hierarchical classification and those described in the factor analysis of lexical correspondence, could be considered the most interesting of the study. The descending hierarchical classification, as shown in

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Figure 3, defined lexicon classes that were represented by a subject; each class of the four that appeared could be defined based on the scope it dealt with. It was interpreted as shown in Figure 3. In this case, the first class was named "institutional environment"—it was composed of 1824 text segments units out of the total of 5,337, which makes a 34.2% explanation of the variability of the corpus. The words focused on the institutional part: "programs," "centers," "justice," etc. The third class was named "familiar conflict," with a total of 1116 text segment units, which becomes a 20.9% explanation of the variability of the corpus. We circumscribed terms to everything related to the relationships between children and parents and their consequences, such as "parent," "son," "relationship," "time," "behavior," or "conflict." The second class was named "personal feelings," with a total of 733 text segments, which makes a 13.7% explanation of the variability of the corpus. In this case, we focused on the purely individual sphere, with terms such as "child," "father," "tyrant," and "frustration". Finally, a fourth class named "violence act" appeared with 1,664 text segment units, representing 31.18% of the variance. It describes the process of "violence" with terms such as "aggression," "mistreatment," and "abuse".

FIGURE 1
Word cloud from the corpus about FPV.

3.4. Similarity analysis of the text corpus

In order to analyze the co-occurrence between terms, we used the similarity analysis technique. This analysis makes use of a graph that represents the connection between words in the analyzed textual corpus, which makes it possible to identify the existing co-occurrences between them. It also helps to identify the structure of a textual corpus and distinguishes common parts and specificities. As shown in Figure 4, in our study, we observed three blocks of words or groups of related words: on the one hand, the concept of "father" is related to "son," "mother," "child," "boy," and "adolescent," and on the other hand, the concept of "violence" is related to "problem," "family," "aggressor," "mistreatment," "victim," "sentence," and "person." We can deduce that in this "cluster" the words are related to the child's violence toward their parents. Finally, there is a category that refers to the consequences of abusive behaviors toward parents: a third, smaller group referring to judicial issues such as "center," "measure," "judge," and "middle."

4. Discussion

The results obtained in this study show that the press in general, and the Spanish press more specifically, reflect in their texts the contemporary reality. In the case that concerns us, FPV is captured in a different way in 2010 than in 2020. The main objective of this study was to analyze the vocabulary used in the different newspapers that refer to FPV and the relationship and concordance between the words that comprise it. In the analysis carried out, the lexicon takes on a special relevance, since it expresses contents or concepts by which the meaning of words is studied, as well as the different relationships that are established between the terms. In this work, FPV appears to be associated with terms such as father, mother, child, interpersonal relationships, authority, government, and measures, among others.

The examined newspapers differ in their ways of approaching this phenomenon, since they do so from different spheres, such as the family, judicial, institutional, and academic spheres. Likewise, in the division of the "clusters," similarities were observed between them, since terms such as "violence," "son," and "father" are among the terms most frequently most used by all journalists.

The frequency analysis provided a quick overview of the most frequently used words over the last decade. The most frequently repeated word is "violence," after which follow others such as "father," "son," or "family", which are the most frequently occurring after "violence" but nonetheless remain far behind in the number of times they are repeated. When looking at these results, one might note that while the word "father" appears as the second most used word, the word "mother" is the sixteenth.

With the analysis of specificities, we observed the variations in frequencies according to the year. The most striking change in this analysis was the great presence of the concept of "violence" in a dominant way throughout much of the decade. However, in 2020 the trend changed, and the most used word became "father." In the factorial analysis of correspondences, the two factors were presented, and the distance between the corpora was observed. It is clearly seen how the four clusters remain independent: on the one hand the institutional section, on the other the one related to people and their processes, and thirdly the one related to the facts, violence, complaint, and abuse.

The descending hierarchical classification shows these "clusters" or lexical classes: the first class focused on the institutional–judicial sphere, with terms such as "program," "government," "center," or "justice". The second class focused on everything related to personal feelings, with terms such as "frustration," "fear", "shame", "syndrome," or "bad" centered on the "child" or the "father". The third class was related to family conflict, with terms such as "relationship," 'parent," "child," "behavior,"

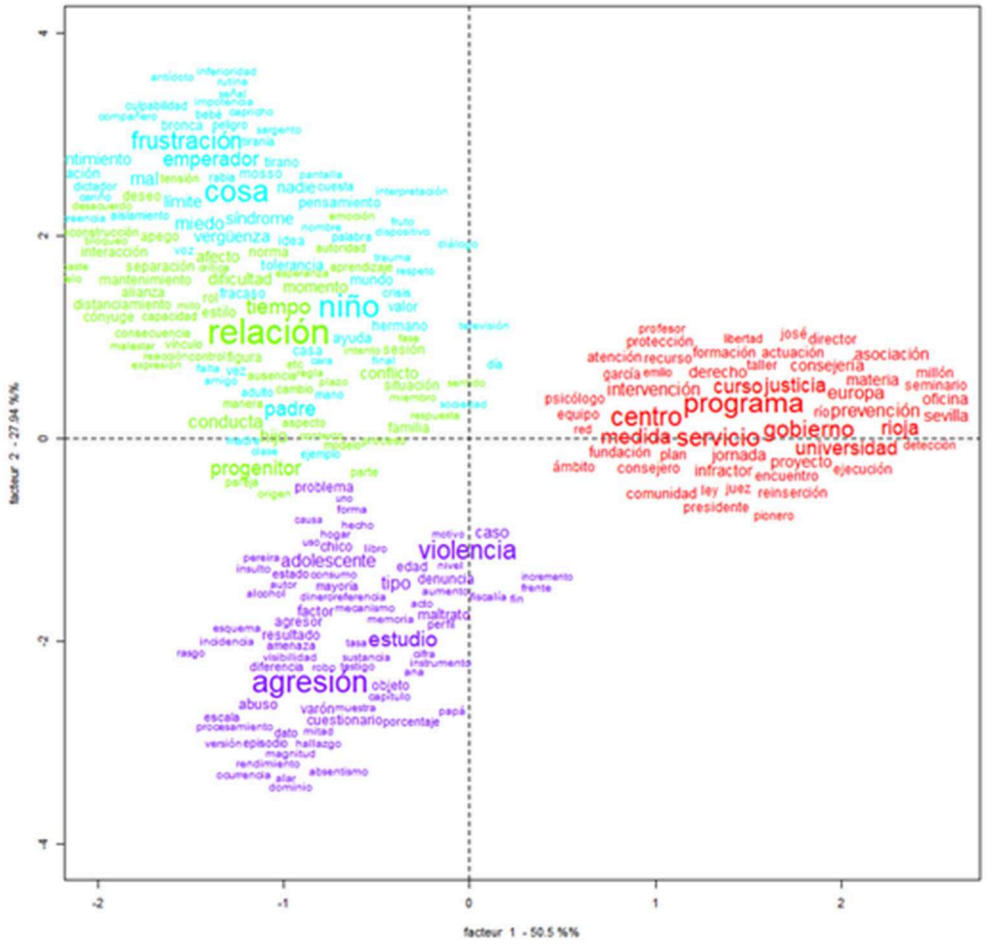


FIGURE 2
Factorial analysis of the lexical correspondence of the corpus on FPV.

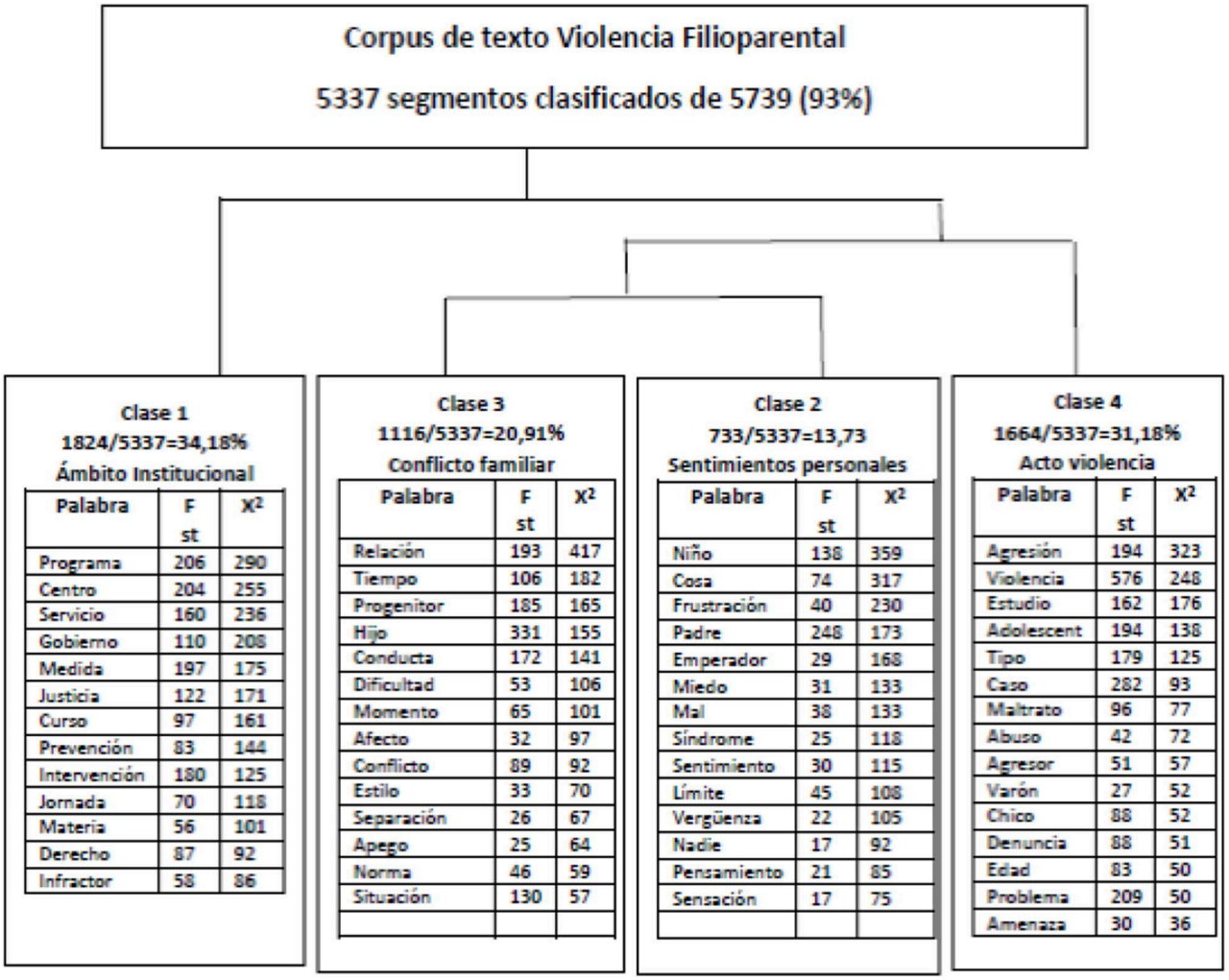
"difficulty," "attachment," or "separation". Finally, the fourth class focused on the act of "violence," with elements such as "aggression," "mistreatment," "abuse," "aggressor," "denunciation," or "threat."

This classification reflects the characteristics of the phenomenon, which has only recently been investigated in the literature.

With regard to the first cluster, and in particular the judicial effects of the phenomenon, the mass media tend to confuse the judicial and institutional consequences of the phenomenon of child-to-parent aggression with those of adolescent-to-parent aggression. However, as in early childhood aggression, less harm is caused, and the consequences are not as serious. The parental role in this developmental stage is different from that of young people, as are the legal consequences for children and parents. Furthermore, aggression by young children hardly results in physical injury, although it may cause emotional distress to parents and continues into adolescence and adulthood, the latter in the sense of violence against an intimate partner (Ibabe, 2020).

In relation to personal feelings—the second cluster—internal factors such as shame and external factors such as social judgment on parenting skills lead the victim to deny or minimize the phenomenon (Sicurella, 2018). Furthermore, Cottrell and Monk (2004) argue that the reluctance to disclose these problems is exacerbated by limited access to means of intervention by local services. The sense of isolation, stigma, and shame that parents feel is, in fact, exacerbated by the lack of recognition and suitable policies, as also highlighted by the articles examined, as well as by the lack of awareness—in some cases—of the problem.

In relation to family conflict—the third cluster—the literature has highlighted how exposure to physical and verbal punishment by parents could influence the aggressiveness of children in the family context. For example, longitudinal studies on adolescents underline that the risk of CPV is related to prior parental aggression and, specifically, that mother-to-child physical aggression is the strongest indicator of physical CPV. Furthermore, adolescents in families with parental violence have been shown to manifest more levels of CPV when compared to other families (Ibabe et al., 2013; Contreras and del Carmen Cano, 2016). In other words, the results support the idea that child-to-parent violence is a consequence of parent-to-child violence. What remains to be determined is if reciprocal effects (simultaneous or close in time) may also explain the relationship between child-to-parent and parent-to-child violence (Gallego et al., 2019).



Palabra	F st	X²
Programa	206	290
Centro	204	255
Servicio	160	236
Gobierno	110	208
Medida	197	175
Justicia	122	171
Curso	97	161
Prevención	83	144
Intervención	180	125
Jornada	70	118
Materia	56	101
Derecho	87	92
Infractor	58	86

Palabra	F st	X²
Relación	193	417
Tiempo	106	182
Progenitor	185	165
Hijo	331	155
Conducta	172	141
Dificultad	53	106
Momento	65	101
Afecto	32	97
Conflicto	89	92
Estilo	33	70
Separación	26	67
Apego	25	64
Norma	46	59
Situación	130	57

Palabra	F st	X²
Niño	138	359
Cosa	74	317
Frustración	40	230
Padre	248	173
Emperador	29	168
Miedo	31	133
Mal	38	133
Síndrome	25	118
Sentimiento	30	115
Límite	45	108
Vergüenza	22	105
Nadie	17	92
Pensamiento	21	85
Sensación	17	75

Palabra	F st	X²
Agresión	194	323
Violencia	576	248
Estudio	162	176
Adolescent	194	138
Tipo	179	125
Caso	282	93
Maltrato	96	77
Abuso	42	72
Agresor	51	57
Varón	27	52
Chico	88	52
Denuncia	88	51
Edad	83	50
Problema	209	50
Amenaza	30	36

FIGURE 3
Descending hierarchical classification (Dendrogram Reinert method).

The last cluster refers to the multiple definitions given by the mass media and the scientific community to the term "violence" (Gallego et al., 2019). These definitions include those restricted to physically violent behavior or threats (Agnew and Huguley, 1989) and to others, including psychological violence (Calvete et al., 2015); other definitions require intent to cause injury (with the exclusion of pathologies, illegal substance abuse, homicide, or attempted homicide, without a previous history of violence), but other definitions do not (Loinaz et al., 2017).

Finally, the analysis of similarities in the present research underlines the frequency of the words and the frequency with which they appear related to one another. As expected, the most frequent words are those related to people, father, and son, which are the most interrelated. That is, on one hand, the concept of "father" is related to "mother," "son," "boy," or "adolescent." On the other hand, the concept of "violence" is related to "problem," "behavior," "victim," "aggression," "complaint," "aggressor," "harassment," or "complaint," among others.

5. Conclusion

The prevalence of this phenomenon, as mentioned above, follows an upward trend. There has been an increase in cases of violence between children and parents, which is reflected in the number of complaints by parents who claim to have been attacked and abused by their children. However, more conclusive studies are needed on this type of violence in Spain (Aroca et al., 2014), and the lack of them makes it more difficult to approach this intrafamily process.

Several qualitative studies have been conducted in the United States, Canada, and Australia. However, in Spain, if we exclude the most striking episodes—such as the cases of homicide or attempted murder, which are disclosed by the mass media—there is a lack of significant research experience on this specific topic capable of providing detailed information with respect to this increasingly widespread phenomenon; this is also due to changes in the family structure, educational styles, and rhythms of life. The mistreatment perpetrated by children in the family is,

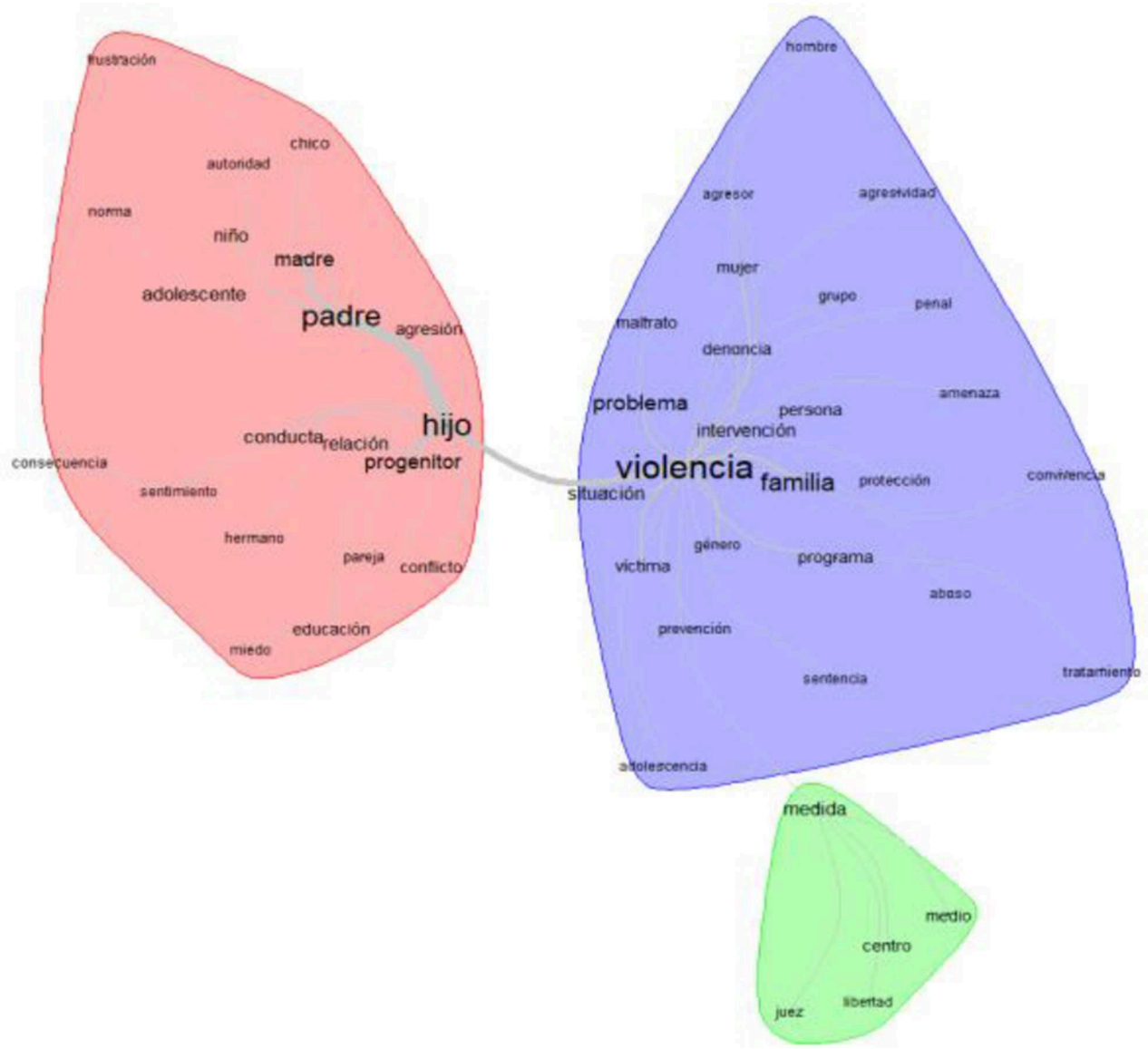


FIGURE 4
Similarity analysis of the text corpus about FPV.

therefore, still a submerged problem that has not been tackled with scientific accuracy.

Western society is changing daily and so are the social structures, mainly that of the family. The nuclear family as the predominant model has given way to other models, including families where parents are of the same gender and the single-member family, headed by either a father or mother. These models must be considered when explaining such behaviors and their relationship with the actions performed by any member of the family. It must also be kept in mind that most of the studies reviewed focus on a single family member, and different family members produce different narratives of domestic violence situations.

Furthermore, there are authors who, in examining the causes of the phenomenon of violence against parents, identify the existence of personality disorders (such as low self-control, low tolerance for frustration, lack of empathy, low self-esteem, egocentricity, hyperactivity), in doing so dismantling the causality between mental health and FPV (Ibabe et al., 2007; Rechea and Cuervo, 2009; Ibabe and Jaureguizar, 2011), although the role of the family context remains the main predictive factor.

However, it should not be forgotten that the information disseminated by the media may be biased by opinions, editorials, and political ideologies. In this study, we searched for news about FPV and did not calculate the balance between one newspaper and another. There are newspapers that dedicate more lines to this problem, while others only more briefly mention the cases that have occurred. The different ideological currents were also not considered in the analysis of the information, since what was

sought was to extract information and see how relevant FPV is in the Spanish press.

Though this study was intended to be exhaustive, it has some limitations. One is the fact that the sample includes mostly national newspapers and three regional newspapers that are distributed only in the Canary Islands, such as "Canarias7," "La Provincia," and "El Día." This has created a bias in the sample in two ways. Firstly, if we bear in mind that a national newspaper is going to present a greater number of articles than a regional one, a national newspaper will thus have a greater weight in the reporting of the events, meaning that the regional paper will influence the results to a lesser degree. Secondly, the way newspapers from autonomous communities other than the Canary Islands disseminate news related to FPV cannot be discerned. For future research, complementary studies could be carried out to analyze the differences between national and regional newspapers. By doing so, it could be clarified whether the differences in written coverage vary more depending on the years or on the newspaper, using both the year variable and the periodic variable for the analysis.

In addition, by taking advantage of the information collected in the reports of the State Attorney General's Office on the prevalence of FPV in the autonomous communities, a comparative study of the communities with the largest and smallest number of files and the information presented to the media could be conducted. Likewise, it would be of great interest to the general population to fill out a questionnaire on the subject, in order to find out to what extent people endorse the social and cultural norms related to FPV that are transmitted not only the media, but also on social media, radio, or television programs.

Despite the above limitations, this study contributes to the current knowledge of FPV. It demonstrates that the extent of this phenomenon can be influenced by the source of information, therefore underlining the importance of integrating different sources. In general, a trend has been observed to minimize problems between parents, which can negatively affect the attempts to fix them.

Even so, the results of this study could be of considerable importance from a psychological and prevention perspective. Intervention efforts to reduce rates of violence should focus on helping parents to manage conflictive relationships with their children, or at least on educating them about the importance of buffering children from exposure to conflict and on presenting strategies for improving family cohesion and organization.

Regarding the age variable, there is a diversity of results, although most studies place the onset of FPV in adolescence (Martinez, 2015) and have established different intervals, depending on the source: from 9 to 13 years (social services), from 10 to 15 years (investigations), and from 14 to 17 years (prosecutor for minors). As aforementioned, research carried out through the analysis of complaints of violence indicates that the peak of FPV is when the children are between 14 and 17 years old, frequently decreasing at older ages (Simmons et al., 2018).

The literature confirms that patterns of violence and victimization can develop in early adolescence, quickly becoming difficult to correct. Consequently, primary prevention measures play an essential role in the fight against violent behavior manifested by children toward parents; in particular, prevention in adolescence and preadolescence is more effective if carried out through schools, the mass media, and newspapers, as they are a fundamental component of adolescent life and the main contexts in which gender socialization takes place, as well as places where behaviors toward oneself and others are formed and strengthened.

In all likelihood, the increase in this phenomenon in adolescence is linked to the acquisition of self- identity, which is considered the main developmental task of adolescence, in which individuals struggle to assert themselves as an entity while seeking to maintain a bond with their past and family context and accepting the values shared by a group (Pellerone et al., 2017a,b).

Furthermore, future research should also consider CPV in young adults (subjects above the age of 18), because many young people still live with their parents after becoming legal adults, although it is not necessary for parents and children to reside together for abuse to happen.

Since risk factors and patterns of abuse may evolve with age, it is important to study different development phases, starting with children under 14 years of age—whose cases are seldom processed by the mass media—up to young adulthood.

In conclusion, in samples of Spanish teenagers, young people, and adults, it is common to find more psychological violence perpetrated by girls than boys, with no gender difference detected in physical violence. However, other studies have found higher rates of parental violence in young boys, leading to the hypothesis that CPV patterns change with the age of the young person.

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 contributions

JT, MW, and MP have made substantial, direct, and intellectual contributions to the work. All authors have approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Hypothesis and Theory
PUBLISHED 07 June 2023
DOI 10.3389/fsoc.2023.1183875

OPEN ACCESS

EDITED BY
Robert D. Austin,
Western University, Canada

REVIEWED BY
Carlos J. Fernández Rodríguez,
Autonomous University of Madrid, Spain
Simon Winlow,
Northumbria University, United Kingdom

*CORRESPONDENCE
Josefa Ros Velasco
✉ josros@ucm.es

RECEIVED 10 March 2023
ACCEPTED 15 May 2023
PUBLISHED 07 June 2023

CITATION
Ros Velasco J (2023) Contemporary myths on boredom. *Front. Sociol.* 8:1183875. doi: 10.3389/fsoc.2023.1183875

Contemporary myths on boredom

Josefa Ros Velasco*

Department of Philosophy and Society, Faculty of Philosophy, Complutense University of Madrid, Madrid, Spain

We don't know almost nothing about boredom. Even though the experience of boredom has been part of our daily life for centuries, we are far from being clear about what its suffering consists of, what its main causes and consequences are, or how we can satisfactorily escape it. This is one of *the most repeated myths* about boredom among some boredom scholars; one from which many others derive, causing unnecessary confusion about a phenomenon around which there exists, in fact, a whole corpus of scientific knowledge. Most of them are harmless, simple narratives from our popular culture; others, however, have the power to condition the way in which we perceive reality, to the point of becoming stigmatizing. Breaking with some of our most ingrained beliefs about boredom is not an easy task, although it is necessary to understand the true nature of this state. In my essay, I will try to disprove some of the contemporary myths that circulate about the experience of boredom. Starting with the first myth, I will explore the scope of other related myths such as those that say that *the study of boredom is in its infancy*, that *boredom has not been given the attention it deserves*, that *the experience of boredom is born in modern societies*, that *boredom is an exclusively human condition*, that *boredom only happens in leisure time*, that *being bored is the same as doing nothing*, that *it is desirable to have moments of boredom*, that *boredom helps our brain to rest*, that *boredom makes us more creative*, and that *those who get bored is because they want to* or, what is worse, that *only fools get bored*.

KEYWORDS

boredom, contemporaneity, creativity, culture, modernity, myths & facts, pathology, popular narrative

We don't know almost nothing about boredom. Even though the experience of boredom has been part of our daily life for centuries, we are far from being clear about what its suffering consists of, what its main causes and consequences are, or how we can satisfactorily escape it. This is one of *the most repeated myths* about boredom among some boredom scholars; one from which many others derive that, at present, cause unnecessary confusion about a phenomenon around which there exists, in fact, a whole corpus of scientific knowledge. We are bombarded each day—especially by the press—with false mantras about boredom that end up occupying a place in the collective imagination. Most of them are harmless, simple narratives from our popular culture; others, however, have the power to condition the way in which we perceive reality, to the point of becoming stigmatizing. Breaking with some of our most ingrained beliefs about boredom is not an easy task, although it is necessary to understand the true nature of this state. In tribute to what has been achieved to date by experts in Boredom Studies, all that remains is an exercise in demystifying the subject of boredom.

I shall begin by returning to the first announced myth. On numerous occasions, I have heard colleagues who work on boredom, in encounters of all kinds, say that we know almost nothing about this common state. Our alleged unawareness of what boredom is cannot be justified in any way whatsoever; not just because we all suffer from this in person, with different intensities and duration, but also because it is unfair to those thinkers who, since ancient times, have devoted their efforts to defining such a peculiar state. Starting with classical authors like Horace, Lucretius and Seneca, through to contemporary researchers like Elpidorou, Eastwood and Van Tilburg, boredom has been described as a state of unrest caused by an imbalance between what we expect from the context we find ourselves in and what we truly feel we gain from it; a turmoil that leads us, firstly, to re-evaluate our present situation and then to search for the change that re-establishes our sense of balance with the environment (Ros Velasco, 2022a).

During the Roman empire, these mentioned philosophers wrote about the experience of boredom in its simplest form (*fastidium*, *satietas*, *desidia*) and in its most complex state (*taedium vitae*), defining it as heaviness, lentitude or satiety, due to an excess of idleness, leading to mental disorders, irritation and apathy (Seneca, 2004, 2009, 2014; Lucretius, 2008; Horace, 2011). In the Middle Ages, boredom, known as *acedia*, meant the alienation of the soul for St. Augustine of Hippo (2006, 2007, 2008) and Ponticus (2006) described it as despondency and sadness compared with a fulfilled life; Cassian (1999, 2015) used the terms weariness, disgust and anxiety of the heart to characterize it; John Chrysostom (PG 47.425-426) indicated that it was a destructive spiritual condition generated by a lack of perceived sense and desperation; St. Jerome (PL 22.1081-82) assimilated it with melancholy caused by loneliness; Hugh of Saint Victor (PL 176.525-526) mentioned that it was a disturbance of the mind caused by anxiety and St. Thomas Aquinas (1993, 1995, 2017) defined it in terms of a lack of joy and appetite for and interest in things.

In the Renaissance, writers like Petrarch (1991, 1992, 1999, 2016) and Dante (2014) alluded in their works to the lack of virtue and the inability to find hope or desire that defines boredom, that old sadness that torments both body and soul. Others, like St. Ignatius of Loyola (1992, 2014) and St. John of the Cross (2005) considered it to be a darkness of the soul or restlessness without hope, idleness or tepidity, bad mood or a physical malaise that results in displeasure, while Ficino (2019) spoke of a melancholic boredom leading to genius which, in excess, afflicts the soul with permanent tedium.

Great thinkers form the Enlightenment like Voltaire (1838, 2003, 2017) and Kant (2006; see also Ros Velasco, 2021a) referred to boredom as a consequence of excess free time and a lack of work, a concept which the German romantic writer von Kleist (2003) would also later agree with. Along the same line, some of his contemporaries analyzed our social structure to approach boredom. Heine (2005, 2006, 2016) considered it to be a symptom of the inflexibility and oppression induced by society, while Tieck (1828, 1853, 1854) understood boredom to be a stagnation of the soul or a murky defect of life, a cultural exhaustion resulting from a distressing and exhausting psychic misery. Additionally, Büchner (1998) declared that boredom—the *Langeweile*—was an individual inability to make sense of our surroundings.

The French intellectuals of the 19th Century, for their part, made an in-depth analysis of the experience of boredom in a host of philosophical literary works. For the Viscount of Chateaubriand (1952, 2014), boredom meant suffering from a serious paralysis of one's will. de Senancour (2010) expressed boredom as an opposition between what one imagines and what one experiences, a state in which one does not know what to wish for precisely because these wishes are disproportionate, and the imagination has promised too much. This is similar to what the authors Staël-Holstein (1835, 1995, 1998, 2000, 2010) and Sand (2022) advocated. A curious case is that of Flaubert (2003), the creator of one of the characters most afflicted by boredom of all time—Bovary. The novelist explicitly differentiated, for the first time in history, between two types of boredom (Flaubert, 1980): the banal tedium due to an excess of leisure time and the modern tedium of an existential nature—what we now know as simple or passing boredom, in contrast to complex or profound boredom. Baudelaire (2017) filled dozens of pages about this latter concept, describing it as desperation or the angst of hopelessness because everything one aspires to is unrealistic; the absence of desire is also what Tolstoy (2017) spoke about. Furthermore, other philosophers like Kierkegaard (2013) ascribed to the thought on this form of profound boredom that leads to angst.

Beyond philosophy and literature, many physiologists were interested in the state of boredom in the French context at the end of the 18th and 19th Centuries. Hallé and Thillaye (1819) suggested that this was a case of a painful torment that brought with it considerable disarray; Esquirol (1821) appreciated it as a form of hatred of life; de Sauvages (1771) as a disease stemming from tiredness with existence; Littré (1863) as a vacuum of the soul deprived of an interest in things, while de Boismont (1850) referred to it as a moral disease of modern society. His understanding of boredom fully coincided with that of other philosophers with a sociological bias—the treatment of boredom from a purely sociological perspective has not begun to gain visibility until recently, thanks to works such as those by Conrad (1997), Gardiner and Haladyn (2016), or Ohlmeier et al. (2020), for example—like Simmel (1950, 1983), Kracauer (1995), Marx (2009), Lefebvre (2012, 2022), and Adorno and Horkheimer (2016), to mention but a few, for whom tedium was just a symptom of capitalism and its worst creatures—among them, the culture of mass entertainment.

The 20th Century was a period of greater scientific production regarding this phenomenon. Until that time, the only work exclusively given over to the analysis of boredom was that of de Boismont (1850), *De l'ennui, taedium vitae*. But it was soon added to this the work *L'ennui. Étude psychologique*, by Tardieu (1913). This French psychologist spoke about boredom as turmoil and neglect, as a nostalgia for the unattainable and skepticism of having lived too much; a condition that could even become chronic. When Münsterberg (1913) turned boredom into a scientific research matter based on his study of performance in factories, showing it as a sentiment of monotony which depended on one's individual disposition, many other researchers in the field of mental health began to pay attention to boredom with unusual generosity. Lipps (1909), albeit a philosopher, defined it through a psychodynamic theory as a conflict between the internal need for an intense mental activity and a lack of stimulation or the subject's inability to find

stimulation. Fenichel (1951), a disciple of Freudian psychoanalysis, observed that tedium was a state of tension characterized by the co-existence of a need for activity and the dissatisfaction with future stimulation.

In the mid-20th Century, researchers from the field of psychology, coming from a range of very different movements such as those based on the arousal theory or cognitive theory, among others, focused on discovering the intricacies of boredom more in-depth. Listing their conclusions here would exceed the space available to me and the aim of this essay, but an exhaustive outline can be found in Chapter 6 of my book *La enfermedad del aburrimiento* (*The Disease of Boredom*) (Ros Velasco, 2022a). Among the most cutting-edge definitions is that of Greenson (1951, 1953), regarding apathetic and agitated boredom; that of Warren (1934), who explained that tedium was an unpleasant condition of foggy attention, resulting from the automation of an activity and the difficulty in finding change; that of O'Hanlon (1981), according to whom boredom was a psychophysiological state produced by lengthy exposure to monotonous stimulation; that of Csíkszentmihályi (1975, 1998, 2000), creator of the well-known flow theory, who treated boredom as a psychological state of dissatisfaction caused by a decline in neurological stimulation as a result of the experience of uninteresting or repetitive situations; that of Mikulas and Vodanovich (1993), who pointed to a state of low stimulation and dissatisfaction attributable to an unsuitable environment; that of Sundberg (1994), who distinguished between passing boredom (state-boredom) and boredom as an individual trait or a recurring disposition (boredom proneness), or that of Campbell (1996), for whom tedium was a sentiment of displeasure due to a need for greater activity or to a lack of significant stimulation or an inability to perceive the stimulation.

At present, some of the "popes" of boredom continue to work tirelessly to complete the profile of an unequivocal definition of this state. Eastwood et al. (2012) tell us that boredom is a state of aversion that primarily occurs when we are unable to satisfactorily commit to the internal or external information required to take part in an activity, when we are aware that we cannot maintain our attention to gratifying activities because they demand a high degree of mental effort and when we attribute the cause of our state to the environment. Their argument was fine-tuned later on by the researchers Westgate and Wilson (2018) in what is known as the MAC Model. Van Tilburg and Igou (2011, 2017, 2019) and Van Tilburg et al. (2022) stressed the role played by the lack of meaning perceived in a situation or an activity in preventing our commitment to it, which is what leads to boredom. In the realm of neuropsychology, Danckert (2018, 2019) proposed that boredom is an omnipresent human experience that can be described as the inability to interact with one's environment despite being motivated to do so. Lastly, the philosopher Elpidorou (2014, 2017) examined the functional component of boredom, presenting it as a state that warns us of situations that are not valuable to us and should thus be abandoned.

After this long journey—which can be looked at in-depth in my book (Ros Velasco, 2022a)—the reader will agree that it is hard to maintain the claim that we know almost nothing at present about boredom. With different nuances, all these thinkers have contributed to us all having an idea, even if minimal, about what this state constitutes and implies, which can be expressed as follows: boredom is a state of malaise that we suffer from when the environment in which we find ourselves immersed or the activity we try to engage in does not stimulate us in line with our initial expectations, resulting in the painful experience of meaninglessness. We all suffer from this, more or less frequently, at different times and in different places, depending on both exogenous factors that stem from the possibilities of the context, and endogenous related to one's own personality and expectations. The person who is bored feels that their relationship with the present reality is damaged and they should do whatever within their grasp to return to an optimum state of stimulation, which translates into the sense of wellbeing yearned for (Ros Velasco, 2022a).

This description is applicable to any experience of boredom in which what determines its ultimate expression is the interaction between such variables as intensity (superficial or profound), durability (passing or chronic), and the agent of the experience (individual or collective) in this relationship established between the person (or people) bored and the specific context (Ros Velasco, 2022a). These are some of the variables quoted by Flaubert (1980) when classifying boredom in the categories of banal and existential tedium (Greenson, 1951, 1953, however, was guided by the type of response elicited to address the boredom to classify it as agitated or apathetic). Heidegger (1995) also tested out his own classification of boredom—being bored with something (*das Gelangweiltwerden von etwas*), boring oneself with something (*das Sichlangweiligen bei etwas*), and profound boredom (*das Sichlangweiligen*); a distinction that I have serious discrepancies with (Ros Velasco, 2022a, see Chapter 7, in particular). I feel the classification by the poet Valéry (1951) is more complete, for whom boredom could be transient (*l'ennui passager*), due to weariness (*l'ennui par fatigue*) or with life (*l'ennui de vivre*). The classification by Valéry may be considered the predecessor of what I have proposed myself (Ros Velasco, 2022a), according to which, based on the variables mentioned, boredom may be situation-dependent and transient, situation-dependent and chronic, individual-dependent and chronic, and existential-profound, always taking into account the perspective of its functionality or dysfunctionality insofar as we are capable or not (for endogenous or exogenous reasons) of reacting to prevent suffering from it. Classification aside, the essence of boredom—even addressing it as a multifactor phenomenon—is always the same: this unrest as a result of a relationship with the present that has become obsolete and that we have to address. I believe we can all see a part of ourselves in this "simplification"; hence, we know something, if not a lot, about boredom.

I have taken the time to debunk this myth because, as I warned at the beginning, any subsequent ideas are a result of this. Without going further, the following myths are two typical responses to the question: why don't we know *almost nothing* about boredom? Of course, we don't know anything because *the study of boredom is still in its infancy* and because *boredom has not been paid the attention it deserves* (see e.g., O'Hanlon, 1981; Smith, 1981; Farmer and Sundberg, 1986; Damrad-Frye and Laird, 1989; Pediaditakis, 1991; Fisher, 1993; Leong and Schneller, 1993; Scitovsky, 1999; Watt and Vodanovich, 1999; Martin et al., 2006; Pekrun et al., 2010; Thompson, 2020). I am not surprised that those who are not engaged in researching this phenomenon think that boredom has

not aroused our curiosity as a subject of scientific analysis until a relatively short time ago. What I do find surprising is that these claims are made by some "boredom scholars" (Ros Velasco, 2017).

Nearly 100 years have elapsed since Russell (1930) denounced, in *The Conquest of Happiness*, that the study of boredom was being ignored; 100 years in which this "study of boredom" has become an exceptional subject of interest. Aside from everything that the philosophers, theologians, authors and physiologists have said in centuries gone by—if we brought it all together, the calculation would amount, without exaggerating, to several thousand pages (Ros Velasco, 2017)—during the first half of the 20th Century, more than ten works were published about boredom; while in the second half, the number of publications stretched into the hundreds (Ros Velasco, 2017). With the dawn of this new century, the number of studies about boredom easily exceeds anything written before. By way of example, in 2013 alone, a total of 119 papers were published (Ros Velasco, 2017).

However, this evidence does not prevent many researchers from justifying the need for their works based on these two myths (from the texts by O'Hanlon, 1981 at the end of the 20th Century, to more recent ones, drafted by experts like Pekrun et al., 2010), although the tendency to identify a gap in the literature as a strategy to justify one's own work is not exclusive to this field of study. As well as myself, some colleagues like Goodstein (2020) and Finkielsztein (2021) call for this false belief to be banished once and for all—without much success, it should be said. It is true that the study of boredom has been very disperse in terms of disciplines (Ros Velasco, 2017). It is also true that its institutionalization and academization is only just beginning now (for example, with the launching of the International Society of Boredom Studies in 2021 and the opening of labs such as the Danckert Lab or the Boredom Lab). That is not reason enough to maintain that we have barely begun to research boredom or that in the past we have not shown an interest in the experience of boredom.

Such affirmations only make sense in very specific contexts; for example, when applied to the study of boredom in animals in the field of zoology (see e.g., Meagher, 2019), or the analysis of boredom in people with Alzheimer's in the field of psycho-gerontology (Ros Velasco, 2021b). Let's change the expression "the study of boredom is in its infancy" to "the study of boredom in X is in its infancy" and the expression "not enough attention has been paid to boredom" to "not enough attention has been paid to boredom in X", if that were the case.

Another myth related to these—which has been debunked in what I have set out above—is that which states that *the experience of boredom has arisen in modern societies* (see e.g., Meyer Spacks, 1995; Svendsen, 2004; Goodstein, 2005). Boredom is not the exclusive jurisdiction of capitalist societies, originating in the modern world (Ros Velasco, 2022a,b)—although the causes of boredom, the characteristics of its experience, and its consequences are different in modern times compared to other historical periods insofar as they respond to its particularities. According to the description I have suggested, boredom is within the grasp of anyone—even for species other than ours, which debunks the myth that *boredom is an exclusively human condition* (see Wemelsfelder, 1985; Meagher and Mason, 2012; Svendsen, 2019a,b). Many people believe that hunter-gatherer societies did not suffer from boredom because their lives were very busy in an attempt to survive. They are wrong. Our predecessors invested a lot less time in survival than we employ nowadays (see Lee, 1979; Le Guin, 1989; Barnard, 2016; Sahlins, 2017). But even if this were the case, filling our time with numerous tasks does not imply an absence of boredom: these may be very unstimulating tasks. At any event, modern boredom is attributed to the birth of leisure time; time that other civilizations, like the Romans (see Ros Velasco, 2022a, particularly Chapter 1) also enjoyed.

It is easy to think that boredom is experienced more in modern times than in any other because we have more free time in which this state can appear. But, in the same way as we cannot suppose that we simply avoid getting bored by being busy, nor should it be supposed that the availability of free time means it is easier to suffer from boredom. Boredom can arise as easily in leisure time as in duty time. What distinguishes us from other times is that there are many more of us with the chance to write about our experiences, in whatever context. Of course, those that suffer from boredom because they do not know how to manage their free time are also those that have more time to reflect on their experiences, in this specific situation, for posterity. Those that are bored by endless days of work do not tell us this because they have no time to do it, but that does not mean that they are not bored—this is why the issue of boredom in the workplace is still as heavily scrutinized today as it was a century ago (Butler et al., 2011). This may give us the sensation that boredom is something modern as a result of an excess of free time, of the emergence of new lush societies as a consequence of the industrial revolution (Veblen, 1994), but, as I already said, having free time is not something exclusive to modern-day societies, nor is writing about it—although it is a period that facilitates this task—nor *does boredom exclusively take place in free time*; another myth that has been debunked, together with those popular sayings that exclaim that *only the rich get bored* because they have a lot of free time or that *boredom is the same as doing nothing*.

We get bored when we are obliged to do nothing, when what we would like is to be doing something that we have chosen to do ourselves, the same as we get bored when we have to do something by external demand that is not important or stimulating to us, when we would prefer doing whatever we want or doing nothing at all (Ros Velasco, 2022a). Not doing anything because that is what we have prescribed for ourselves—because we want to rest, disconnect or reconnect with our own thoughts—is not synonymous with boredom under any circumstance. This ties in to another popular myth: that of *wanting to have time to be bored*. Boredom is always painful because it is the result of dissatisfaction. No-one in their right mind yearns to feel pain, except those who believe that suffering is necessary to reach a high level of existence. What we want is to have free time (Blumenberg, 1986) to carry out activities that are freely chosen or to do nothing at all. But we do not expect that, at the end of the day, boredom will occupy this free time we have. Everyday expressions like "I plan to spend the weekend bored" or "if only I had time to get bored" stem from a confusion in the meaning we attribute to the word "boredom". You only have to think about a time when you were really bored, reading a book you couldn't get in to or having to wait in a waiting room without the chance to escape, and relive this malaise you felt in order to see

that you wouldn't want to repeat this situation or for your boredom to have lasted any longer. Tedium is not pleasurable, unless when we say "tedium", what we really want to allude to is "rest", which is totally the opposite. Maybe we should extend the definition of boredom to include this new broader view, whereby "boredom means enjoying doing nothing of your own volition", although, for this meaning the Oxford English Dictionary has coined the term "to be in goblin mode".

When we say we want to have time to get bored, in reference to the positives of having free time, it seems like boredom only occurs in this leisure time, when we have seen that boredom can occur both in our free time and in undertaking tasks—for example, carrying out a repetitive job. Even after debunking this myth, many people advocate the idea that, whenever boredom may occur, whether in free time or duty time, it is useful to experience it because *boredom makes us more creative and smarter* (for examples, just google the words "boredom" and "creativity"). This is my favorite myth because it is one of hope and resilience which makes it desirable to have time for tedium.

We endlessly hear repeated in the media that boredom is positive because it drives creativity, and hence it is desirable to have time to be bored and spend long periods of time doing nothing. I won't stress anymore that people can get bored anytime and whether you are doing something or nothing. Let's focus now on this issue of increased creativity (being smart is only a knock-on effect of this). When we get bored, we feel pain—that is clear—and, as people that flee from pain and pursue pleasure, we try to put a stop to what we find to be a nuisance by making use of the resources within our grasp—these are different depending on the context and on each person (Ros Velasco, 2022a). To express this another way, when exposed to a boring situation or activity, our levels of cortical stimulation drop, and we feel a malaise that forces us to design a strategy to recover our equilibrium enjoyed before this exposure. What we do to make the source of boredom go away is introduce a change into our environment. It is in this process that some people detect a component of creativity.

Escaping from boredom implies a moment of "creativity", in the sense that we must bring into play something where previously there was nothing or where what there was didn't stimulate us. However, what we are told through this myth is that boredom will help make us more creative, in reference to imagination or invention, which is to suppose a great deal. Boredom is reactive—I prefer to use this word to avoid the confusion generated by the term "creative"—a driving force that boosts change but, firstly, this change does not necessarily imply the introduction of something completely new and original into the environment (Ros Velasco, 2023). In fact, usually, the design of this strategy to flee from boredom does not even take place consciously, but rather we resort to ways stored away in our subconscious that have proven to be successful in the past in disarming the source of boredom; we do this almost mechanically: if a film bores me, I change to a series or play a videogame or connect to social media or I call my friends to go out and have some beers or I read a book. Even when we become aware that we need to do something to prevent boredom and we start to think about how to do this, we end up resorting, time and time again, to the same common solutions. Obviously, we cannot generalize, not one way or the other.

The belief that boredom makes us more creative exudes great optimism. It not only seeks to convince us that something original can come out of our boredom, but that this creation stemming from the response to boredom will be useful. We forget that a large percentage of our reactions (conscious or subconscious) are dysfunctional or unhealthy (Ros Velasco, 2017, 2022a; Sommer et al., 2021). If tedium is going to make me more creative in the sense that it will arouse my curiosity in drugs, perhaps the supposed creativity that inspires me is not as welcome as we would like to think. The reactive nature of boredom is praiseworthy because it keeps us in motion, but not because it leads to geniality. Never in the history of the study of boredom has this state been observed from such a perspective, perhaps with the exception of the Renaissance, when it was believed, as Ficino stated, that boredom, in its most profound form, made us great (see also Ros Velasco, 2022a, especially Chapter 3). It is true that creative people are able to make better use of their boredom in that they respond to this with more original reactions (Ros Velasco, 2023), but this only means that boredom drives the creativity of creative people or the geniality of the genius, as furthermore also happens with the destructivity of destructive people (Ros Velasco, 2023). Pursuant to the foregoing, the answer is "no"; boredom does not necessarily make us more creative (not even children). We often overestimate our ability to respond creatively and functionally to boredom.

These slogans also send us the message that, on the other hand, it is negative to spend all our time busy doing things; a direct criticism of the society of hyperactivity. One of the main complaints of our century is that we do not leave room for boredom in the midst of the endless cascade of activities that infest all the hours of the day, all the days of the week that span all the months of the year (despite the fact that many of these chores also bore us). The overstimulation we subject our brains to prevents the necessary rest so that this creativity flows. The solution: boredom, because everyone knows that *boredom helps rest the brain*, as many pseudo-health blogs claim on the internet. But it is quite the opposite. The need to slam the door on boredom even manifests itself in states of stress and anxiety when we can't find the key to banishing it (Ros Velasco, 2022a). I also wonder why we were going to have to slow the pace for the light to come on. Pablo Picasso said that muses visit us while we work. Why not while we tweet or watch a video on TikTok?

I have not spoken about those who experience boredom in a dysfunctional fashion. We are not always in a position to respond to boredom, whether for better or for worse. Some people suffer from "individual-dependent chronic boredom" because they are unable to recognize more desirable situations than those that cause their boredom to encourage change (Ros Velasco, 2022a). Others, in turn, are able to identify the way in which they wish to break away from the source of boredom, but the very context that generates it prevent them from realizing the idea or putting it into practice, such that this boredom prevails indefinitely over time (this is what I have called "situation-dependent chronic boredom", Ros Velasco, 2022a). How is the boredom of these situations going to make us more creative or is going to help rest the brain?

The last myths that I wish to broach are precisely related to the forms of dysfunctional boredom. For a long time, we have heard people say that *only those who want to are bored* in this life or,

what is worse, that *only fools get bored*, those people who are empty inside, those who are unable to appreciate the immensity of the world and to wonder at the marvels of the divine creation, people who do not know how to manage their time optimally, delighting in the achievements of mankind. If only escaping from boredom were a simple question of willpower. For those who struggle to escape from boredom, these terrible myths are stigmatizing, aside from leading to a nauseating moral and intellectual superiority from those who perpetuate them. By means of these myths, the whole burden of responsibility in combatting boredom is placed on the subject, ignoring the importance of the context and that pathological states of boredom exist. The lament that *boredom is a privilege of the idle classes* also conveys an expression of moral superiority, albeit in a different sense. This is uttered by those who work all the time, convinced that only those who have nothing to do get bored. Those who proclaim this type of catchphrase blame others for not being productive, as if the exercise of productivity were a guarantee of a meaningful job. They not only err in their opinion, but are also guilty of envy.

These myths, which I classify as stigmatizing, are precisely those that halt the advance of Boredom Studies and of society itself. They make us ashamed of the causes of boredom, of things that do not satisfy us, and prevent us to discuss them as a group for fear of being pointed to as fools, vulgar, incapable or lazy. When someone asks us about what bores us, we hide our feelings and respond with such expressions as "I never get bored" or "I don't have time to be bored", to show others that we hunger for knowledge and have very busy lives because we comply with the role we need to fulfill as useful cogs in the wheel of production. I am sure that there are real cases, worthy of study, of people who have no filter, able to engage with everything around them, but I doubt this is universal.

