Igor Stravinsky: *The Rite of Spring*—phenomenological research on six piano students engaged in interdisciplinary project-based learning

Ilonka Pucihar*

Department of Keyboard Instruments, University of Ljubljana, Academy of Music, Ljubljana, Slovenia

Background: The main aim of this research was to explore the experiences, understanding and interpretation of interdisciplinary, project-based learning (PBL) in the context of studying Stravinsky's *The Rite of Spring*, with a specific focus on his own arrangement for piano duet (four hands). Specifically, the study sought to qualitatively examine how student pianists perceive and make sense of participating in such an educational approach. Understanding these perspectives can contribute to the broader discussion of innovative teaching methods in music education.

Methods: The study involved six master's degree students at the Academy of Music, University of Ljubljana. Data were collected through multiple qualitative methods, including research diary, transcripts of phenomenological interviews, and reflective evaluation diaries maintained by the students. The data were analyzed using interpretative phenomenological analysis, which helped identify key themes related to the students' experiences with interdisciplinary PBL.

Results: The analysis of the data revealed four main themes: the search for artistic freedom, reduction of performance anxiety, positive group dynamics, and reflections on artistic and pedagogical development. The students stated that engaging with Stravinsky's revolutionary work inspired a desire to explore their own artistic creation beyond traditional norms. The interdisciplinary PBL approach helped reduce performance anxiety by fostering greater involvement with the story and emphasizing collective rather than individual performance. Additionally, positive group dynamics—marked by shared goals, safety, collaboration, and connectedness—were central to their experience. Finally, participating in this approach broadened the students' perspectives on their future development, instilling confidence to pursue new creative and pedagogical directions.

Discussion: The findings suggest that interdisciplinary PBL can serve as a powerful pedagogical tool in music education, fostering artistic freedom, reducing anxiety, and promoting collaborative skills. The positive group dynamics and expanded development perspectives that emerged indicate that such approaches can enhance both personal growth and professional readiness among students. Overall, this study contributes valuable insights with regard to the impact of interdisciplinary PBL on student learning and development in the context of advanced musical education.

KEYWORDS

higher music education, piano students, project-based learning, interdisciplinarity, interpretative phenomenological analysis

1 Introduction

The aim of this research is to investigate the experiences and perceptions of music students engaged in interdisciplinary project-based learning (PBL), with a focus on the interpretation of Stravinsky's piano duet arrangement of *The Rite of Spring*.

Higher education is about more than just acquiring knowledge and skills; it also fosters critical thinking, collaboration, adaptability, and innovation. Zen et al. (2022) emphasize its role in preparing students for a rapidly changing labor market and social landscape. Biesta (2021) highlights the existential nature of education, viewing teaching as a means of guiding students toward a deeper understanding of the world.

Traditionally, higher-level musical instruction has relied on individual lessons. However, this approach is increasingly insufficient for addressing contemporary challenges. Today's musicians require a broader set of competencies, including artistic creation, creativity, and social relevance (López-Íñiguez et al., 2022; Sarath et al., 2014). Many young musicians feel constrained by norms that limit experimentation and authentic expression in their interpretation (de Ruijter, 2023). Pedagogical approaches that encourage responsible experimentation foster creativity and open new avenues for musical expression (de Ruijter, 2023).

In this context, PBL offers a valuable opportunity to develop essential skills for future careers. As a collaborative approach, PBL enhances interpersonal skills (Konrad et al., 2021; Setyowidodo et al., 2020; Zhang et al., 2023) and promotes meaningful experiential learning (Puangpunsi, 2021). Thomas (2000) describes PBL as organizing education around authentic projects, while Tobias et al. (2015) emphasize its importance in preparing students for professional life. Hanney (2018) suggests viewing PBL as a "pedagogy of/for practice," (Hanney, 2018, p. 2) highlighting its experiential nature that bridges theory and application. Maida (2011) even considers PBL a tool for social transformation.

Carnawi et al. (2017) define PBL as a method for developing mastery, creativity, leadership, and risk-taking skills through solving real-world problems. The focus is on meaningful experiences that facilitate concept discovery and knowledge development (Larmer and Mergendoller, 2010). PBL strategies have been shown to promote deeper understanding (Blumenfeld et al., 1991), greater independence (Thomas, 2000), and increased motivation (Helle et al., 2006). Engaging in project work can also significantly boost students' creativity (Anazifa and Djukri, 2017; Kean and Kwe, 2014).

Implementing PBL involves several key steps, as outlined by Bender (2012): (1) introducing and planning the group; (2) initial research and information gathering; (3) designing and developing the project with initial evaluation; (4) a second research phase; (5) final presentation development; and (6) publishing the final products or artifacts. Teachers facilitate these stages, guiding students as they work. According to Blumenfeld et al. (1991), the core of PBL is framing a guiding question or problem that directs activities and culminates in a student-created final product (Blumenfeld et al., 1991; Helle et al., 2006).

PBL is an innovative approach aligned with success in the 21st century, exposing students to authentic contexts, encouraging in-depth inquiry, and fostering communication and interdisciplinary skills (Belwal et al., 2020; Weber, 2016; Zen et al., 2022). It can be implemented across all educational levels, emphasizing learning

over traditional teaching methods (Dillon, 2023). However, Dillon (2023) notes that while teachers can define pedagogical approaches, they cannot fully control what students learn or how they apply that knowledge. Therefore, he advocates transforming PBL into project-based teaching, where the teacher acts as a facilitator, mentor, or leader, creating an engaged, collaborative environment that encourages independent learning and skill development (Tobias et al., 2015). Strategies most aligned with PBL include student-centeredness, facilitation, collaboration, and exploration—differing significantly from traditional lecture-based methods.

Interest in PBL has been growing in recent years within the field of music education, as it has proven to be an effective way of learning music and a stimulating area of research (Ramos and Botella Nicolás, 2021). However, implementing PBL requires considerable time and dedication, as well as flexible planning, since projects often span several months (Larmer et al., 2015; Odena, 2014; Sarrazin, 2019).

With the aim of presenting a project at the 23rd EPTA Piano Days, which the Association of Piano Teachers of Slovenia organized under the theme *You Can Be Different*?, we undertook a PBL challenge with six master's students at the Academy of Music, University of Ljubljana. This innovative interdisciplinary project focused on Stravinsky's *The Rite of Spring*, particularly Stravinsky's own arrangement for piano duet (four hands), exploring its artistic significance through collaborative research involving multiple art forms.

The project culminated in a staged performance in which two students played a four-hand piano piece. This was accompanied by verses on pagan rites and offerings written by the poet Mateja Perpar, a collaborative pictorial projection created by one of the students in collaboration with her fellow pianists and choreographed movement performed by the other four piano students. This was performed three times, with the students changing roles, so that each participant played the piano once and performed the movement twice. The presentation was complemented by recitations from artist Vita Mavrič, as well as costumes and lighting designed by Andrej Stražišar.

Stravinsky's