Sharing with others what we know about boredom, thanks to our own experiences, remarking on what bores us, destigmatizing boredom, and debunking the myths is the first step in preventing stagnation, dead-ends, situations which, as a society, we constantly create and turn into a source of boredom. This is a complicated exercise, as I said at the beginning, but essential for the continuity of progress. Throughout history, we have fallen into the trap of understanding boredom as a shameful, sinful, miserable and even sick state (Ros Velasco, 2022a), instead of as a useful experience to acknowledge the obsolescence of our own daily routines and our social constructs. The myth I will end this article with is the one that says that *we must learn to tolerate boredom*, one that gained fame since the COVID-19 pandemic began. This does not mean that we must be willing to suffer it daily or welcome it with open arms under the pretext that it will make us more creative, for example, but rather integrate its inevitable experience in public dialogue, shrugging off the prejudices and myths that prevent us from apprehending and harnessing it in its multifaceted fullness. They are the ones who lead us to try to escape boredom immediately, instead of accepting and exploring it closely to reap its benefits. Contemporary scholars of boredom dedicate ourselves to this commendable task of vindication.

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 contributions

JRV contributed to conception, organization, writing, revision and translation, and approved the submitted version.

Funding

This work has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 847635.

Acknowledgments

A shortened version of this article was published in Spanish in the magazine *Revista de Occidente* (issue 503).

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Opinion
PUBLISHED 29 June 2023
DOI 10.3389/fsoc.2023.1213190

OPEN ACCESS

EDITED BY
Shen Liu,
Anhui Agricultural University, China

REVIEWED BY
Andreas Lieberoth,
Aarhus University, Denmark

*CORRESPONDENCE
David M. Ndetei
✉ dmndetei@amhf.or.ke

RECEIVED 27 April 2023
ACCEPTED 09 June 2023
PUBLISHED 29 June 2023

CITATION
Ndetei DM, Nyamai P and Mutiso V (2023) Boredom–understanding the emotion and its impact on our lives: an African perspective. *Front. Sociol.* 8:1213190. doi: 10.3389/fsoc.2023.1213190

Boredom–understanding the emotion and its impact on our lives: an African perspective

David M. Ndetei[1,2,3]*, Pascalyne Nyamai[1,3] and Victoria Mutiso[1,3]

[1]Africa Mental Health Research and Training Foundation, Nairobi, Kenya, [2]Department of Psychiatry, University of Nairobi, Nairobi, Kenya, [3]World Psychiatric Association Collaborating Centre for Research and Training, Nairobi, Kenya

KEYWORDS

boredom, psychiatric aspects, African context, emotion, impact

Summary

Boredom is a universal experience overlooked in the scientific community despite most people having experienced it at some point in their lives. Despite being a common emotion, boredom has received little attention compared to other emotions such as happiness or anger (Westgate and Steidle, 2020). Boredom is often considered a trivial and inconsequential emotion, but recent studies have shown that it can have a significant impact on our wellbeing, productivity, and even our health. This paper aims to explore the concept of boredom, its impact on lives and its psychiatric aspect.

Defining boredom

Boredom is a state of mind characterized by a lack of interest, stimulation, or challenge. It is a subjective experience that can manifest in a variety of ways, including restlessness, apathy, and disinterest. Boredom can be caused by a lack of external stimulation or by internal factors such as a lack of motivation or a sense of purpose. It can arise from routine tasks, repetitive activities, or lack of novelty, which can result in a sense of time dragging or feeling stuck in a monotonous routine. Boredom can also arise from unmet expectations or a discrepancy between our desires and our current reality (Eastwood et al., 2012; Van Tilburg and Igou, 2017; Raffaelli et al., 2018).

The impact of boredom

Boredom can occur in different settings, including work, school, relationships, and leisure time, and is more prevalent among men, youths, the unmarried, and those of lower income (Chin et al., 2017; Weybright et al., 2020). While boredom is often seen as an unpleasant experience, it can have both negative and positive effects on individuals. On the one hand, boredom can be a source of creativity and innovation in that when bored, brains are more likely to wander and explore new ideas or perspectives. Boredom can encourage one to seek novel experiences, discover new interests, or challenge oneself to learn and grow. For instance during the COVID-19 pandemic, boredom as a result of lockdowns and isolations helped many explore new ideas and discover new interests. Some explored content creation as well as other interests such as painting, cooking, baking and knitting (Morse et al., 2021). Boredom can also prompt to reflect on values, goals, and aspirations, and motivate to make changes in lives. In this sense, boredom can be seen as an opportunity for self-awareness and self-improvement. Studies have shown that people who experience moderate levels of boredom are more likely to engage in creative thinking and problem-solving (Elpidorou, 2018; van Tilburg and Igou, 2019).

On the other hand, boredom can also have negative consequences such as decreased productivity, poor mental health, and even physical health problems. In one study a significant percentage of participants—67% of men and 25% of women—preferred to administer electric shocks to themselves rather than experience boredom while sitting alone with their thoughts (Wilson et al., 2014). This finding highlights how much people generally dislike being bored. Boredom has also been associated with various negative behaviors, such as self-harm, substance use, and engaging in distractions like watching movies during work (Havermans et al., 2015; Weybright et al., 2015; Nederkoorn et al., 2016). To illustrate how boredom can lead to distraction at work, an air traffic controller was caught watching a crime thriller while at work during a quiet overnight shift instead of monitoring the space, exposing the controller's distraction as a result of boredom at work (Lowy and Henry, 2016). Similarly, a security guard had to call the police to release him from handcuffs after he handcuffed himself out of boredom and lost the key (Darrah, 2019). These incidents highlight how boredom can affect workers in critical jobs that require prolonged vigilance. Despite technological advances that have made their tasks safer and easier, boredom can still creep in and impact their performance (Cummings et al., 2016).

Psychiatric aspects of boredom

Boredom has significant psychological and psychiatric aspects. It is not just a feeling of being uninterested or disengaged rather it can affect various aspects of mental health, cognition, and behavior. Research has shown that boredom is not only linked to depression, but it may also be both a risk factor and a symptom of depression (Sommers and Vodanovich, 2000; Goldberg et al., 2011; Eastwood et al., 2012; Mercer-Lynn et al., 2013; Spaeth et al., 2015). A study on 722 students found that students who scored high on boredom scale also scored high on depression scale an indication that boredom can be a psychological feature of depressed states (Spaeth et al., 2015). In another study among 823 undergraduate students aimed at exploring the relationship between boredom and depression, the correlation between boredom and depression was substantially high ($r = 0.72$, $p < 0.001$; Goldberg et al., 2011). Boredom can disrupt motivation, reduce pleasure, and interfere with goal-directed behavior, which can contribute to the development of depressive symptoms. Boredom is also associated with anxiety by triggering anxious thoughts and worries or exacerbate symptoms of already existing anxiety disorders (LePera, 2011).

Further, boredom is implicated in the development and maintenance of substance use disorders. When individuals feel bored, they may turn to substances, such as alcohol or drugs, as a way to cope with or alleviate their boredom (Weybright et al., 2015; Biolcati et al., 2016). Boredom can also increase impulsivity, leading individuals to engage in risky or sensation-seeking activities as a way to alleviate their boredom (Lee et al., 2007; Mercer-Lynn et al., 2013). In fact, a study on binge drinking behavior in adolescents found that boredom proneness was a significant predictor of binge drinking (Biolcati et al., 2016). This impulsive behavior can further exacerbate mental health issues, such as anxiety and depression (LePera, 2011).

Individual and cultural differences affect how boredom is experienced (Vodanovich et al., 2011). For instance, age and stage in life can influence how boredom is experienced and expressed. Children and adolescents may be more prone to boredom due to their developing cognitive abilities and limited autonomy while older adults, on the other hand, may experience boredom as a result of retirement or decreased social interaction (Martin et al., 2006).

African context

In the African context, boredom takes on unique dimensions shaped by cultural norms, values, and social structures. African societies are characterized by their rich cultural heritage, diversity, and communal way of life (Abungu, 2011; Columbus, 2014). African cultures have a strong emphasis on community and social cohesion, and people often find meaning and fulfillment through social relationships, extended family networks, and collective activities (Columbus, 2014). For example, in some African cultures, communal activities such as storytelling, music, dance, and traditional ceremonies provide a rich source of stimulation, creativity, and social interaction, which may mitigate feelings of boredom (Idang, 2015; Guide, Guide). However, with the rapid modernization in many parts of Africa, there are increasing challenges to traditional ways of life thus boredom has become a prominent issue. This is more so in the wake of COVID-19 pandemic that limited socialization.

Another aspect of boredom in the African context is the impact of poverty and inequality. Many African countries face significant challenges in terms of poverty, unemployment, and limited access to basic resources and services (Ukpere, 2011; Francis and Webster, 2019). In such contexts, people may experience boredom due to a lack of opportunities for education, employment, and personal growth. The feeling of being stuck in a monotonous routine without prospects for improvement can lead to a sense of hopelessness.

Boredom has emerged as a significant mental health concern in the context of the COVID-19 pandemic in sub-Saharan Africa (SSA), according to recent research (Langsi et al., 2021; Coetzee et al., 2022). A web-based cross-sectional study conducted during the lockdown period in most SSA countries found that over half (52.2%) of the participants reported experiencing mental health symptoms, with feeling bored being the most prevalent symptom reported by 70.5% of respondents, followed by feeling anxious (59.1%), being worried (57.5%), frustrated (51.5%), and angry (22.3%; Langsi et al., 2021). The impact of boredom on mental health and emotional responses has been observed across different age groups. A study on adolescents in South Africa found that individuals with higher trait boredom were more likely to use substances (Weybright et al., 2015). Similarly, boredom has also been shown to trigger psychological distress among students in 22 African countries especially during the pandemic lockdown (Zahrae Afellat and Alipour, 2021). The findings of these studies highlight the importance of addressing boredom as a significant mental health concern in Africa. Reduction of adolescent substance use, promotion of leisure/recreation opportunities, and provision of social interaction for children are important strategies to mitigate the impact of boredom on mental health (Weybright et al., 2015; Semo and Frissa, 2020).

Conclusion

In conclusion, boredom is not a trivial experience, but rather a complex psychological phenomenon that can impact mental health, cognition, and behavior. It is linked to depression, anxiety, substance use, impulsivity, and increased risk-taking behavior. Recognizing and addressing the psychiatric aspects of boredom can play a significant role in promoting mental health and wellbeing. There is a need for research on how to quantify boredom, conduct both quantitative and qualitative research to clearly understand its epidemiological patterns and potential avenues of intervention.

Strength and limitation

While there is general knowledge that boredom can have both negative and positive effects as well as have significant psychological and psychiatric aspects on individuals, in the African context it can be experienced differently due to the cultural norms, values, and social structures that exist in Africa unlike in other non-African countries. Therefore, in attempt to write about boredom in African setting, it has downed on us on the importance to study boredom in Africa and more so in the Kenyan where we have no documented clinical cases to draw from.

Author contributions

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

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Conceptual Analysis
PUBLISHED 10 July 2023
DOI 10.3389/fsoc.2023.1178053

OPEN ACCESS

EDITED BY
Pier Luigi Sacco,
University of Studies G. d'Annunzio Chieti and Pescara, Italy

REVIEWED BY
Simon Winlow,
Northumbria University, United Kingdom
James Danckert,
University of Waterloo, Canada

*CORRESPONDENCE
Peter Levine
✉ peter.levine@tufts.edu

RECEIVED 02 March 2023
ACCEPTED 26 June 2023
PUBLISHED 10 July 2023

CITATION
Levine P (2023) Boredom at the border of philosophy: conceptual and ethical issues. *Front. Sociol.* 8:1178053. doi: 10.3389/fsoc.2023.1178053

Boredom at the border of philosophy: conceptual and ethical issues

Peter Levine*

Tisch College of Civic Life and Departments of Philosophy and Political Science, Tufts University, Medford, MA, United States

Boredom is a topic in philosophy. Philosophers have offered close descriptions of the experience of boredom that should inform measurement and analysis of empirical results. Notable historical authors include Seneca, Martin Heidegger, and Theodor Adorno; current philosophers have also contributed to the literature. Philosophical accounts differ in significant ways, because each theory of boredom is embedded in a broader understanding of institutions, ethics, and social justice. Empirical research and interventions to combat boredom should be conscious of those frameworks. Philosophy can also inform responses to normative questions, such as whether and when boredom is bad and whether the solution to boredom should involve changing the institutions that are perceived as boring, the ways that these institutions present themselves, or individuals' attitudes and choices.

KEYWORDS

boredom, phenomenology, Heidegger, Adorno, normative issues in measurement

1. Introduction: why philosophy is relevant

Whether boredom leads to consequences such as violence is an empirical question, as is the question of whether boredom can be prevented in various ways. Other contributions to this volume consider those issues. I presume that the harmful consequences of boredom are serious and deserve both empirical research and effective interventions.

Boredom is also a topic in philosophy (Svendsen, 2005; Toohey, 2011; O'Brien, 2014, 2022; Elpidorou, 2020). Seneca, Martin Heidegger, and Theodor Adorno are among the historical philosophers who addressed boredom in some detail. There is also now a substantial twenty-first century literature.

This article is intended as a brief review of the philosophical literature. I refer to some empirical psychology that is directly relevant to philosophical claims, without attempting to summarize the substantial psychological literature. I also argue that two philosophical issues are relevant to research on boredom and to interventions to prevent boredom or to address its consequences.

First, the proper definition of boredom is not simply an empirical question. There can be debate about whether one's own state or someone else's reflects weariness, frustration, impatience, apathy, depression, languor, and even tranquility or calm. Interview subjects would not all define it the same way. Indeed, it is possible to be bored without realizing it (Svendsen, 2005, p. 14). Since boredom comes in many forms, its defining features are not immediately evident. Phenomenology (a philosophical method) is suited to defining boredom, which is necessary for measuring boredom and investigating its causes and consequences. Specifically, phenomenology can help to distinguish between boredom as a problematic subjective state vs. simply not doing something notable—for instance, while being laid off during a pandemic.

An overview of survey measures finds "some common themes among the definitions of boredom," which "include an understimulating environment, attention issues, perception of time passing slowly, insufficient challenge and meaning, and the pairing of low arousal with dissatisfaction" (Vodanovich and Watt, 2016). These themes overlap with the philosophical literature on boredom—but incompletely. Some of the concrete survey items in the Multidimensional State Boredom Scale (Fahlman et al., 2013) would make sense to philosophers whose work is discussed later. For example, "Time is passing by slower than usual" captures a central feature of Heidegger's account of boredom (Heidegger, 1995, §23a). But other items, such as "I feel agitated" or "I am lonely," are not aspects of definitions of boredom that appear in the philosophical literature. These items contribute to a psychometrically valid scale, but that does not prove that they help indicate a trait or state that should be labeled as "boredom." To assess that claim requires conceptual work.

Second, we need an informed view of normative or ethical questions, such as whether and when boredom is intrinsically undesirable (a bad way to be, not just a cause of bad outcomes), whether bored people should change their circumstances and activities or else change their attitudes toward what they are doing, and whether individuals or contexts and institutions are responsible for people being bored.

For the purposes of this volume and project, it is appropriate to define boredom as an undesirable, undesired, and unpleasant state. This premise is also consistent with some philosophical analyses of the experience of boredom (O'Brien, 2014). For some contemporary experts, boredom is a "negative feeling" that "operates as a positive signal" (Danckert and Eastwood, 2020; cf. Elpidorou, 2020). On that view, boredom is intrinsically undesirable but has valuable consequences. Some sources go further and at least hint at the intrinsic value of boredom (Toohey, 2011). The critic Walter Benjamin wrote:

> If sleep is the pinnacle of physical relaxation, so boredom [*Langeweile*] is for the mind. Boredom is the dreambird that incubates the egg of experience. The rustling in the forest of leaves drives him away. Its roosts—the activities that are intimately associated with boredom—have already died out in the cities and are also dying out in the country. With that, the gift of listening is lost, and the community of listeners disappears (Benjamin, 1977).

Likewise, Heidegger's famous (and 89-page-long) analysis presents profound boredom as a door to fundamental truths and an opportunity to discover one's existential freedom (Heidegger, 1995, §19–38; Slaby, 2010; Freeman and Andreas, 2015; Elpidorou and Freeman, 2019).

The reason that we (contributors to this special issue) define boredom as undesirable is normative. The research collected here is a purposive activity for public good, addressing boredom as a problem. Such purposes are not biases that distort research; they are integral to valuable research. Normative assumptions can be defended, but they need explicit critical analysis.

Benjamin, as a heterodox Marxist literary critic, had values and goals that encouraged his positive view of boredom. He was seeking alternatives to the busyness of commercial capitalism. What Heidegger wanted to accomplish in 1930 (3 years before he joined the Nazi Party) is controversial, but his discussion of boredom includes remarks like this: "We should not be at all surprised if the contemporary man in the street feels disturbed or perhaps sometimes dazed … We must first call for someone capable of instilling terror into our Dasein [roughly: human experience] again" (Heidegger, 1995, §39; Hunt, 1998). Heidegger is accountable for his normative principles, as is anyone who studies a topic of human importance. The question is whether our principles are good (Levine, 2022, p. 46–53).

Specifically, it is worth asking whether boredom is intrinsically undesirable or wrong, not merely linked to bad outcomes (or good ones, such as realizing that one's current activity is meaningless). One reason to ask this question is existential: we should investigate how to live well as individuals. Are we obliged not to be bored? Another reason is more pragmatic. If being bored is wrong, we might look for effective ways to express that fact, which might influence people's behaviors. For instance, children are often scolded for being bored. If being bored is not wrong, then we shouldn't—and probably cannot—change behavior by telling people that it's wrong to be bored. Relatedly, when is it a valid critique of an organization or institution to claim that it causes boredom or is boring? Might it be necessary and appropriate for some institutions (such as the Federal Reserve) to be boring?

Just as social and behavioral sciences need philosophy (especially phenomenology and normative analysis), so philosophy needs the social sciences. Statistical questions, such as the prevalence of boredom and its association with depression or violence, should influence our definitions and evaluations of boredom. Phenomenology can degenerate into social science with an unrepresentative sample of one, which has serious drawbacks for generalizability. Therefore, the influence of philosophy and social science should be reciprocal. We need general patterns plus close introspective analysis. This paper introduces prominent ideas from the philosophical literature.

2. Phenomenology of boredom

The classic method of phenomenology is the close, explicit description of an inner state that avoids (or "brackets") as many theoretical preconceptions as possible. Husserl writes, "phenomenological explication does nothing but explicate the sense this world has for us all, prior to any philosophizing" (Husserl, 1929, § 62). A phenomenological account is meant to ring true to its reader. A related method is to analyze and interpret descriptions of other people's experiences as they have been presented in history, autobiography, and fiction. For instance, Goodstein's *Experience Without Qualities* (Goodstein, 2005) is mostly a set of close readings of literary descriptions of boredom. Goodstein is a critic rather than an introspective phenomenologist, but the two methods are similar. Empirical psychologists like James Danckert and John D. Eastwood also read, interpret and directly practice phenomenology (Danckert and Eastwood, 2020).

Perhaps the first phenomenology of boredom appeared before 62 CE in a letter by the Stoic philosopher Seneca. He describes a person who is dissatisfied with himself, driven to play ambitious

roles in public life (where he suffers inevitable failures), regrets his defeats, and then

> [retreats] to idleness and to secret studies, which are unendurable to a mind eager to take part in public affairs, desirous of action and naturally restless, because, of course, it finds too few resources within itself: when therefore it loses the amusement which business itself affords to busy men, it cannot endure home, loneliness, or the walls of a room, and regards itself with dislike when left to itself. Hence arises that weariness [*taedium*] and dissatisfaction with oneself, that tossing to and fro of a mind which can nowhere find rest, that unhappy and unwilling endurance of enforced leisure. … Hence comes melancholy and drooping of spirit, and a thousand waverings of the unsteadfast mind, which is held in suspense by unfulfilled hopes, and saddened by disappointed ones: hence comes the state of mind of those who loathe their idleness [*otium*: vacant time], complain that they have nothing to do, and view the progress of others with the bitterest jealousy: for an unhappy sloth favors the growth of envy, and men who cannot succeed themselves wish everyone else to be ruined. This dislike of other men's progress and despair of one's own produces a mind angered against fortune, addicted to complaining of the age in which it lives to retiring into corners and brooding over its misery, until it becomes sick and weary of itself (Seneca, 2020; Latin text at 57617).

Seneca emphasizes self-hatred and misanthropy more than most later authors do, but his presentation of *taedium* as restless dissatisfaction recurs in modern accounts. For example, Toohey argues that boredom is "characterized by lengthy duration, by its predictability, by its inescapability—by its confinement." When one is bored, "time seems to stand slow, to the point that you feel as though you stand outside these experiences." A sense of slow-moving time could be enjoyable, but in boredom, there is "usually a flavor of distaste or, more precisely, of disgust that comes about when one is *satiated* with a situation: so it is that terms such as nausea and biliousness are often used as other names for boredom." Valuable activities can be boring, but "boredom becomes worse when a situation becomes valueless" (Toohey, 2011, p. −5). Boredom characteristically involves "a feeling of being distanced from one's surroundings and the normal flow of time" (45). The inner state of boredom has observable physical manifestations, such as slumping bodies, drooping necks, yawning, and eyes staring into the distance (35–41). For Toohey, boredom also affords advantages: a heightened sense of "self-perception" and a useful reminder to disengage from "toxic social situations" that are wasting one's time (187, 33).

O'Brien (2014) describes boredom as a "mental state of weariness, restlessness, and lack of interest in something to which one is subjected, which is unpleasant or undesirable, in which the weariness and restlessness are causally related to the lack of interest." For him, boredom has a volitional aspect: one does not want to engage with or continue with an activity if it is boring. It also has a cognitive aspect: one perceives the activity or object to have features that are boring, such as excessive duration or repetitiveness. An unpleasant combination of weariness and restlessness arises because we are weary with what we are doing, yet restless to do something else. Finally, "In my own experience, boredom is not all that bad–for me and for the people around me. …. Boredom is somewhat bad, but lots of things are worse, and not just a little."

This mild reaction contrasts with Seán Desmond Healy's account of "hyperboredom," which he considers endemic in modernity and defines as "an agonizing and chronically painful disease" (Healy, 1984, p. 28). Indeed, empirical studies find cases in which boredom is a global and debilitating condition without any specific target (Fahlman et al., 2013).

Andreas Elpidorou explores psychological research that demonstrates the heterogeneity of boredom as a state and as a trait, its various causes and qualities. He argues, however, that all forms of boredom manifest the same *function*. Boredom reveals that a situation is unsatisfactory and motivates the bored individual to do something purposive and goal-directed. This function is valuable even though the experience itself is to be avoided (Elpidorou, 2021a). Put more strongly, boredom is one of the "elements of a good life" (Elpidorou, 2020, p. 13). A good life does not consist of pure pleasure but is "defined by [the] discovery of personal values and … the formation of one's own commitments" (Elpidorou, 2020, p. 2). Boredom plays an essential role in this process by alerting us to the fact that a given experience is not worthwhile, much as pain alerts us to the presence of a danger or physical damage (Danckert and Eastwood, 2020, p. 54). "The way in which we discover and create values in the world—and develop and grow as human beings—is by having to decide what's interesting and what's not, by being forced to encounter and deal with frustrating situations, and by being asked to figure out what's worth pursuing" (Elpidorou, 2020, p. 160). Thus, one should want to experience boredom at times, rather than doing unworthy activities without feeling bored.

For Heidegger, boredom means interpreting what one experiences as meaningless. However, Heidegger regards the prevailing explanations of life's meaning as false, and thus boredom reveals a truth. Furthermore, Heidegger sees the real meaning of life as temporality, or being aware of the self as passing through time. Boredom enables this awareness by focusing explicit attention on time (cf. Svendsen, 2005, pp. 107–32; Slaby, 2010).

Most scientific researchers would regard their own current mood as irrelevant to their observations of the world, or even as a hindrance that must be overcome before they can conduct valid science. In contrast, Heidegger sees having an "attunement," such as boredom or anxiety, as an essential and unavoidable way of experiencing anything. Each attunement offers insights, such as boredom's revelation of meaninglessness and temporality. A mood is not exactly subjective, because it offers truths; and it is not exactly objective, because, as it changes, so does the world that we experience. The ultimate truth is that we are creatures that have changing attunements.

Heidegger builds his account of boredom on three successively "profound" examples. In the first, the narrator is bored while waiting for a train "in the tasteless station of some lonely minor railway." Time, which is usually invisible, painfully drags (Heidegger, 1995, §23a). In the second, the narrator experiences a perfectly pleasant social evening, during which time passes normally. "We come home quite satisfied. We cast a quick glance at the work we interrupted that evening, make a rough assessment

of things and look ahead to the next day—and then it comes: I was bored after all on this evening." Here time does not perceptively drag, yet there is a retrospective appraisal that time was lost and wasted, which hints at insights about the person's whole life (§24b). Third, one makes a judgment without going through the experience at all, as in the general statement: "'it is boring for one' to walk through the streets of a large city on a Sunday afternoon" (§30). Close inspection of these examples poses the question: "Has man in the end become boring to himself?" (§37).

The proper response is to use boredom to rediscover and embrace the fundamental significance of being, which is temporality. The Russian-American poet Joseph Brodsky made a strikingly similar argument when he told graduating Dartmouth College students:

> Boredom … is your window on time's infinity. Once this window opens, don't try to shut it; on the contrary, throw it wide open. For boredom speaks the language of time, and it teaches you the most valuable lesson of your life: the lesson of your utter insignificance. It is valuable to you, as well as to those you are to rub shoulders with. "You are finite," time tells you in the voice of boredom, "and whatever you do is, from my point of view, futile." As music to your ears, this, of course, may not count; yet the sense of futility, of the limited significance of even your best, most ardent actions, is better than the illusion of their consequences and the attendant self-aggrandizement (Brodsky, 1995).

In short, boredom reveals a truth. That is not the case, however, with common experiences of boredom; most people who are bored do not attain deep insights. Elpidorou and Freeman (2019) argue that the "profound" boredom identified by Heidegger and Brodsky is not the character trait of being easily or often bored, nor is it the typical state of being bored *by* something. It is an "extraordinary" and "difficult" experience defined by its revelatory power, and as such, it probably will not be detected in statistical studies of populations.

Heidegger's contemporary Adorno analyzes boredom in a sharply different way: as a feature of alienated labor under capitalism. "Boredom is a function of life which is lived under the compulsion to work, and under the strict division of labor. It need not be so." He acknowledges that he has been "fortunate" to hold a "job, the production of philosophical and sociological works and university teaching," that grants him autonomy and agency. As a result, he has no interest in "hobbies" or other ways of passing what capitalist society calls "free time," the hours that are not sold to capital. "I am however well aware that in this I enjoy a privilege, with both the element of fortune and of guilt which this involves: I speak as one who has had the rare opportunity to follow the path of his own intentions and to fashion his work accordingly." Adorno proposes that whenever people can control their own activity, "boredom rarely figures; it need not figure in activities which cater merely for the desire for pleasure." However, workers often report boredom even when they're not on the job because the alienation of work "continues to hold people under its spell." Leisure activities like sports or home improvement turn "free time" into "nothing more than a shadowy continuation of labor" (Adorno, 1969, pp. 162–70).

Adorno dismisses most people's use of their unpaid hours. His framework does not envision civil society or the public sphere as that set of venues in which people voluntarily associate to pray, work, and play (Habermas, 1962; Levine, 2021).

A type of boredom that I have not found described in the philosophical literature involves long periods of time (months or years) in which a person can choose specific activities and events that make time pass so that it is not unpleasant or perceived to drag, yet not enough of perceived value occurs to make the individual feel satisfied with life. Boredom is the subject's appraisal of a whole period of life. This experience is somewhat akin to Heidegger's example of an unsatisfying dinner party, except that Heidegger was soon able to resume interesting intellectual work, which is not available to some people without jobs, or with dull ones.

This species of boredom is, however, prominent in early twenteeth century modernist literature written by women (of whom Virginia Woolf is the most famous), where "boredom can appear as emptiness or deadness, a lack, or simply passive dissatisfaction." In this feminist fiction, the word boredom "is used, sometimes interchangeably, with a number of other terms defining psychic, spiritual, moral, and physical states in which the self has difficulty accessing authenticity, productivity, and desire—all qualities attributed to one's success as an individual" (Pease, 2012, vii).

It is significant that these women describe women's boredom as dissatisfaction due to a lack of opportunity, whereas Seneca, Heidegger, and other influential male authors have seen it as temporary circumstance that occasions discomfort until it is relieved by satisfying activity or insight.

My own phenomenological account of boredom (meant to be illustrative, not definitive) would emphasize the following features: negative affect; consciousness of the slow passage of time; desire for the current situation to end; lack of curiosity or appreciation. I would not emphasize lack of attention or stimulation, since I perceive myself being bored while attending to things and (frankly) people. I cannot follow Heidegger in seeing boredom as a portal to insight, because that would require embracing his whole philosophy. However, his idiosyncratic analysis illustrates that experiences of boredom vary widely and depend in part on larger frameworks for understanding reality.

3. Phenomenology and socially constructed meanings

In general, phenomenology connects an inner experience to a word or phrase that names it. The word in question may have a history of being used in diverse ways. A feeling, such as boredom, that we experience as immediate and direct is socially constructed insofar as it has a name with well-known implications (Goodstein, 2005, p. 4). Changes in the meaning of words may affect our experiences.

Classic phenomenologists sometimes tried to avoid the ambiguous and inconsistent connotations of existing words by coining new ones, which is one source of the difficulty of their texts. Examples of phenomenological coinages include Husserl's *noema* (mental object), Heidegger's *Dasein* (being-there), or Merleau-Ponty's *pensée de survol* (view from above). But one cannot write

with neologisms alone. We need phenomenological accounts of widely used words, like "boredom," in order to reason about how best to use those words.

According to the *Oxford English Dictionary*, relevant meanings of the English terms "to bore" and "boring" are no older than 1750, but the word has since accumulated multiple definitions. This is typical: people redefine words creatively and argumentatively. Heidegger discusses the literal root of the German word *Langeweile:* "long while" (Heidegger, 1995, §19). This etymology will not influence an English-speaker who reflects on being "bored" or a French speaker who experiences *ennui*. The French word may suggest a degree of superiority, since it comes from the Latin *odio*, to hate, as in Horace's famous "*Odi profanum vulgus et arceo*" ("I hate and shun the vulgar crowd").

It is difficult to reconstruct the experience of boredom before the English word emerged, but it must have been different from today's experience, if only because it was unnamed and lacked conventional moral connotations. Even though people who feel bored today may have similar feelings to human beings thousands of years ago and animals, it is different to call a state or a character "bored" instead of having no word for the category or calling it "ennui" or "acedia" (spiritual apathy). The word "boredom" has rich—and mostly negative—normative connotations that may become part of the experience of the individual or influence institutions, whose assessments and policies then affect individuals. Today, a child who is taught that it is bad to be bored may experience boredom with guilt, resentment, or both. On the other hand, someone who has just read Heidegger might think, "I'm happy that I am bored because I have become aware of time itself, which was concealed while I was interested." For the latter person, boredom loses its negative affect.

Some prominent authors have argued that boredom accompanies higher intelligence and sensitivity. These claims might encourage a bored person to feel self-satisfied. Others have argued that a wise and sensitive individual cannot be bored, because reality is fascinating if it is properly appreciated. Arthur Schopenhauer and Henry David Thoreau, respectively, represent these arguments (O'Brien, 2022). Either view might affect how we assess ourselves when we notice that we are bored. Does my boredom indicate that I am too sensitive and sophisticated for this situation and the people who seem to be immersed in it, or that I am not smart enough to see what is interesting in it?

Goodstein argues that "modern boredom" has loose connections with older ideas, such as melancholy and *acedia*, but "it can be identified with none of them. … Each of these forms of discontent is embedded in an historically and culturally specific way of understanding human experience—in which I call a *rhetoric of reflection*." For instance, the pre-modern word "melancholy" assumed that humors may get out of balance: a disease model. *Acedia* implied that the sinner had become estranged from God. Modern boredom—"the experience without qualities"—is "the plague of the enlightened subject, whose skeptical distance from the certainties of faith, tradition, sensation renders the immediacy of quotidian meaning hollow or inaccessible." Individuals suffering from modern boredom are out of harmony with society and alienated from their "own doing and being" (Goodstein, 2005, 4–10). Modern people who see themselves as bored are liable to be conscious of their individuality and alienation. They might perceive others as also bored: that is a common experience in school. Even so, the individual students are alienated from the institution.

4. Normative issues

An argument about whether a mood represents boredom, mere lack of activity, or tranquility is inevitably a question of appraisal. To separate evaluation from phenomenology in an effort to make the latter scientific is a mistake, especially for a context like this special issue. Our whole activity is, and should be, value-laden.

However, there can be a problem of judgmentalism, i.e., unsympathetic attitudes toward people who seem bored. Accusations of boredom can be biased against children and youth, the elderly, or the working class. The accuser may blame the victim for an inhumane or impoverished situation. Calling someone "bored" can overlook important features of that person's experience. Adorno concludes, "If people were able to make their own decisions about themselves and their lives, if they were not caught up in the realm of the eversame, they would not have to be bored. Boredom is the reflection of objective dullness" (Adorno, 1969, p. 161). As I noted earlier, Adorno himself may be biased against seeing the value and satisfaction of working people's civic activity.

Heidegger writes about the boring railway station in the first-person plural: "*We* are sitting. … *We* look at the clock—only a quarter hour has gone by" (Heidegger, 1995, §23a, emphasis added).[1] The grammar seems inclusive; the reader is expected to be part of the "we." But the writer happens to be an increasingly famous philosophy professor whose experiences will become more engaging soon after the train ride is over. In short, he is privileged. His class bias emerges in passages like this:

> Is not every station boring, even though trains constantly arrive and depart and crowds of people throng? Perhaps it is not only all stations that are boring for us. Perhaps, even though trains constantly enter and leave, bringing people with them, there is still a peculiar sense of something more in these stations which anyone who passes tenement blocks in large cities has experienced. One could say that, while it may be like this for us, some peasant from the Black Forest will take enormous pleasure in it, and therefore boredom is a matter of taste (Heidegger, 1995, §23d).

Evidently, neither the reader nor the author lives in a tenement house or identifies as a peasant. Since academic research is, almost by definition, conducted by people who hold currently bourgeois roles (albeit sometimes precarious ones), it is crucial not to let first-person plural phenomenology supplant social science. Researchers and professors need to learn what boredom feels like to other kinds of people. In particular, what about people who are diverted moment to moment but who feel that their life lacks memorable activities and events?

1 *"Wir sitzen z. B. auf einem geschmacklosen Bahnhof einer verlorenen Kleinbahn…"* (Heidegger, 1983, p. 140).

Danckert and Eastwood offer advice about responding to boredom, based primarily on empirical research about individual psychology. For instance, "Seek out activities that clarify, rather than obscure, your desires and goals. Pursue goals that give expression to your values—things that matter to you. Do things for their own sake, rather than as a means to avoid something else" (Danckert and Eastwood, 2020, p. 204). Their exemplars include a factory worker who finds interest in a lifetime of repetitive labor and another who invents a machine so that he can quit his task (Danckert and Eastwood, 2020, p. 33–58). These are individuals adjusting to social circumstances. This approach gives little attention to social critique or to the possibility of restructuring institutions like factories and schools so that they are more meaningful. In contrast, Elpidorou argues that boredom is unjust—and sometimes "cruel" —"because some groups are disproportionately impacted by boredom through no fault of their own" (Elpidorou, 2021b, p. 193, 172). If, for individuals, being bored is a useful sign that an activity lacks value and a spur to change what we are doing, then for a society, pervasive boredom in some situations (factories or offices, schools, or homes) should perhaps be a spur to change the conditions that create those situations (Ros Velasco, 2021, p. 303). This was Adorno's point but is "less traveled terrain" today, when much of the literature focuses on individuals' choices (Todman, 2021, p. 139).

Whether boredom is wrong surely depends on what one is bored of. Schopenhauer, Heidegger, Healy some others have been interested in boredom about life as a whole. They think life—or modern life—essentially merits boredom, and this realization leads to wisdom. Others may be more concerned when people are bored of specific things that should interest them, such as the subjects that are taught in school, or the news. Still others are concerned that people are bored because of boring experiences, such as bad pedagogy or "bullshit jobs" (Graeber, 2018). Adorno essentially describes all jobs under capitalism that way (Adorno, 1969). We can be bored of other people, and that often seems like a way of undervaluing those individuals. But sometimes a person who thoughtlessly exploits our time is responsible for our being bored.

When people are bored of something that we think should interest them, we can consider at least three possible remedies: changing their attitude, changing the way the object is presented to them, or changing the object itself.

For instance, formal politics (elections and lawmaking) bores many people. Theorists in the long republican political tradition believe that politics merits everyone's attention (Arendt, 1963). That can be an argument for encouraging or scolding people not to be bored by politics, or teaching and presenting politics in less boring ways, or changing political processes so that they are more interesting. For example, Josh Lerner notes that electoral processes typically violate principles well known to game-designers, such as maintaining a chance for every player to win until the very end. Alternative formats, such as Participatory Budgeting, are less boring because they follow these design principles (Lerner, 2014). Instead of teaching citizens to be interested in tedious processes, Lerner would make the political system more "fun" (his keyword). The problem of boredom in school has generated a similar debate (Healy, 1984, pp. 118–140).

Since ancient times, authors who have decried boredom have typically recommended either of two paths for the individual: (1) purposive activity or (2) appreciation and mindfulness (Seneca, 2020). The former treats boredom as close to apathy and laziness and recommends doing something new. The latter treats it as primarily about inattention and recommends noticing what is already happening—such as one's breath, the passage of time, or the needs of the person who is talking.

Kieran Setiya offers a way to think about "living in the moment." His argument rests on a distinction between *telic* activities, which we conduct in order to accomplish them, and *atelic* activities, which we do for their own sake. "Cook[ing] dinner for your kids, help[ing] them finish their homework, and put[ting] them to bed" are "telic activities through and through": aimed at their accomplishment. On the other hand, "parenting is complete at every instant; it is a process not a project" (Setiya, 2017, p. 141).

Modern capitalism promises atelic opportunities, from playing golf in retirement to purchasing a yoga class. These are, however, relatively marginal, inaccessible to many people, and not directly helpful for improving the world. Their availability only encourages us to view our required activities as boring. "In staving off boredom by finding things to do, you have condemned yourself to misery" (Setiya, 2017, p. 132). In contrast, some classical texts recommend viewing every activity as purely atelic. Setiya quotes Krishna from the Laurie L. Patton's translation of *Baghavad Gita*: "Motive should never be in the fruits of action, / nor should you cling to inaction. … / Let go of clinging, and let fulfillment / and frustration be the same." However, Setiya claims that what we accomplish—not only our attitude toward it—is important.

His advice is to view the telic as atelic. Strive to put the children in bed (and do that as well as you can), but also think of yourself as parenting. Attend meetings, write emails, and perform calculations all day, but also see yourself as playing a worthy social role. We may be able to redescribe what we are doing in purposive terms. This reinterpretation could, to quote Wordsworth, have "the power to make/Our noisy years seem moments in the being / Of the eternal Silence" (Wordsworth, 1884). However, Setiya mostly discusses bourgeois work and household activities, whereas work that is degrading and obligatory is surely harder to view as atelic.

5. Conclusion

Given the complexity of the definition and the range of contexts, it seems unwise to adopt a uniform attitude toward boredom. However, we should be explicitly normative, i.e., we should ask whether boredom is right or wrong under the specific circumstances. We should ask whether the problem is the situation or the person who is bored; in principle, either one could be changed. If the individual should change, we should ask whether the bored person should do something different or change their attitude toward what they are already doing. Finally, we should not

neglect the possible virtues of the state of boredom, particularly the access that it might afford to truths.

Author contributions

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

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Original Research
PUBLISHED 04 August 2023
DOI 10.3389/fsoc.2023.1190872

OPEN ACCESS

EDITED BY
Alexandra Vuyk,
Universidad Católica "Nuestra Señora de la Asunción", Paraguay

REVIEWED BY
Jekaterina Rogaten,
University of the Arts London, United Kingdom
Mariusz Finkielsztein,
Collegium Civitas (PAN), Poland

*CORRESPONDENCE
Dirk Tempelaar
✉ d.tempelaar@maastrichtuniversity.nl

RECEIVED 21 March 2023
ACCEPTED 20 July 2023
PUBLISHED 04 August 2023

CITATION
Tempelaar D and Niculescu A (2023) Academic boredom(s): a person-centered investigation. *Front. Sociol.* 8:1190872.
doi: 10.3389/fsoc.2023.1190872

Academic boredom(s): a person-centered investigation

Dirk Tempelaar[1]* and Alexandra Niculescu[2]

[1]Department of Quantitative Economics, School of Business and Economics, Maastricht University, Maastricht, Netherlands, [2]Centre for Learning Science, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

Should we refer to boredom or boredoms? Research on the emotion of boredom sets itself apart from studies on other emotions by posing the question: is boredom a singular concept or does it have multiple facets? In this manuscript presenting empirical research on academic boredom, our aim is to demonstrate the justification for claiming a distinct position. Person-centered models examining university students' achievement emotions reveal the existence of multiple types of boredom, in contrast to other learning emotions that are typically represented as singular constructs. Using data generated by dispositional learning analytics applications, we further investigate the progression of learning boredom over time, exploring the impact of the pandemic and analyzing how various student learning aptitudes, such as mindsets, epistemological beliefs, epistemic emotions, learning motivation, engagement, as well as demographic factors like gender and culture, can be considered as potential antecedents or triggers of boredom. Consistent with the control-value theory of achievement emotions, we conclude that control and value constructs serve as proximal antecedents of boredom, alongside epistemic boredom as a distal antecedent. However, the relationships between boredom and its antecedents exhibit notable variations across different types of boredom.

KEYWORDS

academic boredom, activity boredom, epistemic boredom, person-centered modeling, dispositional learning analytics, boredom antecedents

1. Introduction

"If you are immune to boredom there is literally nothing you can't accomplish" (Wallace, 2011; p. 440). But most of us are not immune to boredom. Everyone will be touched by boredom at least once in their life or experience it from time to time. The question is however, in what way, how frequently and how intense? The answer to this question will determine the implications or consequences that will come from the experience of boredom.

While research warns against the negative impact of boredom on health-related quality of life already in young adults (Schwartze et al., 2021), it is highly acknowledged that boredom continues to be experienced through the life spam and expand in different areas and environments: personal, at work and any other learning and achievement related situations. Furthermore, Wallace (2011) argues that the figure of boredom has become a villain in today's western society, obsessed by productivity, success and fear of failure. Although boredom is a recurrent emotion encountered in all aspects of life, it remains misinterpreted. From the highly-functioning professional who can hide symptoms of depression under an apparent emotional and mental disengagement, to the individual who seemed to have lost interest in daily activities but in fact lacks a sense of meaning in life and is severely depressed, boredom is an emotion that can strongly relate or even overlap with serious negative aspects of quality of life (Gerritsen et al., 2015). However, if explored

enough, boredom can be the pathway to wellbeing and, when endured enough, lead to self-discovery. This requires an understanding of what boredom exactly is and at the same time of what is not, what are the factors that determine it and the conditions under which one can self-regulate and achieve more positive states in order to rich greater potential in life.

Maybe one of the most relevant settings to study and understand boredom is the achievement context: where individuals perform toward a goal and therefore are involved in a learning process that can be observed and influenced by both the learners themselves as well as by the environment. Especially in educational settings, the study of boredom remains a subject still not sufficiently investigated among adult learners (Loukidou et al., 2009). Beyond how often boredom is encountered and how intense it is felt, recent educational studies (Nett et al., 2011; Goetz et al., 2014; Tempelaar and Niculescu, 2022) address the issue of how exactly it is experienced: what makes the experience of boredom different for various individuals or, put differently, are there different types of boredom? The first step in answering this question starts with how we conceptualize the notion of learning boredom, an inescapable emotion, and how we observe it.

The metaphor used to describe boredom's role in educational studies is not often that of the elephant in the room but typically that of the silent emotion (Goetz et al., 2014). That metaphor still acknowledges the existence of an obvious problem: in early work on the role of emotions in educational achievement settings (Pekrun et al., 2010), boredom is recognized as one of the most frequent emotions. However, the metaphor of the silent emotion emphasizes another facet of boredom: the difficulty of observing it. Or to use another characteristic for that same facet: the invisibility of boredom (Finkielsztein, 2021). Avoiding to discuss the elephant's presence may be partially explained by the methodological difficulty of collecting boredom measurements, forcing researchers to use indirect measures. "… it is much more productive to collect descriptions and explanations of boredom in hindsight. This is why most studies in the field rely mainly on verbal expressions rather than on observations *in vivo*." Concludes Finkielsztein (2021, p. 18) regarding an alternative source of boredom data. Therefore, in order to properly capture the experience of boredom, the choice of a method though which the concept is operationalized and assessed validly is key.

1.1. Aim of the study

In this study, we will follow that same route by using self-reported boredom measures using verbal expressions of first-year university students in a challenging achievement setting. It is well-known that "few people are capable of gaining insight into their own emotions" (Finkielsztein, 2021, p. 18). However, in achievement settings, individuals' self-perceptions of their abilities play a crucial role, despite the presence of bias in these self-perceptions, which contains valuable information (Tempelaar et al., 2020). Boredom arises at the crossroads of external circumstances and personality-related issues (Ros Velasco, 2019). Given the context of our study, which examines a highly diverse sample of students operating within the same external environment, we can specifically focus on the role of personality and explore the extent to which "boredom is in your mind" (Ros Velasco, 2019).

In the remainder of this introductory section, we will first clarify the concept of boredom and place it in relation to existing learning theories, in particular Self-Regulation and Flow Theory, in order to show its impact on performance; we then discuss a classification of boredom types and models and lastly, explain academic and epistemic boredom as achievement emotions within the framework of the Control and Value Theory of Achievement Emotions The research questions are presented at the end of this section. Defining boredom and placing it among emotion theories.

While there is no agreement on a specific definition of boredom (Finkielsztein, 2021), we choose to view it as the personal encounter with a situation that is often undesired and unpleasant (Eastwood et al., 2012). It is characterized by a sense of time passing slowly, disengagement on both behavioral and cognitive levels (Goetz and Hall, 2014), and a challenge in maintaining focus (Elpidorou, 2018), leading to a desire to escape the current moment (Westgate and Wilson, 2018). From this perspective, boredom in this study is seen as a state emotion.

As a state emotion more generally, boredom can be characterized along three main features. First, it is a person generated response within a particular situation that is directed to a relevant goal (Scherer et al., 2001). Second, it "coordinates the responses to that particular situation that generated it" (Jacobs and Gross, 2014, p. 184). For instance, a person can start to withdraw from a boring situation depending on the intensity of the emotion experienced. In other words, such response can serve an adaptive or maladaptive function, depending on how the situation is perceived and the immediate goal of the person involved. Third, the activation response of the emotion is characterized by a "degree of malleability" (Jacobs and Gross, 2014, p. 185): the behavior induced by the emotion of boredom is under the volitional control of the person. This is the core point that makes possible for the emotion to be regulated. Consequently, the regulation of an emotion also implies that its functional aspect can be changed by the awareness of the individual: a person can decide to remain in, instead of leaving from, what is perceived as a boring situation by (re)adjusting their appraisals and therefore, (re)calibrating either their level of interest, the intensity of the emotional experience or the goal of a particular activity. In this sense, *emotional regulation* refers to "the processes by which individuals influence which emotions they have, when they have them, and they experience and express these emotions" (Gross, 1998, p. 275). Therefore, the regulation of emotion responses by specific strategies is crucial, as it determines the success or failure of various situations. From this point of view, it can be argued that boredom is a crucial emotion in educational contexts as, generally speaking, it tends to have a maladaptive function for achievement, where deregulatory strategies are more often deployed which, in turn, disrupt the process of learning.

Since in study settings, the ideal remains to create optimal experiences and conditions during the learning process by moving beyond maladaptive or deregulatory behaviors, cognitions and emotional states, an understanding of boredom in such contexts is of central importance (Csikszentmihalyi, 2000). An optimal

experience, or flow, is according to Csikszentmihalyi (2000) a state of intense focus, a perceived fast passage of time and engagement with an activity that leads to improved performance. In this regard, it can be considered that the experience of flow places itself at the other side of the spectrum when compared to boredom and its implications for learning. Therefore, understanding the conditions that favor the experience of flow are equally relevant for addressing the malfunctions of boredom. Research into flow (Egbert, 2003), has described a number of conditions that are present during such experiences: (a) a perceived balance of skills and challenge, (b) opportunities for intense concentration, (c) clear task goals, (d) feedback that one is succeeding at the task, (e) a sense of perceived control, (f) a lack of self-consciousness, and (g) a perceived fast passage of time. The first condition referring to the learners' perceived skills and being challenged, appears most relevant for the conceptualization of boredom, in the sense of how boredom as an emotion develops from its antecedents; indeed, Whalen (1997) points that it is exactly the balance between the two factors that allows for the condition of flow to occur: high challenge with a high self-perception of skills create an optimal balance for flow, while a high challenge and low skills can create anxiety, and low challenge and high skills favor boredom. More recently, for the boredom case, it was argued that is not only a context of low challenge but also of too high challenge that can induce this emotion (Pekrun et al., 2010). This implies that the experience of boredom in its mal-adaptive expression is, in fact, a detrimental condition for reaching flow and therefore lowering the chances of improved performance.

1.2. Classifying boredom according to different boredom models

Westgate and Wilson (2018) categorize models explaining state boredom into three groups. The first group comprises environmental theories that attribute boredom to the external context, focusing on insufficient external stimulation (Goetz et al., 2006, 2014) or the impact of external constraints (Pekrun, 2006; Goetz et al., 2014). The second group consists of attentional theories that highlight the role of internal psychological processes, suggesting that boredom stems from attentional failures (Eastwood et al., 2012). The third group encompasses functional theories of boredom, which examine its underlying purpose in terms of goals, opportunity cost, or finding meaning. According to this perspective, boredom is considered a functional emotion as it signals a need for change and serves a regulatory role that can potentially enhance an individual's wellbeing (Elpidorou, 2018).

In addition to the three aforementioned sets of models, Westgate and Wilson (2018) introduce a fourth model called the Meaning and Attention Components (MAC) Model of Boredom. The MAC Model incorporates the previous perspectives on boredom by suggesting that individuals experience this emotion when they are either "unable or unwilling" (Westgate and Wilson, 2018, p. 693) to engage with a particular task. As a result, the MAC Model proposes that different types of boredom can arise depending on the triggers of boredom, such as the lack of meaning or attention deficit. However, it's important to note that ongoing research exploring these models still deliberates on one aspect of boredom: its arousal or activation dimension.

Research findings have indicated that state boredom can be defined in terms of low arousal, high arousal, or a combination of both, encompassing varying levels of arousal flexibility (Eastwood et al., 2012; Goetz et al., 2014; Elpidorou, 2020). To account for these conflicting explanations, Goetz and Hall (2014) propose two possible interpretations. Firstly, they argue that the concept of arousal itself might be multidimensional. Secondly, they suggest the existence of multiple types of boredom. While some authors have contested the latter possibility based on associated arousal levels (Elpidorou, 2020), the issue of heterogeneity in defining boredom remains a long-standing debate (Goetz et al., 2014; Westgate and Wilson, 2018; Elpidorou, 2020).

Beyond state boredom, as presented in the models described above, which is limited to a particular situation and therefore also labeled as situational, boredom studies typically distinguish state and trait attributes of boredom; see, e.g., Sharp et al. (2021) and Bambrah et al. (2023). Finkielsztein (2021) pleads for a different but related typology: situational, chronic, and existential boredom. Situational boredom results from the interplay of personal aptitudes and the external context and is clearly a state. Chronic boredom follows from recurrent states best corresponds with the trait attribute of boredom; this is an intermediate kind of boredom that results from an "accumulation of situational boredoms due to its frequent repetition in similar circumstances" (Finkielsztein, 2021, p. 79). This contrasts mainstream psychology research that applies trait boredom or boredom that has evolved into a personality characteristic as an intermediate kind. At last, existential boredom is more a mood than an emotion. Compared to situational boredom as a state emotion, existential boredom can be found at the other pole on the continuum, the omnipresent boredom version (Finkielsztein, 2021). In this research, we aim to combine these views by using different sub-sets of academic emotions (Pekrun and Linnenbrink-Garcia, 2012) which will introduce in the next section.

1.3. Academic boredom and epistemic boredom as achievement emotions

Boredom encountered within an academic environment is commonly referred to as academic boredom (Pekrun et al., 2011). This emotional state can manifest in various situations within academic settings, including attending lectures or classes (class boredom), taking exams (test boredom), and engaging in activities like homework, studying, or other learning tasks (learning boredom). According to this conceptualization, boredom is regarded as a situational experience linked to a specific learning activity or outcome (Pekrun et al., 2010). In concluding the conceptualization of boredom, it is important to address its relationship with other emotions within the same learning context. Prior research indicates that academic boredom exhibits positive associations with other negative emotions and negative associations with positive emotions (Goetz et al., 2006; Pekrun et al., 2011; Niculescu et al., 2015). The moderate strength of these relationships suggests that boredom is distinct from other negative emotions and

does not solely represent the absence of positive emotions (Goetz and Hall, 2014).

Furthermore, when students encounter learning tasks that elicit similar emotional responses, these emotions are classified as epistemic academic emotions. Epistemic emotions pertain to cognitive aspects of the task, with curiosity, and confusion being prototypical examples (Pekrun and Linnenbrink-Garcia, 2012; Zheng et al., 2023). Epistemic emotions share trait-like characteristics and exhibit essential features akin to chronic emotions, as defined by Finkielsztein (2021). More precisely, while the achievement-related emotions focus on the experience of engaging in a learning activity, epistemic emotions pertain to the cognitive aspects of the task itself (Pekrun and Linnenbrink-Garcia, 2012). Epistemic boredom is the boredom experienced with the process of learning, understanding, and knowledge acquisition. This boredom type reflects individuals' perceptions of their own understanding, the effort they invest, and the progress they make in gaining knowledge or solving problems. In this research, we use epistemic emotions as an antecedent of academic boredom.

The Control-Value Theory of Achievement Emotions (CVTAE; Pekrun, 2006) presents a framework that examines the factors leading to and resulting from achievement emotions in relation to academic activities and outcomes. According to the CVTAE, achievement emotions are characterized along two dimensions: valence and arousal. In the case of boredom, it is characterized by negative valence and deactivating arousal (Pekrun et al., 2010). Boredom arises from beliefs about having low control over outcomes, which are referred to as control appraisals (Pekrun, 2006; Frenzel et al., 2007). Control and value serve as immediate antecedents of boredom and other achievement emotions, and they are influenced by distal antecedents related to both individual characteristics and the learning environment (Pekrun, 2006). Gender and achievement goal setting are examples of distal antecedents within the individual characteristics category (Pekrun, 2006).

The majority of studies examining achievement emotions and their antecedents measure emotions based on the intensity of emotional sentiment or the degree of boredom experienced. In studies investigating different types of boredom, Goetz et al. (2014, 2016) utilized person-oriented modeling approaches to analyze the frequency of boredom experiences, resulting in the identification of five distinct types of boredom. The first type, called "indifferent" boredom, was characterized by low arousal and a relatively positive valence. The second type, "calibrating" boredom, exhibited higher arousal than indifferent boredom and a somewhat negative valence. The third type, "searching" boredom, displayed higher arousal and more negative valence compared to calibrating boredom. The fourth type, "reactant" boredom, demonstrated the highest levels of arousal and negative valence among all the types. Lastly, the fifth type, an unexpected finding in Goetz et al. (2014) study, was labeled as "apathetic" boredom, distinguished by a low level of arousal and a strongly negative valence. Importantly, the first four types of boredom exhibited a linear relationship along the dimensions of valence and arousal, while apathetic boredom fell outside of this linear pattern. This conceptualization of boredom suggests that it is not a singular construct and that its emotional experience encompasses various facets. Additionally, the different experiences of boredom appear to be influenced by the underlying factors contributing to the emotion (Westgate and Wilson, 2018).

As stated by Krannich et al. (2019, p. 208), the primary factors leading to boredom are individuals experiencing states of being over- or under-challenged (Finkielsztein, 2021 also supports this view). This explanation aligns with the Control-Value Theory of Achievement Emotions (CVTAE), where boredom arises from a combination of a perceived lack of control and a lack of value. This occurs when the learning task is perceived as unimportant and either too demanding or insufficiently challenging (Pekrun et al., 2010).

1.4. Research questions

In addition to the overarching research question regarding learner aptitudes as antecedents of boredom, we aim to delve deeper into the impact of the pandemic by exploring the following questions: Can we detect any changes in the levels of activity and epistemic boredom over time? Moreover, do gender differences emerge in the developmental patterns of these two boredom emotions? Significantly, we seek to determine whether boredom should be considered as a singular concept or if it can be categorized into different types. Lastly, we are keen on examining the associations between profile characteristics and potential antecedents of boredom.

2. Methods

In the field of educational research, investigations into hypothesized relationships often rely on variable-centered modeling techniques like regression, factor analysis, or structural equation modeling. These methods are employed to analyze the inter-individual variations within the entire sample, as demonstrated by studies conducted by Howard and Hoffman (2018), Zhang (2022), and Bambrah et al. (2023). It is important to note that this approach operates under the assumption of a homogeneous sample. When homogeneity is lacking, person-centered modeling approaches (Howard and Hoffman, 2018; Sharp et al., 2021) aim to group individuals within each category, similar and different from individuals in other categories. Given that research questions are commonly formulated at the variable level, addressing heterogeneity requires a two-step approach. The first step involves employing a person-centered approach to partition a heterogeneous sample into more homogeneous clusters or classes. The subsequent step entails utilizing a variable-centered approach on the resulting homogeneous sub-samples. In our study, we utilized K-means Cluster Analysis in SPSS to decompose the heterogeneous sample into these more homogeneous subsamples.

2.1. Participants and educational context

The participants in this study consisted of first-year students enrolled in a business and economics school located in the southern region of the Netherlands. These students were part of fourteen recent cohorts, spanning from the academic year

2010/2011 to 2022/2023. The study particularly focused on the four most recent cohorts, ranging from 2019/2020 to 2022/2023. The educational programs offered by this school differed from mainstream European university education in two key aspects: they employed student-centered instruction through problem-based learning (PBL) and the English-language programme had a strong emphasis on internationalization, attracting a significant number of international students.

Among the 5,296 first-year students included in the cluster analysis, 38% were female, and 62% were male. The sample consisted of students from 95 different countries, reflecting the diverse educational backgrounds. This information was utilized to create culture dimension scores and region indicator variables. It is worth noting that most students enrolled in the program immediately after completing their high school education, with the typical age range falling between 18 and 20 years old. The data were collected during the introductory module on mathematics and statistics, which served as the first module of the program.

Among the four most recent cohorts, there was one pre-COVID-19 cohort, two cohorts that were affected by COVID-19, and one post-COVID-19 cohort. The impact of COVID-19 on education was more significant in the 1st year of the pandemic compared to the second. In the academic year 2020/2021, all lectures were transitioned to online format, and small-group tutorial meetings were conducted via Zoom. In the following year, 2021/2022, lectures remained online, but tutorial meetings had a mixed approach, with most being held on campus and some conducted through Zoom. The final cohort included in this study, the 2022/2023 cohort, represents a post-COVID-19 period where university education fully resumed on campus for all contacts. However, these students had experienced 2 years of high school education during the COVID-19 pandemic.

Undoubtedly, COVID-19 brought about the most significant changes in the educational system and its context throughout the considered period. It is worth noting that our module was an early adopter of technology-enhanced education, and over the span of the fourteen cohorts included in the analysis, both the technological aspect and the problem-based learning tutorials remained relatively stable.

The educational backgrounds of students vary based on their nationality and mathematical track. In many national educational systems, there are three distinct tracks that prepare students for arts and humanities, social sciences, and sciences. For our programs, the second level of mathematical track is a requirement, but interestingly, 37% of students had received mathematical education at the highest level, denoted as MathMajor.

The diversity in students' prior education and knowledge gives rise to a range of challenges that students encounter as they progress through the module. Consequently, it is expected that this diversity will lead to a variety of learning activity emotions experienced by the students.

Small tutorial groups consisting of 14 students are the setting for problem-based learning. To cater to the needs of students who may require additional support and to provide a diverse range of learning resources, online learning opportunities were introduced. This integration of online elements with traditional methods creates a blended learning environment. In the PBL tutorial sessions, the face-to-face component, the emphasis is placed on collaborative problem-solving, particularly for open-ended problems. This instructional approach, known as the "flipped classroom," is discussed in detail by Williams et al. (2016).

Dispositional learning analytics is implemented to provide additional support for student learning. This approach, rooted in the field of learning analytics (Buckingham Shum and Deakin Crick, 2012), aims to offer students personalized feedback based on data obtained from their interactions with digital learning platforms. In the case of dispositional learning analytics (Rienties et al., 2019; Tempelaar et al., 2021), self-report surveys are used to gather information about students' learning dispositions, which serve as an additional data source. Learning dispositions encompass student aptitudes that are considered crucial personal factors influencing learning processes, according to social-cognitive learning theories.

The learning dispositions data used in this study originated from one of the module's student assessments, specifically the student project. The project involved the analysis of personal disposition data using statistical methods. To gather this data, students were instructed to administer various questionnaires focusing on the affective, behavioral, and cognitive aspects of their aptitudes during the 1st week of the course. Several weeks later, they received their personal datasets for the project work.

It is worth noting that the survey administration for measuring aptitudes occurred early in the module, capturing dispositions developed during 6 years of high school education. The only exception to this timing was the administration of the activity emotions survey, which took place in the 4th week of the module, precisely at the halfway point. This decision was based on the consideration that, by this time, students would be familiar with typical learning activities, while also ensuring that the final exam was distant enough to prevent the influence of test-related emotions on activity emotions.

In addition to capturing achievement emotions and epistemic learning emotions, the collected learning dispositions in this study include attitudes toward mathematics and statistics, measures of motivation and engagement, mindsets, beliefs about effort, goal-setting behaviors, academic motivations, and other learner data that are not utilized in this particular study. The selection of which dispositions to include in this study is guided by review studies like Finkielsztein (2021), which highlight the essential elements in defining boredom.

2.2. Materials

2.2.1. Achievement and epistemic emotions

The Control-Value Theory of Achievement Emotions (CVTAE, Pekrun, 2006) proposes that achievement emotions vary in terms of their valence, focus, and activation. For this study, we utilized the Achievement Emotions Questionnaire (AEQ, Pekrun et al., 2011), an instrument grounded in the CVTAE framework, to select four learning activity emotion scales that are most strongly associated with academic performance from the total of eight activity scales included in the AEQ. These scales include positive activating

Enjoyment, negative activating *Anxiety*, and negative deactivating *Boredom* and *Hopelessness*. Given the emphasis on independent, self-regulated learning within the PBL system, we specifically employed the learning activity-related versions of the scales, rather than the class- or test-related versions. This decision also influenced when the AEQ measurement took place: precisely at the midpoint of the module. At this specific moment, students have acquired enough familiarity with the regular learning activities, allowing them to express emotions related to those activities. Additionally, the timing ensures that the final exam is distant enough to prevent the blending of emotions experienced during the learning activities with those associated with the upcoming test. As the focus is on the learning activities themselves, the feeling of boredom during these activities is considered a temporary and situational form of boredom: a. boredom state.

To assess epistemic emotions, we employed the Epistemic Emotion Scales (EES, Pekrun et al., 2017), which encompass measures of *Surprise*, *Curiosity*, *Confusion*, *Anxiety*, *Frustration*, *Enjoyment*, and *Boredom*. The EES instrument was administered during the initial week of students' arrival at the university. As a result, the experience of epistemic boredom captured by this measurement reflects the cumulative boredom that students have encountered throughout 6 years of mathematics education in high school. In our study, this measurement represents the trait aspect.

As a key proximal antecedent of activity emotions, we included the measurement of *Academic Control*, utilizing the perceived Academic control scale developed by Perry et al. (2001). In this study, epistemic emotions are considered distal antecedents of achievement emotions, contributing to a comprehensive understanding of the emotional processes involved in academic activities.

2.2.2. Culture

When examining cultural variations, our investigation adheres to the framework introduced by Hofstede et al. (2010). Hofstede identified six key dimensions that capture the differences between cultures: power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity, long-term-short-term orientation, and indulgence-restraint. *Power distance* pertains to the extent to which individuals within organizations and institutions accept and anticipate unequal distribution of power. *Uncertainty avoidance* reflects a society's inclination to tolerate ambiguity and uncertainty, indicating the level of discomfort experienced by its members in ambiguous situations. *Individualism* vs. *Collectivism* describes the degree to which individuals are integrated into groups, ranging from loose connections between individuals with an emphasis on self-reliance to strong bonds within cohesive in-groups. In *Masculine* societies, there is a distinct separation of emotional gender roles, while in *Feminine* societies, these roles tend to overlap. The fifth dimension, *Long-term* vs. *short term orientation*, distinguishes societies based on their orientation toward future rewards or the immediate fulfillment of present needs and desires. The sixth and most recent addition to the cultural dimensions is *Indulgence* vs. *Restraint*, which reflects the degree to which a culture permits or restricts the gratification of needs and human drives associated with hedonism and consumerism. For individual-level analysis, we utilize national scores on Hofstede's cultural dimensions to represent the cultural background of students who received secondary education in their respective countries. This approach aligns with the procedures followed by Hofstede et al. (2010), where cultural differences refer to variations between nations rather than variations within individuals. For further insights, refer to Tempelaar and Verhoeven (2016).

An alternative approach to operationalizing culture is presented by the GLOBE (Global Leadership and Organizational Effectiveness) research program, as outlined in the work of House et al. (2004). The GLOBE project aimed to identify and define nine cultural dimensions while also forming clusters of world cultures that transcend national boundaries. In our study, we have further refined the GLOBE culture clustering by categorizing cultural regions into Germanic Europe, Nordic Europe, Eastern Europe, Latin Europe, Anglo, Asia, Latin America, and Africa. To enhance the specificity of the Germanic Europe region, it has been subdivided into German-speaking countries, Netherlands, and Belgium. Additionally, separate regions were identified for countries that had over a hundred students within the four most recent cohorts, namely France, Spain, and Italy. For more information, refer to the works of Rienties and Tempelaar (2013) and Tempelaar et al. (2013).

2.2.3. Attitudes toward learning

To augment the proximal control antecedent with the value component, we utilized an expanded version of the Survey of Attitudes Toward Statistics (SATS, Tempelaar et al., 2007). Drawing upon the expectancy-value theory (Wigfield and Eccles, 2000), this instrument encompasses six attitudinal dimensions related to learning quantitative methods. The instrument assesses *Affect* in learning quantitative topics, *Cognitive competence*, *Value*, expected difficulty in learning (reversed as *No Difficulty*), *Interest*, and planned *Effort*. Within these scales, we selected two scales to represent the extrinsic and intrinsic aspects of valuing mathematics and statistics learning: *Value*, which captures students' attitudes regarding the usefulness, relevance, and worth of the subject in their lives, and *Interest*, which measures the level of individual intrinsic interest.

2.2.4. Motivation and engagement wheel measures

The Motivation and Engagement Survey (MES), which is based on the Motivation and Engagement Wheel framework (Martin, 2007), deconstructs learning cognitions and learning behaviors into four quadrants encompassing adaptive and maladaptive types as well as cognitive (motivational) and behavioral (engagement) types. Within the framework, the adaptive cognitive factors or positive motivations include *Self-Belief*, *Learning Focus*, and *Valuing School*. *Persistence*, *Task Management*, and *Planning* represent the adaptive behavioral factors or positive engagement. On the other hand, the maladaptive cognitive factors or negative motivations consist of *Uncertain Control*, *Failure Avoidance*, and *Anxiety*, while *Self-sabotage* and

Disengagement represent the maladaptive behavioral factors or negative engagement.

2.2.5. Mindset measures: self-theories of intelligence and effort-beliefs

Measures of self-theories of intelligence, encompassing both entity and incremental types, were adopted from Dweck's Theories of Intelligence Scale—Self Form for Adults (Dweck, 2006). This scale comprises eight items, consisting of four statements related to *Entity Theory* and four statements related to *Incremental Theory*. Measures of effort-beliefs were sourced from two references: Blackwell (2002) and Dweck (2006). Dweck's work presents sample statements that depict effort as both a negative concept (*Effort Negative*) and a positive concept (*Effort Positive*), highlighting the belief that exerting effort either conveys low ability or activates and enhances one's ability. Additionally, Blackwell (2002) comprehensive set of Effort beliefs was utilized, consisting of five positively phrased and five negatively worded items (see also Blackwell et al., 2007; Tempelaar et al., 2015). Goals were operationalized using the instrument developed by Grant and Dweck (2003), which differentiates between two mastery goals, namely *Challenge-Mastery* and *Learning Goals*, and four types of performance goals. Among the performance goals, two are associated with appearance, namely *Outcome* and *Ability Goals*, while the other two are normative in nature, namely *Normative Outcome* and *Normative Ability Goals*.

2.2.6. Academic motivations

Vallerand et al. (1992) proposed three primary categories of motivations in learning: Intrinsic, Extrinsic, and Amotivation. Firstly, Intrinsic motivations are centered around the enjoyment and satisfaction derived from the task itself. Intrinsic motivation comprises three subcategories: *Intrinsic motivation to know*, which involves finding satisfaction in learning and understanding something new; *Intrinsic motivation toward accomplishments*, where individuals derive pleasure from achieving or creating something; and *Intrinsic motivation to experience stimulation*, which refers to the fulfillment gained from engaging in the activity. On the other hand, Extrinsic motivation encompasses a wide range of behaviors driven by external factors and pursued as a means to an end rather than for their inherent value. Extrinsic motivation can be further divided into three types: *External regulation*, which involves external rewards or constraints; *Introjection*, where individuals internalize the reasons behind their actions to some extent; and *Identification*, where the behavior is perceived as personally valuable and important. Finally, individuals are classified as *Amotivated* when they lack both intrinsic and extrinsic motivation, perceiving their actions as being controlled by external forces beyond their influence.

The study obtained ethics approval from the Ethical Review Committee Inner City faculties (ERCIC) of Maastricht University under file ERCIC_044_14_07_2017. Prior to participation, all individuals gave their informed consent for the utilization of anonymized student data in educational research.

2.3. Statistical analyses

This study applies a combination of person-centered and variable-centered statistical methods. The heterogeneity of the sample is a sufficient reason in itself to decompose the full sample into homogeneous sub-samples that satisfy the requirements of variable-centered methods: that of homogeneity of the data (Howard and Hoffman, 2018). However, substantive arguments to start the analysis with a person-centered approach add to statistical arguments. In the provision of learning feedback to students and the design of educational interventions, the main aim of applying learning analytics, it is attractive to seek common grounds rather than addressing every student on an individual basis (Tempelaar et al., 2021).

Person-centered modeling of activity emotions was performed with K-means cluster analysis based on all four activity emotions scores. In deciding upon the number of clusters, substantial criteria were applied (Howard and Hoffman, 2018).

In the second step of the analysis, we apply variable-centered statistical methods to investigate profile differences. These methods include ANOVA and *t*-tests for independent and paired samples. To restrict the accumulation of Type 1 error in performing multiple hypothesis tests, all tests are performed at the conservative significance level of 0.001 ($p < 0.001$). Large sample sizes generate statistical significant differences in most of these hypothesis tests, and therefore we opt to consider both statistical and practical significance, reporting effect sizes along *p*-values.

3. Results and discussion

3.1. Boredom types

The creation of activity emotion profiles follows classification approaches applied by Goetz et al. (2014), Sharp et al. (2021), and Tempelaar and Niculescu (2022). Using data from the four most recent cohorts, cluster analyses based on *Anxiety*, *Boredom*, *Hopelessness*, and *Enjoyment* scores were run for a range of cluster numbers. All cluster solutions having four or more clusters demonstrate the existence of one or more high boredom profiles: clusters of students with extraordinarily high levels of boredom, relative to the levels of other learning emotions and levels of arousal. The cluster solution we opted for distinguishes six profiles, three of high boredom type and three of low boredom type. We will label these profiles as *HighBor1*, *HighBor2* and *HighBor3* for the high boredom clusters and *LowBor1*, *LowBor2* and *LowBor3* for the low boredom clusters. Figure 1 provides a graphical illustration of these profiles; Table 1 specifies mean levels. Control-value theory of achievement emotions predicts that levels of activity emotions are linearly related to *Academic Control*. Activity emotions with a negative valence are expected to be negatively related, and those with a positive valence are positively related, showing linear relationships. The third panel of Figure 1 confirms this expectation for the activity emotion *Hopelessness*: higher levels of *Academic Control* (horizontal axis) correspond to lower levels of *Hopelessness*, in a nearly exact negative linear relationship. Also, the second panel, sketching the relationship between *Academic Control* and *Anxiety*, complies with

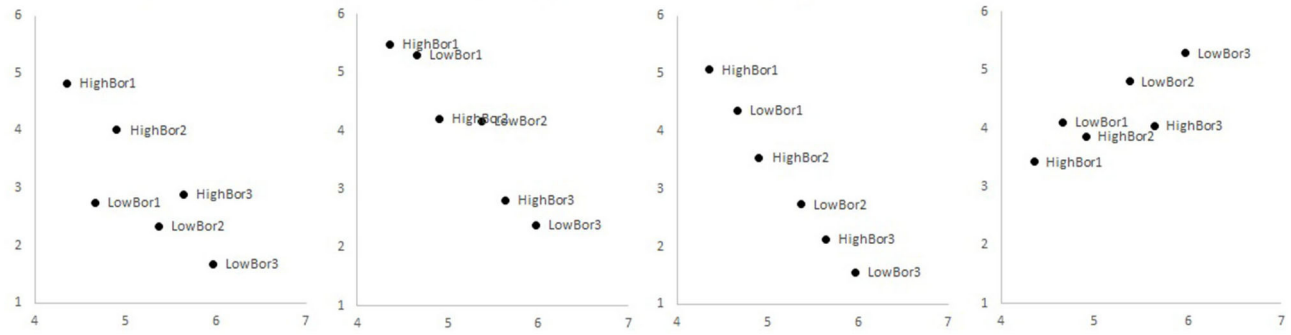

FIGURE 1
Activity emotion profiles in the plane of *Boredom*, *Anxiety*, *Hopelessness*, and *Enjoyment*, respectively, vs. *Academic Control*.

the theoretical framework: higher levels of *Academic Control* go with lower levels of *Anxiety* in a more or less linear manner. However, the first panel breaks this pattern: it suggests the existence of not one but two linear relationships, one for the high boredom profiles and a different one for the low boredom profiles. In both linear relationships, *Boredom* levels decrease with increasing *Academic Control* levels, but this relationship is at a higher level for the high boredom profiles. The fourth panel, that of *Enjoyment* vs. *Academic Control*, somewhat resembles the first panel; because *Enjoyment* is stronger correlated with *Boredom* than any other negatively valenced activity emotion, this does not come as a surprise.

3.2. Boredom in time: the impact of the pandemic

The potential impact of the pandemic is part of a more general question: can we observe any development in levels of epistemic and activity boredom over time, as in Ros Velasco (2023)? Making use of the full time span of boredom data (thirteen student cohorts, from 2010/2011 to 2022/2023 for *Activity Boredom*, nine student cohorts, from 2014/2015 to 2022/2023 for *Epistemic Boredom*), we observe a very stable progression over time (see Figure 2).

Beyond little variation over time, Figure 2 demonstrates that all boredom observations lay below four, the neutral value of the 1.0.7 Likert scale applied in measuring the activity and epistemic boredom items. Next, levels of activity boredom are consistently below levels of epistemic boredom. That difference comes with a large effect size: in a paired samples *t*-test, we find the effect size of the difference between *Epistemic* and *Activity Boredom* to be 31.5%.

Zooming into the last 4 years of observations, 2019/2020, the pre-pandemic year, 2020/2021 and 2021/2022 as the two pandemic years, and 2022/2023, the post-pandemic year, we observe in a two-way ANOVA with year and region as fixed factors, statistical significance for region, and lack of statistical significance for year, both regarding *Activity* and *Epistemic Boredom*. However, practical significance is very limited: with eta squared of 2.8 and 2.1% for region in activity and epistemic boredom, region explains <3% of total variation (eta squared is 0.2 and 0.5% for year in *Activity* and *Epistemic Boredom*, year explaining <1% of total variation).

3.3. Boredom and culture

Analyzing the influence of culture on boredom measures applying Hofstede's culture dimensions signals two dimensions being of statistical and practical significance: the *Masculinity* vs. *Femininity* dimension and the *Indulgence* vs. *Restraint* dimension (see Table 2).

The *Masculinity* vs. *Femininity* dimension negatively correlates with boredom scores, indicating lower boredom levels in countries with a more masculine culture. The *Indulgence* vs. *Restraint* dimension correlates positively with boredom scores, indicating lower boredom levels in countries with a more restrained culture. All culture dimensions together explain 1.8% of the variation in epistemic boredom and 2.6% of the variation in activity boredom.

The alternative approach of investigating the culture effect, explaining boredom scores by regions representing different cultures, demonstrates effect sizes in the same order: 2.1% of the variation in epistemic boredom and 2.8% of the variation in activity boredom is explained by regional indicator variables. Against the strict significance requirement applied in this study, only few regions demonstrate statistical significance. Dutch and Belgian students stand out with positive coefficients for the activity boredom explanation. The close proximity of these two regions to the university suggests a difference in selection effects rather than cultural influences causing this effect. This selection effect may also explain the role of the masculinity vs. femininity dimension: in comparison to countries in Germanic Europe and Latin Europe, the Dutch and Belgian regions are characterized by a relatively feminine culture, so the cultural dimension is confounded with the proximity of the country of secondary education.

All together suggest a modest role for cultural dimensions in explaining variation in boredom levels.

TABLE 1 Descriptives of activity emotion profiles.

	Academic Control	*Activity Boredom*	*Activity Anxiety*	*Activity Hopelessness*	*Activity Enjoyment*	Number of students
HighBor1	4.35	4.82	5.48	5.06	3.43	423
HighBor2	4.91	4.01	4.21	3.54	3.86	952
HighBor3	5.64	2.89	2.80	2.12	4.05	777
High Boredom	5.06	3.76	3.95	3.33	3.84	2,152
LowBor1	4.66	2.74	5.30	4.35	4.10	695
LowBor2	5.37	2.34	4.16	2.73	4.80	1,049
LowBor3	5.98	1.67	2.38	1.55	5.29	699
Low Boredom	5.34	2.26	3.98	2.85	4.74	2,443
All students	5.21	2.96	3.97	3.08	4.32	4,595

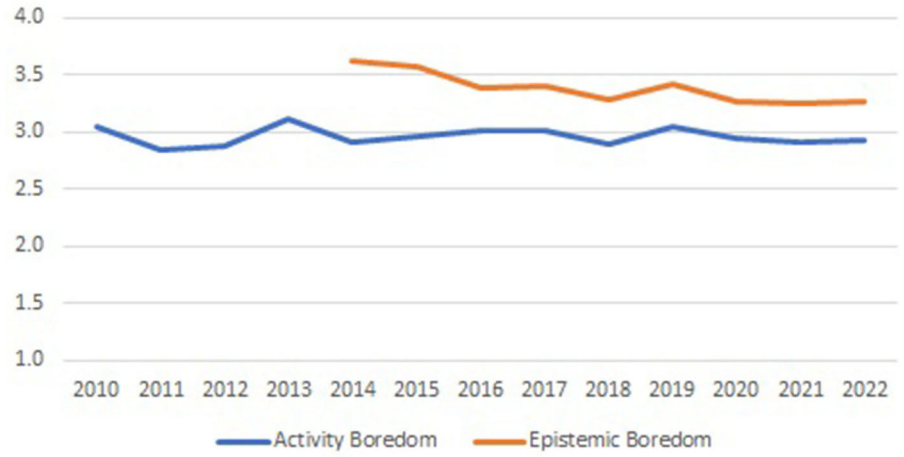

FIGURE 2
Development of *Activity* and *Epistemic Boredom* over time.

TABLE 2 Correlations of boredom measures with Hofstede's national culture dimensions.

Boredom	*Power distance*	*Uncertainty avoidance*	*Individualism–Collectivism*	Masculinity–Femininity	*Long-term–Short-term orientation*	*Indulgence–Restraint*
Epistemic	−0.014	−0.040**	0.028	−0.095***	−0.018	0.132***
Activity	0.019	−0.029	0.055***	−0.125***	−0.037*	0.161***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

3.4. Boredom and gender

Breaking down the development over time of the activity and epistemic boredom scores, as visible in Figure 2, by gender, gives rise to Figure 3.

A clear gender difference is visible in average boredom levels in all cohorts: average male *Activity Boredom* is 10% higher than average female boredom level, and average male *Epistemic Boredom* level is 5% higher than average female boredom level. However, behind these average levels, there is strong variation in individual boredom scores, implying that gender explains no more than 3.8% of variation *Activity Boredom*, and no more than 1.1% of variation in *Epistemic Boredom*.

3.5. Boredom and over- or under-challenge

In discussing the role of being over-challenged, or under-challenged, as an explanation of boredom levels,

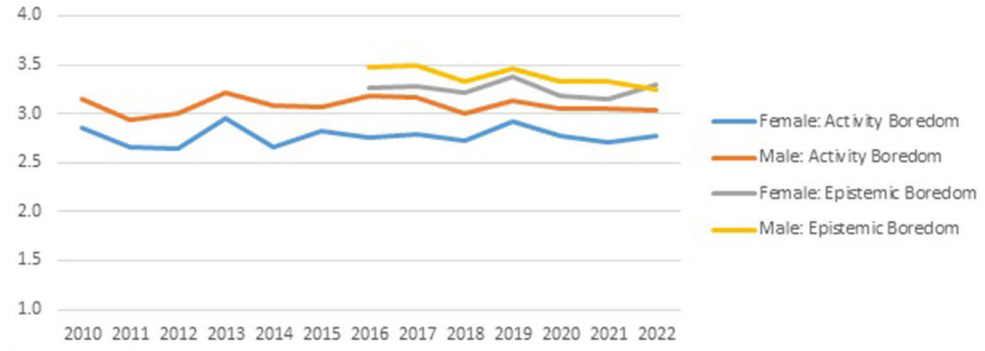

FIGURE 3
Development of *Activity* and *Epistemic Boredom* over time by gender.

we apply an objective measure of proficiency: the track of mathematics schooling in high school, expressed by the indicator variable *MathMajor* (1 if the student followed a science preparing mathematical track, 0 if the student followed a social science preparing track). The bivariate correlation of *MathMajor* with *Activity Boredom* equals −0.088, the correlation with *Epistemic Boredom* equals −0.090. Both estimates are statistically significant ($p < 0.001$), but their effect sizes are very small: *MathMajor* explains no more than 0.8% of variation in the two boredom measures. The negative correlations exclude the under-challenge casus; for under-challenge to explain boredom, one would expect positive correlations. Over-challenge is consistent with the negative correlations we observe, but in case learning activities were too challenging, one would have expected both larger effect size and an activity boredom correlation to be more negative than the epistemic boredom correlation. None of these is in full force and effect, making the over- or under-challenge hypothesis not a likely explanation in this context.

3.6. Antecedent level differences between *High* and *Low Boredom* profiles

The following steps in the analysis aim to investigate relationships between profile characteristics and potential antecedents. To reduce the impact of *Academic Control* and other factors that may confound the relationship between boredom measures and antecedents, we aggregated the three low boredom profiles into 1 second-order profile *Low Boredom*, and aggregated the three high boredom profiles into 1 second-order profile *High Boredom*. Table 1 summarizes the descriptives of these profiles.

Another advantage of this aggregation of profiles is that this classification is approximately balanced: there is about the same number of high and low boredom students 2,152 vs. 2,443.

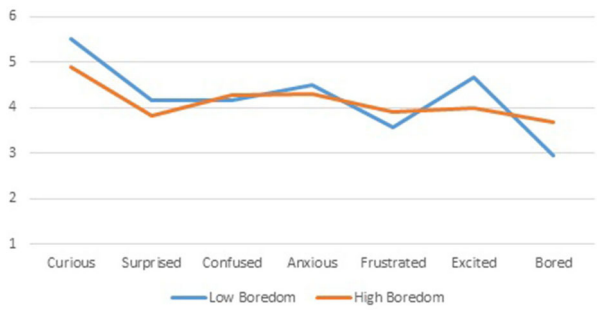

FIGURE 4
Mean level differences for epistemic emotions of *Low* and *High Boredom* profiles.

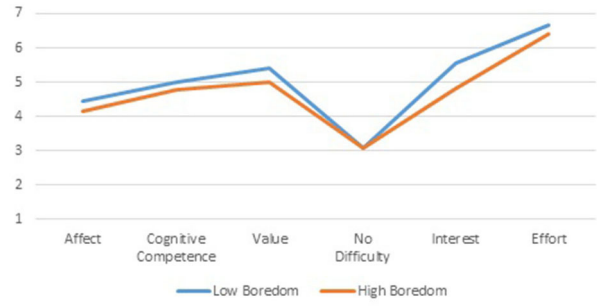

FIGURE 5
Mean level differences for learning attitudes of *Low* and *High Boredom* profiles.

In this subsection, we focus on first-order differences between the profiles of students with high activity boredom and low activity boredom: can we observe a difference in mean levels between the profiles? A first candidate for profile differences is epistemic emotions, measured at the very start of the course. Figure 4 provides insight into these level differences.

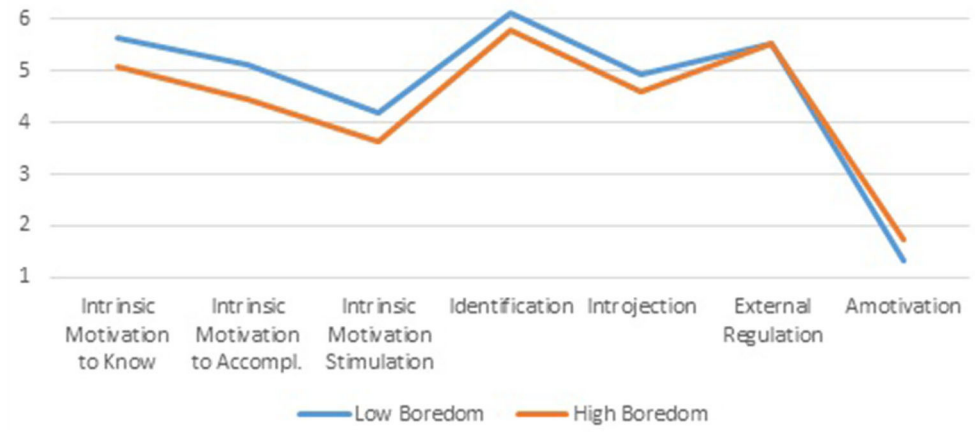

FIGURE 6
Mean level differences for academic motivation of *Low* and *High Boredom* profiles.

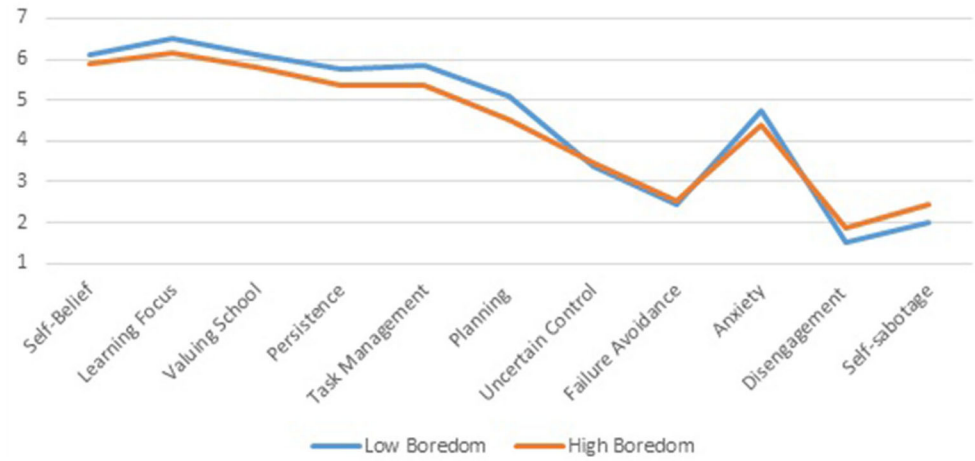

FIGURE 7
Mean level differences for adaptive and maladaptive motivation and engagement of *Low* and *High Boredom* profiles.

All level differences in epistemic emotions are statistically significant (beyond the 0.001 level of significance), but only three differences are substantive: *Curious* (eta squared 10.9%), *Excited* (eta squared 8.4%) and *Bored* (eta squared 12.1%). These three epistemic emotions built up during high school education carry over to activity emotions in the current module, whereas the other four epistemic emotions have a less prominent role.

Learning attitudes based on the expected-value framework count two measures for valuing the learning of quantitative methods: *Value*, representing the extrinsic facet, and *Interest*, representing the intrinsic facet. Profile differences are depicted in Figure 5. All attitudes' scales except students' perception of the difficulty of their learning topics reach statistical significance ($p < 0.001$). However, effect sizes of *Affect* and the expectation component, *Cognitive Competence*, are small: below 2%. The absence of a relationship with perceived difficulty and the small impact of the competence variable contribute to the conclusion that the explanation of boredom out of over-challenge, or under challenge, is highly unlikely. The largest effect sizes refer to the two value components: *Interest*, 11.9%, and *Value*, 5.7%, followed by planned *Effort*, 5.2%.

The importance of intrinsic facets of learning motivation in explaining profile differences is also clarified in the Academic Motivation data analysis. Profile differences of three components of intrinsic motivation, on the left-hand side of Figure 6, demonstrate obvious differences in favor of the *Low Boredom* profile. The subsequent three measurements represent motivations that turn from a mixture of intrinsic and extrinsic to purely extrinsic: *External Regulation*. In each step, profile differences diminish (but still stay statistically

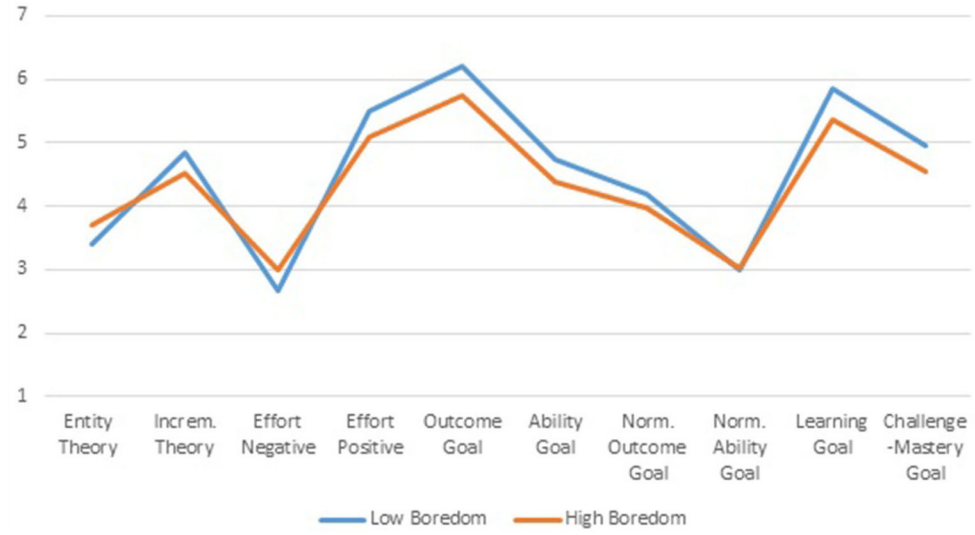

FIGURE 8
Mean level differences for implicit theories, effort beliefs and goal setting behavior of *Low* and *High Boredom* profiles.

significant, $p < 0.001$) until they disappear entirely for *External Regulation*. Effect sizes range from 8.8 to 1.7% for *Introjection*.

Data from the Motivation & Engagement Wheel help to see another facet of profile differences: the role of adaptive vs. maladaptive learning cognitions and behaviors. In Figure 7, the first three scales refer to adaptive learning cognitions, followed by three adaptive learning behaviors. All profile differences are statistically significant ($p < 0.001$), but the effect of *Self-Belief* lacks substance with an effect size of 1.6% (in line with the small effect size of the learning attitude *Cognitive Competence* discussed above). All other profile differences of adaptive scales are more substantial in size and range between 5.4 and 7.1% effect sizes.

The maladaptive cognitions tell a different story. *Uncertain Control* and *Failure Avoidance* demonstrate a lack of profile differences, whilst *Anxiety* shows a slight profile difference (2.2% effect size) in the opposite direction of other scales. On the other hand, the profile differences in the maladaptive behaviors, *Disengagement* and *Self-sabotage*, are in line with the adaptive measures: significant profile differences with effect sizes of 4.5 and 4.5%.

Behind differences in motivational facets, differences in epistemological beliefs that underlie these learning motivations may be expected. Students' mindsets concerning their nature of intelligence and the role of effort in learning constitute one of these beliefs relevant to learning. Profile differences between the two implicit theories of *Entity Theory* and *Incremental Theory*, and the two effort beliefs *Effort Negative* and *Effort Positive*, are displayed in the left part of Figure 8. The right part of Figure 8 displays profile differences in goal setting behavior of the students.

Except for the *Normative Ability Goal*, all profile differences for goal setting are statistically significant ($p < 0.001$). In line with previous research of the author (Tempelaar et al., 2015), we find stronger effects of negative and positive effort beliefs (effect sizes 4.1 and 9.3%, respectively) than for entity and incremental views of intelligence (effect sizes 1.5 and 1.9%, respectively). In addition, somewhat substantial profile differences are present in the two mastery goals *Learning Goal* and *Challenge-Mastery Goal* (effect sizes 9.2 and 4.3%) and the two appearance types of performance goals: *Outcome Goal* and *Ability Goal* (effect sizes 7.7 and 2.3%).

3.7. Antecedent relationship differences between *High* and *Low Boredom* profiles

Turning to the last subsection of Results, we focus on second-order differences between the high activity boredom and low activity boredom profiles: can we observe a difference in the relationships of activity boredom and its antecedents, between the profiles of low and high boredom, beyond differences in mean levels. The control-value theory hypothesizes both control and value as antecedents of activity boredom. Control is operationalized as *Academic Control*, and for value, we have two operationalizations available from the learning attitudes instrument: intrinsic value *Interest*, and extrinsic value, *Value*. Next, epistemic boredom acts as the trait-like antecedent of state-like activity boredom. Linear prediction equations based on regression analysis are contained in Table 3, for all students and the two profiles of low and high boredom.

In the full sample, *Epistemic Boredom* is the dominant predictor of *Activity Boredom*, accounting for more than 60% of explained variation. Within the two profiles, not only explained variation is

TABLE 3 Prediction equations explaining *Activity Boredom* by *Epistemic Boredom, Academic Control, Interest,* and *Value*, for all students and the two profiles.

	All	*Low Boredom*	*High Boredom*
Constant	4.544***	3.347***	4.960***
Epistemic Boredom	0.401***	0.305***	0.318***
Academic Control	−0.289***	−0.206***	−0.330***
Interest	−0.200***	−0.059***	−0.088***
Value	−0.068***	−0.059**	−0.055*
R^2	36.7%	25.1%	26.8%

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

at a lower level but also the role of *Epistemic Boredom* in that explained variation. Explained variation diminishing with 10% going from the full sample to the two profiles signals that prediction of boredom becomes more difficult after creating homogeneous subsamples. In comparing the two profiles, differences in the regression estimates for Academic Control are prominent. In the *High Boredom* profile, every one-point increase in *Academic Control* comes with a 0.33-point decrease in *Activity Boredom*, on average. In the *Low Boredom* profile, that decrease is no more than 0.21-point, on average.

All the above analyses focus on antecedents of Activity Boredom; in the last paragraphs, we will discuss consequences of boredom. The main consequences all refer to learning performance variables: performance in the final exam and performance in the intermediate quizzes for mathematics and statistics. Bivariate correlations of Activity Boredom with these four consequences for the full sample and the two boredom profiles are displayed in Table 4.

The major difference between profiles is visible in the correlations with exam score for both topics. Within the *High Boredom* profile, the relationship between exam score and boredom score is much stronger than in the *Low Boredom* profile.

4. Conclusions

The most fundamental question in many boredom studies is that what is the best way to measure boredom. This choice of a method though which the concept is operationalized and assessed validly is essential in order to properly capture the experience of boredom. As previously mentioned in the introduction, the observation of boredom presents a challenge in measurement. While qualitative methods such as participant observation (Patton, 2001; Niculescu and Tufanaru, 2005) and in-depth interviews with purposely sampling (Finkielsztein, 2021) are acknowledged as valuable approaches to gather boredom data, they may not be suitable for large student samples in study contexts where researcher observation is not feasible. In such cases, the utilization of quantitative approaches appears more appropriate. Although methodological shortcomings characterize self-report questionnaires, in studying the "silent learning emotion" we may not have a lot of alternatives. Behavioral observation of boredom is difficult, leaving the use of verbal expressions as the most helpful option (Finkielsztein, 2021). Given that "choice from poverty", it is reassuring that our dispositional learning analytics-based study that applies self-reported emotion measures using verbal expressions generates a consistent set of research outcomes. All relations with boredom antecedents and consequences and relations between epistemic and activity emotions describe a consistent system of learning emotions in which boredom functions as a maladaptive, negatively valenced and deactivating emotion. Although this may prove as a limitation and not demonstrate the validity of self-reported boredom measures, but certainly does not contribute to evidence of the opposite position.

Our study is in some sense "handicapped" by its large sample. Every effect we analyze and every profile difference we investigate is statistically significant, even at the strict requirement of $p < 0.001$. Combining statistical significance with the requirement of an effect size of at least 4%, we conclude that both cultural effects and time effects do not pass this benchmark. The absence of time effects implies that in our data, no effect of the pandemic can be observed. Another "not-in-our-data" phenomenon regards the theory of boredom due to over-challenging or under-challenging learning activities. To demonstrate that phenomenon, we require a significant and substantial relationship between the level of activity boredom and students' prior knowledge, and/or a relationship between activity boredom and the perception of the difficulty of the learning task. None of these can be observed in our data. Given the vast diversity in students' prior schooling, for certain, there have been numerous over-challenged students as well as under-challenged students. However, that cognitive state did not transfer to boredom states. We point to a potential limitation in our study where high stakes for passing this module may have prevented the occurrence of the over- and under-challenge phenomenon.

In line with findings summarized in Finkielsztein (2023) review study, we find gender effects in boredom. Not so much in the frequency of boredom experiences, as reported in Finkielsztein (2023), but in our case in the intensity of boredom. Again, effect sizes are not impressive, but the consistency of male *Activity Boredom* scores exceeding those of female students year after year, with an identical pattern for *Epistemic Boredom*, provides a strong confirmation that previous findings related to the frequency of experiencing boredom, also holds for the intensity of experiencing boredom.

The single situation where statistical significance goes hand in hand with stronger effect sizes is in the difference between *Epistemic* and *Activity Boredom*. On average, the state level of boredom is 11% lower than the trait level of boredom, with an effect size of 31.5%. The trait level of boredom, measured on the threshold between secondary education and university, is the outcome of 6 years of high school mathematics classes. Although the overall mean of trait boredom (3.30) is below the neutral anchor of the scale (4.00), it is remarkable that students experience so much less boredom in doing mathematics and statistics-related learning activities than in their perception of the subjects mathematics and statistics as academic disciplines. Other empirical studies, like Sharp et al. (2021) and Bambrah et al. (2023), also integrate state and trait boredom measures but do not

TABLE 4 Correlations of *Activity Boredom* with consequences: the performance measures.

Activity boredom	Mathematics exam	Mathematics quizzes	Statistics exam	Statistics quizzes
All students	−0.155***	−0.151***	−0.109***	−0.131***
Low Boredom	−0.117***	−0.123***	−0.074***	−0.133***
High Boredom	−0.182***	−0.124***	−0.163***	−0.114***

***$p < 0.001$.

analyze the level differences between the two types of boredom. The question of whether the finding of state-like activity emotions being more positive than corresponding trait-like epistemic emotions can be generalized beyond the situation of this study, remains therefore unanswered. Our results remain however encouraging and should be further validated across different domains and study contexts.

4.1. Main contributions and recommendations for further research

The mainstream approach of empirical studies into boredom treats this and other emotions as unitary concepts, in line with the CVTAE model (Pekrun, 2006) and other frameworks. Research by Goetz and co-authors (Nett et al., 2011; Goetz et al., 2014) was the first to point in the direction of a complete typology of boredoms, using experience-sampling methods and frequency measures of boredom. In previous research, Tempelaar and Niculescu (2022), we could generalize the finding of multiple boredom types to a context of self-reported intensity measures of boredom. Most of these boredom types have characteristics that follow from theoretical frameworks such as CVTAE: with higher control comes lower boredom. However, not all types fit in that framework: there exist boredom types where the level of boredom is exceptional relative to arousal or control levels, and relative to levels of other emotions. This study repeats that finding in a slightly different form: we find three profiles of high boredom relative to all other aptitude values, and three levels of low boredom relative to all other aptitude values. That finding is the outcome of creating student profiles by a cluster analysis based on all activity boredom observations. The most notable element of this profiling is maybe not the existence of multiple boredom types in itself, but the outcome that it is only boredom exhibiting multiple types. What makes boredom different from other learning emotions as anxiety and hopelessness, whose behavior is fully aligned with the CVTAE framework? These empirical studies into types of learning emotions suggest that contemporary theoretical frameworks do well in explaining anxiety and hopelessness but repeatedly fall short in explaining boredom (and to a lesser extent: enjoyment). We might need a more advanced theoretical framework for this complex emotion.

Building blocks for such a more advanced theory of learning activity boredom may be found in the reported research findings relating *Activity Boredom* with a broad range of student learning dispositions or aptitudes. Surprisingly, prior knowledge plays a subordinate role, given the lack of a substantial effect of high school mathematics track on boredom, and given the negligible role of cognitive self-perceptions as *Self-Belief* and *Cognitive Competence*. Instead, epistemological beliefs as the intelligence mindsets and related beliefs about the role of effort in learning, non-normative facets of student goal setting, academic motivations at the intrinsic pole and most of the adaptive scales of the Motivation and Engagement Wheel by Martin (2007), candidate for a position in such advanced theoretical framework explaining boredom.

To conclude, the findings from our quantitative, large sample study present boredom as an emotion in the educational setting in a different light than most contemporary theories: boredom is multifaceted and not a single experience in the academic environment. Second, the intensity of this emotion is another aspect to look into beyond how often it is usually reported in current research. Third, we observed minimal time effects in the pandemic and minimal cultural effects. We did notice, however, a gender effect that holds a trend over time for the male students being more bored than their female colleagues are. There are some implications concerning these findings, pointing mainly to the conceptualization of boredom from a theoretical perspective and the need for updated models. Such advancements should also offer more insightful recommendations for specific types of interventions that target the different profiles of boredom exhibited in academic settings and their impact on study retention.

Data availability statement

The datasets presented in this study can be found via DANS, the Data Archiving and Networked Services of the NOW, the Dutch organization of scientific research. Available online at: https://dans.knaw.nl/en/.

Ethics statement

The studies involving human participants were reviewed and approved by Ethical Review Committee Inner City faculties (ERCIC) of the Maastricht University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

DT contributed to the design and implementation of the research, analysis of the results, and writing of the manuscript. AN contributed to the design and implementation of the research and

writing of the manuscript. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Perspective
PUBLISHED 10 August 2023
DOI 10.3389/fsoc.2023.1215106

OPEN ACCESS

EDITED BY
Josefa Ros Velasco,
Complutense University of Madrid, Spain

REVIEWED BY
Maria Anton,
National University of Mar del Plata, Argentina

*CORRESPONDENCE
Beatriz Miranda-Galarza
✉ consultorsiete@17praxis.net
Benjamín Mayer-Foulkes
✉ direccion@17edu.org

RECEIVED 01 May 2023
ACCEPTED 05 June 2023
PUBLISHED 10 August 2023

CITATION
Miranda-Galarza B and Mayer-Foulkes B (2023) Boredom, art, and activism: notes on the experiences of people with disabilities in Mexico during the COVID-19 pandemic. *Front. Sociol.* 8:1215106. doi: 10.3389/fsoc.2023.1215106

Boredom, art, and activism: notes on the experiences of people with disabilities in Mexico during the COVID-19 pandemic

Beatriz Miranda-Galarza* and Benjamín Mayer-Foulkes*

Critical Disability Studies Programme, 17, Institute of Critical Studies, Mexico City, Mexico

Confinement, imposed during the COVID-19 pandemic in Mexico, confronted most people with experiences of boredom. For people living with disability, however, the experience of boredom is not alien. Unfortunately, boredom and disability are topics frequently shrouded in taboo, constraining informative reflection and discussion. This perspective article briefly reflects on encounters and disagreements about these two categories in the lives of people with disabilities during the COVID-19 confinement in Mexico. The objective is to explore relevant elements for reflection and extend an invitation for critical and in-depth research on the matter.

KEYWORDS

disability, boredom, Mexico, activism, artists

Introduction

Three years on from the COVID-19 pandemic and its collective experiences, research continues to explore understandings of everyday concepts, such as the individual, family and community, closeness and distance, illness and health, employment and unemployment, and life and death. These concepts need revisiting as, during the height of the pandemic, collective experiences reversed understandings and announced a radical civilizational transformation. However, this transformation has not materialized and reflections about life and habitation, particularly daily experiences, have either been obscured or are considered irrelevant. "Pandemic boredom" was a product of the involuntary isolation imposed in most countries that ushered in teleworking and tele-education. Despite alarming job losses and disruption of education, in countries like Mexico (Sánchez-Talanquer et al., 2021), the phenomenon of boredom has not been explored, especially among marginalized populations, including people living with a disability (Meresman and Ullmann, 2020). Not critically exploring this "pandemic-boredom-disability" relationship prevented realities, experienced by this population, being made public and inhibited the implementation of timely actions. Furthermore, the opportunity to learn from strategies employed by these people, who constantly face isolation and boredom imposed by society and states, was lost. This article exposes elements needing consideration when developing research about boredom in their lives and highlights the knowledge contribution these people can make to society in general.

Boredom and disability: brief approach

The juncture between disability and boredom refers to a complex structure, impossible to locate in a single area of study or reflection. These two concepts, namely disability and boredom, are marked by the authority of historical discourses fluctuating between moralizing-medicalizing and the political-ethical, that consider the subjectivity of a desiring subject and the relation to its context. Kessel (2001) argues boredom as a modern concept originated in the 18th century in the form of tedium or hopelessness but has been envisioned since the Middle Ages, a period in which "doing nothing" was positive in the case of upper-class men or artists, but a sin in women. The two world wars and expansion of technological capitalism has witnessed boredom circulate as a synonym of social illness, pathologizing the individual (Ros Velasco, 2022). Historically, however, in relation to disability, it has been defined by religious-moral and medical-psychiatric frameworks positioning it as divine or sinful, framing it as disease and abnormality. Proponents of the social model of disability (Oliver, 1999) could argue categorizing it this way aligns with the 18th century Western perceptions that resulted in the expulsion of "non-productive" and "useless" bodies from production processes during the First Industrial Revolution. Enlightenment institutionalized medical discourse and prevented individuals, considered to be abnormal, from actively participating in public and political life (Davis, 1995). Medical and psychiatric institutions took charge of these lives, and their destinies oscillated between being normalized and institutionalized (Snyder and Mitchell, 2019).

Classic contributions from psychology refer to boredom as an emotion arising from the loss of the ability to be amazed (Antón, 2012) and has become a synonym for depression, anguish, or laziness. Schopenhauer postulated boredom is more closely linked to the human will and dependent on their resolution not their needs (Schopenhauer, 2006). Schopenhauer claimed humans have two potential responses to the problems life presents: one, leave them unresolved and suffer, or two, solve them and live with boredom until a new problem replaces the resolved one. Thus, according to the philosopher, life exists between suffering and boredom. From this rather pessimistic position, Retana (2011) recovers the political and ethical texture of boredom. For the author, the constant search to fill the gap that satisfaction of a need leaves is mediated not only by individual will and social interactions, as Schopenhauer argued, but also by affective, political, economic, and cultural ones. From this point of view, power games and moral and ethical control also contribute to determining boredom. Thus, Retana maintains boredom can be placed in a group of "forbidden emotions" (Retana, 2011, p. 185) that "should" have no place in human life. Faced with this contribution of structural elements, psychoanalytic perspectives define boredom more broadly. For Lacan (2011), boredom is sustained by desire, "the desire for something else" (Antón, 2012), and this desire can be conceived as a threshold for life itself. Antón, expanding on Lacan's position, asserts boredom "makes it possible to take a position, although it does not guarantee it and it can lead us to an entrance door to establish a social bond" (Antón, 2012, p. 105).

But what happens when the subject is considered "non-desiring," as is the case for people with disabilities? Would it be inferred that he or she is incapable of taking a position toward life and therefore incapable of building social bonds? Should one think that the person lives in a permanent state of non-awareness in the face of his or her own boredom? A legacy of the Enlightenment was to portray the disabled person as devoid of rationality, intention, and desire, in other words, of subjectivity. Wilton (2003), assuming a psychoanalytic approach to physical disability, maintains disability in general is posited as a "symbolic substitute" for castration, in the Freudian and Lacanian sense, and therefore a disabled body is always imagined as "a-desiring." From this perspective, boredom would then be considered as either intrinsic to the character of the disabled person as it was considered for women in the Middle Ages, or non-existent, in terms of the absence of its human conformation.

Boredom and disability during the pandemic in Mexico

In Mexico, a 2020 report from the Social Sciences Observatory of the Mexican Council of Social Sciences indicated the measures taken during the pandemic by the government and private organizations were aimed at "trying to reduce the duration of social isolation to avoid the appearance of emotions such as boredom and anger, as well as increases in family conflicts or intrafamily violence" (Santillán Torres, 2021). At the same time, Mexican society, like many others in the world, was subject to persistent digital stimuli, a phenomenon coined as "pandemic boredom" by many media outlets such as the New York Times, El Mundo, and El País. Isolation, the extreme limitation of social contact, the reduction of economic and relational activities, and restriction of access to health services resulted for many in an overwhelming "new normal." However, for most people with disabilities, especially institutionalized people, this was just another aspect of their all too familiar "normality" (Sharma and Rau Barriga, 2021). Approximately 20 million disabled people live in Mexico, comprising 16.5% of its population. Of this, 53% are women, 47% are men (Plataforma Dis-capacidad, 2021), and 50% live in poverty. According to the "Parallel Victims: Those Affected Who Are Not Spoken" project, the pandemic exacerbated the isolation conditions of people with disabilities, limited their access to medical and rehabilitation services, their necessities for on-line education programs established by the government were overlooked. For many people with disabilities, rehabilitation, education, and health service spaces constitute the only places open for socializing and establishing relational bonds. Staying at home for longer than usual exacerbates feelings of frustration and boredom, sometimes manifesting in aggressive attitudes resulting from disruption of daily dynamics (Solis Garcia, 2022). It intensified the situation where risks were exposed due to lack of accessible information about the pandemic for people with disabilities and their families. An illustration of such risks include the non-existence of transparent masks for deaf people which exacerbated misinformation and isolation. Experiences of tedium, depression, and boredom resulted in the

increased administration of psychotropic medications used for depression and anxiety (Solis Garcia, 2022, p. 13). The thematic report "*Infancias Encerradas* (Forgotten childhoods)," conducted by the Human Rights Commission of Mexico City (CNDH, 2020) involving more than 1,300 children and adolescents, revealed four out of 10 played video games, three out of 10 chatted with their friends, two out of 10 talked on the phone, and two out of 10 read for pleasure. Moreover, the findings indicated only four out of 10 of the participants were happy with these activities during their period of confinement, and people with multiple disabilities were the least involved in activities that generated happiness. Finally, it was reported that children with disabilities were less happy in confinement than those without disabilities. Despite these findings, the effects of confinement and the pandemic on people with disabilities were obscure and much less understood by society in general and the government (Artigues, 2021).

Artistic creation and activism in response to desire

In unexpected ways in Mexico, among people with disabilities, boredom during the pandemic affirmed the psychoanalytically posed constant desire for "something else." Isolation, the constant risk of dying, not only in relation to the pandemic but because of limited access to basic services, and the exacerbation of boredom reported by many people with disabilities due to the limitations imposed on them provoked two unique responses: artistic and activist. Artigues (2021) reports how activism took on a new meaning for people with disabilities who were contending with total abandonment by the government during the pandemic. The following examples illustrate this: On March 17, 2020, the deaf community filed a legal protection order before the Thirteenth District Court for Administrative Matters of Mexico City demanding access in sign language to information about the pandemic and the country's situation. This action forced the government to open a microsite accessible to people with disabilities in general. Likewise, another protest carried out by various organizations of people with disabilities managed to get the government to implement actions for school-age populations with disabilities and created a website where disabled and indigenous populations could access educational material relevant for their needs. Another field of activism by people with disabilities related to access to vaccines; this led to the provision of vaccine information, the prioritization of people with disabilities, the assurance of physical accessibility to vaccination sites, and the possibility for being vaccinated at home.

Additionally, groups of young women and disabled university students focused on action about social networks. An article in the newspaper El País in 2020 regarding online activism during confinement stated platforms like Change.Org (Prada, 2020) reported an exponential increase in the activity of social organizations or individual activists during the first quarter of confinement. Other platforms such as Osoigo.Org reported an increase in demands for support for people with disabilities or living with illness (Prada, 2020). In Mexico, the emergence of initiatives such as Rangel and Blanco (2022), the National Network of Feminists with Disabilities, occurred alongside the formation of *No Es Igual*, a collective organized by artists from different artistic disciplines, regions of the country, and people with disabilities. The emergence of these initiatives, according to some of its members, occurred when people with disabilities were encouraged to defend their rights. Furthermore, the desire to survive mentally and materially during the pandemic (17, Institute of Critical Studies, 2020) stimulated this action. Seminars, online talks, manifestos, and collective and individual artistic projects circulated on social networks, alerting the public to the precarious circumstances in which most people with disabilities lived through the pandemic. This type of response to boredom also facilitated connections to other groups with similar objectives in other Latin American countries.

The pandemic-induced boredom encountered by individuals with disabilities in Mexico has exposed the prevailing taboos surrounding their lives, subjectivity, and everyday existence. It has also revealed the inertia on the part of the government and society to critically examine these issues. The then United Nations Rapporteur on the rights of persons with disabilities, Catalina Devandas, denounced the exclusion of people with disabilities from governmental pandemic strategies, emphasizing their feeling of being "left behind." In response to this abandonment, the disabled community has embraced imposed boredom as a catalyst to unite, take action, and engage in activism and artistic endeavors. Consequently, boredom, as a reaction to the yearning for something more—such as emancipation—has opened a pathway for an ongoing process that will undoubtedly yield results in the future. However, information regarding this topic is scarce, underscoring the importance of conducting critical research on the link between boredom and disability. Such research can inform work programs and facilitate learning from the lived experiences of individuals with disabilities.

Discussion

In the face of discourse that overlooks boredom as a phenomenon experienced by individuals with disabilities, recent voices acknowledge the disabling circumstances created by political, economic, cultural, and social barriers that affect people with physical, sensory, or intellectual impairments. The pandemic-induced boredom experienced by people with disabilities in Mexico exposed taboos permeating their lives, subjectivity, and daily existence. It has also exposed the government's inertia and the inability of society to critically examine these issues. Catalina Devandas, at that time the United Nations Rapporteur on the rights of persons with disabilities, denounced the exclusion of people with disabilities from government strategies about dealing with the pandemic and emphasized how people with disabilities felt that they were "left behind" (Lizama, 2020). Responding to this abandonment, the disabled community embraced the imposed boredom, using it as a catalyst to unite, engage in activism and generate artistic creations. Consequently, boredom as a reaction to the emptiness generated by the desire for something more, for example emancipation, opened the door to an ongoing process that will undoubtedly lead to positive social change in the future. Information about it, however, is scarce and underscores the need for critical research on the link between boredom and disability.

Such research can inform various programmes and facilitate learning from lived experiences of people with disabilities.

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 authors.

Author contributions

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

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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frontiers | Frontiers in Sociology

TYPE Policy Brief
PUBLISHED 24 August 2023
DOI 10.3389/fsoc.2023.1214069

OPEN ACCESS

EDITED BY
Alexandra Vuyk,
Universidad Católica "Nuestra Señora de la Asunción", Paraguay

REVIEWED BY
Tobias Kärner,
University of Hohenheim, Germany
Amrit Kumar Jha,
Lalit Narayan Mithila University, India

*CORRESPONDENCE
Anke Zeißig
✉ zeissig@b-tu.de

RECEIVED 28 April 2023
ACCEPTED 20 July 2023
PUBLISHED 24 August 2023

CITATION
Zeißig A (2023) Boredom as the originator of a desideratum - reflections on the creative and suppressive consequences of boredom in the school context. *Front. Sociol.* 8:1214069. doi: 10.3389/fsoc.2023.1214069

Boredom as the originator of a desideratum - reflections on the creative and suppressive consequences of boredom in the school context

Anke Zeißig*

Department of Educational Psychology, Institute of Health Science, Faculty of Social Work, Health and Music, Brandenburg University of Technology Cottbus-Senftenberg, Cottbus, Germany

Bored children begin to draw, do crafts, to fidget - or they do something bad. Others fall silent, withdraw, or become lethargic. Research on school-related boredom has focused primarily on the negative consequences of boredom, such as decreased cognitive performance, motivation or attentativeness, or disruptiveness. These negative aspects of boredom can be contrasted by the notion that boredom can promote creative performance. This paper reflects on boredom's creative and suppressive consequences as an interplay of personality traits and behavioral possibilities in school situations, on the one hand, and as an interplay of situational experiences with constituent developmental processes on the other. It is proposed that boredom is a gauge of the learner's resonance with school content, learning and/or developmental relationships. Boredom indicates a psychological need and its desideratum. Thus, both creative and suppressive potentials are inherent in boredom.

KEYWORDS

boredom, creativity, education, school, spirituality

1. Introduction

Is boredom good or bad, does it lead to creativity or lethargy, does it make us productive or does it inhibit us? In this regard boredom seems to be a paradox. In the seventeenth century, Blaise Pascal wrote "Ainsi, sans la faim des choses spirituelles, on s'en ennuie" (Pascal, 1873, p.391), which translates as: without the hunger for spiritual or mental things, one becomes bored. In contrast, Herrero-Puertas (2021) questions whether boredom should be thought of as an "empty stomach" of the mind. Thus, this also seems to be a paradox: that we are bored without spiritual hunger and we are bored because we are mentally hungry. However, these two different metaphors point to essential questions for empirical research on school-related boredom, namely: how do our children learn what they are spiritually or mentally hungry for - and how can this hunger be satiated in school? Thus, the focus is directed, on the one hand, to the long-term formative, person- and development-related aspects and, on the other hand, to situational, social, or pedagogical factors.

Boredom is considered an interactional phenomenon that is socially acquired (Thoits, 1989; Brissett and Snow, 1993; Neyer and Lehnart, 2015; Ohlmeier et al., 2020). Social relationships provide the defining context for personality development (Caspi, 2000). Thus, boredom has an impact on the personality development of students (Pekrun, 2016). Learning and performance-relevant behaviors are the product of an interaction of an individual's character and experience with a particular social learning environment and its situational stimuli (Kärner et al., 2017; Kärner and Sembill, 2022). Thus, the personality of children and adolescents influences the learning process, which in turn influences social relationships (Neyer and Lehnart, 2015). The learning individual is in reciprocal interaction with the learning environment in which it interacts (Bandura, 1978). Although this paper is based on the view of a dynamic-interactionist paradigm (Asendorpf, 1996), i will discuss the two aspects – person-related and situation-related aspects of boredom – separately.

The distinction between these two different aspects and how they may change over time is essential for the empirical study of boredom and could offer a way to differentiate between the creative or suppressive consequences of boredom for children and adolescents. In research, the cumulative effect of situations on the development of basic psychological functioning and personality (Baltes, 1990; Baltes and Smith, 2004) can be studied separately from the effect of personality traits on children's behavior (Nave et al., 2010) in school. This work will take both perspectives into consideration intending to distinguish the suppressive potential of boredom for the development of children and adolescents from its creative function.

2. Person-related causes of boredom and its creative and/or suppressive consequences

Transactions take place between individuals' personalities and social relations, forming relatively stable patterns of interaction (Neyer and Lehnart, 2015; Asendorpf et al., 2017; Asendorpf and Motti-Stefanidi, 2018). The tendency, stable over time, to experience more boredom than others is referred to as boredom proneness and is characterized by an inability to experience internal stimulation (Farmer and Sundberg, 1986). This tendency to boredom, for example, inhibits the persistence with which tasks are performed and reduces the ability to engage in activities (Vodanovich and Kass, 1990). However, the occurrence of boredom is also understood as a state of simultaneous impulsivity and tension (Fenichel, 1953) that requires a regulation of interest or meaning processes (Elpidorou, 2018). Temperamental tendencies, such as behavioral inhibition and frustration tolerance, or personality traits, such as conscientiousness and impulsivity, are relevant to such regulatory processes (Calkins and Fox, 2002; Hoyle, 2006). To buffer boredom, temperamentally disinhibited adolescents in particular exhibit delinquent behavior, but, shy adolescents tend to withdraw into themselves, (Spaeth et al., 2015). Physical activity, daydreaming, or exploratory and creative behavior can also be strategies to bring about a change in the situation or the experience of the situation (Smith, 1981; Doehlemann, 1991; Csikszentmihalyi, 2000). Due to individual differences on the level of personality traits, children and adolescents are capable of coping with boredom in different ways. Person-related boredom-coping strategies can be differentiated into: behavioral approach, behavioral avoidance, cognitive approach, and cognitive avoidance (Nett et al., 2010, 2011). Accordingly, approach behavior, is described as a strategy to change and improve a boring situation, e.g., by asking an interesting question in class, drawing a sketch to get a better understanding, interrupting a monologuing torrent of words, or asking an overtaxing lecturer for an example close to everyday life. Secretly reading under the table or scrolling through emails on the laptop during a seminar, on the other hand, would be a behavioral avoidance strategy. If a situation cannot be influenced by behavioral change, which is often the case in lessons, a reassessment of the situation can be a cognitive approach strategy and a different approach to subject matter thereby reducing boredom (Nett et al., 2010, 2011). In contrast, if students escape into dreams and mentally avoid being bored in class, they exhibit a cognitive avoidance strategy (Nett et al., 2010, 2011).

It is conceivable that these different strategies can have both constructive and inhibitory or destructive effects. A possible consequence of reading secretly under the table in class is a successful coping with boredom by bringing the child closer to an interest distant from the lesson. If this behavior is tolerated by the teacher, for example, because the lesson is not disrupted or because the teacher can allow this child this freedom as long as the other children still need time and invites him or her back to cooperate later, no conflict arises. However, the child may "learn" in this way to endure rather than change unpleasant situations, which could have long-term developmental effects. However, if the teacher perceives reading under the table as inattentive and rude and stops this behavior, he forces the child back into the boredom-producing situation. This can then become agonizing for the child, as the power structure between teacher and student in this case proves violent for the child. In this scenario, from an unpleasant emotional situation will be difficult to evade. This could cause feelings of anger but also of powerlessness and explain forms of boredom that are less distinguishable from states of apathy, depression, or a persistent inability to feel pleasure and joy (Goldberg et al., 2011). Requesting the teacher to help alleviate boredom could also have negative effects on students: Assuming that asking for additional or challenging tasks could be perceived by the teacher as criticizing the lesson, the teaching, or the teachers own person and be judged as rebellious or disruptive behavior. If negatively perceived, children would not experience a positive reinforcement of their constructive behavior and would not experience themselves as self-efficacious even though they have tried to deal with the situation creatively. Thus, how boredom is managed and whether this has a creative or suppressive effect depends very much on the particular social interaction (Brissett and Snow, 1993; Darden and Marks, 1999; Finkielsztein, 2020; Ohlmeier et al., 2020).

Personality-specific characteristics are also reflected in individual interests, and boredom is seen as a precursor to curiosity (White, 1998). Accordingly, boredom as an emotional state characterizes or signals (Elpidorou, 2018) the interplay of a

person's current internal state with the current situation and is co-determined by basic personality factors, developmental aspects, as well as external framework and contextual factors (Kärner and Kögler, 2016). As a result, boredom-causing or boredom-triggering factors can differ seriously between individuals, and can control, influence, and hinder learning processes (Schiefele and Schaffner, 2006). In particular, the difference between extrinsic and intrinsic motivation, which function as regulatory styles of self-determination (Ryan, and Deci, 2000), is an important discourse in educational psychology (Schiefele and Köller, 2006). Autonomy, relatedness, and competence are considered basic psychological needs of learners within the framework of self-determination theory. The satisfaction of which is essential for the development of intrinsic motivation (Ryan and Deci, 2000). Learners who experience themselves as self-determined and competent, and who experience their environment as something they can actively shape and participate in, can act creatively (Prenzel et al., 2000; Dietrich et al., 2015). The need for autonomy or self-determination (de Charms, 1968) is considered fundamental, innate, and relevant to learning (Deci and Ryan, 1985). Freedom of action, decision-making, and design (Ulich, 1994) and frequent situations in which the individual can freely dispose of his or her time (Krapp, 1992) are considered conducive to creative processes (Herbig et al., 2008). Moreover, fostering creativity in the classroom has the potential to eliminate boredom and increase teaching effectiveness (Radeljić et al., 2020). Motivation and learning success are particularly high when tasks offer the opportunity to be creative, to develop skills, to make one's own decisions, to determine how to perform them, and are challenging, varied, non-repetitive, manageable in time, and unambiguous in task setting (Karasek and Theorell, 1990). Personality traits can thus have different effects depending on the specific circumstances and contextual conditions and can contribute to constructive, creative processes as well as have suppressive consequences.

3. Situational causes of boredom and its creative and/or suppressive consequences

Manifest psychological structures, which become apparent in specific situations and shape individual experiences, can be formed by the social relationships and the associated contextual and situational conditions of growing up, learning, and developing (Thoits 1989; Caspi, 2000). Such a transformation is also possible with respect to boredom and is conveyed through the interrelation of emotion and cognition (Hunter and Eastwood, 2018). The more students are in a permanent state of boredom in school, the more space boredom occupies in the psyche of the students (Yacek and Gary, 2023). This can result in a child's inability to find interest, pleasure, and joy in mental, spiritual, or cognitive activities. Djian (1994) describes this with the literary image of a class as a destroyed ghost town in which the students doze away like skeletons (Djian, 1994). In particular, findings from studies that examined the consequences of constraints on autonomy indicate that feelings of powerlessness may be responsible for chronic difficulties in making decisions, loss of motivation in school tasks, decreased physical health, and depression (Kohn, 1993). When children and adolescents feel they must do something because of external compulsion, they report higher levels of boredom than when they participate in something because of internal motivation (Caldwell et al., 1999). Further research demonstrates that a lack of support for autonomy in educational environments creates boredom (Khan et al., 2019). Learning environments are often described and perceived as places where boredom is particularly prevalent (Vogel-Walcutt et al., 2012). Boredom is a so-called performance emotion that affects learning (Pekrun, 2017) and is experienced very frequently by students (Moeller et al., 2020). According to studies, boredom significantly affects learning success (Craig et al., 2004) and is defined as an unpleasant affective state in which there is a perceived temporary lack of interest and difficulty focusing on the current activity (Fisher, 1993). As early as Lipps (1903), it was found that there is a discrepancy between the need for cognitive activity and the lack of stimulation or inability to be stimulated, resulting in boredom.

According to van Tilburg and Igou (2017), boredom can be clearly distinguished from other emotions perceived as negative, such as sadness, anger, frustration, fear, disgust, depression, guilt, shame, regret, or disappointment, by low negative valence and arousal. It is emphasized that boredom interferes with learning or the ability to acquire knowledge especially when there is a mismatch in the fit between the individual's abilities and the level of challenge provided by the task or too little choice is given to the learning process (Vogel-Walcutt et al., 2012). Smith (1981) concluded in his review that repetition, lack of novelty, and monotony in particular cause boredom and cause learners to lose interest in the subject matter (Vogel-Walcutt et al., 2012). Other aspects that have been shown in studies are that boredom is related to negative affect, off-task thoughts, overestimation of elapsed time, reduced ability to act, as well as over- and under-stimulation and activation of the default mode network (Raffaelli et al., 2018) and can be caused by a decrease in personal meaning (Finkielsztein, 2021), significance, complexity, or challenge (Elpidorou, 2018). In addition, studies indicate that students who are bored may tend to buffer this negative feeling through delinquent behavior (Dahlen et al., 2005; Spaeth et al., 2015). Even sadistic tendencies may emerge, especially when there are no alternative behavioral options (Pfattheicher et al., 2021). Furthermore, the need to permanently regulate boredom in the classroom is a high psychological demand and burden and it's neglect can have a suppressive effect on learners' development (Gagné, 1993). Yet, as learners, children are highly effective, motivated, playful, and particularly good at actively exploring learning (Gopnik, 2020). Thinking about teaching, the transmission of knowledge and values, the development of skills and abilities, what students learn and under what conditions, and how learning, mental development, and health are interrelated, has therefore been relevant for millennia. Already Plato formulated that knowledge must be absorbed into the soul when learning and therefore it should be considered which knowledge is of harm or benefit (Platon, 1925, Protagoras 314). Learning changes knowledge structures and cognitive performance, influences developments and career opportunities, and is determined by both external factors and variables (Shuell, 1986) and by the active and self-directed

construction of knowledge in interactive social and situational processes (Mandl and Krause, 2001). In addition, perceived meaningfulness is relevant to the learning process (Underwood and Schulz, 1960). If learners show boredom in class, efforts to teach and learners' opportunities or interests to absorb this knowledge or actively participate in the learning process are seen as having a less-than-optimal relationship (Elpidorou, 2018). Thus, in addition to the inability to engage in a cognitive activity, there is equally a need for it and a willingness to be stimulated by the outside world (Fenichel 1953). As a so-called adaptive emotion, Bench and Lench (2013) understand boredom as an emotion that indicates the extent to which current goals are fulfilling or even not fulfilling and thus prompts the pursuit of alternative goals or signals the need to seek or turn to other goals. Barbalet (1999) goes further by stating "boredom is a defense against and corrective of meaninglessness" (p. 642). Thus, boredom may even have a protective function (Belton and Priyadharshini, 2007), against the assimilation of knowledge that is perceived as meaningless, etc., and instead promotes the seeking of mental nourishment that has personal relevance.

4. Boredom as a barometer for the nutritional value of the mental and spiritual content

The context of the initial quotation of this article by Blaise Pascal is that boredom results from a lack of hunger for spiritual things and distinguishes them from physical things such as eating and sleeping (Pascal, 1873). It can therefore be assumed that spirituality here stands for the intellectual and mental, fundamental, intrinsic, and meaning-giving human phenomenon that is distinct from religious expressions (Elkins et al., 1988; Utsch, 2005; von Gontard, 2012). As an experiential and intuitive quality of thought, spirituality is a psychological process with an integrative function (Hiatt, 1986). It serves the understanding of existence (Wiggermann, 2000) and interpersonal connectedness, and it manifests itself in animistic ways, especially in children (von Gontard, 2012). As a result, it motivates questions about the meaning and value of human beings and their existence in the world (Bruns et al., 2007). The state of boredom, on the other hand, is associated with the experience of meaninglessness (Barbalet, 1999; van Tilburg and Igou, 2012, 2017) or the perception of senselessness (Fahlman et al., 2009; Chan et al., 2018). When extraneous, normative, and artificial learning environments are implemented in schools that have nothing in common with learning situations in the world, these educational environments alienate children from their diverse social backgrounds, cultural and ethnic imprints, or family references (Wheldall and Glynn, 1988; Csikszentmihalyi, 2000) and cause boredom (Tolor, 1989; Belton and Priyadharshini, 2007). Non-dialogic forms of online instruction that impede direct interactions between students and instructors are also found to have a profoundly alienating effect (Hamamra and Qabaha, 2023) - a desiccation of the inner world (Revers, 1949). Accordingly, boredom may serve students to distance themselves from certain tasks or environments (Breidenstein, 2007) that are perceived as pointless or meaningless because they are not mentally nourishing. This lack of ensouled interpersonal connectedness and meaningfull experiences, and the resulting feelings of boredom functions as an engine of play and spontaneity (Revers, 1949). Thus, boredom creates a space for contemplation, processing, invention, and imagination, for exploration, for alternative social, cognitive, or emotional experiences, and motivates change (Belton, 2001; Bench and Lench, 2013; Hunte et al., 2022). For these reasons, boredom could gauge the nutritiousness of intellectual, mental, or spiritual content. It could initiate learning and creative processes that are personally fulfilling and developmentally beneficial for children and adolescents.

5. Boredom as the potential for development and creativity

The creative cognition approach (Martindale, 1995; Smith et al., 1995) is based on the assumptions that creativity occurs as a process of a flexible alternation between abstract-logical thinking and unconscious thinking, both involving a high level of association building (Kris, 1952; Mednick, 1962). This is accompanied by defocused attention (Mendelsohn, 1976) and by a steady but reduced activity (low arousal) of several cortex areas that are simultaneously connected and synchronized (Martindale and Hasenfus, 1978; Martindale, 1989; Fink and Benedek, 2014). This is described by Andreasen (2005) as random episodic silent thinking and is associated with increased alpha activity. The neurobiological basis for this is the default mode network a neurological system that is active when a person is sleeping, dreaming, or relaxing, or when thoughts are running unconsciously or freely and uncensored (Andreasen, 2011). Boredom has already been shown to be related to an activation of the default mode network (Danckert and Merrifield, 2016; Raffaelli et al., 2018). The random episodes of thinking that arise from moments of boredom, relaxation, or banality potentially enable the development of ideas and creative processes (Jaynes, 1990). The emergence of new qualities that can emerge unexpectedly and inexplicably in this way is referred to as emergence (Byrne, 2002). Other findings in cognitive research also point to deactivating states, such as boredom, as favoring creative thinking (Fink et al., 2011; Baird et al., 2012; Fink and Benedek, 2014). Occasionally, a positive effect of boredom on creative and creative processes, e.g., as an intellectual stimulant (Bruner, 1980) or as favoring creative thinking skills (Gasper and Middlewood, 2014; Mann and Cadman, 2014), has been empirically demonstrated. The extent to which students enter such a state, with activation of the default mode network, during periods of boredom in the classroom has not yet been explored. Nevertheless, Gibbs (2013) suggests that by interrupting busy pedagogical work, opportunities for idle time for thinking must be created to open pathways for learners into developmental and creative processes. While intelligent cognitive performance is evident and measurable in well-defined problem spaces, creative processes are necessary for poorly defined problem spaces, and it is postulated that intelligent thinking is compromised when education, does not attend to creative thinking (Welter et al., 2017). Konrad (2014) also sees creativity as an intrinsic aspect, or even the highest level, of the intentional learning process. This process is understood here as a continuum whose complexity depends on the extent to which the learning and application situations are similar or different.

The higher the degree of dissimilarity between what is learned and it's possible application, i.e., the transfer distance, the more creative learners must become and be able to draw on complex systems of intellectual development to do so (McKeachie et al., 1986). However, the current body of evidence on the relationship between boredom and creativity is so far insufficient and the understanding of possible directions of action, causal relationships, and consequences for the cognitive development of children and adolescents is lacking (Zeißig et al., manuscript in preparation).[1] Greenson (1951) distinguished two forms, different in terms of activation state, namely apathetic and agitated boredom. More recent findings (Goetz et al., 2014; Baratta and Spence, 2015) also identify different forms of boredom that differ in terms of valence and arousal (participants' self-assessment), raising the question of the functionality behind these forms of boredom (Elpidorou, 2015). On the one hand, situations that are low-stimulus and low-stress hold the possibility to escape external stimulus-response events, open up a cognitive scope and unused cognitive potential (Eastwood and Gorelik, 2019), or engage in internal processes. Interaction with the internal world is also referred to as a fruitful form of inaction (Moran, 2003). On the other hand, boredom may also be perceived as an alarm signal to avoid situations that are hostile to development and to seek productive, stimulating, or more meaningfull experiences (Elpidorou, 2015; Moynihan et al., 2017) or to address the cause of boredom. And thirdly, creative energy is an attribute of spirituality (Haase et al., 1992) and its absence is detectable by means of boredom (Pascal, 1873). Boredom, therefore, not only indicates a lack of or need for change in a situation. It also indicates a specific psychological need, e.g., for stimulation, novelty, meaning, significance, relationship, cognitive challenge, understanding, connectedness or resonance. Thus, boredom holds both the emotional impetus for change and, at the same time, the desideratum, i.e., the necessary direction to be taken in order to remedy a state of psychological deficiency. Boredom thus has inherent emergent potential for the creativity and development of children and adolescents.

6. Conclusion

The seemingly paradoxical metaphor - that we are bored without a hunger for spiritual things (Pascal, 1873) and we are bored because we are mentally hungry (Herrero-Puertas, 2021) make it clear that education, on the one hand, should quench children's thirst for thinking and knowledge, but, on the other hand, first develops their hunger or appetite for valuable intellectual, mental or spiritual food (Sternberg, 2003). Human experience and development, especially in childhood, are existentially dependent on experiences of resonance and are significantly shaped by experiences at school (Rosa, 2016). If no access to meaningful contact or relationship is found, boredom develops (Zeißig, 2018). In this way, however, the state of boredom also tangibly demarcates the experience from the external situation and, as it were, creates a desideratum. In this way, an organism protects itself from receiving stimuli, content, or mental nourishment that is perceived as inappropriate, irrelevant, wrong, or harmful, and makes clear the need for change. Comprehensibility, relationship to the content, to the teacher, or to fellow human beings, cognitive challenge, meaning and significance may have been lost and thus desiderated. In this way, boredom even points us in the necessary direction or quality of change. This makes boredom a condition that has both creative and suppressive aspects immanent to it at the same time.

1 Zeißig, A., Kansok-Dusche, J. Fischer, S. M., Moeller, J., and Bilz, L. (manuscript in preparation). *The Association Between Boredom and Creativity in Educational Contexts-A Scoping Review on Research Approaches and Empirical Findings*.

Author contributions

AZ conceived, drafted, wrote the manuscript, revised, and approved the submitted version.

Funding

The publication in Open Access was funded by the Publication Fund of the Brandenburg University of Technology Cottbus-Senftenberg.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Original Research
PUBLISHED 22 November 2023
DOI 10.3389/fsoc.2023.1189915

OPEN ACCESS

EDITED BY
Alexandra Vuyk,
Universidad Católica "Nuestra Señora de la Asunción", Paraguay

REVIEWED BY
Ah Yusuf,
Airlangga University, Indonesia
Antonio Samaniego-Pinho,
National University of Asunción, Paraguay

*CORRESPONDENCE
Natalie E. Johnson
✉ natalieelaine.johnson@usb.ch

RECEIVED 20 March 2023
ACCEPTED 01 November 2023
PUBLISHED 22 November 2023

CITATION
Johnson NE, Nerima D, Kahura N and Osborn TL (2023) Psychometric properties of the Curiosity and Exploration Inventory-II among Kenyan adolescents.
Front. Sociol. 8:1189915.
doi: 10.3389/fsoc.2023.1189915

Psychometric properties of the Curiosity and Exploration Inventory-II among Kenyan adolescents

Natalie E. Johnson[1,2,3]*, Daisy Nerima[1], Ngina Kahura[1] and Tom L. Osborn[1]

[1]Shamiri Institute, Nairobi, Kenya, [2]Division of Clinical Epidemiology, Department of Clinical Research, University Hospital Basel, Basel, Switzerland, [3]Department of Clinical Research, University of Basel, Basel, Switzerland

Introduction: Curiosity is a fundamental trait that drives exploration, motivation, learning, and growth. However, research on this character strength in sub-Saharan African populations is very scarce. To address this gap in the literature, we sought to determine the psychometric properties of the Curiosity and Exploration Inventory- II (CEI-II), a measure for trait curiosity, to provide evidence of validity for its use in research among populations in sub-Saharan Africa. We also aimed to assess for demographic and psychosocial correlates of curiosity among Kenyan high school students.

Methods: A sample of 375 participants in Kenya completed the CEI-II, as well as demographic information on sex, age, form in school, psychosocial measures of depression, anxiety, school climate, and social support. Using cross-sectional data, parallel analysis, scree plot, and structural equation modeling were used to determine the factor structure of the CEI-II among the Kenyan adolescent population.

Results: A one-factor solution was found to be the best fitting model, differing from the two-factor structure found in the original development of the measure. Internal consistency, convergent and discriminant validity, and predictors of trait curiosity were also examined. The CEI-II demonstrated good internal consistency and convergent validity with social support from family, friends, significant others, and school climate. Discriminant validity was demonstrated by the non-significant correlation between curiosity and depression. A hierarchical regression model showed that curiosity was significantly predicted by social support from family, significant others, school climate, and anxiety, with males being more curious than females.

Discussion: The CEI-II is a valid measurement tool to capture trait curiosity in Kenyan adolescents, and our findings provide insight into the relationship between curiosity and other psychosocial factors in this population.

KEYWORDS

curiosity, character strengths, mental health, wellness, sub-Saharan Africa, measurement, Kenya

1 Introduction

Historically, one of the fundamental goals of psychology was enabling individuals to flourish and thrive. However, this took a backseat to a focus on assessing and managing psychological disorders (Joseph and Wood, 2010). The turn of the century brought with it a rekindling of psychology's need to develop its knowledge and practices on the flourishing of an individual.

This led to the rise of the field of positive psychology, which is the study of positive experiences, positive individual traits and the institutions that facilitate their development. Positive psychology seeks to establish a scientific understanding of the psychology of positive human functioning and interventions that encourage individuals and communities to thrive (Seligman and Csikszentmihalyi, 2000; Park et al., 2004; Lee Duckworth et al., 2005; Ruch et al., 2014).

Recent progress in the field of positive psychology has resulted in the emergence of the concept of character strengths, which are typically classified under six universal virtues: wisdom, courage, humanity, justice, temperance, and transcendence (Dahlsgaard et al., 2005). Character strengths are a subset of personality traits that have a moral connotation, are valued across cultures and historical periods, and reflect the six universal virtues. For instance, curiosity is a psychological manifestation of the virtue of wisdom (Peterson and Seligman, 2004; Kaczmarek et al., 2014).

Research suggests that character strengths are associated with positive outcomes in various areas of life, including well-being, life satisfaction, and self-efficacy (Park et al., 2004; Seligman et al., 2005). Among adolescents, character strengths have been found to predict and contribute to well-being, global life satisfaction, and self-efficacy. Furthermore, intellectual strengths, such as curiosity, have been shown to predict higher levels of satisfaction during adolescence. Character strengths have also been found to negatively correlate with behavioral and psychological problems in adolescents (Gillham et al., 2011; Ruch et al., 2014).

The practice of character strength has been shown to be effective to broaden positive affect and reduce negative states while increasing well-being (Sin and Lyubomirsky, 2009). When individuals employ and develop their character strengths in daily activities, it produces an immediate invigoration and in the long term, provides a sense of authenticity that leads to improvements in well-being and reduced depressive symptoms (Kaczmarek et al., 2014). Therefore, character strength interventions can be valuable and impactful tools to improve adolescent well-being and reduce psychopathology (Gillham et al., 2011; Venturo-Conerly et al., 2022).

Recent research from Kenya has shown that character strength interventions can be effective in reducing depressive symptoms for Kenyan adolescents (Osborn et al., 2020a, 2021; Venturo-Conerly et al., 2022). A recent study with Kenyan high school students demonstrated that the effects of a single session of a digital character strengths intervention exceeded those of traditional psychotherapy (Osborn et al., 2020b). It seems, therefore, that positive psychology interventions present an approach to adolescent psychopathology that is particularly beneficial for low-resource settings (e.g., Kenya and sub-Saharan Africa) because they help bypass the contextual mental health stigma and are less resource-intensive than traditional interventions (Osborn et al., 2020a, 2021; Campbell and Osborn, 2021; Venturo-Conerly et al., 2022). More research is needed to expand our understanding of character strengths and their potential benefits for adolescent mental health in low-resource settings.

Curiosity is one of the most common character strengths and is a fundamental concept of psychology. Interest in it as a psychological construct began in the mid-twentieth century and it has since evolved in definition, conceptualization, and assessment (Berlyne, 1954; Reio et al., 2006). Currently, curiosity is viewed as a positive emotional-motivational system that drives individuals to seek out and embrace new knowledge and experiences (Kashdan et al., 2004, 2009). It is an essential intellectual strength that drives learning and exploration of novel and challenging ideas to build knowledge and competence (Kashdan and Silvia, 2009; Kaczmarek et al., 2014; Kidd and Hayden, 2015).

Curiosity is regarded as a positive emotional vital sign of an individual's well-being (Spielberger, 2006; Spielberger and Reheiser, 2009). It is also strongly associated with intrinsic motivation, interest and flow, which form the optimal states of psychological functioning. Individuals with higher levels of curiosity initiate behaviors that enhance their personal growth, and increase their tolerance of uncertainty and challenging situations (Kashdan et al., 2004; Gallagher and Lopez, 2007). Further, seeking novelty and challenge (driven by curiosity) leads to more sustainable increases in well-being than pleasure-focused approaches and is associated with greater meaning in life (Kashdan and Steger, 2007).

Curiosity may function as a protective buffer against poor psychological outcomes because of its capacity to increase well-being. Higher levels of curiosity are associated with lower levels of depression, and lower levels of curiosity can result in poor tolerance of uncertainty which predisposes an individual to anxiety disorders (Spielberger, 2006; Kashdan et al., 2009; Kaczmarek et al., 2014). Academically, curiosity is also important because students with greater curiosity have been shown to have greater success than their less curious peers (Kashdan and Silvia, 2009). Curiosity is a concept that holds a lot of promise to enable individuals and communities to flourish, necessitating an increase in knowledge and research on this core character strength.

To advance the understanding of curiosity and its clinical uses, valid and reliable measures of curiosity are essential. Multiple measures have been developed to gain insight into the structure and components of the construct. However, challenges exist that limit our ability to adequately assess for curiosity. First, some measures are limited by focusing on the objects of curiosity rather than its intrinsic qualities, thus failing to capture the full breadth of the construct. Second, domain-specific measures may not adequately capture the heterogeneity of curiosity that is impacted by varying interests. Additionally, activity-based scales are prone to high item-specific error (Kashdan et al., 2009). Lastly, some measures include items that assess positive affect, which is not a fundamental part of the construct of curiosity (Kashdan et al., 2004; Wagstaff et al., 2021).

The Curiosity and Exploration Inventory (CEI) was designed to accurately capture the defining features of curiosity. It is a general-use scale that is not specific to any particular activity or topic, which ensures that the construct of curiosity is adequately evaluated (Kashdan et al., 2004). The scale was subsequently refined to create the Curiosity and Exploration Inventory-II (CEI-II), which is a brief, reliable and valid measure of curiosity that expands the breadth of the construct (Kashdan et al., 2009). This was achieved by including items that assess the willingness to manage the tension that arises from encountering novelty and/or uncertainty, which is an important facet of curiosity that requires assessment. Additionally, the original subscales of the CEI (exploration and absorption) were modified, with the absorption subscale being dropped due to poor psychometric properties, and the subscales being adapted to stretching and embracing.

The CEI-II has demonstrated adequate psychometric properties among college students in North America, Europe, and Asia (Kashdan et al., 2009; Ye et al., 2015; Balgiu, 2018; Setyowati et al., 2020), as well

as secondary school students in Europe (Jovanovic and Brdaric, 2012; Jovanović and Gavrilov-Jerković, 2014). However, the CEI-II has not yet been validated for use with sub-Saharan African populations. Additionally, the demographic profile of trait curiosity and its relationship with other mental health constructs has yet to be explored among this population. Thus, the current study aimed to evaluate the psychometric properties of the CEI-II among Kenyan adolescents and explore the correlates of trait curiosity in this population. This study is the first of its kind to investigate curiosity among sub-Saharan Africans.

2 Methods

2.1 Participants

A sample of 375 Kenyan secondary school students was recruited from a school in Kibera, a densely populated urban informal settlement in Nairobi. Their ages ranged from 13 to 20 ($M = 17.08$, SD = 1.28). The students were enrolled in a classroom-based arts and literacy program called Pre-texts. This cross-sectional study was conducted using the baseline data point from the larger Pre-texts study.

2.2 Procedure

Ethical approval for this study was obtained from the Kenyatta University Ethical Review Committee (Protocol number PKU/2561/E1687). All students in the school were invited to voluntarily participate in the study via the school administration, and parental consent was sought via a letter explaining the study. Informed consent or assent was then sought directly from participants prior to enrollment in the study. The participants completed a paper-based survey which included demographics of sex, age, and form, as well as measures of curiosity, wellbeing, mental health, social support, and school climate.

2.3 Measures

2.3.1 Curiosity

The CEI-II is designed to measure individual differences in broad dimensions of curiosity (Kashdan et al., 2009). The measure comprises two sub-dimensions, exploration, or stretching, and embracing. It is a 10-item measure that uses a 5-point Likert scale (1 = very slightly or not at all; 2 = a little; 3 = moderately; 4 = quite a bit; 5 = extremely). Because our subjects were adolescents, we were advised by local experts to exclude item 8 of the CEI-II, "I prefer jobs that are excitingly unpredictable." This measure has shown adequate internal consistency when used with youth and adolescents, with a Cronbach's α ranging between 0.75 and 0.86 (Kashdan et al., 2009). This study is to the best of our knowledge the first to use this measure among a sub-Saharan African population.

The CEI-II scale used in this study has 9 items. CEI-II_1 measures seeking information, CEI-II_2 measures enjoying uncertainty, CEI-II_3 measures embracing challenges, CEI-II_4 measures looking for new things, CEI-II_5 measures learning from challenges the item CEI-II_6 measures liking frightening things, CEI-II_7 measures looking for challenges, CEI-II_8 measures seeking opportunities, and CEI-II_9 measures embracing new things.

2.3.2 Wellbeing

The Short Warwick-Edinburgh Wellbeing Scale (SWEMWBS) was used to measure wellbeing (Ng Fat et al., 2017). The SWEMWBS is a 7-item shortened version of the Warwick-Edinburgh Mental Wellbeing Scale, a 14-item tool developed for public mental health monitoring and assessment (Tennant et al., 2007). The SWEMWBS is often used in psychological surveys and interventions due to its lower participant burden (Tennant et al., 2007; Ng Fat et al., 2017; Shah et al., 2018; Koushede et al., 2019). This measure has been used with Kenyan adolescents and has shown adequate internal consistency (Cronbach's $\alpha = 0.78$) (Osborn et al., 2020b).

2.3.3 Anxiety

The Generalized Anxiety Disorder Screener-7 item (GAD-7) is a measure used globally to screen for generalized anxiety disorder in adolescents and adults (Spitzer et al., 2006). The GAD-7 has shown good internal consistency when used with Kenyan adolescents (Cronbach's $\alpha = 0.78$) (Osborn et al., 2020a).

2.3.4 Depression

We used the Patient Health Questionnaire-8 (PHQ-8) to measure symptoms of depression. The PHQ-8 is the 8-item version of the PHQ-9 and omits the question which assesses for suicidality (Kroenke et al., 2001; Kroenke and Spitzer, 2002). PHQ-8 scores are highly correlated with PHQ-9 scores, and the same cutoffs can be used to assess depression severity (Kroenke et al., 2001, 2009). The PHQ-8 has been validated for use in Kenyan adolescents (Cronbach's $\alpha = 0.73$) (Osborn et al., 2020a). The ninth item was omitted due to expressed discomfort on behalf of school affiliates and local experts.

2.3.5 Social support

The Multidimensional Scale of Perceived Social Support (MSPSS) is designed to measure satisfaction with social support (Zimet et al., 1988). It consists of three subscales: the "friends" subscale, which measures support from friends, the "family" subscale which measures support from family, and the significant others subscale, which measures support from significant others (Osborn et al., 2020c, 2022). The MSPSS has demonstrated adequate internal consistency when used with Kenyan adolescents (Cronbach's $\alpha = 0.86$–0.88; Osborn et al., 2020a, 2022).

2.3.6 School climate

The School Climate Measure (SCM) is a comprehensive measure of school climate (Zullig et al., 2021). This questionnaire consists of 10 domains, including positive student-teacher relationships, order and discipline, opportunities for student engagement, school physical environment, academic support, parental involvement, school connectedness, perceived exclusion/privilege, school social environment, and academic satisfaction. The SCM has been shown to correlate with school satisfaction, life satisfaction, and quality of life (Zullig et al., 2018).

The SCM has demonstrated convergent and discriminant validity when tested with adolescents in North America (Zullig et al., 2018). Local experts and school affiliates selected 13 items from the larger

SCM which they deemed particularly impacted the school climate of Kenyan secondary schools. The version of the SCM used in this study is called the School Climate Measure for Kenyan Adolescents (SCM-KA). The SCM-KA demonstrated good internal consistency (Cronbach's $\alpha = 0.85$).

2.3.7 Demographic characteristics

Participants also self-reported their demographic information. Participants provided their age, gender, and form (year in school). This was done to assess the demographic profile of trait curiosity.

2.4 Statistical analysis

Internal consistency of all measures was assessed using Cronbach's α and Greatest Lower Bound α (GLB α). Measures with Cronbach's α and GLB α scores of 0.70 or higher were used in subsequent analysis, while those with scores less than 0.70 were not considered.

Demographic characteristics were summarized using frequencies and percentages. Means and standard deviations were computed for CEI-II scores per demographic characteristic, and *t*-tests were used for two-group comparisons, while ANOVA was used for comparisons across more than two groups.

Before conducting validity tests, data requirements for factor analysis were checked using the Kaiser-Meyer-Olkin (KMO) and Bartlett's Sphericity tests (Li et al., 2020). The data met the requirement for factor analysis, as evidenced by a KMO value of 0.84 and a Bartlett's significance value less than 0.05.

Parallel analysis was performed to determine the possible number of factors in the data (Li et al., 2020), accompanied by a scree plot of eigenvalues (Willmer et al., 2019). The number of factors in the data was equal to the number of factors with eigenvalues greater than one (Golub and van der Vorst, 2000). Standardized factor loadings were assessed across the top possible factors.

Three models were identified based on their well-established validity and applicability to our research problem (Kaczmarek et al., 2014; Ye et al., 2015; Balgiu, 2018). A one-factor solution groups all the items in the CEI-II measure as one. In the case of two factors, the items are grouped into two components: embracing or exploration. A three-factor solution dichotomizes the embracing component and thus results in three components.

Structural Equation Modeling (SEM) was used to identify the best fitting model. Three models were fitted using maximum likelihood estimation (MLR) and assessed using the Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Bayesian Information Criterion (BIC) (Rosseel, 2012). These models were the single-factor, two-factor, and three-factor models, all of which have been used in previous studies of the CEI-II in other contexts.

The estimator for all models was specified as the MLR and the missing value method was specified to full information maximum likelihood (FIML). FIML is a technique that estimates parameters while considering missing data in a way that maximizes the use of available information. Lastly, to prevent overfitting, the ridge parameter within the SEM function was used (Jacobucci et al., 2019).

TLI and CFI scores of ≥0.9 indicate an acceptable fit, scores of ≥0.95 indicate a very good fit; RMSEA values of no greater than 0.05 indicate a good fit, values between 0.05 and 0.08 indicate moderate fit, values of greater than 0.08 indicate a poor fit (Shi et al., 2019). Models with lower BIC are usually preferred (Penny et al., 2007).

We also investigated the discriminant validity of the CEI-II score (Hubley, 2014). To assess this, we tested whether other variables were negatively or positively correlated with the CEI-II score. Pearson's correlation was used to investigate the correlation between study variables (Schober et al., 2018).

Lastly, we assessed the association between the curiosity measure and other psychosocial and demographic variables with hierarchical multiple regression analysis (Petrocelli, 2003). This involves adding the predictors (age, gender, social support from family, friends and significant other, school climate, depression, and anxiety) stepwise into the model. Estimated beta values and 95% confidence intervals were reported for the predictors in the models. A *p*-value of less than 0.05 was considered statistically significant. All analyses were conducted using *R* version 4.2.2 (R Core Team, 2021). The "lavaan," "semPlot," and "semTools" packages were used (Rosseel, 2012; Epskamp, 2015; Jorgensen et al., 2016).

3 Results

3.1 Internal consistency

Measures for curiosity (Cronbach's $\alpha = 0.74$, GLB $\alpha = 0.79$), depression (Cronbach's $\alpha = 0.67$, GLB $\alpha = 0.74$), anxiety (Cronbach's $\alpha = 0.77$, GLB $\alpha = 0.81$), social support (Cronbach's $\alpha = 0.88$, GLB $\alpha = 0.93$), and school climate (Cronbach's $\alpha = 0.85$, GLB $\alpha = 0.90$) showed good internal consistency and were therefore used in this study. The well-being measure was excluded from further analysis (Cronbach's $\alpha = 0.50$, GLB $\alpha = 0.59$).

3.2 Demographic characteristics

Participants in this study were high school students from Kenya ($n = 375$) aged 13 to 20 years. Table 1 summarizes the demographic characteristics of the participants according to their CEI-II scores.

TABLE 1 Participant characteristics and demographic distribution of CEI-II scores.

Characteristic	*n* (%)	Mean CEI-II score ± SD
Gender		
Male	189 (50.67)	30.69 ± 6.94
Female	184 (49.33)	29.49 ± 7.31
Form		
1	49 (13.10)	28.46 ± 7.79
2	108 (28.88)	30.99 ± 6.05
3	120 (32.09)	29.64 ± 6.95
4	97 (25.94)	30.60 ± 7.89
Age category		
13–16 years	110 (29.49)	29.59 ± 6.58
17–20 years	263 (70.51)	30.29 ± 7.38

Most participants (32.09%) were in Form 3, with 28.88, 25.94, and 13.10% from Form 2, 4, and 1, respectively. Students in Form 2 had a slightly higher CEI-II mean score (30.99 ± 6.05); however, the differences in means were not significant ($f = 0.63$, $p = 0.22$). Older adolescents aged 17–20 years had a relatively higher CEI-II mean score (30.29 ± 7.38) compared to younger adolescents (29.59 ± 6.58) aged 13–16 years although the differences in the means were not statistically significant ($t = -0.84$, $p = 0.40$). Males had a slightly higher CEI-II mean score (30.69 ± 6.94) compared to females (29.49 ± 7.31); even so, the means were not statistically different ($t = -1.49$, p-value = 0.14).

3.3 Factor structure evaluation

3.3.1 Factorability of the data

CEI-II had KMO of 0.84, which is above the 0.5 cutoff. The Bartlett's Sphericity test result was also statistically significant [$\chi^2 = 480.03$, $p < 0.01$, degrees of freedom (df) = 36]. Thus, the CEI-II data met the requirements for factor analysis.

3.3.2 Parallel analysis, scree plot, and factor loadings

Parallel analysis suggested the number of factors and components in the CEI-II measure to be one. Additionally, the scree plot showed that only one factor had an eigenvalue greater than one, as shown in Figure 1. Thus, scree plot and parallel analysis supported a one-factor solution.

We also assessed the factor loadings across all items in the CEI-II. The results revealed that most items were loaded heavily in the first factor compared to the other factors. Particularly, the standardized loading for a one-factor case was 2.36, two-factor was 0.37, and for a three-factor was 0.25. A single-factor solution explained the highest variation of 0.67 in the loadings compared to 0.1 and 0.07 of a two-factor and three-factor solution, respectively. The results suggested that a one-factor solution best explained the curiosity measure as shown in Table 2.

3.3.3 Model comparison

The latent variables vary as per the models with single, two, and three-factor models having one, two, and three latent variables, respectively. In the single-factor model, the latent variable is stretch, and the observed variables are the nine items from the CEI-II scale. Figure 2 shows the relationship between the latent and the observed variables. All the CEI-II items are positively related to stretching. Stronger relationships between stretch and CEI-II_1,3,4,5,7, and 8 (strength of relationships: CEI-II_1 = 0.54, CEI-II_3 = 0.52, CEI-II_4 = 0.57, CEI-II_5 = 0.57, CEI-II_7 = 0.57, CEI-II_8 = 0.58, and CEI-II_9 = 0.35) and less strong relationships between stretch and CEI-II_2,6, and 9 (strength of relationships: CEI-II_2 = 0.35, CEI-II_6 = 0.33, and CEI-II_9 = 0.35).

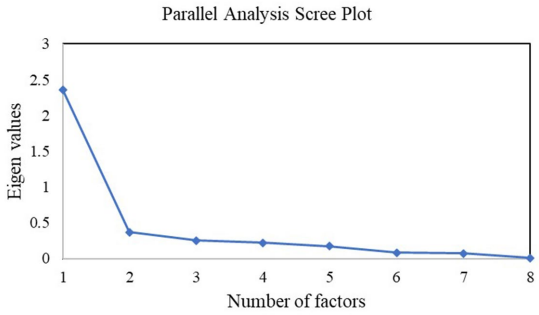

FIGURE 1
Scree plot; a drop below one in the eigenvalue beyond a single factor suggests a one-factor solution.

In the two-factor model, the CEI-II scale has two latent variables; stretch and embrace. Stretch has five observed variables (CEI-II_1,3,5,7 and 8) and embrace has four observed variables (CEI-II_2,4,6, and 9). Figure 3 shows the relationship between the latent and the observed variables. There is a strong relationship between stretch and CEI-II_1,3,5,7, and 8 (strength of relationships: CEI-II_1 = 0.54, CEI-II_3 = 0.52, CEI-II_5 = 0.57, CEI-II_7 = 0.57, and CEI-II_8 = 0.58). There is also a strong relationship between embrace and CEI-II_4 (strength of relationship: CEI-II_4 = 0.57) and less strong relationships between embrace and CEI-II_2,6, and 9 (strength of relationships: CEI-II_2 = 0.35, CEI-II_6 = 0.33, and CEI-II_9 = 0.34).

In the three-factor model, the CEI-II scale has three latent variables; stretch, embrace I and and II. Stretch has four observed variables (CEI-II_1,3,5, and 8), embrace I has three observed variables (CEI-II_2,6, and 7), and embrace II has two observed variables (CEI-II_4 and 9). Figure 4 shows the relationship between the latent and the observed variables. There is a strong relationship between stretch and CEI-II_1,3,5, and 8 (strength of relationships: CEI-II_1 = 0.53, CEI-II_3 = 0.52, CEI-II_5 = 0.57, and CEI-II_8 = 0.57). There is also a strong relationship between embrace I and CEI-II_7 (strength of relationship: CEI-II_7 = 0.60) and less strong relationships between embrace I and CEI-II_2 and 6 (strength of relationships: CEI-II_2 = 0.37 and CEI-II_6 = 0.35). Furthermore, there is a strong relationship between embrace II and CEI-II_4 (strength of relationship: CEI-II_4 = 0.63) and a less strong relationship between embrace II and CEI-II_9 (strength of relationship: CEI-II_9 = 0.36).

The results for the TLI, CFI, RMSEA, and BIC for the models are shown in Table 3. Although all models performed well, a single-factor solution was the best-fitting model, as it had the lowest BIC ($\chi^2 = 29.38$, TLI = 0.99, CFI = 0.99, RMSEA = 0.01, BIC = 9852.41). The second-best fitting model was the two-factor solution ($\chi^2 = 29.33$, TLI = 0.99, CFI = 0.99, RMSEA = 0.02, BIC = 9858.13), followed by a three-factor solution ($\chi^2 = 26.28$, TLI = 0.99, CFI = 0.99, RMSEA = 0.02, BIC = 9866.62).

3.4 Correlations between the study variables

Curiosity was found to be significantly and positively correlated with support from family ($r = 0.31$, CI = [0.20, 0.41], $p < 0.01$), support from friends ($r = 0.25$, CI = [0.15, 0.35], $p < 0.01$), support from significant others ($r = 0.31$, CI = [0.20, 0.41], $p < 0.01$) and school climate ($r = 0.41$, CI = [0.31, 0.50], $p < 0.01$). There was very slight and non-significant correlation between depression and curiosity ($r = 0.05$, CI [−0.07, 0.17], $p = 0.99$). Also, the curiosity measure was very slightly correlated with anxiety ($r = 0.03$, CI [−0.09, 0.15], $p = 0.99$), though this relationship was not statistically significant.

Depression positively correlated with anxiety ($r = 0.69$, CI = [0.62, 0.75], $p < 0.01$) and negatively correlated with social support from family ($r = -0.23$, CI = [−0.34, −0.12], $p < 0.01$), friends ($r = -0.21$,

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TABLE 2 Results of factor analysis.

	Standardized loading per factor				
CEI-II items	1	2	3	4	5
Seeks information	0.59	0.26	−0.27	−0.12	0.02
Enjoys uncertainty	0.39	0.43	0.16	0.06	−0.13
Embraces challenges	0.52	−0.03	0.09	0.16	−0.02
Looks for new things	0.59	−0.16	−0.15	0.17	0.10
Learns from challenges	0.59	−0.18	−0.08	−0.01	−0.20
Likes frightening things	0.34	0.05	0.26	−0.17	0.19
Looks for challenges	0.57	−0.17	0.21	−0.08	−0.13
Seeks opportunities	0.58	−0.10	0.02	−0.17	0.16
Embraces new things	0.36	0.11	0.10	0.28	0.15
SS loadings	2.36	0.37	0.25	0.22	0.17
Proportion explained	0.67	0.10	0.07	0.06	0.05
Correlation with factors	0.90	0.63	0.55	0.50	0.46
Multiple R square	0.8	0.39	0.3	0.25	0.22

CI = [−0.32, −0.10], $p < 0.01$), significant others ($r = -0.21$, CI = [−0.32, −0.10], $p < 0.01$) and school climate ($r = -0.31$, CI = [−0.42, −0.22], $p < 0.01$). Also, anxiety was negatively correlated with social support from family ($r = -0.29$, CI = [−0.39, −0.18], $p < 0.01$), friends ($r = -0.21$, CI = [−0.32, −0.10], $p < 0.01$), significant others ($r = -0.24$, CI = [−0.35, −0.13], $p < 0.01$) and school climate ($r = -0.31$, CI = [−0.42, −0.20], $p < 0.01$). There was a positive correlation between school climate and social support from family ($r = 0.50$, CI = [0.41, 0.58], $p < 0.01$), friends ($r = 0.43$, CI = [0.33, 0.52], $p < 0.01$) and significant others ($r = 0.30$, CI = [0.19, 0.40], $p < 0.01$). Table 4 shows the summary of the correlations between the study variables.

3.5 Hierarchical multiple regression analysis

We conducted hierarchical multiple regression analysis to determine the significant predictors of the CEI-II score. In the first step, we introduced age and gender to the model. In the second step, we added social support from family, friends, and significant others. Thirdly, school climate was added, and fourth anxiety. Lastly, depression was added to the model. The findings are summarized in Table 5.

In the first step, age ($\beta = 0.20$, p-value = 0.65) was not a significant predictor of the CEI-II score whereas gender was significant ($\beta = 2.74$, p-value = 0.02). This model had a relatively low goodness of fit score ($R^2 = 0.04$, F-statistic = 3.53). Upon adding social support from family ($\beta = 0.80$, p-value = 0.04), friends ($\beta = 0.17$, p-value = 0.68), and significant others ($\beta = 1.27$, p-value < 0.01), the model's goodness of fit increased by 0.16 ($R^2 = 0.20$, F-statistic = 8.47). Adding the school climate measure ($\beta = 0.17$, p-value = 0.01) led to an increase in the model's goodness fit by 0.04 ($R^2 = 0.24$, F-statistic = 8.54).

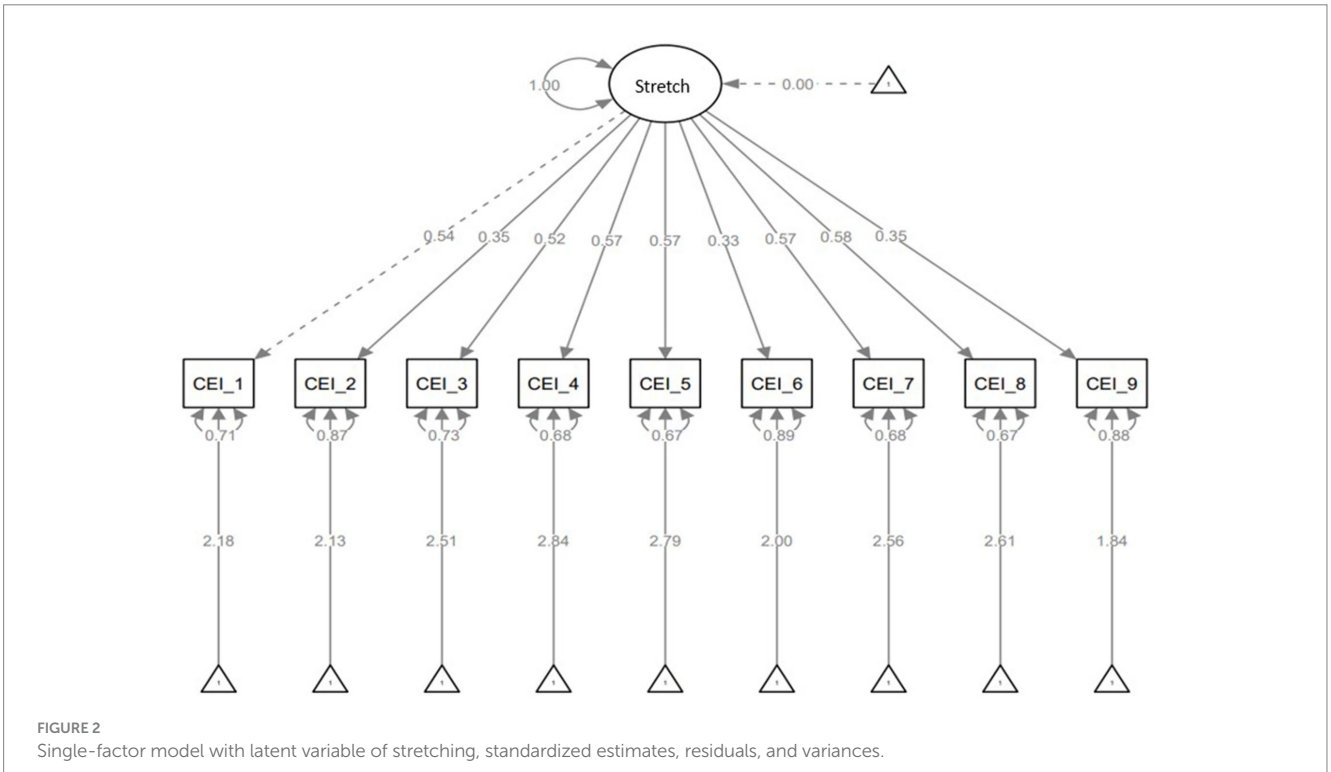

FIGURE 2
Single-factor model with latent variable of stretching, standardized estimates, residuals, and variances.

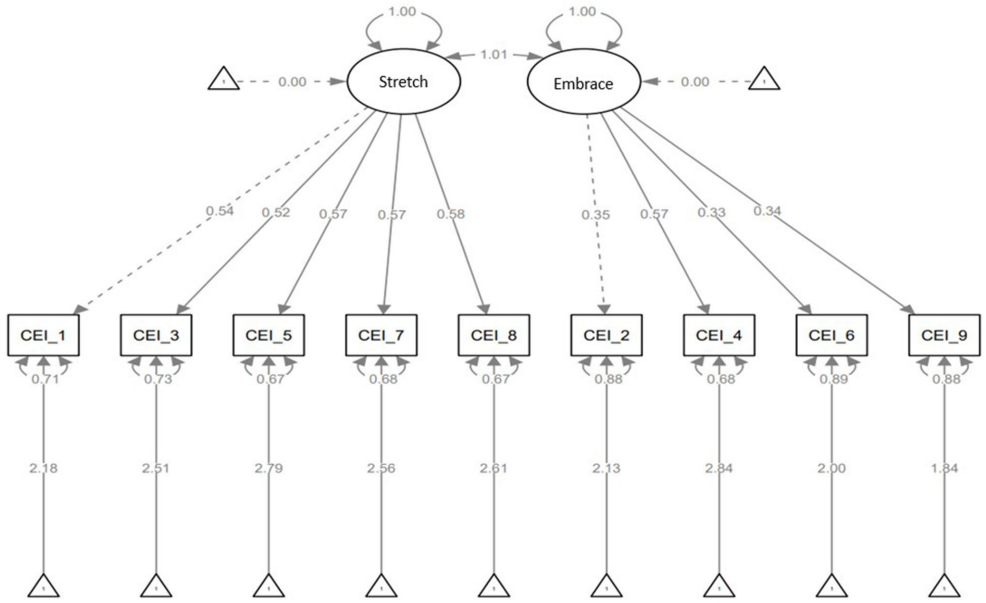

FIGURE 3
Two-factor model with latent variables of stretching and embracing, and standardized estimates, residuals, and variances.

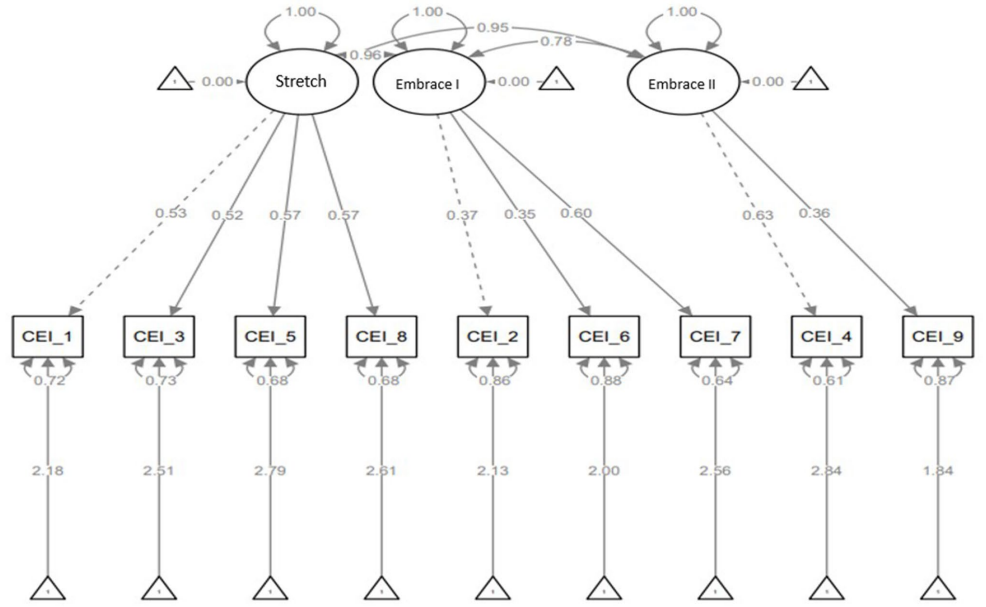

FIGURE 4
Three-factor model with latent variables of stretching, embracing I and II, and standardized estimates, residuals, and variances.

Introducing anxiety ($\beta = 0.36$, p-value < 0.01) to the model led to an increase in the model's goodness of fit by 0.04 ($R^2 = 0.28$, F-statistic = 9.35). In the last step, we added the depression score to the model. The model's R^2 increased by 0.01 ($R^2 = 0.29$, F-statistic = 8.39) and depression was not a significant predictor of curiosity ($\beta = 0.16$, p-value = 0.23). Age, social support from family, social support from significant other, school climate, and anxiety were significant predictors of the CEI-II score. Also, the log-odds of curiosity was predicted to be 2.74 larger for males than for females.

4 Discussion

This study demonstrated that the CEI-II is a reliable and valid measure of curiosity among Kenyan adolescents, despite being originally developed with a Western population of undergraduate students (Kashdan et al., 2009). The results suggest that the CEI-II has adequate internal consistency, meaningful correlations with relevant constructs, and a lack of correlation with divergent constructs. However, the two-factor structure of the CEI-II was not supported

(Kashdan et al., 2009), and a single-factor structure was found to be more appropriate for the Kenyan adolescent population. This finding is consistent with a previous study conducted among a non-Western population (Ye et al., 2015), but more research is needed to validate the measure in other sub-Saharan African contexts to confirm its generalizability.

Our study found that there was a significant positive correlation between curiosity and school climate, which is consistent with previous research that has demonstrated the influence of school climate on student's motivation to learn (Thapa et al., 2013). Additionally, social support from friends, family, and significant others was positively correlated with curiosity. This finding supports those from other researchers of a relationship between the social network and curiosity (Thomas and Vinuales, 2017). Lastly, the fact that curiosity was significantly predicted by anxiety adds to recent research which revealed that COVID-19 restrictions may have affected the relationship between anxiety and interpersonal curiosity (Huang et al., 2021).

Although males had a higher mean CEI-II score than females, the difference was not statistically significant. However, an exploratory analysis of the relationship between curiosity and the study variables showed that the log-odds of curiosity were predicted to be 2.74 times greater in males than in females. Additionally, an increase in social support from family, significant others, and school climate was significantly associated with higher levels of curiosity among students.

TABLE 3 Structural equation modeling for model comparison.

Model	χ^2	Df	*p*-value	TLI	CFI	RMSEA [95%]	BIC
Single factor	29.38	27	0.34	0.99	0.99	0.01 [0.00, 0.04]	9852.41
Two factors	29.33	26	0.30	0.99	0.99	0.02 [0.00, 0.05]	9858.13
Three factors	26.28	24	0.34	0.99	0.99	0.02 [0.00, 0.05]	9866.62

In conclusion, our study supports the use of the CEI-II as a valid and reliable measure of curiosity among Kenyan adolescents. Generally, curiosity was measured to be higher among males in this population. Additionally, this study provides evidence for a positive association between curiosity and social support from family and significant others as well as school climate. This study also provides evidence for a positive relationship between curiosity and anxiety.

5 Limitations and future directions

Our study has several limitations. Firstly, the sample of adolescents that participated in the study was limited to those residing in one low-income area of Kenya, and therefore may not be socio- representative of the wider Kenyan adolescent population. As a result, the generalizability of our findings to other populations, such as sub-Saharan African adolescents, Kenyan adolescents, or adolescents from other non-Western contexts, may be limited. Furthermore, it is possible that the structure and function of curiosity among other non-Western adolescents may differ from those observed in this study.

Future research on other sub-Saharan African populations could potentially uncover intriguing differences in factor structure and correlations between curiosity and other constructs. As the participants in this study were secondary school students, it is possible that the level of curiosity and its associations with different outcomes could differ significantly in another setting. Future studies with sub-Saharan African populations should also test the reliability and validity of this measure in non-student populations. Lastly, it is important to note that the correlations between curiosity and other constructs were examined using a cross-sectional design, thus, limiting causal inferences.

Overall, the present study provides initial evidence for the reliability and validity of the CEI-II among a sample of Kenyan adolescents. However, future research should aim to expand on these findings by validating the measure with other sub-Saharan African populations, using a longitudinal design to determine causal relationships, examining the relationship between curiosity and

TABLE 4 Correlations between the study variables.

Variable	1	2	3	4	5	6	7
1. Age							
2. Curiosity	0.05 [−0.06, 0.16]						
3. Depression	0.07 [−0.05, 0.18]	0.05 [−0.07, 0.17]					
4. Anxiety	0.06 [−0.05, 0.18]	0.03 [−0.09, 0.15]	**0.69**** [0.62, 0.75]				
5. Family support	−0.02 [−0.13, 0.09]	**0.31**** [0.20, 0.41]	**−0.23**** [−0.34, −0.12]	**−0.29**** [−0.39, −0.18]			
6. Friends support	−0.01 [−0.12, 0.09]	**0.25**** [0.15, 0.35]	**−0.21**** [−0.32, −0.10]	**−0.21**** [−0.31, −0.10]	**0.42**** [0.32, 0.50]		
7. Significant other support	0.06 [−0.05, 0.17]	**0.31**** [0.20, 0.41]	**0.21**** [−0.32, −0.10]	**−0.24**** [−0.35, −0.13]	**0.57**** [0.49, 0.64]	**0.56**** [0.48, 0.63]	
8. School climate	0.03 [−0.08, 0.14]	**0.41**** [0.31, 0.50]	**−0.31**** [−0.42, −0.20]	**−0.31**** [−0.42, −0.20]	**0.50**** [0.41, 0.58]	**0.43**** [0.33, 52]	**0.30**** [0.19, 0.40]

Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * Indicates $p < 0.05$. ** indicates $p < 0.01$. Bolded values indicate a statistically significant *p*-value.

TABLE 5 Hierarchical multiple regression analysis.

Variable	Estimate [95%CI]	*p*-value	R^2	ΔR^2	*F*
Step 1			0.04	–	3.53
Gender (Male)	2.74 [0.53, 4.95]	**0.02**			
Age	0.20 [−0.66, 1.06]	0.65			
Step 2			0.20	0.16	8.47
Social support					
Friends	0.17 [−0.64, 0.97]	0.68			
Family	0.80 [0.02, 1.58]	**0.04**			
Significant other	1.27 [0.40, 2.15]	**<0.01**			
Step 3			0.24	0.04	8.54
School climate	0.17 [0.04, 0.29]	**0.01**			
Step 4			0.28	0.04	9.35
Anxiety	0.36 [0.15, 0.57]	**<0.01**			
Step 5			0.29	0.01	8.39
Depression	0.16 [−0.10, 0.43]	0.23			

Bolded values indicate statistically significant values at $p < 0.05$. Values in square brackets indicate the 95% confidence interval for each estimate.

academic performance, and developing an indigenous curiosity measure based on local concepts of curiosity. Such efforts will advance our understanding of curiosity and its role in the psychosocial development of sub-Saharan African adolescents.

Data availability statement

The original contributions presented in the study are publicly available. This data can be found here: https://osf.io/z7jtd/.

Ethics statement

This study was approved by Kenyatta University Ethical Review Committee. The study was conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation was provided by minor participants' legal guardians/next of kin. Written informed assent or consent was obtained from participants upon enrollment.

Author contributions

NJ and TO: conceptualization. DN and TO: analysis. NJ, DN, and NK: original draft manuscript. TO, DN, NJ, and NK: edits of draft manuscript. All authors contributed to the article and approved the submitted version.

Funding

This study was funded by Harvard University's Mind, Brain, and Behavior interfaculty initiative.

Acknowledgments

The authors would like to acknowledge Rediet Alemu for her coordination and planning of this study.

Conflict of interest

TO is a director of Shamiri Institute, a non-profit organization which aims to develop and disseminate tools which help youth thrive. DN is an employee of Shamiri Institute.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Hypothesis and Theory
PUBLISHED 28 November 2023
DOI 10.3389/fsoc.2023.1215027

OPEN ACCESS

EDITED BY
Juan R. Coca,
University of Valladolid, Spain

REVIEWED BY
Javier Gil-Gimeno,
Public University of Navarre, Spain
Francisco José Francisco Carrera,
University of Valladolid, Spain

*CORRESPONDENCE
Doris Sommer
✉ dsommer@fas.harvard.edu

RECEIVED 26 May 2023
ACCEPTED 03 August 2023
PUBLISHED 28 November 2023

CITATION
Sommer D (2023) Bored and spoiling for a flight: capabilities lost and found in lockdown. *Front. Sociol.* 8:1215027.
doi: 10.3389/fsoc.2023.1215027

Bored and spoiling for a flight: capabilities lost and found in lockdown

Doris Sommer[1,2]*

[1]Department of Romance Languages & Literatures, Harvard University, Cambridge, MA, United States, [2]Department of African and African American Studies, Harvard University, Cambridge, MA, United States

Human beings are dynamic; our innate faculties beg to engage in activities. To achieve fullness and human dignity, people "convert" personal capabilities into active "functionings," Amartya Sen explains. This means that staying still is not a normal state. It can feel like punishment. Forced inactivity will generate resentment, resistance, and boredom that can fester until pent-up energy explodes violently, or implodes in depression. Boredom defaults on capabilities and resources in many cases. In other cases, stillness is a gift. It can stimulate the imagination to fill in emptiness with memories and new explorations. Either boredom builds toward doing damage, or it releases energy to think and to create. What people don't do is stay put, mentally or physically. Authorities-including police, judges, teachers, parents –should take this dynamic human condition into account and reconsider the effects of conventional command and control policies. Then they can choose between violence and creativity as alternative outlets for the energy that boredom generates. Short of facing up to human dynamism, decision-making may continue to favor strong-arm tactics, which trigger the violence and pain that policing is meant to mitigate. Is it surprising that apparently peaceful peoplebecome enraged in lockdown conditions? Do adults wonder why students drop-out of school and suffer escalating rates of depression and suicide? Boredom is certainly not the only cause for these disastrous effects, but to ignore it risks remaining complicit with processes that perpetuate personal and collective dysfunctions. Complicity with harmful practices will miss opportunities to channel frustrated energy toward developing human capabilities. Authorities are responsible for promoting peaceful development. We are all responsible.[2] Normally, people stay busy with routine activities. We work, play, attend to family and to friends. Particular activities have even become our public badges of identity, as is evident in surnames (Cooper, Baker, Taylor, Farmer, etc.) that trace back to work that ancestors answered to. Lockdown during COVID-19 meant that many otherwise occupied people had few outlets for energy. Those who knew how to meditate managed to assuage anxiety through contemplation and the pursuit of ideal emptiness.

KEYWORDS

boredom, personal capabilities, lockdown conditions, human dynamism, personal and collective dysfunctions

Introduction

Human beings are dynamic; our innate faculties beg to engage in activities. To achieve fullness and human dignity, people "convert" personal capabilities (Sen, 1999) into active "functionings," Amartya Sen explains[1]. This means that staying still is not a normal state. It can feel like punishment. Forced inactivity will generate resentment, resistance, and boredom that can fester until pent-up energy explodes violently, or implodes in depression. Boredom defaults on capabilities and resources in many cases. In other cases, stillness is a gift. It can stimulate the imagination to fill in emptiness with memories and new explorations. Either boredom builds toward doing damage, or it releases energy to think and to create. What people don't do is stay put, mentally or physically.

Authorities—including police, judges, teachers, parents—should take this dynamic human condition into account and reconsider the effects of conventional command and control policies. Then they can choose between violence and creativity as alternative outlets for the energy that boredom generates. Short of facing up to human dynamism, decision-making may continue to favor strong-arm tactics, which trigger the violence and pain that policing is meant to mitigate. Is it surprising that apparently peaceful people become enraged in lockdown conditions? Do adults wonder why students drop-out of school and suffer escalating rates of depression and suicide? Boredom is certainly not the only cause for these disastrous effects, but to ignore it risks remaining complicit with processes that perpetuate personal and collective dysfunctions. Complicity with harmful practices will miss opportunities to channel frustrated energy toward developing human capabilities. Authorities are responsible for promoting peaceful development. We are all responsible[2].

Lockdown laboratory

Normally, people stay busy with routine activities. We work, play, attend to family and to friends. Particular activities have even become our public badges of identity, as is evident in surnames (Cooper, Baker, Taylor, Farmer, etc.) that trace back to work that ancestors answered to. Lockdown during COVID-19 meant that many otherwise occupied people had few outlets for energy. Those who knew how to meditate managed to assuage anxiety through contemplation and the pursuit of ideal emptiness. But many mortals—including myself—either fail at efforts to concentrate on breathing, for starters, or they have not tried.[3] Maybe people don't know about the disciplined techniques and the goal of inactivity; or maybe they are not drawn to doing what looks like doing nothing. Wanting to do something when it seemed that very little could be done prepared the conditions for widespread boredom. Households became laboratories for studying boredom, hothouses in fact, or petri dishes. The unbidden experiment is an opportunity and, therefore, an obligation to reflect on the dynamic and to expand a range of appropriate responses for future challenges. Either we will have learned something in the laboratory to help design a new paradigm for human energy under constraints, or we will consider the damaging effects of constraint mere anomalies in conventional, if disappointing, approaches to security, education, and mental health. To use Sen's term, we will "muff" the opportunity to develop.

When work and play activities ended abruptly in worldwide house arrest during the COVID-19 pandemic, human dynamism hit a wall, an interior wall of domestic confinement. The explosive effects of inactivity blew up beyond predictable proportions.[4] Consider the spike in domestic violence as one unintended consequence of public health policy. Soon after the doors locked, alarming reports across countries and social classes repeated and confirmed statistics that seemed unbelievable.

Early on, "The World Health Organization has highlighted a 60% spike in calls to European domestic violence hotlines in April" (Mahase, 2020). Brazil's Public Health Forum registered an increase of 431% for the same period (through social media, given the danger of retaliation by eavesdropping partners) (Bueno et al., 2020, p. 13), while New York's Governor Cuomo appointed a Task Force to find innovative solutions for the sudden rise in home-based crimes, after reporting a 33% spike in April 2020 (New York State Task Force, 2020). Data have been also confirmed in a number of studies (African News Agency, 2020; Boserup et al., 2020; Bradbury-Jones and Isham, 2020; Campbell, 2020; Leslie and Wilson, 2020; Miltimore, 2020; Mlambo-Ngcuka, 2020; Usher et al., 2020; World Health Organization, 2020). Governments worldwide asked how to offset the aggressive repercussions of lockdown, according to The Council of Foreign Relations (Bettinger-López, 2020).

The question of what to do begs the question of why the lockdown increased domestic violence. Loss of jobs, alcohol, and psychological stress are still common and convincing answers (see footnote 22). Familiar responses to violence continue to be vital, including hotlines and shelters for victims and punishment for perpetrators. But neither the known causes nor the standard

1 Stanford Encyc: "(Sen, 1992: 39). To say that functionings are constitutive of a person's being means that one cannot be a human being without having at least a range of functionings: they make the lives of human beings both *lives* (in contrast to the existence of innate objects) and also *human* (in contrast to the lives of trees or tigers)."

2 Stanford Encyclopedia: "Nussbaum passionately advocates that all people all over the world should be entitled, as a matter of justice, to threshold levels of all the capabilities on her list; but apart from mentioning that it is the governments' duties to guarantee these entitlements (2006; p. 70), she remains silent on the question who precisely should bear the burdens and responsibilities for realizing these capabilities. Yet as O'Neill (1996: chapter 5) has argued, questions of obligations and responsibilities should be central to any account of justice."

3 For more information on the benefits of meditation during lockdowns and stressful situations, see: Sharma, M., and Rush, S. E. (2014). Mindfulness-Based Stress Reduction as a Stress Management Intervention for Healthy Individuals. Journal of Evidence-Based Complementary and Alternative Medicine, 19(4), 271–286. https://doi.org/10.1177/2156587214543143

4 For a comprehensive overview of the impact of lockdown measures on mental health and well-being, refer to: Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., and Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet, 395(10227), 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

remedies managed to reduce the incidence of domestic violence even before the pandemic. By now, the limits of conventional approaches are evident. They amount to secondary or tertiary interventions, after threats are made or damage is already done. Something more is needed, urgently. It is primary prevention to stop violence before it starts (Walden and Wall, 2014). Prevention will include education about violence and newly learned practices that undo habits of power. In order to diffuse dangerous behaviors before they develop into aggression, we must first identify nonviolent but simmering conduct that can become explosive. Recognizing triggers for potentially violent behavior is a step toward proposing innovative remedies. One trigger is so evident that it has passed under the radar of many specialists and authorities: Boredom. People get bored in confinement. This is a hypothesis worth pursuing. Arguably, men may get more bored than women even under normal conditions (Gosline, 2007; Talbot, 2020; Westgate and Steidle, 2020). The effects of domestic boredom could turn out to be unremarkable, compared with the intense stresses of joblessness, poverty, and a bleak future. But this unexplored stressor is an opportunity for new and effective interventions to mitigate violence, even if they cannot end it or replace the need for economic security.

During a lockdown, when circulation stops between home and the outside world, the breakdown of normal activities and relationships can lead to anomie, an intolerable condition of normlessness, as Emile Durkheim defined it, when social definitions break down into chaos. In lockdown conditions, this collective disaster is often linked to personal, psychological, malaise that sociologists have identified in coercive institutional settings. Boredom. If feeling bored were a stable psychological condition it might be unfortunate for sufferers but not necessarily dangerous for others. In that case, there would be no reason to suspect it as a trigger for anomie and violence. But boredom is a state of simmering, volatile, energy. Numerous studies document the connection between boredom and violence, in penal centers, student residences, military or scientific encampments, and other spaces whose common denominator is the condition of total or partial, voluntary, or involuntary confinement. But little attention had been given to boredom at home, until the lockdown forced a reframing of this allegedly safe space into a laboratory for studying the general dangers of doing nothing and the remedy of turning empty time into a resource for creativity.

The psychological stress from boredom is today a major concern for children, whether or not authorities identify boredom as a stressor. Many young people were among the victims of physical violence at home, but practically all school-age children were themselves victims of boredom after being disconnected from real classrooms, even from virtual classrooms where the internet had failed to reach them or when it failed to connect. COVID exacerbated the loneliness and anxiety that had already become a mental health crisis before the pandemic. The lingering effects of lockdown amount to another pandemic, this time of loneliness, depression, and suicide among both youth and older people.

The COVID crisis came suddenly, and clinical responses were urgent. Understandably, attention focused on research about a disease that eluded the experts. All eyes were on trials of vaccines that could promise protection and that finally delivered some safety. But very little was done to mitigate the personal and social damages. Neither individual homes nor collective institutions got public support to adjust psychologically to the unforeseen corollaries of public health directives. Why was heightened violence a surprise? Should we not have expected it during a lockdown? One reason for the unpreparedness is that almost no one identified the menacing elephant of boredom that had installed itself in the locked down room.[5, 6] The almost immobile beast didn't count as a character in the dramas recounted by domestic partners, or by state authorities, public health providers, or NGOs. The tragedies of domestic violence repeated familiar scripts of conflict between victims and perpetrators. Actors trudged toward pre-scripted conclusions: victims should be rescued and perpetrators punished. This stock casting was disastrously indifferent to lockdown conditions where the unacknowledged elephant took on a protagonist's dimensions while waiting for an author to notice, like a Pirandello character.[6] Other actors included those who suffered violence, but these players were no longer predictable victims whom standard script writers would evacuate to "safe houses." Safe houses were anachronistic while women worried more about dying from the disease in women's shelters than about beatings from their partners. Would-be rescuers developed elaborate techniques for women under siege to contact friends or to alert the police. For what purpose? Forced isolation during COVID-19 practically vitiated the ingenious efforts. Where would the women go if they did manage to call for help, after risking more abuse from partners who eavesdropped and retaliated? Equally ineffective were the standard protocols of punishment for perpetrators. Police had cautions to consider, including their own safety from COVID. Under this sudden regime of restrictions, how could people count on courts and counselors, and incarceration? On another front, while schools stayed closed, how could children achieve an education to develop their capabilities as future contributors to economic and civic life? A filler for this gap was the viral spread of social media that accelerated beyond the already addictive pre-COVID levels. The result of lockdown was to further dismiss deliberation and to make false news indistinguishable from information, so that schooling continued to lose ground to AI shortcuts on isolating unipersonal devices.

The question of what to do begs the question of why the lockdown increased domestic violence. Loss of jobs, alcohol, and psychological stress are common and apparently compelling answers (see footnote 22). These familiar responses to violence can still make sense, if hotlines connect and safe houses shelter while perpetrators submit to control. But neither known causes nor standard remedies had managed to reduce the incidence of domestic violence even before the pandemic.[7] By now, it should

5 Dr. Bruce Price, Head of Neurology at Mass General and Director of Harvard's Center for Law, Brain, and Behavior, offered this characterization of boredom as the elephant in the room.

6 For a study on boredom during the pandemic and its consequences, consider: Boylan, J., Seli, P., Scholer, A. A., and Danckert, J. (2021). Boredom in the COVID-19 pandemic: Trait boredom proneness, the desire to act, and rule-breaking. Personality and Individual Differences, 171, 110387–110387. https://doi.org/10.1016/j.paid.2020.110387

be clear that conventional approaches treat symptoms rather than causes. Therapy for violence responds to symptoms of damage already done. Prevention is in order (Walden and Wall, 2014) through unfamiliar proposals. To diffuse dangerous behaviors before they develop into aggression, it will be important to recognize triggers for potentially violent behavior.

One trigger is so common that it goes unremarked by specialists and authorities: Boredom. People get bored in confinement. And men, arguably, get more bored than women. This is a hypothesis worth pursuing. The results may turn out to be unremarkable compared to the intense stress of joblessness, poverty, and a bleak future. But the unexplored stressor is an opportunity to explore unfamiliar interventions that may mitigate depression and reduce violence. A lack of agility on the part of authorities exacerbated the COVID crisis, and the rigidity could keep us stuck in the failure of familiar practices.

Paradigm shift

The failure is partly conceptual. It is a curable calcification that this essay addresses. My purpose is to explore better responses to current and future crises. A cure for staying stuck requires perseverance and patience along with imagination, Thomas Kuhn concluded from observing paradigm shifts in the history of science (Kuhn, 1962). Change takes an intentional will to shift from a familiar paradigm of cause and effect to alternatives (Kuhn, 2021). If experts stick to parameters of conventional thinking, the lockdown will have amounted to a mere pause from making sense, a blip, rather than a grant of time in a laboratory for new thinking. The shift in thinking about boredom begins by admitting that the conventions of keeping order simply don't work. Parents, teachers, or jailors impose conventional demands for obedience to everyone's peril.[8] Potentially disruptive children and other wards may respond with a backlash that ignites the undesirable behavior that the demand for obedience had meant to control. This anomaly between command control and out of control responses is no mere interruption of rational expectations. It is evidence of a conceptual error, because people are normally dynamic. A correction can start by acknowledging the dynamism and supporting human capabilities. The difference between control and support amounts to a shift in paradigm, from obedience to autonomy, from being the subject of another's will to becoming a self-realizing agent.

This shift is part of a general overhaul in development studies. No longer persuaded by the conventional Gross Domestic or National Profit (GDP or GNP)—a single mathematical measure that ignores abysmal differences in living standards between rich and poor people[9]—the United Nations and other agencies now prefer a Human Development Index (HDI) of three criteria (longevity, literacy, income). Pakistani economist Mahbub ul Haq proposed the HDI to support people-centered policies[10] The improvement came from a collaboration with Amartya Sen who had alerted economists to the difference between wellbeing and being well-off. Sen's "Capabilities Approach" to human development gives account of real people, their situated resources and their opportunities to use those resources (Sen, 1985). Use is key, Sen points out, to convert what people have into what they can do with what they have. Maybe peasants have crops but no transportation to sell them in markets, or citizens have the right to vote but no expectation that their votes will count. The distinction between assets and making good on assets depends on one's capacity to convert "being" into "doing."[11]

Announced in 1974, this conceptual shift from a one-size-fits-all GDP to customized considerations resonated with a generation of feminists who were unmasking the male privilege and willful blindness of "universality" in law and economics[12]. "[T]he full human diversity among people is insufficiently acknowledged in many normative theories, such as theories of distributive justice. This also explains why the capability approach is often favorably regarded by feminist philosophers, or philosophers concerned with care and disability issues (e.g., Khader 2008, Terzi 2008, 2010),"[13]. Most notably, Martha Nussbaum took Sen's lead to multiply criteria for wellbeing by proposing a basic list of rights in order to identify actionable gaps that prevent people from "creating capabilities.[14]" But Sen demurs from lists: "What I am against is the fixing of a cemented list of capabilities. (Sen, 2004)" "There is nothing illegitimate or defeatist in recognizing that the valuation rankings

7 For a detailed examination of the factors contributing to domestic violence during the pandemic, refer to: Peterman, A., Potts, A., O'Donnell, M., Thompson, K., Shah, N., Oertelt-Prigione, S., and Nicole van Gelder. (2020). Pandemics and Violence Against Women and Children. IDEAS Working Paper Series from RePEc.

8 For a philosophical exploration of boredom, its nature, and how it affects individuals and society, see: Svendsen, L. F. H. (2005). A philosophy of boredom. Reaktion Books.

9 A comprehensive analysis of alternative measures of economic performance and social progress beyond GDP and GNP, is provided in Stiglitz, J. E., Sen, A., and Fitoussi, J.-P. (2010). Report by the commission on the measurement of economic performance and social progress. Statisztikai szemle, 88(3), 305–321.

10 Haq. (1996). Reflections on human development: how the focus of development economics shifted from national income accounting to people-centred policies, told by one of the chief architects of the new paradigm (p. xix+252–xix+252). Oxford University Press. See also *https://hdr.undp.org/data-center/human-development-index#/indicies/HDI*.

11 Amartya Sen, 1974, "Informational Bases of Alternative Welfare Approaches: Aggregation and Income Distribution", *Journal of Public Economics*, 3(4): 387–403. He clinched the argument in the Tanner Lectures at Stanford in 1979 *https://www.ophi.org.uk/wp-content/uploads/Sen-1979_Equality-of-What.pdf* , later published as *The Standard of Living*, 1986.

12 Amartya Sen, 1974, "Informational Bases of Alternative Welfare Approaches: Aggregation and Income Distribution", *Journal of Public Economics*, 3(4): 387–403. He clinched the argument in the Tanner Lectures at Stanford in 1979 *https://www.ophi.org.uk/wp-content/uploads/Sen-1979_Equality-of-What.pdf*, later published as *The Standard of Living*, 1986.

13 Stanford Encyclopedia capabilities Approach.

14 "Capability and Well-being", in Nussbaum and Sen (eds.), *The Quality of Life*, Oxford: Clarendon Press, 1993) pp. 30–53. See also Martha Nussbaum, *Creating Capabilities: The Human Development Approach* (Harvard UP 2011).

of wellbeing may have gaps.[15]" While he concurs that we need bare and basic criteria, even helping ul Haq to devise the three-pronged HDI[16], anything more, he argues, would miss the specific priorities and conditions of real lives.

In real life, certain conditions can seem intolerable to some people but not to others who share the same culture and social class. The lockdown is one condition that yielded dramatically different responses. In shared households, newly aggressive domestic partners became violent while others suffered the consequences. Some members of a household evidently experienced the lockdown as a breakdown of their normally benign behavior; their victims experienced the fallout. Aggression was largely one-sided, but the experience had two sides. What accounts for the difference between COVID's housebound victims and victimizers?

Where domestic violence is concerned, we know that a significant difference is gender (Peterman et al., 2020). Even when men don't start fights at home, they tend to finish them with force. Statistics on this age-old abuse had already scaled up alarmingly before COVID-19, maybe because increasing numbers of women were choosing to report crimes that would earlier have cost them economic security or would have seemed too commonplace to register. Improved reporting before lockdown put the spike in sharp perspective. What made so many more men violent during house arrest than before? It is worth considering a subjective differential for men and women in forced confinement.[17]

Though some people may actually enjoy the lull in inactivity to dedicate time to homey tasks, boredom burdens others to the point of intolerable rage. The feeling is subjective but the consequence is objective when one person's boredom explodes into violence toward others. This escalation from one to others is a secondary consequence of boredom and it is reason to spell out or to adjust Sen's capabilities approach. Perhaps an index of wellbeing should include interpersonal criteria. My attention to groups is different from communitarian arguments that can override a liberal focus on individuals. To favor collective cultural rights and norms, communitarians put group priorities above personal preferences. Sen rejects that favoritism. He defends the flexibility that personal preferences demand, to the point of refusing the arguments of even well-meaning list-makers like Nussbaum.

An interpersonal criterion like boredom for evaluating violence at home doesn't interfere with Sen's intentionally unfinished framework. Rather, it makes good on his defense of moving pieces. Consider the ways in which subjective desires and capabilities interact with shared consequences to recognize that setting priorities amid changing circumstances includes interpersonal dynamics. Personal criteria alone may miss some potentially dangerous dimensions of individual development. The danger lurks in Sen's focus on personal wellbeing, one human being at a time. "Thus narrowed, personal wellbeing related to one's own life will reflect one's standard of living[18]." This self-possession is aspirational in some cases and unthinkable in others. Sen assumes that people can and should make reasonable and free choices about their identities and affiliations[19], but the assumption is hardly reasonable in the real world of gender hierarchies and familial ties. This oversight may miss Sen's own cue about framing capabilities in collective contexts. Sen, like Nussbaum, stays with the individual, though he prefers improvisation in the volatile variety of contexts while she prefers more structure.

Little women, big men

Does a conceptual framework centered on single persons allow a vestige of liberal universalism to persist in the capabilities approach? Universalism assumes that people are ideally equal and therefore interchangeable in theories of value and in measurement. An instance of this paradigm is the one-size-fits-all GDP that lingers beyond its expiration date. Despite being pronounced dead for decades, the single economic aggregate that obscures inequities doesn't quite die. A "zombie concept," it haunts and hinders human development[20]. As a corrective to outdated

15 Sen, *Commodities*, "The tyranny of 'required completeness' has had a disastrous effect on many other problems in economic measurement. . .. offering us a false choice between silence and babbling. . .. It is important to recognize that many economic and social relations are inherently partial and incomplete. . ." p. 31. Amartya Sen (2004) Capabilities, Lists, and Public Reason: Continuing the Conversation, *Feminist Economics*, 10:3, 77-80. https://doi.org/10.1080/1354570042000315163

16 Sen, 2004, "Capabilities, Lists. .. "when my friend Mahbub ul Haq asked me, in 1989, to work with him on indicators of human development, and in particular to help develop a general index for global assessment and critique, it was clear to me that we were involved in a particular exercise of specific relevance. So the "human development index" (the HDI) was based on a very minimal listing of capabilities, with a particular focus on getting at a minimally basic quality of life, calculable from available statistics, in a way that the GNP or GDP failed to capture." P. 79.

17 Piquero, A. R., Jennings, W. G., Jemison, E., Kaukinen, C., and Knaul, F. M. (2021). Domestic violence during the COVID-19 pandemic - Evidence from a systematic review and meta-analysis. Journal of Criminal Justice, 74, 101806–101806. https://doi.org/10.1016/j.jcrimjus.2021.101806
Highlight the importance of addressing gendered dynamics in efforts to prevent domestic violence during the pandemic.

18 Sen *Standard*. . "At the risk of over-simplification, it may be said that we move from agency-achievement to personal wellbeing by narrowing the focus of attention through ignoring "commitments," and we move from personal well-being to the standard of living by further narrowing the focus through ignoring "sympathies" (and of course "antipathies," and other influences on one's well-being from *outside* one's own life)." 38, 37.

19 Sen, *Identity and Violence: The Illusion of Destiny*, "A person may decide to seek closeness with more than one of these predefined cultures or, just as plausibly, with none. Also, a person may well decide that her ethnic or cultural identity is less important to her than, say, her political convictions, or her professional commitments, or her literary persuasions. It is a choice for her to make." p. 154.

20 Eduardo Gudynas "Buen vivir: Today's tomorrow" "Critical positions that counter the myth of development have been repeated several times over the last 40 years. There are countless reactions from social movements against the negative effects (both social and ecological) of many 'development projects'. But most of the reactions were at a superficial level, attempting to repair or fix what was considered inappropriate applications of classical development. This resulted in Western development being declared deceased and then at the same time being resuscitated. It became a zombie concept, dead and alive at the same time. Development, 2011, 54(4), (441–447) r 2011 Society for International Development 1011-6370/11 *www.sidint.net/development/* pp. 441-442.

paradigms of development, the capabilities approach proposed by Sen and pursued by Nussbaum adds criteria of measurements to a misleading aggregate (Sen, 2000; Nussbaum, 2000). By multiplying the criteria, they can focus on individuals rather than on whole nations. But even this deeper view risks missing an important dimension of development by blurring the interlocking forest with a focus on individual trees (Sen, 2001). "[W]e have responsibility for what we desire (and the need to relate it to what we value), whereas we have no such direct responsibility for the desire of others[21]." Perhaps the operative word here is "direct," because surely a culturally bound desire is a collective responsibility.

Gender-determined roles are zombie concepts too. Legal and economic discrimination by gender has been condemned for centuries and outlawed in more recent history, but the prejudices and practices of male superiority continue to skew access to rights and resources (Prager, 1996). Nancy Chodorow named the process of unequal gender formation "the reproduction of mothering (Chodorow, 1978)." One result of this formation is that women take charge of children and men achieve a paradoxical authority when children invest power in fathers as a safeguard against tyrannical mothers. Women rule at home. No wonder men can feel disabled when housebound. Surely they get more bored than women do during lockdown, since a consequence of gender specific training is that women know how to use domestic space to exercise agency, while men count on other spaces to convert their capabilities into functioning. Some readers may be skeptical about this gendered boredom quotient; they may also dismiss the relevance of boredom for making sense of explosive behavior. Those readers may also identify as male. Women don't doubt the gender difference or the threat, generally speaking. They recognize the syndrome of male listlessness, frustration, and rage[22]. Differential levels of male and female boredom offer a speculation worth pursuing in order to craft new practical responses.[23]

Nussbaum targets tenacious gender disparities as obstacles to women's development. By definition, disparities are comparative and therefore, interpersonal, a dimension that sometimes falls out of focus in Nussbaum's defense of autonomous selves, one woman at a time. To appreciate this slip from real and relational identity to ideal autonomy consider the example that launches Creating Capabilities (2011): "[A] small woman in her early thirties" Vasanati had abandoned an abusive husband and returned to her family of origin[24]. The example is telling beyond the conclusions that Nussbaum draws about Vasanti's courage and about women's solidarity through Sewa, a collective of working women. But Vasanti's brothers also played decisive transitional roles. As members of a Gujarati family, they were not obliged to take back a married woman, however abusive her husband became. When the brothers rescued their sister, their decision was unscripted. Their capabilities functioned to judge and to act. The brothers enabled Vasanti to become autonomous, first alone and then through Sewa. We might call this development a collective or a cascade conversion of family and community resources into a personal triumph that would bring more ripple effects. Nussbaum does give the brothers credit for valuing Vasanti's safety over community norms, but the narrative doesn't feature the structural connection between the woman's step forward and the men's accompaniment. Their advances were mutual. The brothers' decision enabled their sister to be free; and the sister's demand sparked her brothers' choice. Paradoxically, independence can depend on mutual support. But mutuality plays a minor role for Nussbaum. When she distinguishes between internal and combined capabilities, the difference refers to innate faculties and developed talents in an individual. Though they overlap, "innate equipment... into advanced capabilities" refers to the development of an individual[25].

From her activist legal perspective and in Sen's ethical economics, the social element of wellbeing shows up, but mostly as a function of personal development. This is close to a contradiction since sociability is a structural connection between a self and others rather than a personal pastime. The focus on individuals means that social values or criteria for measuring development remains surprisingly underdeveloped. For both theorists, sociability as mutual care fades perilously; it flattens into a dimension of personal growth. This is a curious loss of depth perception, after both Sen and Nussbaum remind us that Adam Smith considered sociability to be a significant contributor to the collective Wealth of Nations[26]. In fact, Smith's earlier Moral Sentiment begins with mutuality, "an interest in the welfare of others, and make their happiness necessary to him, even if he gets nothing from it but the pleasure of seeing it[27]." Perhaps understandably, given the tug

21 Sen, *Standard of living* p. 15.

22 These observations come from my informal surveys. You are invited to conduct your own.

23 A source that discusses gender differences in boredom: Vodanovich, S. J., and Kass, S. J. (1990). A Factor Analytic Study of the Boredom Proneness Scale. Journal of Personality Assessment, 55(1-2), 115–123. https://doi.org/10.1080/00223891.1990.9674051.

24 Nussbaum 2011 p. 2.

25 Nussbaum 2011 p. 21; Nussbaum 2000, 84.

26 Sen *Standard*, "Adam Smith not only distanced his own approach from commodity fetishism and wealth maximization, he also showed the social nature of these relationships between commodities (and opulence), on the one hand, and capabilities (and achievements of living conditions), on the other." p. 23 from *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776; Everyman's edition, London: Home University Library, 1910), book V, ch. II, pp. 351-53. *https://www.earlymoderntexts.com/assets/pdfs/smith1759.pdf*. Nussbaum refers to Smith's Stoic thinking, see *Creating Capabilities*, 133.

27 Adam Smith *Theory of Moral Sentiment* (1759): "No matter how selfish you think man is, it's obvious that there are some principles in his nature that give him..."

[Sen dismisses the single-minded approach to earning, vs. commodity fetishism: "his approach goes back not only to Marx, but also to Adam Smith. In fact, despite the frequent claim that Adam Smith was mainly concerned with "wealth maximization," there is much evidence that he was deeply concerned with avoiding concentration on commodities (and wealth) as such, and keen on escaping the fetishism of which Marx spoke later.28 In fact, Adam Smith went well beyond the standard characterizations of living conditions and considered such functionings as not being "ashamed to appear in public," and analyzed how the commodity requirements for this achievement - clothing, shoes, etc. - varied with social customs and cultural norms. [*An Inquiry into the Nature and Causes of the Wealth*

today toward group-based recognition and authenticity, Sen and Nussbaum stay clear of communitarian claims. They put particular people first, and Sen acknowledges the incalculable variety of cultural resources that often include personally crafted hybrids of competing cultures. A capabilities approach that supports the autonomy of individuals understandably resists giving priority to culturally cozy traditions that can trump dynamic conversions[28]. Culture, in Sen's formulation, is not the end, or objective, of community life, but the means for development. It is a field for improvisational activity rather than a legacy to protect[29].

Boredom is a personal experience that can flare into interpersonal trouble. It begins by oppressing an individual who cannot tolerate empty time. But when boredom builds toward violent interruptions of the tedium, victims are collateral damage. Shouldn't a boredom quotient figure among the criteria for wellbeing that Sen can enlist when appropriate? It is the elephant in the room of development theory, silently seething and preparing to pounce on an individual's reason and autonomy with consequent casualties nearby. Victims include battered partners, children, older parents, all of whom lose their own autonomy, resources, and agency for development, when lockdown is experienced as lockup. In wartime, this conversion of boredom into agency is linked to atrocities, and tedium is worth tracking in police brutality[30]. Conversions of energy into action are not always pro-social. This caveat to the capability approach points to a loose end in Sen's defense of pluralism regarding values. Sometimes, pathologies of power, revenge, violence will demand a more normative framework to distinguish abuse from empowerment (Wolff and De-Shalit, 2007).

To support human thriving, we have an opportunity (read obligation) to consider the interpersonal, social, dimension of capabilities that Adam Smith featured for personal wellbeing and that Sen updates: the opportunity is to promote in others the skills and the pleasures that support their wellbeing, and ours by extension. Perhaps this represents a double paradox. On the one hand, development is understood in the capabilities approach as self-development. Collective advances follow from exercises of personal autonomy. On the other hand, pleasure is often understood as a diversion from development, literally going off track. How can helping others to feel pleasure support one's own self-development? A short answer is that other people who don't feel pleasure are at risk of feeling rage. Self-interest will be well served by preempting other people's rage and the violence it ignites. Regarding ethical worries about pleasure, Sen and Smith relax the concern when they recover the link from pleasure to dignity and autonomy.[31] "To lead a life without shame, to be able to visit and entertain one's friends, to keep track of what is going on and what others are talking about, and so on, requires a more expensive bundle of goods and services in a society that is generally richer[32]."

Pleasure has had bad press since the philosophically hedonist heyday of British utilitarianism. Sen revives its ethical work. What would wellbeing mean without enjoyment? A standard of living makes sense "through some object of value—in this case, some type of pleasure[33]." The reluctance to embrace an ethics of enjoyment and sociability has made pleasure a perverse pursuit. People seek it out, perhaps assuming it must come at a moral cost. Enjoyment seems tinged by sinful desire in a capitalist culture that devalues diversion and enshrines hard work. (Max Weber called this "an-hedonic" culture Calvinist)[34]. But pleasure and play have been ethical values at least since Aristotle and then for a long line of thinkers that extends, for example, through John Finnis, who included aesthetic experience as a dimension of personal development[35].

Today the ethical difference between aesthetic pleasure and utilitarian desire-fulfillment may not be clear, but my admittedly simplified Kantian distinction will help to identify effective ways to deal with boredom. Aesthetics is social; desire is not. Free from material or functional interests, aesthetics is an experience of form rather than content; it depends on deliberation to process something surprising, unfamiliar, and still nameless. The surprise sparks a personal reflection that very soon becomes interpersonal to validate or to test an observation. Paradigms can shift in this process of disinterested experience and judgment. Desire, on the other hand, pursues an interest, something already known and named. It is driven by goals inside established paradigms. Disinterested delight is not a driver but a pause. The delight felt in aesthetic pleasure begins with confusion, not knowing what to think or to feel about something new. The activity of judgment stretches the effect of a new sensation through the enjoyment of deliberation

of Nations (1776; Everyman's edition, London: Home University Library, 1910), book V, ch. II, pp. 351-53.] These customs and norms are, in their turn, influenced by the economic conditions of the respective societies. In analysing these relationships, Adam Smith not only distanced his own approach from commodity fetishism and wealth maximization, he also showed the social nature of these relationships between commodities (and opulence), on the one hand, and capabilities (and achievements of living conditions), on the other. The same capability of being able to appear in public without shame has variable demands on commodities and wealth, depending on the nature of the society in which one lives." (*Standard of Living*, p. 23)].

28 See exemplary debate in Charles Taylor, and Amy Gutmann, A. (1992). *Multiculturalism and "The Politics of Recognition": an Essay*. Princeton University Press.

29 Sen, "Culture and Development," "Culture would have to figure among the end-based considerations in development analysis. But is the linkage entirely through the ends of development? What about the role of cultural factors as means of development? For example, cultural conditions can exert a strong influence on human behavior." P.1.

30 "It was a slow night," is the policewoman's final comment that Trecia Reaves remembers from unexpected harassment inside a Boston Apartment.

31 For support of the claim that Sen and Smith see pleasure as linked to dignity and autonomy: Smith, A. (1759). The theory of moral sentiments. Printed for A. Millar, and A. Kincaid and J. Bell, in Edinburgh.; Sen, A. (1992). Inequality reexamined. Russell Sage Foundation ; Harvard University Press.

32 Standard of living p. 25.

33 *Standard of living* p. 7, 10.

34 Sen is not persuaded by Weber's well-known distinction between Catholic and Protestant varieties of capitalism.

35 See Gosling and Taylor, The Greeks on Pleasure (1982), and M. C. Nussbaum, The Fragility of Goodness: Luck and Ethics in Greek Tragedy and Philosophy (Cambridge: Cambridge University Press, 1985).

with other people. Short of participating in aesthetic education, democracy cannot count on sociability and loses ground to personal desire.

Art is therapy

Boredom is a lack of surprise, a death of sensation. Empty time can feel like deprivation rather than the luxury of leisure to think and to make things. For people who know how to use it, unprogrammed time is the resource of freedom to be converted into a functioning—in Sen's terms. But for bored people who resent empty time, the resource withers or flips into something monstrous. Boredom flattens freedom into frustration. Either a hiatus of activity will end in an engaging activity or in acting out. The tension that comes from inactivity is volatile, and the energy will come out one way or another. Since people have a range of innate faculties that can be converted into functionings, it makes sense to foster creative faculties. This is a matter of choice, arts over aggression. Skeptics may assume that choosing is limited to some people who are creative. Kant assumed this.[36] That's why he featured judgment over creativity as the universal faculty for civic development. But the assumption about predetermined access to or exclusion from creativity condemns us to expect more spikes in violence and more depression and suicide. The threats of interpersonal and self-harm are likely to increase. We can anticipate continuing and recurring boredom from loss of jobs, resignation from jobs, confinement to refugee camps, prisons, failing schools, and possibly renewed house arrest.

Fortunately, people are innately creative, despite the skeptics. Creativity is hard-wired in the human condition. Our challenge is to recognize the resource and to make good on our innate faculties of imagination and judgment. These dimensions of being can be converted into skill-based doings to develop capabilities. It was Kant's disciple, Friedrich Schiller, who gave this natural resource a name, Spieltrieb, playdrive.[37] During the Terror of the French Revolution, Schiller elevated this faculty to the level of a drive to interrupt the spirals of violence that had locked the other two drives—Reason and Passion—into mutually murderous opposition. How do you interrupt the escalating, self-destructive, spirals? Schiller's answer was to bridge the feuding forces through play and art. Anyone can play, and we can learn to make art that will repurpose energies and divert the attention of enemies from hatred to delight in new forms[38]. Rage today includes flares from the counterintuitive trigger of doing nothing. Whether despair and death follow from revolution or from being bored, Schiller would urge us to take a step back and redirect our energies from aggression to artmaking. There is really no alternative, because without the "disconnection" from habits and interests that art provokes, people lose agency and stay caught in spiraling structures[39]. Convention may shun the arts as impractical in dire conflict, but Schiller knew that it was the missing agent of reconciliation[40]. Without art, conflict has no escape route. The opposite of play is not work or seriousness, anthropologist Gregory Bateson would explain for socio-ecological reasons;[41] it is boring one-dimensionality that leads a species to extinction[42].

Symbolic destruction

Psychoanalyst Donald Woods Winnicott would come to Schiller's same conclusion. We have no evidence that Winnicott read Letters on Aesthetic Education (1794) (see foot note 52), but he was equally dedicated to play[43]. Schiller had written "man is truly human when he plays, and he plays when he is truly human," as if presaging Winnicott's work[44]. The therapist included his own practice among creative activities: "Psychotherapy takes place in the overlap of two areas of playing, that of the patient and that of the therapist. Psychotherapy has to do with two people playing together[45]." This means free and "non-purposive" artmaking[46].

36 See: Kant, I. (1790). Critique of Judgment. Hackett Publishing.

37 "Spieltrieb" refers to Friedrich Schiller's concept of play drive or play instinct. See: Friedrich Schiller. (2006). On the Aesthetic Education of Man, in a Series of Letters (Über die ästhetische Erziehung des Menschen). In German Idealism (p. 230). Edinburgh University Press. https://doi.org/10.3366/j.ctvxcrxbr.18

38 Friedrich Schiller *Letters on the Aesthetic Education of Man* (original 1794, Letter IX). *Letters Upon The Aesthetic Education of Man (public-library.uk).*

39 Jacques Rancière's preferred term for the aesthetic effect is "disconnection" in the line of Shklovsky's "estrangement" with acknowledgment to Kant and to Schiller's disinterest. See "Art Is Going Elsewhere. And Politics Has to Catch It," An Interview with Jacques Ranciére," Sudeep Dasgupta, *Krisis, Journal for contemporary philosophy*, Issue 1, 2008 pp. 70-76. P. 74, 71. https://archive.krisis.eu/art-is-going-elsewhere-and-politics-has-to-catch-it-an-interview-with-jacques-rancie re/interview in *Krisis*.

40 Kramer p.17.

41 See: Bateson, G. (1972). Steps to an Ecology of Mind. Ballantine Books, Inc.

42 For example, Lesley Caldwell, *Art, Creativity, Living* (London: Karnac Books, 2000), 16.

43 D.W. Winnicot, "Playing: Its Theoretical Status in the Clinical Situation," in *The International Journal of Psycho-Analysts*, vol. 49 (1968): 48. "As I look back over the papers that mark the development of my own thought and understanding I can see that my present interest in play in the relationship of trust that may develop . . . was always a feature of my consultative technique."

44 (Schiller, Letter XV) Carl Jung (1931): 46 kept the mantra in focus for Winnicott's readers: "man is completely human only when he is at play." Quoted in Ellen Y. Siegelman, *Metaphor and Meaning in Psychotherapy* (New York: Guilford Press, 1993), 172.

45 Winnicot, *Playing and Reality* (London: Tavistock Publications, 1971), 38. Cited in Siegelman, 172.

46 Winnicott "Playing: Creative Activity and the Search for Self" (1971): 54-55. Play therapy manages to stay responsive to children's prompts. See, for example, Lawver, and Blankenship, K. (2008). "Play therapy: a case-based example of a nondirective approach." *Psychiatry* (Edgmont (Pa.: Township)), 5(10), 24–28.

The instinct to create shows up immediately, says Winnicott, when a newborn searches for its mother's breast[47]. The breast materializes because the mother plays too, bending to the baby's will to welcome it as creator of its world. The early games multiply throughout life as "play is the continuous evidence of creativity, which means aliveness (Abrams and Hjulmand, 1996)." People play at affecting the world, not only in response to hostility or to loss, as Melanie Klein thought.[48, 49] Creativity is an innate drive—Schiller's playdrive—to achieve tacit control over existing, often conflicting, materials and demands, as when a fifth grader cures her anxiety about math by drawing scary but funny comic strips. In professional "Newspeak" this recourse to pleasure is called "self-administered art therapy."[50] We can call it play. Riskiness spikes both art and analysis with dangers of unpredictability, dangers that cannot be abolished if therapy is to proceed. So, the work demands a steadiness that can anticipate and survive aggressive surprises meant to unhinge the playmate, including the clinician[51]. "The drive is potentially 'destructive'... But destruction of an object that survives, that has not reacted or disappeared, leads on to use (Winnicott, 1969)." And using people, Barbara Johnson understood after reading Winnicott, amounts to loving them (Johnson, 2000).

A nadir of activity and a peak of interaction made for a perfect domestic dust storm during lockdown. Reduced access to psychologists and psychoanalysts, the lack of money to pay them even when therapists were available on electronic platforms, and the failure to focus on the elephant of boredom in the room all converged to heighten domestic violence during lockdown. Already elevated statistics that spiked during house arrest should now prompt us to recognize an antidote to the malady of boredom. It is the friendlier face of the elephant. If boredom is a common and unacknowledged threat, art making is a common but underemployed resource. Rising levels of anxiety, depression, abuse, and suicide prompt mental health providers to explore support from non-clinical practices. Are there effective resources outside the clinic? There are. In fact, a social approach to wellbeing is well known, and new pioneer programs train lay counselors and peer mentors to offer support.[52] These resources could substantially expand and deepen by adding the under-explored option to engage artists as allies.

Stigma

Low resourced settings are particularly fertile for this option because poor areas are often rich in arts. Traditions of storytelling, music, dance, weaving, cooking, mask making, poetry, pottery, etc. still thrive in everyday activities alongside modern practices. Artist Pedro Reyes notes that Latin America, for example, may be poor in finances and in politics, but in art it is a treasure house. This can be said of the global south in general. Consider an example from Peru's highlands. Peasant women there cultivate up to 4,000 varieties of mostly inedible potatoes, just for their color and shape, to lay out designs for new weavings.[53] The challenge for therapy in economically poor environments—and everywhere else—is to dignify art as a worthy partner for therapy.[54]

Stigma has been an obstacle. It is an equal opportunity blight. On one side, people with mental illness don't seek help when stigma stops them; on the other side, providers often present a stigma against taking art seriously. They tend to dismiss creativity as unscientific, even risky, and inappropriate. The arts seem either inconsequential or downright harmful. While creativity is no sure pathway to mental health, and though artists may continue to be afflicted by the demons that drive them, it is worth considering the differing degrees of affliction when art is an outlet and when it is not. Memoirs offer testimony to the power of creativity as a coping mechanism for mental illness.[55, 56] But clinicians and

47 Freud invokes the authority of Schiller to describe the opposition of the Ego and the Id. See Paul-Laurent Assoun, *Freud and Nietzsche* (London, Continuum Collection, 2002; originally in French, Presses Universitaires de France, 1980), 84. In 1908 Freud wrote: "Might we not say that every child at play behaves like a creative writer, in that he creates a world of his own, or, rather, rearranges the things of his world in a new way which pleases him?" Sigmund Freud, "Creative Writers and Daydreaming" (1908) in J. Strachey, ed., *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. 9 (London: Hogarth Press, 1955), 14.

48 For more information on Melanie Klein's perspective on play, see her book Klein, M. (1975). Love, guilt, and reparation and other works, 1921-1945. Delacorte Press/S. Lawrence.

49 Winnicott, *Playing and Reality,* 70.

50 See David Rufo, "Math Hater: How One Child Overcame Her Math Anxiety Through Self-Administered Art Therapy," *Art Education*, September 2017 n Volume 70, No. 5 pp 6-10. Rufo cites Brent Wilson, (1976). "Little Julian's impure drawings: Why children make art." *Studies in Art Education, 17(2), 45-61*.

51 Mihai Spariosu (in Dionysus Reborn: Play and the Aesthetic Dimension in Modern Philosophical and Scientific Discourse (Ithaca: Cornell University Press, 1989), 185.

52 See Peter Beresford, (2002) "Thinking about 'mental health': towards a social model," *Journal of Mental Health*, 11(6), 581–584. *https://doi.org/10.1080/09638230020023921* See *Mental Health First Aid*; *http://empower.care* In Buenos Aires, the social model translates into artmaking, for example in the community focus of Proyecto Suma, *http://www.proyectosuma.org.ar/recuperacion-en-comunidad/* Another example historicizes clinical work focused on pathologies. See a documentary with a Foucaultian frame, by Francisco Díaz, "Desmontar la máquina / Dismantle the machine"." *https://youtu.be/u8yAPiyPUso* And Vikram Patel's Projects In India, Mental Health Innovators: *https://www.mhinnovation.net/*; an interdisciplinary initiative at Harvard: *https://globalhealth.harvard.edu/domains/global-mental-health-harvard/*; and the new digital *http://empower.care/*.

53 *Agrobiodiversity as Jazz Improvisation | ReVista (harvard.edu)* Karl Zimmerer, "Agrobiodiversity as Jazz Improvisation Foodscape: Change and Continuity," *ReVista*, Fall 2016, *Volume XVI, Number 1* Sep 25, 2016.

54 The case has been made, but needs more general adoption. See, for example, Deidre Heenan (2006). "Art as therapy: an effective way of promoting positive mental health?" *Disability and Society*, 21(2), 179–191. *https://doi.org/10.1080/09687590500498143*

55 The following book explores the link between bipolar disorder and creativity including the lives and works of writers, artists, and musicians who have been diagnosed with bipolar disorder such as Vincent Van Gogh, Virgina Woolf, and Ludwig van Beethoven: Jamison, K. R. (1993). Touched with fire : manic-depressive illness and the artistic temperament. Free Press ; Maxwell Macmillan Canada ; Maxwell Macmillan International.

researchers have been reluctant to credit artmaking as therapy, as a medium for amelioration, even when the making seems meaningless.[57] Art is therapy. The reason is clear. Artmaking is active. To create something new demands dynamic faculties of mind (Stuckey and Nobel, 2010). When people make art, they become observers, exercise judgment, experience autonomy, make decisions, and anticipate communication through visual or performative languages, including words repurposed for poetry and prose.[58] To assume that art works because it makes meaning is to miss the magic of making itself.[59] Art works because it wedges a distance between what is and what could be. Augusto Boal[60]–founder of Forum Theater and author of Theater of the Oppressed (Boal, 2000) put it this way:

"Only the human being is tri-dimensional (the I who observes, the I-*in-situ* and the not-I) because it alone is capable of dichotomy (seeing itself seeing). And as it places itself inside and outside its situation, actually there, potentially here, it needs to symbolize that distance which separates space and divides time, the distance from 'I am' to 'I can be', and from present to future; it needs to symbolize this potential, to create symbols which occupy the space of what

56 References from Jose Falconi. *5 Famous Artists Who Used Art as Therapy (masterpeacebox.com)* "art as a means of self-expression and therapy is not a new concept. many famous artists used their art to work through everything from heartbreak and loneliness to joy and rage." See also *Many Artists Suffered With A Mental Illness – Affinity Magazine* by Maariya Bhari, December 2, 2016. (*Affinity* is a teen-written and edited online magazine.) "art has always been a powerful outlet, dating back to Ludwig van Beethoven and Vincent van Gogh to Georgia O'Keeffe. Mental illnesses affects so many people today. All of the examples above who have exuded art from their very surroundings have battled mental illnesses and made peace with their demons while producing some of the most well known forms of art."

57 Viktor Frankl's important book, *Man's Search for Meaning* has evidently influenced the standard clinical connection between meaning and mental health. Originally published anonymously in German (1946), as *A Psychologist Experiences the Concentration Camp*, the English translation, *Man's Search for Meaning* (1959) became an international bestseller. (See *The Life of Viktor Frankl - The Viktor E. Frankl Institute of America % % (viktorfranklamerica.com)*.) For Frankl, the writing cure, logotherapy, meant producing purpose, not poetry. But survivors know a range of coping strategies. Some search for meaning; others distance themselves as observers, as artists. Here is Alfred Kantor's counterpoint from the same concentration camp, Terezin: "My commitment to drawing came out of a deep instinct of self-preservation and undoubtedly helped me to deny the unimaginable horrors of life at the time. By taking on the role of an 'observer' I could at least for a few moments detach myself from what was going on in Auschwitz and was therefore better able to hold together the threads of sanity." Alfred Kantor. (1987). *The book of Alfred Kantor: an artist's journal of the Holocaust*. Schocken Books. "Introduction," no page no. See also policeman Winston Pingeon, traumatized by the January 6, 2022 insurrection who turns to painting:
https://www.bostonglobe.com/2023/01/05/arts/he-defended-capitol-democracy-itself-amid-insurrection-twoyears-later-he-paints-preserve-history-heal/?s_campaign=breakingnews:newsletter Scholars do comment on the therapeutic effects of writing [see Koopman C., Ismailji T., and Holmes D. (2005). "The effects of expressive writing on pain, depression and Posttraumatic Stress Disorder symptoms in survivors of intimate partner violence." *Journal of Health Psychology*, 10, 211–221.] – but many are skeptical if the writing doesn't make meaning. [See, Kaufman, J. C., and Sexton, J. D. (2006). "Why Doesn't the Writing Cure Help Poets?" *Review of General Psychology*, 10(3), 268–282. *https://doi.org/10.1037/1089-2680.10.3.268* p. 268: "there are two conflicting lines of thought about the creative writer and mental health. These two approaches seem to directly contradict each other. The first approach we call the mad writer. Images of Edgar Allan Poe, Emily Dickinson, or Sylvia Plath may dance through your head as you ponder the writer battling inner demons and torments. The second approach is that of writing as therapy. This concept encompasses the many benefits of creative writing.] But since poets seem to stay more afflicted than narrators, poets are "advised to adopt a narrative style," to organize their confused thoughts into "a story with a beginning, middle, and end." See more references in Christa Taylor, "Creativity and Mood Disorder: A Systematic Review and Meta-Analysis" *Perspectives on Psychological Science* Research article First published online September 21, 2017, *Volume 12, Issue 6* *https://journals.sagepub.com/doi/10.1177/1745691617699653* Consider John Dewey's.

58 Joseph LeDoux, author of *Anxious: using the brain to understand and treat fear and anxiety*. Viking, an imprint of Penguin Random House (2015). is also a rock musician: "Together with Harold Koplewicz, a professor of child and adolescent psychiatry at NYU, and the support of NYU's administration, this institute will be dedicated to the study of emotions, especially fear and anxiety, in young brains – in both animals and children. We want to start teaching kids how to regulate their emotions. I also want to make emotion a university-wide integrative topic at NYU that can unify the arts and humanities (literature, history, visual and performing arts) and the applied disciplines (business, law) with the sciences." See Jonathan Cott, Karen Rester, "Joseph LeDoux's heavy mental: The neuroscientist explains how music, emotion and memory shape our identities – and why he has donned a Stratocaster to keep the brain rollin' all night long." *Salon*, July 25, 2007 *https://www.salon.com/2007/07/25/joseph_ledoux/*.

59 An example of this loss appears in Lani Gerity's "Introduction" to Edith Kramer's collected papers. Kramer, a founder of art therapy, celebrates her teacher, Friedl Dicker – who taught children art in Terezin, before she and most of them were murdered – for illustrating "the sustaining and healing power of art." Edith Krämer, and Gerity, Lani. A. (2000). *Art as Therapy: Collected Papers*. (London, Philadelphia, Jessica Kingsley Publishers.) p. 21. But Gerity wants more. She editorializes to feature meaning and reconciliation, along with hope and dreams: "teaching art to children in Terezin, helping them *keep hope and dreams alive*, and then not surviving Auschwitz herself. There is something in this chapter that teaches us about the possibility of *finding meaning in sorrow and suffering, and finally a strong sense of resolution and reconciliation*." (my emphasis) Ibid, p. 11. Meaning is what makes Kaufman and Sexton (see above) prescribe prosaic writing. See also Pennebaker, and Graybeal, A. (2001). "Patterns of Natural Language Use: Disclosure, Personality, and Social Integration." *Current Directions in Psychological Science : a Journal of the American Psychological Society*, 10(3), 90–93. *https://doi.org/10.1111/1467-8721.00123*; and Sloan, and Marx, B. (2004). "Taking pen to hand: Evaluating theories underlying the written disclosure paradigm."
Clinical Psychology (New York, N.Y.), 11(2), 121–137. *https://doi.org/10.1093/clipsy/bph062*

60 For more on Augusto Boal's work and theories, refer to: Boal, A. (2000). Theater of the oppressed. London, UK: Pluto Press.

is, but does not exist concretely, of what is possible...So, it creates symbolic languages: painting, music, words."[61]

Rational choice theorist Jon Elster counted on artists to illustrate good decision making, because artists know how to limit options and manage constraints (Elster, 2000). This cluster of mental and emotional talents can channel explosive energies into "symbolic destruction," Winnicott's name for artmaking (Winnicott, 1991). The dichotomy that Boal identifies between being and observing can crack fissures in lockdown states of anxiety and depression, to let the outside world slip in. At a mental hospital in Paris, Boal discovered that on stage, when performing for other patients and their doctors, even acutely afflicted people would budge beyond their static clinical narratives. On stage, patients become actors to be observed by themselves and by others. Both actors and spectators occupy a fictional space that distances and estranges habitual stories which—from this unfamiliar perspective—can be told differently. After acting, sessions with therapists went better at the hospital. Aesthetic space was the opening.[62]

Artists are not victims. They are neither stuck in one-track narratives nor stopped by debilitating circumstances. Instead, artists are agents who transform problems into challenges; they recycle found materials into new products. Whether or not the products have aesthetic value for connoisseurs, the therapeutic effect of artmaking comes from the process, often with byproducts of pride in the work and in oneself.[63] Sometimes artmaking reveals buried trauma that a talking cure doesn't easily access. This contribution has attracted the sleuthing attention of psychoanalysts.[64] But other times, artmaking is untethered to repressed meanings. It simply exercises freedom to explore materials and their arrangements. Artmaking can be a purposeless exercise of agency and choice, a self-authorizing therapy against lethargy and listlessness.

Even unhappy people, like Boal's hospitalized actors, will accept an invitation to play, though they may bristle and retreat from unfairly demanding prompts given by many clinicians to find meaning or purpose.[65] The invitation to participate in artmaking can be as unassuming as making a meal or getting dressed, putting together pieces of clothing to create an outfit. Arts may include drawing a picture or singing. (The Spanish verb interpretar for making music captures the inevitable innovation through performance.) Other, more intentional, traditional, or international, art practices can follow and develop or morph over a lifetime. The everyday nature of low-stakes artmaking sidesteps the stigma that would single out mentally distressed people for special attention. This mitigating feature of inconspicuous

61 Augusto Boal, (1995). *The Rainbow of Desire: the Boal Method of Theatre and Therapy*. (London: Routledge, 1995). P. 14. See also Alfred Kantor, op. cit. regarding the artist as distanced "observer."

62 Augusto Boal, (1995). *The Rainbow of Desire: the Boal Method of Theatre and Therapy*. (London: Routledge, 1995). "This movement forward in space and time is, in itself, therapeutic, since all therapy, before proposing the exercise of a choice, must consist of an inventory of possible alternatives. A process is therapeutic when it allows — and encourages — the patient to choose from several alternatives to the situation in which he finds himself, the situation which causes him unwanted suffering or unhappiness. In enabling, and indeed requiring, the patient to observe himself in action — since his own desire to show obliges him' both to see and to see himself — this theatrical process of recounting, in the present, and in front of witnesses 'in solidarity', a story lived in the past, offers, in itself, an alternative." P. 25.

63 Some art therapists will dispute this privileging of process over product, pointing out that real art plumbs beyond the surface: "But this attitude of acceptance, which is essential in all therapy, must not dull the artist's capacity for discrimination. The teacher has to preserve her integrity as an artist in order to be able to distinguish between the fake and the genuine, between blocks and limitations, regressions and progress, superficial pretense, and genuine communication. . ." Edith Kramer, in Krämer, and Gerity, L. A. (2000). *Art as Therapy: Collected Papers*. (Jessica Kingsley Publishers.) p. 18.

Philosophers in the tradition of ancient Greeks, value experience and reflection, not meaning. See Pierre Hadot, and Davidson, A. I. (1995). *Philosophy as a way of life: spiritual exercises from Socrates to Foucault*. Blackwell.See especially Chapter 8, "The Value of the Present."

64 "Contemporary developers of art therapy assessments have abandoned orthodox psychoanalytic approaches in favor of methods that emphasize the expressive potential of the tasks and materials (Cohen, Hammer, and Singer, 1988; Cox and Frame, 1993; Gantt and Tabone, 1997; Landgarten, 1993; Silver, 1978/1989)." *Handbook of Art Therapy*, Edited by CATHY A. MALCHIODI. (Guilford, 2003) p. 8.

65 M.A. Maryam Hedayatia1, M.A. Mahmoud Khazaei "An Investigation of the relationship between depression, meaning in life and adult hope" *Procedia - Social and Behavioral Sciences Volume 114*, 21 February 2014, Pages 598-601 *Elseveir* [doi: 10.1016/j.sbspro.2013.12.753]

"The experience of meaning in life has been recognized as an important contributor to health and well-being (Ryff and Singer, 1998; Wong and Fry, 1998). Indeed, in his classic work, Frankl (1963/1984) maintained that the need for meaning is a chronic, basic need (Heine, Travis, and Vohs, 2006). The importance of meaning in life is supported by research demonstrating its relations to a number of mental health variables such as depression, anxiety, hope, and life satisfaction (Mascaro and Rosen, 2005; Reker, Peacock, and Wong, 1987; Ryff, 1989; Steger and Frazier, 2005; Zika and Chamberlain, 1987, 1992). Steger and his colleague (2009) sees meaning in life as the manner in which people feel their lives have purpose, and how they comprehend their experiences." Abstract: "Depression is one of the most common mental health problems in the world, so identifying variables that are related to it is very important. The purpose of the present study was to examine the relationship between *depression, meaning in life and hope [my emphasis]*. All 215 participants were students asked to complete the Beck Depression Inventory (1961), the Meaning in Life Questionnaire (MLQ) (in press) and Adult Hope Scale (AHS) (2002). The data of the study were analyzed by using the Pearson correlation coefficient. The results showed that there is a significant negative correlation between depression with meaning life ($r = -0.479$, $p < .01$), Presence meaning in life subscale ($r = -0.511$, $p < .01$) and Search meaning in life subscale ($r = -0.286$, $p < 0.01$). Also, the statistically significant correlation exist between depression and adult hope ($r = -0.484$, $p < 0.01$). It was found positive significant correlation between subscales of hope and meaning in life. Attention to these factors to minimize depression and to promote the society general health would be helpful. conference: Social and Behavioral Sciences 114 (2014) 598 – 601 1877-0428 © 2013 The Authors. Published by Elsevier Ltd. Selection and peer-review under responsibility of Academic World Education and Research Center. doi: 10.1016/j.sbspro.2013.12.753 ScienceDirect 4th World Conference on Psychology, Counseling and Guidance WCPCG-2013

inclusion emerged in a pilot program for ninth graders in the Kibera slum of Nairobi where roughly half the youth are clinically depressed. The arts-literacy pilot did not single out mentally ill classmates, since all participated. The simple prompt to make art from a required text charmed even reluctant readers to create liberating interpretations, through drawings, rap routines, riddles, dance, theater, and other art forms of their choice. One result was a significant reduction in depression and anxiety. Another was enhanced pleasure in reading.[66] Parallel projects in a Buenos Aires mental hospital confirm the findings (see footnote 82).

Genres and styles of artmaking will vary among regions and even between households, but the practice of making new things and performances from available materials and conditions is hard-wired in human beings. "Art making is an innate human tendency, so much so it has been argued that, like speech and tool making, this activity could be used to define our species (Dissanayake, 1992)." If artmaking is a human birthright, as philosophers and educators have long noted, we can count on a creative mental faculty to address boredom. We can also count on an abundant roster of mentors to channel energy into artmaking. Artists are everywhere. They can rise to the challenge of what to do with unbidden free time. Should we consider free time to be an inevitable trigger for trouble and prepare more prisons? Or can it be a resource for the conversion of capabilities into functions?

"There is nothing either good or bad, but thinking makes it so,"[67] Shakespeare quipped. Interpretation makes the capabilities approach work in unscripted ways. Prepared scripts of behavior can "muff" genuine advantages, Sen observes. [68]Free time, one of those unacknowledged advantages, is muffed when bored people feel helpless without prescribed activities. Policy makers may be equally stuck in predetermined scripts. Sen counts on people's innate reasonableness to take advantage of opportunities. But Shakespeare's lesson about interpretation adds creativity to reasonableness. The addition turns information into something new. In fact, Sen defends creativity as a dimension of reason (Sen, 2012). He stretches Bentham's identification of material and mental satisfaction to leave room for "creative discontent and constructive dissatisfaction."[69] Creativity is born of dissatisfaction. New ideas and things respond to "what is missing." While Bentham's brand of happiness depended on desire-fulfillment, Sen warns that this goal will short-change capabilities if poor or oppressed people adjust to desires within reach.[70] His update of utilitarian philosophy, elaborated by commentators and critics, points out that desires are not always constructive. Sometimes they are antisocial, like interrupting intolerable boredom by inflicting pain on others. Fulfilling a personal desire can come at a high cost to others.[71] Can we provide creative programs that embrace freedom rather than fear it?

Sen's exhortation to be flexible about culturally conditioned values[72] raises an ethical challenge: Should a community always support the conversion of personal capabilities into functions? Should we assign a positive value, for example, to the conversion of unbearable boredom into violence? How should policy respond to this danger in Sen's non-normative thinking? Nussbaum answers with a list of fundamental norms to respect. But Sen's non-normative lead takes us in a different direction. It would recognize the danger of violence as an incentive to prepare alternative pathways from boredom to self-expression. The alternatives to physical and verbal violence could be the varied forms of "symbolic violence" called art. A non-normative approach to thriving need not restrict or reprimand aggressive energies. Instead, energies can be channeled into pleasant, even passionate activities. A range of non-destructive activities could add up to a framework for redesigning policies of violence prevention. The utilitarian tone of this lead recalls Jeremy Bentham's brand of hedonism, to increase pleasure and happiness for the greatest number of people (Bentham, 2003). Sen notes that by now, the word "utility" has been hijacked by economists who use it to mean maximization of resources, whether or not this fulfillment of market-driven desire leads to greater

66 Osborn, T. L., Ndetei, D., Mutiso, V., Sacco, P. L., and Sommer, D. (2022, May 24). An Arts-Literacy Intervention for Adolescent Depression and Anxiety Symptoms: Outcomes of a Randomized Controlled Trial of Pre-Texts with Kenyan Adolescents. *https://doi.org/10.31219/osf.io/7cywv* [66] See the last 25 minutes of "Desmontar la máquina," *https://youtu.be/u8yAPiyPUso*.

67 Hamlet, Act 2, Scene 2.

68 Sen, (1985). *Commodities and Capabilities*. P 5 "It is possible for a person to have genuine advantages and still to 'muff' them.

69 Development as Freedom, Knopf 1999, p. 19 See also p. 77: "To insist that there should be only one homogeneous magnitude that we value is to reduce drastically the range of our evaluative reasoning. It is not, for example, to the credit of classical utilitarianism that it values only pleasure, without taking any direct interest in freedom, rights, creativity or actual living conditions."

70 Sen [1985 *Commodities and capabilities*] pp. 2-3: "This took the form of seeing utility as *satisfaction* or *happiness* (in line with classical utilitarianism), or as *desire-fulfilment* (in line with much of modern utilitarianism). But in much of modern p.3 economics 'utility' serves other purposes too, standing for whatever the person maximizes (or can be seen as maximizing) or simply for the person's well-being or advantage no matter how that is judged. This loose usage has had a confounding influence on economic analysis. Mathematical exactness of formulation has proceeded hand in hand with remarkable inexactness of content." On pp 21-22: "Our mental reactions to what we actually get and what we can sensibly expect to get may frequently involve compromises with a harsh reality. The destitute thrown into beggary, the vulnerable landless labourer precariously surviving at the edge of subsistence, the overworked domestic servant working round the clock, the subdued and subjugated housewife reconciled to her role and her fate, all tend to come to terms with their respective predicaments. The deprivations are suppressed and muffled in the scale of utilities (reflected by desire-fulfilment and happiness) by the necessity of endurance in uneventful survival."

71 Recently, there has been a discussion within the capability literature about whether capabilities and functionings should be limited to only encompass positively valued doings and beings — such as according to a normative theory, those that we have reason to value, or those which promote some ultimate normative aim, such as human dignity or agency — or whether capabilities and functionings are value-neutral concepts that encompass not only normatively positive but also negative and neutral doings and beings (Byskov 2020; Robeyns 2017).

72 Sen's argument on the importance of flexibility in culturally conditioned values can be found in Sen, A. (1999).
Development as freedom. Oxford (United Kingdom) Oxford Univ. Press.

happiness. "Mathematical exactness of formulation has proceeded hand in hand with remarkable inexactness of content."[73]

Levels of boredom will not figure in GDP calculations, based on national aggregates that fudge glaring economic inequalities.[74] But the capabilities approach can acknowledge boredom as a variable for wellbeing.[75] If boredom were considered a resource of time and freedom, providing creative activities would help people use what they have to do what they can. Sen illustrates the difference between having and doing with the example of a bicycle: Someone who knows how to ride, turns the object into a resource, whereas someone else does not.[76] The process is "equally concerned with the conversion of more intangible resources, such as human capital and public goods (Nussbaum et al., 1993)." Training in creative arts, for example, turns free time into a resource. The conversion begins with a choice of perspective: To see the menacing elephant in the room as a platform for freedom. "There is nothing either good or bad, but thinking makes it so." If the capabilities approach is best understood "as a 'thin' framework, which can be filled in by 'thicker' theories and applications (Qizilbash, 2012)," why not fill in with the right to be creative, the Spieltrieb, our most characteristically human capacity (von Schiller, 2015).

Now is the time to notice an opportunity to adopt a fuller paradigm of functionings through programs to be developed by public and private institutions. The programs will feature more creativity and less control.

Under lockdown, there were mitigating circumstances that delayed this now urgent moment of stock taking. The rush of first responses to COVID's rising levels of infection and fatality kept us fixed on daily statistics, detailed by country, city, and neighborhood, while corollary crises of inequities of food supply and services intensified. Violence at home and in public, dropouts from school and from work, despair among young and old, are familiar crises that demand sharper focus than we have given. Perhaps there is a systemic malfunction in societies that value competition over collaboration, consumption over creativity. After the urgency to develop and distribute COVID-19 vaccines abated, a respite from immediate clinical questions is time to face the horrors of interpersonal and self-inflicted violence, suicides, massacres, police abuse. A paradigm shift is in order.[77]

73 Amartya Sen *Commodities and Capabilities* 1985: p. 2 "The term utility does, of course, have meanings of its own, defined by utilitarians. It was used quite rigorously by utilitarian economists such as Edgeworth, Marshall, Pigou, Ramsey and Robertson. This took the form of seeing utility as *satisfaction* or *happiness* (in line with classical utilitarianism), or as *desire-fulfilment* (in line with much of modern utilitarianism). But in much of modern p.3 economics 'utility' serves other purposes too, standing for whatever the person maximizes (or can be seen as maximizing) or simply for the person's well-being or advantage no matter how that is judged. This loose usage has had a confounding influence on economic analysis."

74 Pattnayak, S., and Stiglitz, J. E. (2012). The price of inequality: how today's divided society endangers our future [Review of The price of inequality: how today's divided society endangers our future]. International Studies, 49(3-4), –453. https://doi.org/10.1177/0020881714534542

75 Carter, I., 2014, "Is the Capability Approach Paternalist?", *Economics and Philosophy*, 30(1): 75–98. See also Dowding, K. and Van Hees, M., 2009, "Freedom of Choice", in Anand, Pattanaik, and Puppe (eds.), *The Handbook of Rational and Social Choice*, Oxford: Oxford University Press, pp. 374–392.

76 Amartya Sen. (1985). *Commodities and Capabilities*. North-Holland ; Sole distributors for the U.S.A. and Canada, Elsevier Science Pub. Co.: p.10. [https://archive.org/details/commoditiescapab0000sena/page/14/mode/2up?view=theater]

77 An internet search "murder and suicide" brings up multiple and multiplying cases. For esample: "*Andrew Robinson fatally shot his wife, Linda Robinson, and 12-year-old son, Sebastian*, before turning the gun on himself inside the home on Porter Road early in the morning on Feb. 9. . . . Andrew Robinson was depressed and had trouble sleeping, witnesses told investigators. He'd sought help from professionals for physical and mental health problems, and had been given prescriptions for conditions — authorities didn't specify what conditions they were. . . . The shooting was the third high-profile case of deadly family violence in Massachusetts this year, following killings in *Cohasset* and *Duxbury*. It rocked the community of Andover." *Asher Klein* and *Kaitlin McKinley Becker* • Published February 22, 2023 *https://www.nbcboston.com/news/local/new-details-released-in-andover-murder-suicide-father-believed-tohave-called-911/2980225/#:$\sim$:text=Investigators%20have%20revealed%20more%20details,the%20morning%20on%20Feb.%209*.

"APD investigating possible murder-suicide"Monday, Feb. 20, 2023, *ALBUQUERQUE* – APD's preliminary investigation into Sunday's homicide indicates a possible murder-suicide. Officers responded shortly after 2 p.m. on Sunday to a call about a possible overdose. Upon arrival at a home at 5327 Montgomery Blvd., N.E., officers discovered two people who died from gunshot wounds. The victim is identified as Isabella Bewley, 18. The second deceased individual is identified as William James, 21. The incident appears to be a domestic violence incident that resulted in a murder-suicide. The investigation is on-going." Albuquerque Police Department, *https://www.cabq.gov/police/news/apd-investigating-possible-murder-suicide*

"Prosecutors: Linden father kills wife, 2 children in apparent murder-suicide" BY LISA ROZNER UPDATED ON: FEBRUARY 20, 2023 / 6:25 PM / CBS NEW YORK" "LINDEN, N.J. – There is new information about an *unspeakable tragedy in New Jersey*." *https://www.cbsnews.com/newyork/news/prosecutors-linden-father-kills-wife-2-children-in-apparent-murde~r-suicide/* John Diaz, Cory McCord (KHOU) Published: 5:48 AM CST February 19, 2023 Updated: 2:49 PM CST February 20, 2023 GALENA PARK, Texas — *Four people* were killed Saturday night in an *apparent murder-suicide in Galena Park*, according to *Sheriff Ed Gonzalez*. It happened around 10:30 p.m. at a home on *2nd Street near N. Main St. and Clinton Dr*. According to Gonzalez, a 12-year-old called the *Galena Park Police Department* and said she was sexually assaulted by her mother's boyfriend, who also shot people at the house. She told police that she grabbed her 1-year-old niece and ran to a neighbor's house for help when she got the opportunity. *https://www.khou.com/article/news/crime/houston-shooting-4-dead-murder-suicide/285-fa92f28d-30ae-4ce~d-89e2-b04276b16b2e*

Married couple dead after apparent murder-suicide in ... - WPXI https://www.wpxi.com › news › local › 1-person-shot-c...

1 day ago — Emergency crews, including SWAT units, were stationed in the 400 block of Ashbury Court for reports of shots fired just after 11 a.m.. Police ...

Detroit police officers identified after murder-suicide in Livonia https://www.wxyz.com › news › detroit-police-officers-... Kayla Ruble

Connect the dots: desire and capability

Had legal and healthcare agencies considered a paradigm shift during lockdown, away from the familiar formula of staying still, masked, isolated, and controlled, had they dared to defamiliarize inactivity and noticed that it allowed an elephant to occupy the room, policy might have improvised creative programs. The lens of human capabilities might have re-framed the crushing beast of boredom into an enabling companion for play.[78] Play can convert faculties into capabilities. The hiatus in conversion activities didn't figure among the causes that experts linked to the spike in domestic violence. Instead, they pointed to increased levels of alcoholism and drug abuse. Of course addictions increased, but this finding doesn't address root causes or possible remedies. Arguing that drunkenness and drugs were causes of violence is like observing that suicide is caused by depression without asking why a person is depressed. What caused higher consumption of drink and drugs? Observers duly reasoned that it was the loss of jobs and social isolation. Does that make addiction inevitable and domestic violence unavoidable under conditions of lockdown? Financial hardship and lack of social contact were indeed conditions of lockdown, while work and play were on hold. But these constraints demand creative policies to mitigate the menace of violence. Otherwise, expert observations about joblessness and addiction would suggest that domestic violence is a tragic but necessary price to pay for the clinical advice to stay home. Nothing to be done about it.

Reframing what seems inevitable is what art can do. Without art, habit shrouds our perceptions under the indifferent gray of what we already know. Boredom inhabits this gray zombie existence, haunted by colorless habit until it triggers a red rage. The gray went unremarked. Normal, familiar, and apparently unworthy of scholarly or activist attention, boredom was too obvious to talk about. It is the unspeakable elephant in the room, not because the beast is too frightful to confront but because it didn't seem worth talking about.[78]

Lockdown countdown

A group of Brazilian professional soccer players took note. They turned their game into a resource for violence prevention. Amigos do Bem had formed years earlier to provide sports training, food, and other services to underserved young people and their families. They channel the national love of soccer into love for people and support for their development. With the pandemic, the players created Futebol Viral, a creative program in primary prevention of domestic violence. With good humor and enviable skill, Amigos do Bem directed men's desire for action toward repurposing the home as a field for sports. Futebol Viral engaged men in manly sports-based activities while they were stuck in tight quarters. Given the urgency of the moment and the statistics of domestic violence, the program postponed the players' long-term goal to reform gender assignments while they acknowledged existing contrasts between men and women. Surprisingly for some of us, soccer is as popular among women in Brazil as among men. The difference between them is the range of activities each gender pursued during confinement. Men were at a greater loss than were women, and the violence prevention program consisted of activities that men could enjoy. This was a clear case of the interpersonal conversion of capabilities into human development. Women's wellbeing depended on men's skills to enhance their own happiness. Futebol Viral has a family resemblance to many on-line arts activities that stimulated participation during the pandemic. Orchestras, choirs, dance companies, conversations, proliferated to fill in the time, but also to take advantage of it. The soccer option also took advantage of men's preferences, since few were drawn to more elite varieties of programming. But all these creative activities are options and inspirations for imagining a general paradigm for violence prevention.

Primary prevention is a public health strategy that includes reducing risk factors (Celentano and Szklo, 2019). Although prevention was originally designed to avert disease, this strategy has become essential to mitigate risk factors related to violence against women, now that domestic violence is recognized as impacting physical health, mental health, and social wellbeing (Walden and Wall, 2014). Among the risk factors for violence against women, studies recognize gender inequality, social norms and practices that condone violence, weak sanctions, and insufficient resources for support (Flood and Webster, 2007). Still lacking are the resources for dealing with boredom. This is a significant concern for public health policies that aim to prevent pathologies. Rather than "simply accepting or reacting to violence, its starting point is the strong belief that violent behavior and its causes can be avoided" (World Health Organization, 2002, p. 45). Boredom is one of the causes yet to be featured in recommendations for redress of blindness to causes of violence.

Men get bored at home and boredom made them more violent during lockdown. Conventional gender roles still structure many families and make the home the space of engagement for women, and disengagement for men. The challenge was to develop enjoyable activities for men at home. Soccer, for example.

The Detroit News "Two Detroit police officers were found dead in an apartment in Livonia on Sunday, according to law enforcement. Detroit police Chief James White said the bodies were discovered in the suburban apartment and that the officers' deaths appeared to have been a murder-suicide"

https://www.detroitnews.com/story/news/local/wayne-county/2023/02/19/detroit-police-officers-murder-sui cide-livonia/69921367007/

days ago — Livonia police identified the couple involved in Sunday's murder-suicide as Matthew Ethington II, 26, and Maria Martin, 22.

Family reveals new details after murder-suicide in Waukee https://www.kcci.com › article › waukee-police-identify...

days ago — Waukee police say 26-year-old Nelcybert Estafani Castillo Mata is the victim in a murder-suicide. Castillo Mata's family told KCCI she was a ...

Police identify victim in Indianola murder-suicide case - KCCI https://www.kcci.com › article › police-identify-victim-i...

1 day ago — The victim is identified as 59-year-old Sheila Ann Kelly, who was in a domestic relationship with 56-year-old Jack Gordon Heiss Jr. He was also ...

78 The concept of human capabilities was developed by economist and philosopher Amartya Sen and refers to a person's ability to lead a fulfilling and valuable life. See Sen, A. (1999). Development as freedom. Oxford (United Kingdom) Oxford Univ. Press.

How does one translate (literally to move from one place to another) some of the pleasures of the open-air playing field to home based activities? Amigos do Bem got busy improvising answers. On readily available communications platforms such as WhatsApp and Facebook, technology helped to move soccer from the field to the house where offers of exercise, lessons in fancy footwork, live webinars, video games, book clubs, and art making multiplied the pleasures of being at home. Boredom could be banished from domestic life. During the lockdown, the WHO discovered soccer too. It announced an alliance with FIFA, to engage the world of soccer in a campaign against domestic violence (Al Jazeera News, 2020). To what extent can enjoyable soccer-related experiences mitigate this risk factor for violence at home? It was a practical question about reducing violence by mitigating boredom.

If boredom is the absence of stimulation, logically stimulation and activity can be remedies. But the logic is paradoxical for some people. As an intervention against gender violence, two obstacles arise: (1) Pleasure carries the stigma of perversion or danger, as if it were a detour from the obligation to improve ourselves. (2) Violent or potentially violent men seem unworthy as beneficiaries of pleasurable programs, even if these constitute an approach to primary prevention against male violence. This objection was voiced by the Secretary of Civic Culture in Bogotá Colombia. [79] It is precisely this inhibition of pleasurable activity that causes boredom among disengaged men. The paradox of proffering pleasure to perpetrators is not a contradiction but an unexpected connection. A dispassionate consideration of available tactics to curb harmful behaviors at home will have to confront a stigma against pleasure and cure it, because the home will not be safe until it becomes a pleasant environment for everyone. Not to take the cure is to rehearse conventional scripts about violent men and vulnerable women as we watch, with alarm, the rise in cases of domestic violence and depression.

The anhedonia of boredom can be cured by pleasure if this value of wellbeing is recovered. In its current and prolonged state, restrictions on pleasure are avenged in violent versions of pleasure-seeking. The Futebol Viral project posed two main questions: (1) Can the experience of soccer at home reduce boredom and help to make the home a pleasant space for men? (2) Will this resignification of domestic space lead to a mitigation of domestic violence? The confinement caused by COVID-19 made it the ideal time to focus on the chronic problem. More glaringly than ever, we noted the lack of research on the relationship between domestic boredom and domestic violence. Numerous studies document the connection between boredom and violence. They study penal centers, student residences, military or scientific encampments, and other spaces whose common denominator is the condition of total or partial, voluntary or involuntary confinement. There is no study about boredom at home. Having identified this knowledge gap, we understand that a basic research study is needed to answer the above questions since they have not yet been addressed through empirical data. For this, it will be necessary to carry out a quantitative study based on interviews with those who can testify to their experiences of boredom, violence, and pleasure during COVID19. See https://culturalagents.org/futebol-viral/.

Pre-texts as childs-play

For children during lockdown, boredom was a bane of their diminished lives. The effects of missing school, friends, and activities were almost immediate. And the after-effects show high levels of depression and despair worldwide. Psychological wellbeing has by now become an earnest concern for many public and private agencies. Though Amartya Sen had not taken mental health into serious account when he began to develop his capabilities approach, it soon became an important horizon for him.[79]

After the lockdown had lasted for months with no promise of letting up, a desperately unhappy 8 year old in Buenos Aires prompted her worried mother to create a customized activity for her daughter. Tálata Rodríguez cleverly converted Pre-Texts, an arts-based literacy program, into a virtual practice for touchless times. She recruited a few parents of Eva's classmates to initiate a WhatsApp group for ten isolated fourth graders.[81] Again, personal wellbeing for the girl would depend on the happiness of others. Tálata is a poet who began her work with Pre-Texts in a 2018 collaboration between Cultural Agents Inc. and the City Housing Authority (IVC). The objective was to ease a massive relocation campaign. Few people wanted to move from their homes, however miserable the structures seemed to outsiders. The arts-literacy campaign helped to encourage slum dwellers to move from their cozy but unsafe housing to more sturdy buildings in bright but unfamiliar neighborhoods. Literacy, we know, is as important an indicator as longevity and income for the "Human Development Index." And Pre-Texts makes literacy fun. The international program has lasted in Buenos Aires through repeated municipal grants that confirm the efficacy of arts-literacy to develop capabilities among at-risk youth. See www.pre-texts.org

Before Pre-Texts became a standard practice on zoom during lockdown before it was adapted as a mental health intervention in Nairobi, Tálata's WhatsApp pilot had demonstrated how to support wellbeing through improvisation under apparently paralyzing constraints. This is a case of achieving advanced functions by engaging capabilities in an otherwise desperate environment. Schools were at a loss. Teachers lost students to a lack of laptops and breakdowns in zoom. Childish joy withered. Tálata improvised. Where there was no internet, there was phone service. Rather than stress over access to zoom which favored the haves and excluded the have-nots, WhatsApp was available to all. On the hand-held platform, the Pre-Texts protocol adjusted to limitations. Instead of reading aloud to an assembled group of students, the way we normally begin Pre-Texts (imitating the "lectores" in tobacco factories), under lockdown one student recorded the text that all the students were required to read for school. Then he uploaded the recording for the WhatsApp group so that the others could recover

79 Standard of living p. 36 "I have tried to argue elsewhere that this may well be a good way to proceed, but I am less sure of this now.13 Being psychologically well-adjusted may not be a "material" functioning, but it is hard to claim that that achievement is of no intrinsic importance to one's standard of living. In fact, any achievement that is rooted in the life that one oneself leads (or can lead), rather than arising from other objectives, does have a claim to being directly relevant to one's standard of living."

it. In the next step, when each student asks the text a question and hangs it on a clothesline, the new version with isolated participants collected questions on WhatsApp. Then the participants posted answers; they took photos and pasted their drawings; they proposed new activities and continued to "play" with the assigned text. In this asynchronous but collective platform, the children regained agency and social contact. Even better, their reading and writing improved despite the isolation, as they converted lessons into playthings and learning into shared fun.

A caution against caution

Transforming lessons into play may sound naughty or daring, unless we remember that "school" (σχολή scholē) means leisure in both ancient and modern Greek. School is the time and space for exploration and discovery. So, the playful paradigm shift is a paradoxical recovery of ancient wisdom that recognized the dignity of pleasure. Paradigm shifts feel risky. Like moving from cozy dank slums to airy new neighborhoods, switching from outworn assumptions to new ideas raises resistance even when the novelty promises improvements. Take the familiarity of domestic settings for example, where boredom looms like an elephant. Clearly, the threat of domestic violence demands consideration of both the dangers and the mitigating opportunities. But there has been little consideration of boredom at home by authorities, health professionals, or policymakers. People tend to ignore boredom. The issue itself sounds tedious rather than triggering. Even for those who can be persuaded to perceive the rumbling threat and to consider the creative cure, more familiar and less effective thoughts about idleness and arts may survive the new knowledge. Zombie paradigms haunt us. One such zombie concept is that art is decorative and pleasant, but not necessary for wellbeing. In fact, art should be understood as a convenient name for change itself. How can change happen without imagining counter-factual and surprising alternatives to what already exists?[80] Considered to be decoration or a luxury, art has been narrowly understood as a product of culture rather than as the dynamic process of making. Better understood as a "verb" than a "noun," art is something intentionally made to interrupt the boredom of habit and to revive care for the world. Art is artifice, in Viktor Shklovsky's elegant formulation.[81] The simple word raises difficulties in European languages because art, like culture, has two incommensurable meanings: the decorative or collectible product vs. the exploratory process; the shared patrimony of practices and beliefs vs. the creative interruption of that patrimony.[82]

Change requires interruption. It is an art of improvisation, risk-taking and judgment. But policy makers usually prefer a sure bet. Perhaps this is one reason for overlooking art as a resource for development. Art takes risks. If culture means only a legacy of shared sites and beliefs that bond communities, the bridging capacity is forfeited. Making new artistic projects can bridge diverse communities and foster social capital through the conversion of personal capabilities into enhanced social functionings and collaboration. For decision makers who manage to make the shift from considering only the GNP as the index of development to adopting a capabilities approach, the corollary will be to promote wellbeing through behavioral changes. In the spirit of Amartya Sen, these changes will value personal autonomy and self-fulfillment while taking local conditions and preferences into account. It is a creative improvisation, "a simultaneous and two-way relationship between functionings and capabilities."[83]

Like art, development takes reasonable risks to change perceptions and expectations. Making something new with existing resources and constraints converts capabilities into skills. Art is the process of conversion from what is to what can be. We can count on an inexhaustible human resource for this process: creativity, the play drive, a fuel that policymakers can count on. With artmaking, free time is a gift rather than a threat.

The paradigm shift in policy will be to invest in participatory art projects rather than in prisons and police. For authorities in city government, schools, prisons, hospitals, etc., participatory artmaking can address otherwise daunting challenges, including security, education, public health, and immigration. The low-cost, high-impact projects that resolve boredom into skill building through youth orchestras, mural crews, dance troupes, theater companies were well-known but under-exploited before the pandemic. This user-friendly approach continues to be available and to be discounted. It is the therapeutic view of a ubiquitous elephant, an unhurried companion for leisure activities who occupies the same space as the brooding beast of boredom. Perhaps the laboratory experience of lockdown can yield an important if redundant finding: People are dynamic and need outlets to channel potentially explosive energy into collective arts. A paradigm shift from policing to participation will be an advance in human development for each one of us and for our interlocking societies.[84, 85]

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.

80 This is the rhetorical question that Mayor Antanas Mockus of Bogotá, Colombia, would pose to skeptics.

81 Viktor Shklovsky, "Art as Technique" 1917; "El arte como artificio" in the Spanish version. https://warwick.ac.uk/fac/arts/english/currentstudents/undergraduate/modules/fulllist/first/en122/lecturelist2015-16-2/shklovsky.pdf.

82 See Raymond Williams, "Culture" in *Keywords*, Oxford UP, 1976.

83 Sen standard of living 50.

84 Stanford Encyclopedia: "Nussbaum passionately advocates that all people all over the world should be entitled, as a matter of justice, to threshold levels of all the capabilities on her list; but apart from mentioning that it is the governments' duties to guarantee these entitlements (2006: 70), she remains silent on the question who precisely should bear the burdens and responsibilities for realizing these capabilities. Yet as O'Neill (1996: chapter 5) has argued, questions of obligations and responsibilities should be central to any account of justice."

85 Subsequent studies confirmed these data (Boserup et al., 2020; Bradbury-Jones and Isham, 2020; Campbell, 2020; Leslie and Wilson, 2020; Miltimore, 2020; Mlambo-Ngcuka, 2020; Usher et al., 2020; World Health Organization, 2020; African News Agency, 2020).

Ethics statement

Ethical approval was not required for the study involving humans in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was not required from the participants or the participants' legal guardians/next of kin in accordance with the national legislation and the institutional requirements.

Author contributions

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

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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frontiers | Frontiers in Sociology

TYPE Conceptual Analysis
PUBLISHED 11 January 2024
DOI 10.3389/fsoc.2023.1220470

OPEN ACCESS

EDITED BY
Pier Luigi Sacco,
University of Studies G. d'Annunzio Chieti and Pescara, Italy

REVIEWED BY
Keith V. Bletzer,
Arizona State University, United States
Yi-Tung Chang,
National Pingtung University, Taiwan

*CORRESPONDENCE
Bonnie Talbert
btalbert@fas.harvard.edu

RECEIVED 10 May 2023
ACCEPTED 05 December 2023
PUBLISHED 11 January 2024

CITATION
Talbert B (2024) Restorative justice as customized creativity: Tinker Bell's magic. *Front. Sociol.* 8:1220470. doi: 10.3389/fsoc.2023.1220470

Restorative justice as customized creativity: Tinker Bell's magic

Bonnie Talbert*

Committee on Degrees in Social Studies, Harvard University, Cambridge, MA, United States

While many scholars have noted a rise in boredom coinciding with the emergence of modern capitalism, philosophers have long maintained that boredom is part of the horizon of human experience. Although specific social conditions may exacerbate it, boredom will never be completely eradicated. Nevertheless, its presence indicates that something is not right. Recently, cultural criminology has highlighted that boredom and monotony can trigger criminal behavior. If boredom is a contributing factor to crime, then I propose that creative, restorative justice processes can serve as an effective antidote. These practices aim to make things right by establishing obligations that restore the dignity and meaning of a victim's life.

KEYWORDS

philosophy, boredom, restorative justice, creativity, cultural criminology

Introduction

It would be natural to see creativity and justice as contradictory goals. Creativity is often associated with characteristics like uniqueness and spontaneity, whereas modern systems of justice often strive for equality under the law such that everyone is subject to the same rules. But there are compelling reasons to think that creative justice is no oxymoron, and may in fact provide a more satisfying and lasting path toward fairness, equity, and repair. In this essay, I will examine some creative, restorative solutions to crime that have opened up new possibilities for thinking about the relationship between crime, creativity, and restorative justice.

Inspired by Indigenous practices, the idea of restorative justice emerged in the United States as an alternative to the Western legal system (Zehr, 2015a), and aspires to make good on the case-by-case tradition that favors particularities over more uniform procedures. Like creative projects in general, restorative justice focuses on particularities and considers a range of possible combinations to achieve satisfying results. Within the constraints of the possible – when human lives cannot be revived, or funds cannot recompense financial losses, restorative justice explores satisfaction for victims that is often more symbolic than material. An interesting and exemplary case is known as "Tinker Bell," named for the artwork commissioned by a victim from her victimizer. The deliberations and the realization of the work illustrate ways in which creativity, connection, and victim satisfaction can be achieved at the same time as behavioral reform to forestall future harm.

Harmful behavior, in this and many other cases, has a trigger in the under-examined danger of boredom, according to scholars in the field of cultural criminology. And so the remedy for wrongdoing must address this often unsuspected cause of crime: a compulsion to relieve boredom. To appreciate the trigger and the resolution in the Tinker Bell and other such cases, an examination of boredom will be instructive.

Boredom: beyond modernity

The history of the philosophy of boredom is rich and fascinating if underappreciated (Toohey, 2012; Koerth-Baker, 2016). While the COVID-19 pandemic reinvigorated both scholarly and public interest in exploring the nature and significance of boredom, the topic has long been a philosophical and practical concern.

Boredom is frequently conceptualized as a consequence of the development of commercial society. Many scholars in cultural studies claim that boredom is a uniquely contemporary phenomenon (Dalle Pezze and Salzani, 2009). These arguments suggest that our modern lives and monotonous jobs are, in large part, what make us bored. Within his own time, Adam Smith, known for formulating the logic of capitalism, famously wrote that the division of labor contributes to the boredom of workers by requiring them to do the same thing over and over. As a consequence, Smith (1981) added, bored workers become incapable of breaking out of their mind-numbing activities, i.e., their boredom makes them boring (839–840). Even worse, it is not just a few workers on the assembly line who are negatively affected by the division of labor; the majority of people in commercial society are targets for boredom, resulting in a collective loss of creativity and imagination (840).

While Smith rightly noted that the division of labor and constant repetitive work can produce boredom, the origins and manifestations of boredom are not confined to contexts of commercial society. Boredom has been a part of the human experience long before the rise of contemporary job structures (Svendsen, 2005; Kuhn, 2017; Ros Velasco, 2017). Even in the most exciting jobs and favorable social conditions, people can feel bored. This inherent and ubiquitous nature of boredom underscores its existential roots, affirming its persistence across varied socio-cultural and occupational landscapes.

Yet, even if boredom is a standard part of human experience, this does not mean we should welcome it. Many other philosophers (Schopenhauer, 1969; Nietzsche, 1993; Pascal and Krailsheimer, 1995; Kierkegaard, 1998; Heidegger, 2019; Sartre, 2021) have suggested that boredom is both an existential part of the human condition as well as something we should challenge.

Boredom: a brief conceptual analysis

Boredom is often understood as a complex, subjective experience that affects each person differently. Some are more distressed by it than others, and some are bored by things others find captivating. At the same time, almost no one gets to live a life without moments of boredom. Similar to feelings like pain or sadness, boredom signals that something is amiss. This is where boredom stands apart from 'downtime' or 'rest.' Unlike boredom, periods of rest are welcomed as beneficial, as contributing to creativity and increased productivity, and as a necessary break from the busy nature of daily work life (Gump and Matthews, 2000; Baumeister and Tierney, 2011; Zomorodi, 2017). While both boredom and rest involve stepping back from active engagement, they have distinct implications; boredom indicates a problem or misalignment in one's mental state, while downtime is either neutral or refers to a positive, rejuvenating experience.

In his analysis of boredom, the philosopher Harry Frankfurt (1992) characterizes boredom as a state where an individual feels detached or disconnected from their desires. On this view, when we are bored, we are not simply in a state of not having anything to do but rather in a state where we find ourselves unable to connect with or care about our interests. This leads to what he calls an "attenuation of psychic liveliness," where a person feels internally "deadened" or "flat." When people are bored, they do not feel compelled or moved by any particular desire, interest, or concern.

This concept of boredom is part of Frankfurt's broader philosophical account of the structure of human desires. He famously differentiates between "first-order" desires (desires for various things or outcomes) and "second-order" desires (desires about desires, such as wanting to want something). For Frankfurt, boredom can be seen as a failure or disconnection at this second-order level. When we are bored, it is not that we do not have first-order desires (such as desires to read a book or go for a walk); it is that we lack second-order volitional engagement with those desires. We might know things we could or should want to do, but we do not feel engaged or connected to those wants. Thus, the "attenuation of psychic liveliness" in boredom is not about the absence of things to do but the more profound disconnection or detachment from our motivational structures. This understanding of boredom reveals that there is more to the common perception of boredom as mere idle inactivity. As the Russian classic writer Tolstoy (2013) described, the state of boredom is "a desire for desires."

While Frankfurt does not offer a prescriptive guide on how to live our lives, his insights on boredom provide several reasons to resist or confront it. Because boredom signals a detachment from our desires, resisting boredom can be seen as an effort to reconnect with what we genuinely care about or value. Pushing back against boredom becomes an endeavor to revive or maintain our inner vitality and engagement with the world. We can interpret boredom as a signal that indicates that it is time to reinfuse our lives with meaningful activity, ensuring that our lives are adequately directed toward things we care about. Frankfurt suggests that the human desire to avoid boredom is a basic instinct, not just because boredom is unpleasant, but because it dulls our mental processes. When we are bored, our attention and responsiveness to what is happening around us decreases, and we fail to notice or make important distinctions, leading to a more uniform and less varied conscious experience: "…[T]he avoidance of boredom is a very fundamental human urge. It is not a matter merely of distaste for a rather unpleasant state of consciousness. Being bored entails a reduction of attention; our responsiveness to conscious stimuli flattens out and shrinks; distinctions are not noticed and not made, so that the conscious field becomes increasingly homogeneous. The general functioning of the mind diminishes," (12). In its extreme form, this lack of differentiation in our consciousness can lead to a state that is almost equivalent to having no conscious experiences at all: "Its tendency is to approach a complete cessation of significant differentiation within consciousness; and this homogenization is, at the limit, tantamount to the cessation of conscious experience altogether," (12).

Various strategies have been employed to resist or alleviate boredom, some leading to unconventional and even destructive paths for escape. Several scholars have presented the idea that crime, as unexpected as it may sound, could serve as one of these outlets. Frankl (2006), a renowned psychologist, and Holocaust survivor, provides an illuminating perspective on this phenomenon. He asserted that, "…[T]he place of frustrated will to meaning is taken by the will to pleasure," (79). The void left by meaninglessness, what Frankl calls an

existential vacuum, leads to a state of boredom where individuals can feel pulled by the allure of transient and often superficial pleasures, feelings that can be associated with crime. The immediacy of the gratification provided by these pleasures serves as a temporary escape from the overbearing sense of emptiness.

Boredom and cultural criminology: resistance to rationalized control

In 1988, Jack Katz introduced his phenomenological approach to crime, which emphasized the immediate "foreground" motivations, such as the immediate emotional experiences of crime, and, in contrast to traditional criminology, focused less on background conditions such as race, class, and gender (Katz, 1988). This approach to crime centers the lived reality of the perspective of those involved, with attention to the meanings, feelings, and understandings that characterize the first person experience of crime. Looking beyond objective and structural explanations, a phenomenological perspective captures the thrill, risk, pleasure, or fear that individuals might experience during criminal acts.

Building on Katz's work, Jeff Ferrell's perspective on crime centers the socio-cultural and experiential motivations behind criminal acts. Ferrell (2007, 293) suggests that some crimes are motivated not by a desire to harm others or their property but by an attempt to escape boredom.

According to Ferrell, many modern routines and regulations can lead to a pervasive sense of boredom, such that the act of committing a crime can be seen as a form of symbolic interaction: a way for individuals to express discontent, resist cultural norms, and seek excitement amidst a monotonous societal backdrop. Crimes committed out of boredom are often expressive, countercultural acts that subvert the repetitive dullness of modern life: "Excitement, it seems, is in reality a means to an end, a subset of what ultimately emerges as the antidote to modern boredom: human engagement," (294).

Ferrell's concept is partly inspired by Raoul Vaneigem's Situationist Critique of contemporary Western societies, which identifies increased boredom as one of the most dreadful aspects of modern life. Vaneigem warns of the dangers of intense boredom, stating, "Anyone who has felt the drive to self-destruction welling up inside him knows with what weary negligence he might one day happen to kill the organisers of his boredom… For passion destroyed is reborn in the passion for destruction" (Vaneigem and Nicholson-Smith, 2012, 162).

In considering the link between boredom and destructive behavior, Ferrell and other cultural criminologists have pointed out that identity is often linked to consumption in consumerist societies. Those who cannot participate in this consumer culture due to socio-economic constraints might feel left out or devalued. Engaging in crimes like theft or vandalism can be a form of reclaiming agency and challenging this consumerist paradigm. For those who feel alienated or marginalized, crime can offer a narrative or identity that breaks away from the perceived dullness and invisibility of everyday existence.

It is important to note that it is not just people who are found guilty of crimes that feel the pull to resist the monotony and rationalized control that modernity is said to wield. Ferrell explains: "…[t]he criminal, the consumer and the cultural revolutionary are perhaps more alike than different—that for them boredom creates a certain vacant commonality. After all, desperately looking for life amid boredom's deteriorating death, the line between pleasure and pain, between crime and commodity, can be a thin one indeed," (Ferrell, 2007, 294).

Ferrell's perspective on crime and boredom is similar to the idea of edgework, a concept introduced by Lyng (2004), that refers to voluntary risk-taking activities that push participants to the boundaries or "edges" of their emotional, psychological, and physical limits. These activities often offer a thrill or a sense of challenge as people confront their fears. Examples of edgework activities include extreme sports, high-stakes gambling, certain forms of illicit drug use, and some criminal activities. Edgework is not just about taking risks; it is also about mastering or controlling those risks. Just as a skydiver seeks to control the risk of jumping out of an airplane, a person involved in certain criminal activities might take pride in their ability to outsmart law enforcement, navigate dangerous situations, or maintain composure under pressure. Other scholars such as Hayward and Young (2004) similarly encourage criminologists to examine the intense feelings associated with crime, such as the anger, humiliation, exuberance, excitement, and fear that are present throughout the whole process, from "the intense gutted feelings of the victim, to the thrill of the car chase, to the drama of the dock, to the trauma of imprisonment," (264).

Steinmetz et al. (2017) found that boredom is a unifying experience across disparate criminological populations, such as detectives, prisoners serving life sentences, and hackers. They suggest that crime and deviance are linked to stifling social conditions that produce stunted identities and offer few opportunities for personal transformation and character development. They have also shown that even less exciting forms of crime and deviance are "linked to the same circumstances that contribute to spectacles of violence or the seemingly reckless displays of skill and bravado involved in edgework" (355).

Given this body of research, it seems plausible that a desire for excitement and creativity is a deep psychological need and an antidote to boredom. If we view crime as (at least in part) a reaction to boredom, we should consider practices and policies that address the features of boredom, such as lack of meaning, agency, creativity, and energy. Finding responses to crime that recognize and incorporate the psychological need for engagement, inventiveness, and spontaneity without causing undue harm to others and perpetuating cycles of violence is thus crucial in seeking successful and meaningful justice.

One way to address this need is to consider creative restorative justice practices, which under the right conditions, can provide a potential solution to the boredom that can lead to crime. Promoting human engagement, insight, creativity, and meaning, restorative justice can itself offer a rebellion against isolation and boredom.

Defining creativity

A full analysis of creativity is beyond the scope of this essay, but briefly it is useful to think about creativity in terms a *process* that allows for a creative result, rather than focusing solely on the result. Many accounts of creativity maintain that in order for a product to count as creative, it must be brought about in the right way. Random accidents or mistakes can result in something surprising and new, but we would not typically call such results creative. The wind might blow

a unique image into sand on the beach, but we would not think of that as the product of creativity. Typically, we think of creativity as a process that requires spontaneity, i.e., not every step in a creative process can be planned out in advance. As Gaut (2018, 133–137) points out, spontaneity comes in degrees. Plans to create something can be more or less developed, and it can be the process, the result, or both that are unknown at the start. In this sense, a kind of epistemological ignorance, or not-knowing is part of the creative process.

Creativity is also thought to be something that allows for originality. As Kronfeldner (2009) uses the term 'original', it does not simply mean producing something 'new.' Two people can independently come up with the same creative solution to a problem, for example, and as long as one did not copy from another then the discovery can still be original for each person even if they did not discover it first. Kronfeldner's account of creativity differentiates between 'historical' novelty and 'psychological' novelty. It suggests that from a psychological perspective, a person can be deemed creative even if the idea or artifact they produce is not the first of its kind in history. For example, she notes that a potter who independently develops a way of making pots that resembles traditional methods, without having been influenced by them, can be considered creative. This is because the creation is psychologically new to the potter—it originated from their own thought processes and was not imitated. The main idea behind this distinction is that psychological creativity is concerned with the individual's experience and process of creation rather than the uniqueness of the product in the broader historical context.

These two elements of creative processes, spontaneity and originality, I argue, can be part of restorative processes insofar as they allow for creative results. So if we see crime as a response to boredom, then a creative response to crime holds promise as one way to effectively address the fundamental problem.

Restorative justice, creativity, and Tinker Bell

Restorative justice is a quickly growing field that has become central to discussions of harm, crime, punishment, and power. Yet it is not always obvious what the core ideas and practices of restorative justice are. According to Howard Zehr, who started the first formal restorative justice program in the United States in 1978 in Indiana, restorative justice is "a process to involve, to the extent possible, those who have a stake in a specific offense and to collectively identify and address harms needs and obligations in order to heal and put things as right as possible," (Zehr, 2015a, chap. 2).

Restorative justice is based on a philosophy that focuses on repairing human relationships. In a restorative framework, when a crime occurs, the primary obligation is to do right by the people harmed to the extent possible. Restorative justice seeks solutions that repair harm by facilitating dialogue between the victim, the responsible party, and other affected parties.

In contrast to a "retributive justice" framework, where crime is an offense against the state, and the questions are centered around what crime was committed and how it should be punished, a restorative justice framework asks who was harmed, what they need, and whose obligation is to meet those needs. Crime is viewed as a violation of people and relationships rather than primarily as a violation of policy, and a crucial step in the restorative journey is to strengthen those relationships, which means creating spaces for people to have important discussions. This is often done in facilitated "circles" where people can tell their stories and work with others to devise a plan for how to move forward together. Because there is no singular way to repair a relationship, and because every victim needs something different, restorative justice creates conditions for individualized and creative solutions to crime.

These circles are often places to practice creative justice because there is no predetermined outcome. There is no singular solution that works for every case, or even for cases of a similar type. What each survivor needs is different and what each person who caused harm can do to take accountability for their actions is different. The process is necessarily spontaneous, because in most cases, while there are guidelines for best practices that participants follow, neither the details of how the process will go nor the end result can be known in advance. In most cases, processes will also be original, at least in the psychological sense, because the individuals' experiences and actions in the process of creating restorative communities and agreements cannot easily be copied.

In a notable example of the creative power of restorative justice, sujatha baliga tells the story of a young man who had stolen a woman's car (Butler and Butler, 2018). The victim worked in law enforcement and did not seem eager to work with the young man. When asked what would make things right, she replied that the cost of her car was the only thing that would suffice. Knowing the young man's family was struggling financially, baliga brought the two parties together for a conversation, and after a long discussion, the woman asked for a life-sized Tinker Bell painting as restitution. "Tinker Bell. A Tinker Bell as big as me," the woman requested. "And not the new one. The original Tinker Bell. I will forgive you the debt if you paint me a Tinker Bell as big as me." The young man worked with a local artist and painted a Tinker Bell for the victim to put on her wall. As a result, relationships were restored. The young man stopped stealing cars and began working with the art organization he partnered with as he made Tinker Bell, and ultimately found meaningful, creative work there.

Sered (2019, 148) provides other examples of restorative justice processes' creative and meaning-making power. In one instance, after an immigrant was robbed, the circle agreements included fairly standard practices such as apologies, community service, and education. During the restorative process, the person who robbed the immigrant explained that all the older men in his family had been to prison, and his older brother had won a prison boxing league championship. Since his brother taught him to defend himself, he offered to show his victim how to box as a way to make sure that he would not be afraid of being robbed again.

There are many more examples of innovative programs that have incorporated art and creativity into restorative justice process, demonstrating the potential for creative expression to facilitate rehabilitation and reconnection to both one's own values and to one's community (Walters, 2014). Young New Yorkers and Project Reset are two New York-based organizations that have developed successful diversionary programs that combine art and restorative justice.

Daniel Aguilar, who became an ambassador for Young New Yorkers after participating in the program as a teenager, has a compelling testimony about the transformative role art played in his life (Murali, 2020). Through creating collages and capturing videos,

he engaged in deep self-exploration, asking fundamental questions about his identity and future. These activities provided him with a "safe space" to gain perspective and contemplate a larger purpose in life.

Project Reset collaborates with local arts institutions, such as the New Museum and the Brooklyn Museum to design meaningful art experiences for participants.

As part of Mural Arts Philadelphia, a program called The Guild offers former inmates the chance to participate in creative projects such as mural making, mosaics, and carpentry, while also offering job support and professional development workshops. Participants in The Guild show a lower tendency to reoffend, with recidivism rates below 15%, significantly below the state average of 35% (Mural Arts Philadelphia, n.d.).

Across the Atlantic, the Oxfordshire Youth Offending Service in the United Kingdom employs art as a reparative gesture towards victims or the community. To make amends, offenders make pictures, mosaics, or paintings to offer as gifts to their victims or to the community (Liebmann, 2007, 398). Clair Aldington, a supervisor at the service, observes, "I believe that for reparation to be successful as part of a restorative justice process it has to be meaningful for the young person, as well as for the victim (s) of their offence. There is something powerful about working alongside a young person to develop a skill that enables them to value themselves in a new way and to begin to see the potential for change in their life," (397).

Through these programs, art becomes more than a medium of expression—it becomes a catalyst for personal transformation, a renewal of psychic liveliness, and a way to subvert the tedium and dullness that are often precursors to criminal behavior. The value of these restorative acts lies not in their rationality or logic, although sometimes they are logical, but in their capacity to help victims and people who caused harm reintegrate and reconnect to life with other people.

Although not all restorative justice processes integrate significant elements of creativity, the examples briefly mentioned here can inspire us to consider the power we have to devise imaginative and meaningful solutions to some of the most complex and intractable conflicts we face. Restorative justice is not a panacea but directs our attention to what philosophers have urged us to focus on for centuries: meaning, creativity, collaboration, and spontaneity. We can never predict what people will come up with to solve a problem, but restorative processes can be exciting and empowering, providing new paths for the parties involved to reorient their lives toward new sources of meaning. Lower recidivism rates (Steiner and Johnson, 2003; Bergseth and Bouffard, 2007, 2012; Liebmann, 2007) and other benefits of restorative justice such as increased victim satisfaction (Steiner and Johnson, 2003, 55) are significant, but the way it empowers the people affected by crime to create something new offers an antidote to not only to crime but also to boredom. As sujatha baliga teaches us, "You can never really predict what will make a victim whole. Sometimes, it's Tinker Bell."

While advocating for restorative justice, Zehr acknowledges that it is not a cure-all solution. He encourages skepticism and a critical perspective, stating, "I'd rather you be a skeptic than a true believer.… I want people to have a mixture of criticism and advocacy for it," (Zehr, 2015b). As part of restorative justice work, Zehr emphasizes the importance of acknowledging actual and potential issues and limitations. This approach allows for growth and evolution in the field as well as room for creativity and new ideas to emerge.

It is important to note that there is still much that is unknown about the directions that restorative justice might take, which can naturally lead to healthy skepticism. However, this also leaves room for hope and optimism about the future of restorative justice. By recognizing and incorporating the psychological need for creativity, novelty, and spontaneity, restorative justice offers a means of rebellion against boredom and a path toward insight, creativity, and meaning through human engagement. While it is crucial to remember that restorative practices will not solve problems of conflict, harm, and crime once and for all, we should also keep in mind that they can offer an antidote, sometimes in the form of Tinker Bell, to traditional punitive approaches. Restorative justice engages, connects, and encourages participants to actively create a unique path forward.

Author contributions

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

Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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frontiers | Frontiers in Sociology

TYPE Original Research
PUBLISHED 24 May 2024
DOI 10.3389/fsoc.2024.1214878

OPEN ACCESS

EDITED BY
Sakari Karvonen,
National Institute for Health and Welfare, Finland

REVIEWED BY
Susana Gómez Redondo,
University of Valladolid, Spain
Juan José Labora González,
University of Santiago de Compostela, Spain

*CORRESPONDENCE
Alexandra Vuyk
✉ alexandra.vuyk@uc.edu.py

RECEIVED 26 May 2023
ACCEPTED 25 April 2024
PUBLISHED 24 May 2024

CITATION
Vuyk A, Montania M and Barrios L (2024) Boredom and its perceived impact in adolescents with exceptional mathematical talent: a sequential mixed-methods study in Paraguay.
Front. Sociol. 9:1214878.
doi: 10.3389/fsoc.2024.1214878

Boredom and its perceived impact in adolescents with exceptional mathematical talent: a sequential mixed-methods study in Paraguay

Alexandra Vuyk[1,2,3]*, Maureen Montania[12] and Liz Barrios[1,2,4]

[1]Aikumby Centro de Altas Capacidades y Creatividad, Asunción, Paraguay, [2]OMAPA – Organización Multidisciplinaria de Apoyo a Profesores y Alumnos, Asunción, Paraguay, [3]Faculty of Philosophy and Human Sciences, Department of Psychology, Asunción, Paraguay, [4]Faculty of Economical Sciences, School of Economics, Asunción, Paraguay

Introduction: Boredom, a state where the task at hand presents difficulties in attentional resources and attributed meaning, can be detrimental to talent development by reducing cognitive engagement. This study employed a mixed sequential design to assess boredom in adolescents with exceptional mathematical talent in Paraguay participating in a talent development program.

Methods: First, in the quantitative phase 54 students completed the Boredom Short Scale, School Attitudes Assessment Survey-Revised, and Psychological Well-Being Scale for Adolescents. Next, in the qualitative phase 50 students participated in focus groups to explore their personal experiences of boredom, along with their perception of possible factors that impact boredom.

Results: Boredom in this population was similar to the general population of adolescents, albeit significant differences existed in items and subscales showing a pattern unique to this population; they tended to become bored quicker but had an easier time sparking interest in activities. Higher boredom had small to moderate correlations with worse attitudes at school and with teachers, lower motivation and self-regulation in academic activities, lower self-control, and lower involvement in personal projects. Higher valuation of goals and academic self-perception related with a lower tendency toward boredom only in the context of a talent development program, but not at school. Boredom seemed multifaceted, with dimensions such as the absence of meaning, superficial entertainment, and wasted time. Contributing factors included waiting for other people's slower pace, limited choices, lack of novelty, insufficient intellectual challenge, and the influence of teachers and social dynamics. Coping mechanisms included inner intellectual stimulation, seeking entertainment and escape, pursuing independent learning, extracurricular activities, like-minded peers, and extreme sensation-seeking.

Discussion: Fostering adequate challenge and support in advanced academic endeavors for the development of mathematical talent can prevent negative consequences associated with boredom in exceptionally talented populations.

KEYWORDS

boredom, mathematical talent, talented adolescents, Paraguay, mixed methods

Introduction

Boredom is a subjective experience that arises when an individual feels disengaged or uninterested in the task at hand. Being bored means that we want to do something else in that moment; this negative emotional state serves as a sign of a longing to pursue alternative activities (Westgate and Wilson, 2018). Boredom can lead to disengagement from schoolwork among talented students. In the case of mathematically talented students, insufficiently challenging classroom environments can trigger them to become heavily bored and detached from schoolwork; in turn, this could lead to decreased motivation, poor academic performance, and behavior problems that might prevent them from engaging with their communities (Wegner and Flisher, 2009; Elia et al., 2009; Leikin, 2011; Singer et al., 2016; Kilic et al., 2019; Leikin, 2020). Long-term effects might include limited development of critical thinking skills and creativity, both of which are necessary for success in any domain. Hence, it is critical to tackle boredom and ensure that mathematically talented students are appropriately challenged and supported in their academic endeavors (Smedsrud et al., 2022).

Boredom in the Meaning and Attentional Components Model

The Meaning and Attentional Components (MAC) model explains boredom in the general population as it occurs while engaged in an external activity or in one's own thoughts. This model has the advantage of integrating prior approaches that focus separately on deficits in meaning or attention. The MAC model of boredom offers a broader perspective compared to previous theories by encompassing a wider range of experiences and outcomes associated with boredom. It not only provides an explanation for boredom but also generates new predictions by recognizing different types of boredom that can elicit distinct responses based on the underlying causes related to meaning and attention. This expanded view allows for a more comprehensive understanding of the complexities of boredom and its implications (Westgate and Wilson, 2018).

The MAC model suggests that mixed states of boredom occur when individuals experience deficits in both attention and meaning. These states are commonly observed in tasks that lack significance and fail to provide adequate stimulation. Attention and meaning are recognized as separate causes of boredom, and when attentional fit is achieved, individuals engage cognitively when their cognitive demands are appropriately met (Zárate, 2021). This cognitive engagement can manifest in two ways: low-level engagement and high-level engagement, which correspond to situations of understimulation and overstimulation, respectively. The MAC model highlights that understimulation, characterized by either low demands or high resources, strongly predicts boredom. This lack of challenge, where resources surpass demands, is identified as a key factor in boredom in both recent studies (Van Tilburg and Igou, 2017) and established theoretical models (Csikszentmihalyi, 2000).

Alleviating boredom

Strategies against boredom aim to choose interesting activities over enjoyable ones to alleviate boredom and promote long-term wellbeing. The MAC model suggests four primary routes to alleviating boredom. These include regulating cognitive demands, regulating cognitive resources, regulating value of the goal, and switching activities. Regulating cognitive demands requires making the task difficult enough until it is a good fit to reduce attentional boredom; plus, it can involve adding external attentional demands, such as listening to the radio, snacking, creative mind-wandering, or other similar tasks (Wilson et al., 2014; Westgate, 2020).

In the short-term, individuals can regulate their cognitive resources by employing physiological measures such as consuming caffeine or getting adequate sleep. These options help enhance attention and alleviate boredom. On the other hand, long-term strategies for regulating cognitive resources involve engaging in sustained practice and skill development. By consistently practicing and developing skills, individuals can effectively manage their cognitive resources and reduce the likelihood of experiencing boredom over extended periods of time (Walsh et al., 1993).

The regulation of goal values involves mentally reinterpreting activities to fill them with greater meaning and introducing new goals that counteract the potential monotony associated with repetitive tasks (Wilson, 2011). This process entails reframing one's perspective and finding ways to assign significance and purpose to the activities at hand. By actively adjusting the perceived value and introducing fresh objectives, individuals can mitigate the risk of monotony and enhance their engagement and interest in the tasks they are undertaking (Steinberger et al., 2017). Engaging in different activities can be an effective strategy for managing boredom as well; however, this activity is not always possible.

Boredom levels of reward sensitivity and impulsivity can be diverted to unhealthy paths when self-regulation skills are not practiced (Moynihan et al., 2017; Milyavskaya et al., 2019), making low-effort enjoyable alternatives such as mood-altering drugs (e.g., alcohol, marijuana, tobacco) more appealing (Weybright et al., 2015). This is where choosing interesting activities over enjoyable ones becomes critical, as the former promote short-term happiness at the expense of long-term well-being. For example, choosing a fun and easy activity (like watching short videos on social media) over a more difficult but intriguing one (like watching a documentary film) might mitigate feelings of boredom in the moment, but does not enhance the cognitive work needed to develop self-regulation skills and prevent boredom in similar situations in the future.

In this model, interest and enjoyment are separate experiences. To increase interest, introducing elements of novelty and complexity can be beneficial. On the other hand, when seeking enjoyment, it is advantageous to opt for activities that provide a sense of certainty. Therefore, the choice of activities should be based on how one desires to feel, whether it is a desire for heightened interest or enhanced enjoyment (Silvia, 2006).

Boredom in talented students

In the field of gifted education, there is no universally accepted definition of giftedness or talent, leading to a diverse array of terminologies and conceptualizations across different countries and states (Peters et al., 2014). Giftedness always encompasses exceptional talent, yet the specific terms used to describe these individuals can vary depending on the educational paradigm and cultural context

(Dai and Chen, 2014). In this study, we follow the talent development paradigm (Dai and Chen, 2014) and use the terms 'gifted' and 'talented' to refer broadly to students who demonstrate advanced academic abilities and potential, recognizing that these labels may carry different connotations in different settings. Additionally, we chose to maintain the terminology used in the cited studies for consistency with the original sources.

Talent development programs recognize the importance of motivation and interest and seek to cultivate and nurture these aspects. Talent development considers abilities as evolving over time (Renzulli et al., 2009; Subotnik et al., 2011). Initially, talent is seen as the potential for future accomplishments, often observed in young children. As children grow and progress into adolescence, this potential transforms into competence and expertise. The final stages of talent development involve creative productivity and/or eminence, typically realized in adulthood (Subotnik et al., 2011). The educational journey of students can vary depending on their early environment and exposure to subjects like math and science. Some students, especially those who experience high levels of boredom, may possess exceptional learning potential that is not necessarily reflected in advanced knowledge or achievements. Studies by Dai (2010), Farrington et al. (2012), and Baudson and Preckel (2013) provide insights into this phenomenon.

Special programs are needed to address boredom and fully develop talents (Olszewski-Kubilius et al., 2014). When gifted and talented students feel bored or underchallenged, they rarely ask their teachers for help, favoring behavioral-avoidance coping mechanisms instead (Hinterplattner et al., 2022). Boredom represents a cross-sectional factor that contributes to underachievement in the regular curriculum in elementary and middle school (Preckel et al., 2010).

Neuroscience studies with mathematically gifted adolescents evidenced that the complexity of the task is related to brain activation and efficient processing (Zhang et al., 2017). In academic settings, inefficient processing due to low or high arousal translates into task-focus boredom and/or self-focus boredom. Task-focused boredom is characterized by an emphasis on the tediousness and meaninglessness of the task, whereas self-focused boredom is regarded by feelings of dissatisfaction and/or frustration (Smedsrud et al., 2022). Students who are prone to boredom may be more aware of their own internal state and may be better at recognizing when they are feeling bored or disengaged.

Talented students possess distinct psychological traits that arise from the interplay between individual characteristics and their environment. Factors such as culture and opportunities also influence their development. These students may encounter challenges such as underachievement, low self-concept, and a lack of peer support. Consequently, the talent development framework places significant emphasis on deliberately fostering psychosocial skills that support high achievement, persistence, and creativity, all of which require motivation (Subotnik et al., 2011). To develop effective strategies that address this issue and promote positive outcomes, a better understanding of the experiences and needs of mathematically gifted students is compelled for adequate development of their creativity and talent (Barraza-García et al., 2020).

Wasted time and waiting

Waiting can be particularly tedious and uninteresting for gifted students, especially during their adolescent years. Gifted students experience three kinds of waiting in classrooms: school/classroom, instructional, and assignment (Coleman, 1997; Peine, 2003; Coleman and Cross, 2005; Peine and Coleman, 2010). *Classroom structure waiting* is a phenomenon that is connected to the organization of the classroom, as well as behavior and classroom shared characteristics such as rules or the location of student desks. *Instructional waiting* occurs when new material is presented, but gifted students are already familiar with it or learn it faster than others due to their advanced abilities. It involves the instructional model used by the teacher within the school system's evaluation framework. *Assignment waiting* is the portion of the instructional period that is for classwork, workbooks, or homework. It occurs during a class that is scheduled for extended practice, or classwork, after the introduction of new concepts. Three conditions contribute to assignment waiting; gifted students finishing all assigned work at a faster rate than other students, students who complete classwork and homework assignments and forget to bring a book to read, and students who constantly anticipate the end of the day.

A qualitative study of 16 children in elementary and middle school revealed that sitting and waiting was a universal ingredient of being intellectually gifted; this grounded theory study revealed variations in context and actions, and implications for teaching, teacher evaluation, and classroom management. Statistically, among any group of students doing the same lesson, a few will learn faster and finish, several will not finish, and others take the amount of time the teacher intended. The range of achievement in a typical grade is more than 5 years, and gifted children arrive in class at the beginning of the school year knowing 40–60% of the content. Therefore, children who are gifted experience high levels of waiting that leads to boredom (Gagné, 2005; Peine and Coleman, 2010).

Meaningful, enriched learning at an adequate level

The implementation of strategies based on the MAC model, alongside ability grouping, may create an enriched learning environment tailored to the abilities of gifted students. This would involve fostering experiences that align with students' individual interests, needs, and pace of learning. This combination of strategies has the potential to protect gifted youth from experiencing boredom, as highlighted in a study by Feuchter and Preckel (2021). In addition, ability grouping is an easier and faster strategy to provide them with opportunities to go beyond the regular curriculum without hindering school administration. Most importantly, it improves academic performance, social skills, and creativity, all of which are important in preparing adolescent students for a healthy adult life (Valadez et al., 2020).

Prolonged boredom may reduce intrinsic motivation for learning in the long run if meaning is lost. However, by recognizing boredom as an alert sign, gifted students can leverage it to their advantage by assessing the engagement and meaning of the task at hand. This self-awareness enables them to make informed decisions about whether to invest their efforts and motivation in the task or seek more stimulating and meaningful alternatives.

To prevent boredom, teachers should design tasks that provide an individually optimal level of stimulation, which requires knowledge of students' ability level and learning preferences (Acee et al., 2010;

Preckel et al., 2010; Westgate and Wilson, 2018; Feuchter and Preckel, 2021). According to Preckel et al. (2010) and Feuchter and Preckel (2021), grouping gifted students by ability may have positive academic outcomes.

Case of Paraguay: the present study

Schools play a crucial role in creating opportunities for gifted students at various stages of talent development, while community-based organizations, universities, and cultural institutions can offer valuable out-of-school programs (Olszewski-Kubilius and Clarenbach, 2012; Peters et al., 2014). In developing countries such as Paraguay, where no gifted and talented education programming exists and provisions for advanced learners are scarce, out-of-school programs take a more prominent role; as students might frequently encounter boredom in educational activities due to a mismatch of meaning and attentional components.

Using a sequential explanatory mixed method design, this study investigated boredom in exceptionally talented adolescents participating in an elite mathematical talent development program in Paraguay.

Research questions were as follows:

> RQ1. Are exceptionally talented students in mathematics in Paraguay more prone to boredom than their age peers?
> RQ2. Is boredom related to school attitudes and psychological well-being in this population?
> RQ3. What factors impact their perception of boredom?

Method

Design

We used a sequential explanatory mixed method design (QUAN→QUAL) with a descriptive-exploratory quantitative phase and a phenomenological qualitative phase. Quantitative measures were taken using psychometric questionnaires; qualitative data was collected in focus groups to make meaning of the social experience of boredom and complement the quantitative data.

Phase 1: quantitative

Participants

In the quantitative phase, 54 adolescents between the ages of 12 and 17 participated in the context of a larger project on talent development in the year 2022 ($M = 14.4$ years, $SD = 1.35$). They were invited as part of an exclusive program for the development of exceptional mathematical talent, for which they were invited after reaching the finals in the National Math Olympics. They had been participating in the National Math Olympics for a mean of 5.17 years (SD = 2.30), ranging from the first year competing to the ninth year in the Olympics. As for participation in the mathematics talent development program, the mean was 2.15 years (SD = 1.57) with a minimum of 0 years (i.e., just beginning) to 6 years in it (i.e., about to graduate high school). Regarding gender distribution, 28 identified as girls (51.9%), 23 as boys (42.6%), one as non-binary (1.9%), and two preferred not to disclose gender (3.7%).

Instruments

Participants completed a demographic information form which asked for gender, age, city, schooling, years participating in the Math Olympics, and years participating in the enrichment program. They also completed three psychometric questionnaires:

Boredom Short Scale

In Spanish Escala de Aburrimiento (EsAb; Gonzalez Ramirez et al., 2021), it is a brief 7-item questionnaire in a 5-point Likert scale, developed in Mexico. It has two subscales: tendency toward boredom with four items, and lack of interest with three items. All items are positively worded.

Spanish adaptation of the School Attitude Assessment Survey-Revised

The SAAS-R is a 35-item questionnaire in a 7-point Likert scale (McCoach and Siegle, 2003). It has 5 subscales: attitudes toward school, attitudes toward teachers, academic self-perception, goal valuation and motivation/self-regulation; it was adapted with Spanish adolescents by Miñano et al. (2014). For this study, participants were asked to complete each item twice: once thinking about their school, and once thinking about their classes at the elite mathematical talent development enrichment program. In this way, we could test their perceptions and attitudes regarding formal schooling as well as the specific talent development program.

Psychological Well-Being Scale for Youth

In Spanish Escala de Bienestar Psicológico para Jóvenes (BIEPS-J; Casullo and Castro Solano, 2000), it is a brief 13-item questionnaire in a 3-point Likert scale, all positively worded. The BIEPS-J has four subscales: self-control with four items, interpersonal relationships with three items, personal projects with three items, and self-acceptance with three items. All items can be added for a general psychological well-being score, with a higher score representing higher well-being. Originally developed in Argentina, researchers in Paraguay have already used the BIEPS-J with strong reliability (Mc Donald's $\omega > 0.80$; Vuyk et al., 2023); similarly, Mexican researchers also found satisfactory psychometric properties (Cortez Vidal, 2016).

Quantitative data analysis plan

To analyze quantitative data, we first conducted descriptive analyses. In addition, we conducted inferential analyses to compare the study sample to the general population, using reference data from Mexican adolescents in the validation study by Gonzalez Ramirez et al. (2021). For these comparisons, we performed independent mean difference estimation analyses (Calin-Jageman and Cumming, 2019). This analysis incorporates the calculation of *t*-tests for independent samples with an estimation of differences, calculating effect sizes and 95% confidence intervals, to assess whether differences are statistically and practically significant. Thus, the hypothesis test does not simply put a cut-off point to mark differences as in *t*-tests, but estimates the size of the difference and the uncertainty around it.

Phase 2: qualitative

Participants

For Phase 2, we used purposive sampling to reach mathematically talented students as they represented the population of interest. All

students in the mathematics enrichment program ($N > 100$) were invited to participate in focus groups as part of a larger project on talent development in the year 2023, and 50 participated. Their ages ranged between 15 and 18 ($M = 15.8$ years, $SD = 1.05$). Seven focus groups of six to 11 students with exceptional mathematical talent were conducted by project researchers, previously trained in the methodology. Students were randomly assigned to groups, and group sessions lasted between 40 to 60 min.

Instruments

A semi-structured questionnaire served as a guide to gather information about the experiences of boredom among students in focus groups. This questionnaire was developed by the research team, based on the MAC model of boredom and relevant literature on boredom in gifted and talented students in general. The questions included whether they considered school is boring, what bores them about school, what they think about when they are bored, their levels of boredom during school, what usually entertains them, whether their parents try to keep them busy at home, whether it is hard for them to get out of boredom, and what they do to overcome boredom. This questionnaire provided a structured approach to understanding the experiences of boredom among students, allowing for the identification of common themes and patterns.

Qualitative data analysis plan

Qualitative data was analyzed using a thematic analysis approach (Braun and Clarke, 2006). First, researchers transcribed and read through interview data to become familiar with the content. Next, the first author generated initial codes; these were developed inductively from the data and aimed to capture the meaning of the text. Initial codes were then grouped together to form potential themes that captured the key ideas and concepts within the data. The second author reviewed the preliminary list of themes and categories, providing an additional layer of verification for the thematic analysis. To ensure the rigor and validity of the thematic analysis, constant comparison was used to develop themes that would reflect participants' insights. This process involved comparing and contrasting categories to identify similarities and differences, ultimately leading to the identification of overarching themes. Finally, all three authors reviewed the themes and categories, along with the main findings of the study, to further ensure the validity of the results.

Researcher description: reflexivity statements and experience

We are female researchers in a developing country, with lived experience of boredom in adolescence leading to a waste of time and motivation as talented students. One of the researchers participated in mathematical talent programs, while the others did not. We acknowledge that our prior understanding of the phenomenon of boredom may be influenced by our cultural background and personal experiences. We recognize the potential for our own biases to shape our interpretation of the data and analysis. We strived to maintain reflexivity throughout the research process by constantly reflecting on our assumptions, beliefs, and perspectives, and by seeking feedback from participants and other researchers in the field. Through this process, we hope to ensure that our findings accurately reflect the experiences and perspectives of the gifted students in this study and contribute to a more nuanced understanding of the phenomenon and potential consequences of boredom in this population.

Triangulation of results: the main strength of mixed methods

By combining both qualitative and quantitative data, we gained a more comprehensive understanding of the phenomenon under investigation. In our study, we used triangulation to complement and contextualize our findings, utilizing the breadth of quantitative data and the depth of qualitative data. This allowed us to explore the phenomenon from multiple angles, using both numerical data to identify trends and patterns, and qualitative data to provide insights into the experiences and perspectives of participants. In the triangulation of our results, we were able to develop a more detailed and comprehensive understanding of the phenomenon of boredom.

Results

Quantitative analyses

This section presents statistics for boredom in Paraguayan adolescents with exceptional mathematical talent, along with additional relevant data to aid in interpretation of results.

Boredom patterns in mathematically talented adolescents

To answer RQ1, "Are exceptionally talented students in mathematics in Paraguay more prone to boredom than their age peers?" this section presents descriptive statistics for boredom in this sample, along with comparisons to the reference group in the original instrument validation study.

Table 1 exhibits the means, standard deviations, estimated independent mean differences, and effect sizes of subscales and items of the Boredom Short Scale for the quantitative study sample of 54 participants as well as the original validation sample of 600 Mexican adolescents (Gonzalez Ramirez et al., 2021).

Reliability estimates in the study sample are good for the total Boredom Short Scale (McDonald's $\omega = 0.884$) and the two subscales, Tendency Toward Boredom (McDonald's $\omega = 0.808$) and Lack of Interest (McDonald's $\omega = 0.869$). These reliability coefficients are higher than subscale reliability estimates in the validation study of Cronbach's α of 0.695 and 0.725, respectively (Gonzalez Ramirez et al., 2021). Subscales present a strong direct correlation of $r = 0.69$ ($p < 0.001$).

Table 1 shows the mean and standard deviation for each item on the subscales, as well as the estimated independent mean differences and effect sizes between the study sample and the validation sample in Gonzalez Ramirez et al. (2021). The table also provides the t-value and p-value for each mean difference, along with the 95% confidence interval for the effect size.

Boredom shows a different pattern in mathematically talented adolescents compared to the validation sample. On one hand, subscales with composite scores do not show significant differences. However, item distributions within those subscales differ significantly.

In the subscale of Tendency toward Boredom, the composite score does not differ, but in three of the four items the mathematically talented students score higher than the population average; those

TABLE 1 Means, standard deviations, estimate independent mean differences and effect sizes of the Boredom Short Scale in the study sample ($N = 54$) and the original validation sample ($N = 600$).

	Study sample ($N = 54$)		Validation sample ($N = 600$)		Estimate Independent Mean Differences ($df = 652$)			
	Mean	SD	Mean	SD	t	p	d	95% CI
Subscale 1: Tendency toward boredom	1.87	1.00	1.64	0.99	−1.67	0.096	−0.24	[−0.52, 0.04]
1. I stop doing activities because I get bored [Dejo de hacer actividades porque me aburro]	2.04	1.24	1.70	0.88	−2.62	0.009	−0.37	[−0.65, −0.09]
2. I get bored easily [Me aburro con facilidad]	2.15	1.29	1.85	1.04	−1.99	0.047	−0.28	[−0.55, −0.00]
3. Everything seems repetitive and routine to me [Todo me parece repetitivo y rutinario]	2.13	1.27	1.80	1.11	−2.07	0.039	−0.29	[−0.57, −0.01]
6. Everything seems boring to me [Todo me parece aburrido]	1.17	1.24	1.19	0.94	0.15	0.884	0.02	[−0.26, 0.30]
Subscale 2: Lack of interest	1.23	1.05	1.49	1.04	1.75	0.080	0.25	[−0.03, 0.53]
4. Few things catch my attention [Pocas cosas me llaman la atención]	1.39	1.20	1.54	1.09	0.96	0.336	0.14	[−0.14, 0.42]
5. It's hard for me to get excited about something [Es difícil que algo me entusiasme]	1.19	1.20	1.49	1.02	2.03	0.043	0.29	[0.01, 0.57]
7. It's hard for me to get interested in something [Es difícil que algo me interese]	1.13	1.15	1.44	1.02	2.12	0.034	0.30	[0.02, 0.58]

The validation sample comes from the original article by González Ramírez et al. (2021).

items are "*I stop doing activities because I get bored*," "*I get bored easily*," and "*Everything seems repetitive and routine to me*." The item "*Everything seems boring to me*" did not differ among the mathematically talented adolescents and the general adolescent population.

On the composite score for the Lack of Interest subscale, mathematically talented students scored like the general adolescent population; however, on two of the three items they scored lower than the general population. This is a reversed pattern compared to the items in tendency toward boredom. The items in which mathematically talented adolescents score lower are "*It's hard for me to get excited about something*" and "*It's hard for me to get interested in something*." No differences existed in the item "*Few things catch my attention*."

Factors related to boredom: correlations with school attitudes and psychological well-being

To answer RQ2, "Is boredom related to school attitudes and psychological well-being in this population?" we conducted Pearson correlations among subscales of boredom, attitudes both at their school and the mathematical enrichment program, and psychological well-being. Table 2 shows intercorrelations among variables, and we will highlight the most relevant.

Boredom and school attitudes

Correlations between boredom variables and school attitudes in mathematically talented students depend on the context; some are similar for the enrichment program and their school, yet others differ. Years of participation in the enrichment program and the Math Olympics, as well as age, are unrelated to boredom.

Attitude toward teachers at school is inversely related to lack of interest ($r = -0.402$, $p < 0.001$) but not tendency toward boredom. This indicates that the mathematically talented students that find it more difficult to get excited about things have a worse attitude toward their school teachers, yet do not tend to get stuck in routines. At the mathematical enrichment program, attitude toward teachers has a small inverse correlation with lack of interest ($r = -0.349$, $p < 0.01$) and tendency toward boredom ($r = -0.325$, $p < 0.05$). Thus, students with a more negative attitude toward their program teachers find it difficult to spark their interest and are quicker to stop doing things due to boredom. Attitudes toward school and toward the enrichment program are moderately related to both tendency toward boredom and lack of interest, all with inverse correlations ranging between $r = -0.308$ and $r = -0.441$.

Goal valuation is not related to tendency toward boredom or lack of interest at school; mathematically talented students likely value goals regardless of becoming easily bored or interested. However, at the enrichment program, where all activities are more goal-focused, there is a small inverse correlation between goal valuation and tendency toward boredom ($r = -0.327$, $p < 0.05$) but not lack of interest. They get interested independent of whether they value their goals at the program or not; students with lower goals at the program tend to get bored and quit easier, and vice versa. In fact, at the enrichment program, motivation and self-regulation have a stronger inverse relationship with tendency toward boredom ($r = -0.462$, $p < 0.001$) and lack of interest ($r = -0.450$, $p < 0.001$) than at school ($r = -0.378$, $p < 0.01$ and $r = -0.301$, $p < 0.05$, respectively).

Academic self-perception is not associated with boredom at school; mathematically talented students see themselves as

TABLE 2 Intercorrelations among boredom, school attitudes and psychological well-being ($N = 54$).

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	EsAb: total	—																				
2	EsAb: tendency toward boredom	**0.938*****	—																			
3	EsAb: lack of interest	**0.896*****	**0.687*****	—																		
4	SAAS-R: attitudes toward teachers at school	**−0.323***	−0.215	**−.402****	—																	
5	SAAS-R: attitudes toward teachers at the program	**−0.365****	**−0.325***	**−0.349****	0.256	—																
6	SAAS-R: attitudes toward school	**−0.398****	**−0.308***	**−0.441*****	0.797***	0.283*	—															
7	SAAS-R: attitudes toward the program	**−0.354****	**−0.315***	**−0.340***	0.187	0.758***	0.382**	—														
8	SAAS-R: goal valuation at school	−0.183	−0.191	−0.140	0.612***	0.370**	0.509***	0.196	—													
9	SAAS-R: goal valuation at the program	−0.260	**−0.327***	−0.126	0.360**	0.528***	0.300*	0.391**	0.743***	—												
10	SAAS-R: motivation and self-regulation at school	**−0.374****	**−0.378****	**−0.301***	0.621***	0.292*	0.609***	0.192	0.744***	0.498***	—											
11	SAAS-R: motivation and self-regulation at the program	**−0.497*****	**−0.462*****	**−0.450*****	0.304*	0.524***	0.341*	0.396**	0.500***	0.553***	0.666***	—										
12	SAAS-R: academic self-perception at school	−0.006	0.014	−0.030	0.323*	0.220	0.112	0.067	0.341*	0.153	0.437***	0.269*	—									

(Continued)

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TABLE 2 (Continued)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
13	SAAS-R: academic self-perception at the program	−0.267	**−0.283***	−0.199	0.077	0.390**	0.105	0.285*	0.110	0.302*	0.330*	0.698***	0.350**	—								
14	BIEPS-J: self-control	**−0.370****	**−0.354****	**−0.321***	0.018	0.179	0.114	−0.175	0.145	0.191	0.240	0.494***	0.130	0.481***	—							
15	BIEPS-J: interpersonal relationships	−0.129	−0.012	−0.255	0.177	0.094	0.294*	0.196	−0.080	−0.104	0.018	0.091	−0.055	0.180	0.197	—						
16	BIEPS-J: personal projects	**−0.358****	**−0.330***	**−0.329***	0.198	0.076	0.119	0.095	0.251	0.291*	0.415**	0.498***	0.329*	0.375**	0.402**	0.119	—					
17	BIEPS-J: self-acceptance	−0.124	−0.160	−0.056	−0.089	0.032	0.090	0.097	−0.152	−0.032	0.006	0.228	−0.131	0.550***	0.535***	0.349**	0.036	—				
18	BIEPS-J: general psychological well-being	**−0.377****	**−0.338***	**−0.358****	0.101	0.146	0.213	0.204	0.079	0.149	0.265	0.508***	0.115	0.598***	0.836***	0.550***	0.593***	0.707***	—			
19	Age	0.032	−0.053	0.134	−0.518***	−0.069	−0.366**	0.075	−0.278*	−0.167	−0.344*	−0.206	−0.141	−0.071	0.028	0.021	−0.108	−0.020	−0.028	—		
20	Years in math Olympics	−0.008	−0.038	0.032	0.021	−0.118	−0.024	−0.248	0.197	−0.030	0.147	−0.071	0.060	−0.190	0.065	−0.001	0.114	−0.142	0.020	0.261	—	
21	Years in the program	0.085	0.000	0.177	−0.436***	0.038	−0.314*	0.059	−0.126	−0.088	−0.259	−0.153	−0.232	−0.130	0.060	0.012	−0.157	0.056	−0.008	0.577***	0.495***	—

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

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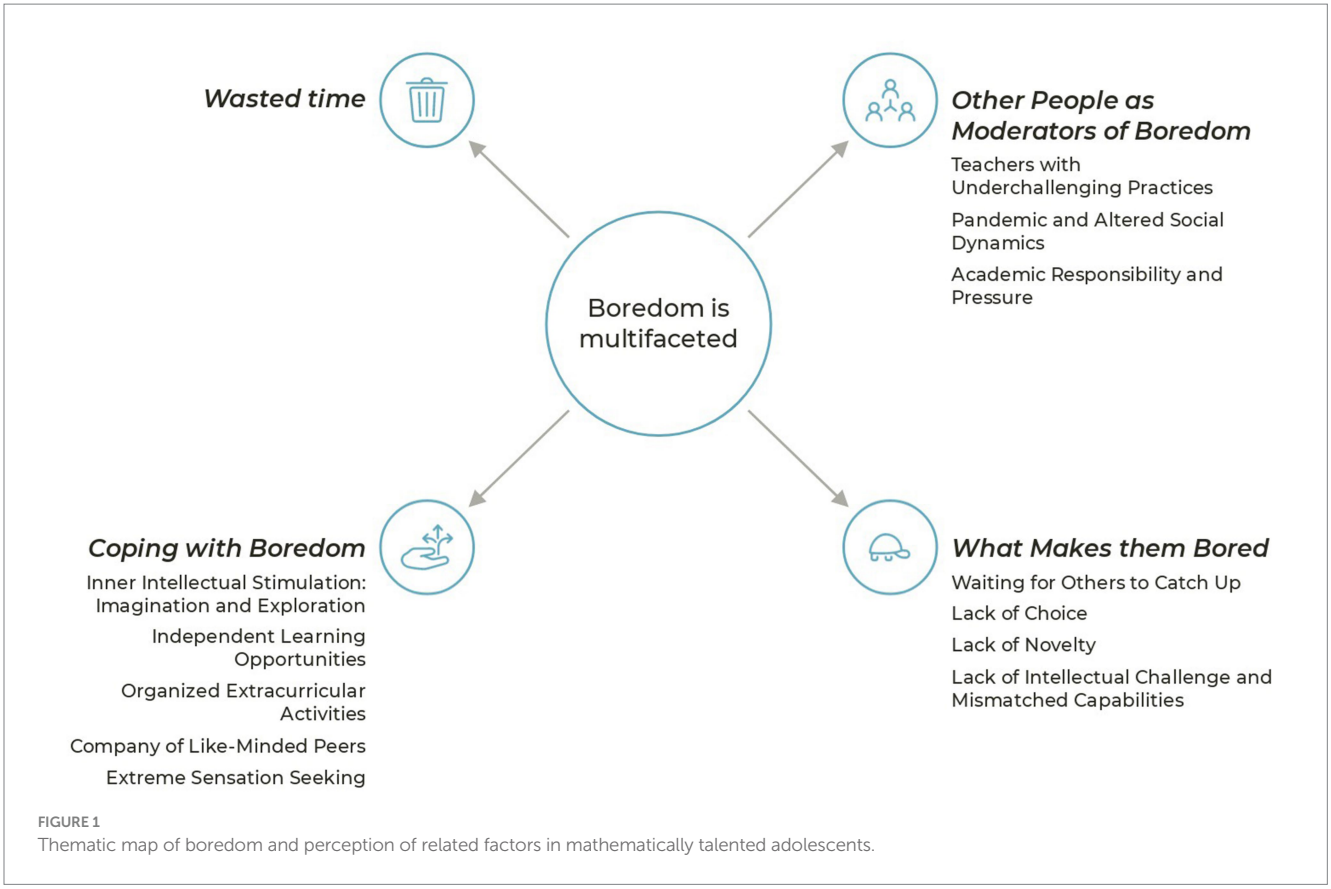

FIGURE 1
Thematic map of boredom and perception of related factors in mathematically talented adolescents.

academically capable whether they get easily bored or find additional interests. Nevertheless, academic self-perception shows a small inverse correlation with tendency toward boredom at the mathematics enrichment program ($r = -0.283$, $p < 0.05$). Therefore, mathematically talented students who stop activities due to getting easily bored tend to see themselves as less capable in the program and vice versa.

Boredom and psychological well-being

Regarding general well-being in mathematically talented students, there is an inverse relationship with tendency toward boredom ($r = -0.338$, $p < 0.05$) and lack of interest ($r = -0.358$, $p < 0.01$). Self-control is inversely related to both tendency toward boredom ($r = -0.354$, $p < 0.01$) and lack of interest ($r = -0.321$, $p < 0.05$). On the other hand, personal projects are also inversely related to both tendency toward boredom ($r = -0.330$, $p < 0.05$) and lack of interest ($r = -0.329$, $p < 0.05$). However, interpersonal relationships and self-acceptance do not show any correlations with boredom.

Qualitative analyses

To answer RQ3, "What factors impact their perception of boredom?," we present themes and categories developed in the thematic analysis based on data gathered in focus groups (see Figure 1), providing illustrative quotes from participants to support the analysis. We present a framework for examining mathematically talented students' perception of factors that influence their experience of boredom.

The central theme developed refers to the multifaceted nature of boredom experienced by mathematically talented students; we explored dimensions of boredom, including a lack of deep meaning, lack of superficial entertainment, wasted time, and the factors that contribute to boredom such as waiting for others, lack of choice, lack of novelty, lack of intellectual challenge, and the role of teachers and social dynamics. Additionally, the text discusses how mathematically talented students cope with boredom through strategies such as inner intellectual stimulation, entertainment and escape, independent learning opportunities, organized extracurricular activities, company of like-minded peers, and even extreme sensation seeking.

Multifaceted (confusing?) concepts of boredom

The use of the term "boredom" by students reveals varying meanings and nuances in their emotional experiences. This section delves into the different dimensions of boredom expressed by mathematically talented students, ranging from a deeper lack of meaning to a superficial absence of entertainment (e.g., *"not all boredoms are the same, and not all of them are easy to kill"*). Mathematically talented students used the word boredom in at least two meanings: one, boredom as a lack of meaning in a deeper sense (e.g., *"It's like you cannot get over your boredom, because you are still bored watching TikTok"; "there are times when you think of something to do but you feel helpless that you cannot do it and you do not do it in the end because of your helplessness, because of your fear of failure"*) and the other, as a superficial lack of entertainment (e.g., *"When I'm at home I do not have much to do so I watch series and often those emotions rub off on me"*).

The interchangeability of these connotations suggests potential confusion and the coexistence of multiple interpretations of boredom among mathematically talented students; "*"If it's a short boredom, I use my cell phone, but if it's more of a deeper boredom, I do think I need to do something more extreme."*

In addition, inconsistencies in emotional descriptions and incorrect labeling of situations hint at a lack of clear understanding regarding the accurate categorization of emotions. *"I do not know if that's boredom, I would say lack of motivation. Sometimes not knowing what to do leads me to a lack of motivation. I do not know if they are partly related."*

Wasted time

Mathematically talented students expressed concerns about feeling unproductive when they had nothing to do, highlighting the importance they place on utilizing their time effectively. *"I'm a person who spends a lot of time doing activities with a lot of responsibilities, and I do not know, I feel like I'm wasting my time and I can do much more productive things at that time. I think about, when is this going to end? I have a lot of things to do that I feel are much more important and I'm wasting my time, basically."*

They expressed a strong aversion to idleness, stating that they become stressed when they perceive their time as being wasted. *"Normally, I get stressed out when I have nothing to do, I feel like it's time wasted. If I get bored I look on YouTube for something intellectually stimulating."* Mathematically talented students want to be constantly engaged in activities that they deem valuable. *"I do research by myself and all of that, and it seems like a waste of time what I'm doing in school."*

This mindset reflects their high motivation and drive to make the most of their time, showing their goal-oriented approach to learning and personal growth. *"I'm focusing a lot on what my bachelor's degree would be, but they [at school] wander a lot, they waste a lot of time. They focus a lot more on other things than on what should be, instead of taking advantage of the time and learning more…"*

What makes them bored

Waiting for others to catch up

Waiting for others to catch up was a common source of boredom for mathematically talented students, since it frequently indicated that they were not being challenged at an appropriate level for their ability. *"On Wednesday to be exact I had an accounting assignment due in 3 weeks, and I finished it to be exact on Thursday, it took me 8hs and 19 sheets of my notebook. To this day I am still bored because I have no homework to entertain me. The same in mathematics, reviewing…the same with the other classes, the same, nothing new, nothing that interests me right now."*

They reported that they often acquired and assimilated material faster than their peers, and therefore became bored and disinterested when obligated to wait for others to catch up to their level of understanding (e.g., "*I hate it when you have to wait too long for something so easy*"). This seemed to be especially irritating in the general education classroom in their schools, rather than in the mathematics enrichment program.

In school, teachers expected the mathematically talented students to work at the same rate as their classmates, even if they could finish the job faster; *"there are times when you cannot do anything, for example at school, you have done everything, you are bored and you want to use your cell phone but they will not let you."* Boredom, disengagement, and even dissatisfaction or resentment seemed to result from this.

Lack of choice

Not being able to choose what to pursue was mentioned as problematic; mathematically talented students wanted the opportunity to explore new and challenging topics or pursue their own interests. In traditional settings they could not do so, as memorization was prioritized and classes were rarely stimulating (e.g., "*when the environment is not nice, when you get bored easily, when the teacher does not know how to teach or when to teach, it is way too boring*"), without sufficient opportunities for challenge and growth.

Mathematically talented students mentioned frequently that when they could choose activities, the level of boredom decreased (e.g., *"It's nice to do things by yourself, being told what to do makes the task boring"*). The majority discussed the importance of choosing useful or relevant activities at certain times, such as when studying for international Math Olympics or scholarships.

Having to do the same activities as the other students, regardless of level of ability or achievement, was reported to be frustrating; this was the case especially when mathematically talented students perceived that they did not have any control over assigned tasks. *"At school is where I get bored the most because I have no options, I cannot do anything, I cannot get up, I cannot take out my computer or do other homework, so you have to defend yourself with what you have at hand, try to write something, I do not know, I do not know, I do not know well. It's kind of complicated and annoying. In other activities or places you have more options of what things you can do to have fun and be busy, anything, but not at school."*

Lack of novelty

Repetition and routine were perceived as potential causes of boredom, particularly when mathematically talented students were being forced to spend a lot of time on material that was too easy or repetitive without any new perspectives; "*in mathematics, our teacher usually uses a whole month to explain, or in English too, 50 times the same fact, the same causes and consequences, and that is very boring, when the same thing is always repeated."*

In their quest for entertainment and engagement, mathematically talented students highlight the importance of breaking the monotony of repetitive activities. They recognize that even enjoyable tasks can become boring if they lack variety and new experiences. Mathematically talented students seek opportunities to diversify their activities, introducing novelty and fresh perspectives to sustain their interest and motivation. *"Novelty is what entertains me. I generally enjoy trying new things, looking at the limit of things and challenging myself to see my ability or to improve, to try what I like, to have new activities where I can develop myself more, where I can acquire new skills."*

Lack of intellectual challenge and mismatched capabilities

Insufficient intellectual challenge was pervasive in their school settings. Mathematically talented students indicated not feeling like they were learning anything new or challenging their abilities in school; they reported schoolwork to be "*simple and irrelevant,*" with tasks that "*do not require logic*." They reported being bored because the

tasks or subjects they encountered were not challenging or stimulating enough for their capabilities and interests; *"It does not make me work hard, so it bores me;"* "*What bores me is that it is not a challenge for the capacity that I have, in most subjects....the subjects that challenge me, both psychologically and physically, are subjects where we have to do research, those stimulate me and that is what I like.*"

Challenge was present in the math enrichment program, yet perceptions of challenge levels varied in mathematically talented students from rural vs. urban areas. In the math enrichment program, talented students from the countryside found classes too fast-paced and stated it was challenging to keep up with the workload (e.g., "*They give you the problem sheet, but you cannot solve it right away like the others*"). Mathematically talented students from urban areas, especially from the major metropolitan area in Paraguay, considered challenge levels adequate and reported little or no boredom. They attributed this to the variety of activities offered in the program and the motivation they received from peers to engage with activities.

Other people as moderators of boredom

Teachers with underchallenging practices

Teachers' impact on mathematically talented students' perceptions of school and boredom seems to be a key factor for boredom. These mathematically talented students reported needing dynamic and exciting teaching to boost their interest. Healthier relationships with teachers helped them engage in school more effectively. They described their school teachers as being too old-fashioned and/or not focusing on what students wanted to learn.

While mathematically talented students generally found subjects interesting, when teachers were not engaging they reported getting bored (e.g., "*for example, my history teacher, I like that subject, but he never gave a good class, he would say copy this, do this, and never explained anything, so I did not enjoy the class, even though I was interested in it*"). Similarly, when subjects were monotonously and halfhearted taught, mathematically talented students lost all interest in them. Many negative experiences with teachers were brought to attention. This included teachers who did explain mathematical problems well because they did not provide enough information. Other teachers did not seem committed to the subject matter. Teachers who were traditional in the way they teach, not approaching subjects in depth and only superficially, were also mentioned as sparking boredom. More severe experiences included teachers who ridiculed or disregarded students' viewpoints (e.g., *"In math classes I usually ask a lot of questions like where equations come from and teachers tell me to just shut up, and that sucks*").

Pandemic and altered social dynamics

Social interaction played an important role in the experience of school and boredom. Mathematically talented students mentioned that the pandemic had affected their experience at school and had left some students feeling lonely due to the loss of friends (e.g., "*When the pandemic came, most of my friends left the program and did not come back. So, it happened to me many times that I was very lonely*").

In addition, disruptions to normal routines and changes in the learning environment seemed to have led to a sense of disorientation and lack of motivation for some of the mathematically talented students. Others complained that their classmates were too chaotic and rebellious, which they found annoying and disruptive; it became a hindrance to their own learning and academic progress. Finally, some of the mathematically talented students student's felt frustrated when their classmates did not share their interest in learning or did not take their academic responsibilities seriously, which seemed to create a sense of dissonance and disconnection from their peers. "*When you stand out in your group they tend to throw all the responsibility at you.*"

Academic responsibility and pressure

Some mathematically talented students highlighted the burden of academic responsibility they experienced when standing out within their group. They expressed frustration when classmates did not share the same level of dedication to learning or failed to take their academic responsibilities seriously. This imbalance in the distribution of responsibilities created a sense of unfairness and added pressure on these students. Nevertheless, they had different opinions regarding leadership and the social pressure that may surround it as well. Many reported they felt the same school pressure to perform well and live up to high expectations in their extracurricular activities. Additionally, on occasions they felt specific social pressure from adults like parents, mentors, and teachers, which contributed to a sense of pressure or stress, as one student states: *"People place a burden on me with a lot of things: being a class representative, organizing and stuff like that. Also, I work in the family business, so I get home, shower, change and go to the business to work and that's part of my routine."* Others do not feel comfortable with leading roles itself: "*I do not like leading so much, I think it's something admirable and that if the person likes it they can improve a lot of things. But I do not like to lead, I just want to be part of the group, do my part, contribute and that's it.*"

Coping with boredom

Mathematically talented students reported they went out of their way to escape boredom and find entertainment. However, not all strategies yielded the desired effectiveness; *"If I'm just bored at that moment, but emotionally stable, I can do anything [to get out of boredom], but if I'm tired or something has me down, it's harder for me to find something."* While some strategies predominantly offered relief from boredom, others required additional regulation to serve their intended purpose in a healthy manner, and some strategies even carried the potential for risk behavior patterns. The following strategies were most common:

Inner intellectual stimulation: imagination and exploration

Mathematically talented students often used inner intellectual stimulation as a coping mechanism against boredom. Some mathematically talented students only needed their imagination to wander in creative scenarios, thoughts, and ideas; *"I am very distracted, anything, a line on the table already makes me think of a million things, that's when it starts. I start thinking about what it can be or what I can do with those lines. And then I think about games and how to save coins in the game, anything."*

Entertainment and escape

Both inside and outside of school, mathematically talented students mentioned they liked to listen to music or read books. *"To combat boredom I bought 7 books but if there is some part that simply bores me I wander into another thought, I read the book but at the same*

time I am thinking about something else. The same thing happens to me in class, like the teacher is giving his class I think of something else or in social situations for example I usually think of many physical mechanisms of things or also deduce the behavior of people." Specific forms of entertainment outside of school were playing sports, reading comics, drawing, and socializing with friends. Specific strategies used in school were using electronic devices, drawing, reading, and daydreaming.

Independent learning opportunities

In the classroom, mathematically talented students tended to advance in homework or activities by turning to independent study to stimulate their intellectual curiosity and maintain their engagement with learning (e.g., "*If I have something to do in the afternoon, I try to get ahead with schoolwork, I try to think about organizing myself further*"). This included reading, listening to podcasts, watching YouTube channels or other videos about their topics of interest. Learning by themselves allowed them to choose their own topics, set their own goals, explore in depth and at their own pace, and work at a level appropriate for their abilities.

Oftentimes, mathematically talented students used these independent learning opportunities to keep themselves intellectually engaged, especially when they felt unchallenged in their regular coursework. *"I try to make some time to do what I like, such as looking at articles about physics, neuroscience, things like that, watching videos. I try to organize some time between homework and these activities that I have to do, for example I was learning the methods to put together the [Rubik] cubes, like the bigger ones, and programming.*" By doing so, they maintained intellectual curiosity and passion, even amid an educational environment that might not cater to their individual interests and abilities.

Organized extracurricular activities

Mathematically talented students participated in varied extracurricular activities such as skate, golf, basketball, football, gymnastics, violin, language studies, lettering, and programming. These extracurricular activities allowed them to explore and pursue their intense interests and passions in structured and supportive environments outside of school (e.g., *"I do not get bored with basketball, I like it because it's very varied and we usually change the things we do,"* "*I have more fun in extracurricular classes than in school, because I do what I enjoy*"). Although some felt pressured to balance their academic workload with their extracurricular activities, they generally valued these activities because it offered them opportunities for leadership, creativity, and personal growth.

Company of like-minded peers

Mathematically talented students at the enrichment program found in peers who shared their interests and/or abilities, a sense of community and motivation to pursue their interests. According to their comments, peer relationships took many forms; including participating in extracurricular leisure activities together (e.g., skating, golfing, video gaming, etc.), attending specialized programs or events, and forming school groups; e.g., "*Being with my friends, the boredom is gone.*"

Some of the mathematically talented students mentioned they sought company and felt good around kind people even if they did not share the same interests. Others mentioned that laying in the grass, spending time with a partner, or meeting new people during break at school provided them with a sense of belonging and social connection. It also helped them to relieve stress and engage in activities that were not necessarily related to academic achievement but were beneficial to their overall well-being and helped them cope with boredom.

Extreme sensation seeking

When some mathematically talented students felt bored at school, they tended to engage in what they called *"exciting"* activities, probably drawn by extreme sensation seeking; the desire to engage in thrilling, high-risk activities to experience an adrenaline rush or a sense of excitement. An example is *"To get out of boredom I need strong experiences like the time when there was 25-meter deep water well and I jumped in and I was never going to touch the bottom, that was fun and exciting.*"

When mathematically talented students were bored at school, on occasions they turned to disruptive behavior to alleviate their boredom. While these activities may have provided a temporary sense of excitement, students recognized they could also be harmful and have long-term negative consequences (e.g.; *"several times we went too far,"* "*it is no longer fun when they throw things in my face*").

Triangulation of results

Mathematically talented students in this study reported to have a relatively easy time discovering their interests, but they tend to disengage earlier than their counterparts in the general adolescent population when they become bored. These mathematically talented students experienced boredom more easily than their peers due to the ease and repetitiveness of tasks. However, they were adept at identifying and implementing strategies to alleviate their boredom; *"I end up thinking by myself and I'm already unbored.*" We sought to understand their subjective experience of being bored as well as their perception of factors impacting boredom.

When mathematically talented students lost interest, their opinion of teachers at school tended to decline. This could be due to factors that contribute to boredom and disinterest, regardless of how they perceive their teachers. Mathematically talented students commonly express a sense of not being challenged enough and lacking personal interest in school subjects, which can lead to disinterest and a negative view of teachers, as they may blame them for not engaging them effectively in the classroom. This may also be related to the idea of boredom as a lack of meaning, which emerged during group discussions.

However, when talented students lost interest in the mathematical enrichment program, not only did their attitude deteriorate, but their levels of boredom also increased. This is likely because their engagement in the program becomes more crucial when school, in general, is perceived as uninteresting. "*At school everything it's very methodical. The program is more playful, there's a bigger vision of the problems, they make you look at them in different ways, they make you think more.*" Additionally, since they are accustomed to being challenged and stimulated in the program, they do not anticipate experiencing disinterest. "*Even though the program has a structure, which seems routine, no two Saturdays are ever the same, never ever, because of the theory, because of the teachers, it's very cool.*"

Goal valuation and the tendency toward boredom at the enrichment program are inversely related. Mathematically talented students who demonstrate greater perseverance are more likely to place higher value on the program itself. This is probably associated with students' sense of worth since the enrichment program is an elite structure in which they willingly participate and in which they try to stand out at a national level. *"What I enjoy are the conversations that arise from the people I'm with in the program, they are very fun, interesting and really exciting," "There are times in the morning when I solve a problem and I am so excited that I want tell my friends at the program, I want to explain it to them."*

In fact, at the enrichment program, motivation and self-regulation have a stronger inverse relationship with tendency toward boredom and lack of interest than motivation and self-regulation at school for mathematically talented students; e.g., "*It is very difficult to get the motivation to do work alone at home, but being at the program you exchange views and engage with your peers," "In the program you see what other people are doing and then it motivates you to do it too," "At home I get bored solving math problems but when I come here it's great to do it with everyone."* Moreover, while academic self-perception is not linked to boredom at school, it exhibits an inverse correlation with boredom in the program, which aligns with the accounts provided by students.

Psychological well-being is inversely related to both aspects of boredom, just like self-control is inversely related to both aspects of boredom in mathematically talented students. As they are more likely to have the motivation and discipline to seek out additional learning opportunities beyond what is offered in their regular school setting, students may be able to engage in learning activities that are more challenging or complex without feeling bored or frustrated, and thus they may not need to exert as much self-control (e.g., *"I love to do the accounting tasks, they are very extensive, there is a lot of number crunching and calculus which I love," "I love physics and hard neuroscience stuff"*).

Personal projects are also inversely related to lack of interest and tendency toward boredom. Mathematically talented students with higher degree of personal projects tend to be less prone to boredom and tend to find many things exciting. Interpersonal relationships were positively highlighted in focus groups as a coping mechanism against boredom; however, this may not be reflected in test results considering the focus on cognitive measures of boredom. Self-acceptance was not related to boredom variables in mathematically talented students.

Demographic information such as age, years of participation in the program, and in the Math Olympics, were not related to any boredom variables in mathematically talented students. Comparisons between mathematically talented students and the average population revealed that mathematically talented students tend to score higher than the average in tendency toward boredom (see Table 3). However, they also tend to score lower than the population average in measures of difficulty getting excited or interested in things, suggesting that mathematically talented students may have a greater range of interests and be more easily engaged in stimulating activities.

Discussion

In the context of the MAC model of boredom, we present triangulated results for our research questions. RQ1, "Are exceptionally talented students in mathematics in Paraguay more prone to boredom than their age peers?" was supported with significant differences among subscale items.

Mathematically talented students often experience a higher propensity for boredom, which can be attributed to low arousal levels and a lack of challenge or novelty in their academic environment. According to the MAC model, boredom arises when individuals perceive their current situation as lacking in meaningful engagement, stimulation, and arousal (Westgate, 2020). Mathematically talented students, as well as gifted and talented students in general, with their advanced abilities and greater intellectual capacity, may find regular classroom activities and assignments to be less stimulating and challenging. Consequently, they may experience lower levels of arousal and a sense of disengagement, resulting in feelings of boredom.

Nonetheless, according to the MAC model, individuals exhibit varying capacities to cope with and alleviate boredom. Mathematically talented students, and likely gifted and talented students in general, leveraging their intellectual capabilities and resourcefulness, often excel in finding strategies to combat boredom. They proactively pursue intellectually stimulating and challenging activities, engage in independent exploration and learning, and participate in extracurricular pursuits aligned with their interests and passions (Olszewski-Kubilius, 2015). By employing these strategies, they effectively restore a sense of arousal and meaningful engagement, thereby mitigating their experience of boredom (Westgate and Wilson, 2018).

The MAC model offers a potential explanation for the variation in boredom tendencies among mathematically talented adolescents. It suggests that these individuals may discontinue activities prematurely when they perceive them as lacking in challenge, which aligns with their propensity to experience boredom easily. The dislike of repetition and routine is a common sentiment among gifted individuals in the literature (Steinberger et al., 2017; Hinterplattner et al., 2022). However, their proactive approach to finding stimulating activities and their ability to engage in independent pursuits contribute to their ability to alleviate and overcome boredom.

For RQ2. "Is boredom related to school attitudes and psychological well-being in this population?," the lack of novelty and challenge in educational settings can manifest through repetitive routines, limited choices, and a lack of excitement. These components align with previous literature that has identified them as potential sources of boredom among gifted individuals (Kerr et al., 1988; Kaplan and Silverberg, 1991; Gallagher and Gallagher, 1995).

The correlation between a lack of interest and negative attitudes toward school and teachers is significant in mathematically talented students, and can also impact students' future careers and personal development. There are several potential reasons why a lack of interest might lead to negative attitudes and lower motivation. One possibility is that students who are not excited about learning may find it difficult to see the relevance of school to their lives. Another possible explanation is that school is often seen as a structured and rigid environment, which can be displeasing for gifted and talented students in general (Steinberger et al., 2017; Hinterplattner et al., 2022).

Interpersonal relationships are likely to be more strongly related to the affective and social aspects of boredom as noticed in the interviews, rather than to the cognitive or academic aspects (Goetz et al., 2008; Pekrun et al., 2009). External factors, such as home life or social issues, were not examined in this study but were mentioned briefly by some mathematically talented students; these factors can also impact student interest in school and overall motivation.

TABLE 3 Integrated results matrix of quantitative and qualitative data on boredom in mathematically talented adolescents.

Quantitative results	Qualitative results	Exemplar quote
Talented students scored **higher** than the population average in "*Everything seems repetitive and routine to me.*"	Wasted time, lack of novelty	*"I started to get bored with dance because. .. all the things were the same around there... before we used to go to competitions that were like wow, you got to know people, you danced and it was fun, but now they are like, very repetitive classes"*
		"I do not get bored with basketball, I like it because it's very varied *and we usually change the things we do"*
Talented students scored **higher** than the population average in "*I stop doing activities because I get bored*"	Inner intellectual stimulation, extreme sensation seeking	*"What I try to do is to put aside what bores me, even if I have to stop paying attention to the teacher, I stop looking at him, I stop listening to him, I grab a notebook, I do what I have to do, what interests me"*
Talented students scored **higher** than the population average in "*I get bored easily*"	Wasted time, lack of novelty, lack of challenge, extreme sensation seeking	*"I have a lot of tasks where I have to make a lot of drawings and do a lot of pressure calculations, things like that which I find very basic and boring"*
		"When you are bored, making a mess is the most entertaining thing to do"
		"If it's a short boredom, I use my phone, but if it's a deeper boredom, I need to do something more extreme."
		"To get out of boredom I need strong experiences like the time when there was 25-meter deep water well and I jumped in and I was never going to touch the bottom, that was fun and exciting"
Talented students scored **lower** than the population average in "*It's hard for me to get excited about something*"	Inner intellectual stimulation, independent learning experiences, organized extracurricular activities	*"When I have to calculate, to think, to get to the result, it is more exciting than memorizing a lot"*
		"I have fun when we have math class"
Talented students scored **lower** than the population average in "*It's hard for me to get interested in something*"	Inner intellectual stimulation, independent learning experiences, organized extracurricular activities	*"I am overcome by the desire to want to do more things. At the end of the day, it's all worth it because I gained experience.*
		"My interests are more intellectual and mathematical"
Attitude toward school and teachers correlated with lower tendency toward boredom and lower lack of interest	Lack of challenge, impact of teachers	*"Having more time with technical teachers makes it more enjoyable to be at school because I have a full day with my common curriculum teachers like science and chemistry"*
Higher motivation and self-regulation correlated with lower tendency toward boredom and lower lack of interest, especially in the math talent development program	Independent learning experiences	*"I am no longer at that time when I was 12 or 15 years old when I could do what I liked, now I do only what is necessary"*
Higher self-control and personal projects correlated with lower tendency toward boredom and lower lack of interest	Inner intellectual stimulation, independent learning experiences	*"When there is something that does not call my attention, I do it and I look for the way to make it fit in my life and enjoy it."*

For RQ3. "What factors impact their perception of boredom?," we found that mathematically talented students tend to have a simpler time initiating their interests and enthusiasm and can derive meaning from a variety of activities. Encouraging students to discover constructive ways to deal with boredom can enable them to actively pursue engaging and challenging activities that foster personal growth and the development of their skills and interests (Moynihan et al., 2017; Zhang et al., 2017).

Extracurricular activities can offer a break from the academic routine and provide a sense of balance and fulfillment (Craft, 2012). Independent learning experiences provides gifted and talented students in general with a sense of autonomy and intellectual freedom that can help them stay motivated and engaged in their learning, even when they find the regular curriculum boring or unchallenging (Maker, 1986). They may be more likely to be self-directed learners who are less reliant on external motivators like teacher approval or grades.

Peer relationships can take many forms; including participating in extracurricular leisure activities (e.g., skating, golfing, video gaming, etc.), attending specialized programs or events, and forming school groups. Furthermore, these types of groups can offer opportunities for healthy collaboration and personal growth, which are important for the development of gifted and talented students in general (Subotnik et al., 2011), e.g., "*Being with my friends, the boredom is gone.*" In addition, gifted students may encounter challenges in finding like-minded peers who share their interests and abilities. Thus, it becomes crucial for their social and emotional well-being to spend time with peers whom they feel a sense of comfort, even if the conversations do not necessarily revolve around academic subjects (Shah and Mehta, 2021).

Mathematically talented students from rural areas have encountered different educational experiences prior to entering the enrichment program, which may result in finding the classes more

demanding or fast-paced. Rural students with exceptional talent often face limited access to quality education, characterized by lower-quality schools, scarce resources, and fewer qualified teachers (Kettler and Jones, 2008). Consequently, gifted students in rural areas may struggle to receive the advanced instruction and enrichment opportunities necessary to match the academic level of their urban counterparts. The loss of in-person social interactions due to COVID-19 may have impacted students' sense of community and belonging at school (Shah and Mehta, 2021). Furthermore, their socioeconomic status, often characterized by low-income households, can further constrain their access to resources and extracurricular opportunities, such as books and technology, that facilitate academic growth to reach their full advanced potential (Kettler and Jones, 2008).

Limitations and implications for the future

First, our sample size was small, which means we should be cautious when generalizing our findings to larger populations of talented students. A point to consider is that the study sample is likely not representative of the broader population of adolescents, as they comprise a particular subset. However, the use of a niche sample such as mathematically talented students participating in advanced enrichment was a deliberate characteristic of the study; this allowed for a more in-depth exploration of the experiences of this specific group.

Moreover, while the scale used to measure boredom in this study has been previously validated in Mexico, no information on additional validation studies in other Latin American countries. The accuracy of any psychometric instrument can affect validity of the results. Therefore, it would be useful for future studies to explore alternative measures of boredom.

Other scales measuring boredom can be explored, as accuracy of scales is a fundamental point when conducting psychological studies relying on psychometric instruments. To ensure the robustness and applicability of findings, studies comparing multiple measures of boredom can be useful; particularly in the light of our qualitative results, where we could detect a philosophical confusion in the concept of boredom.

Conclusion

In summary, mathematically talented students typically experience less difficulty when it comes to initiating their interests and enthusiasm, and they can find meaning in various activities with relative ease. However, they tend to become bored faster than their peers. Boredom in this population is multifaceted, as it includes the absence of meaning, superficial entertainment, and time wasted in non-meaningful activities. Factors that contribute to boredom include waiting for others who learn at a slower pace, limited choices, lack of novelty, absence of intellectual challenge, and the influence of teachers and social dynamics. Moreover, mathematically talented students reported different strategies to cope with boredom, such as engaging in inner intellectual stimulation, seeking entertainment and escape, pursuing independent learning opportunities, participating in organized extracurricular activities, seeking the company of like-minded peers, and engaging in extreme sensation-seeking behavior. Constructive ways of combating boredom can help them navigate underchallenging environments and actively pursue activities that contribute to their talent development and personal growth.

Data availability statement

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

Ethics statement

Ethical approval was not required for the study involving human samples in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

AV conceptualized and designed the study methodology, reviewed the literature, directed quantitative and qualitative data collection, conducted quantitative and qualitative analyses, drafted the initial manuscript, and edited the manuscript until its final version. MM reviewed the literature, coordinated qualitative data collection and trained focus groups leaders, conducted qualitative analyses, and drafted several iterations of the manuscript. LB served as liaison for participant recruitment and operational parts of the study, participated in qualitative analyses, and provided notable feedback for writing. AV, MM, and LB contributed to manuscript revision, read, and approved the submitted version. All authors contributed to the article and approved the submitted version.

Funding

Recipient of Global Challenge Fund Award from Frontiers.

Acknowledgments

The authors wish to thank Montserrat Lobo and Andrea Yubero for their comments, as well as Giselle Notto, Laura Romero, Patricia Zalazar, Larissa Martinez, Lucia Torres, and Patricia Rolon for their operational support in the study.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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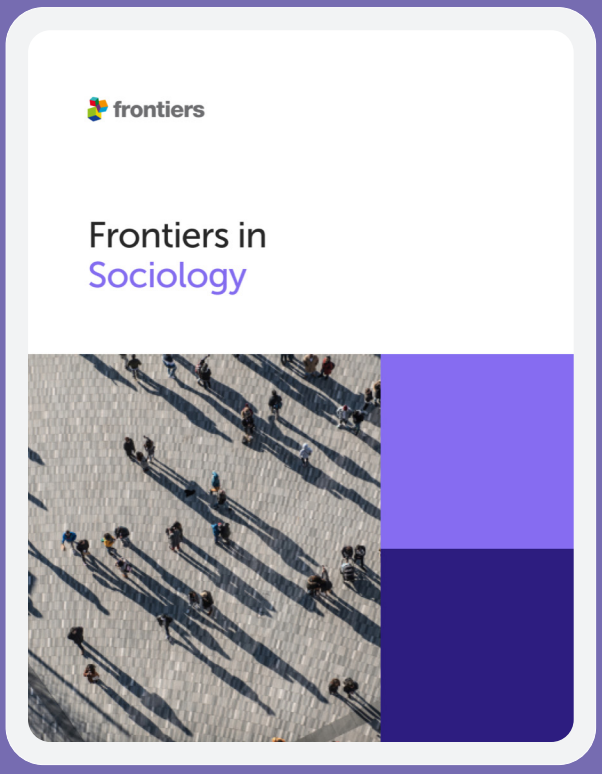

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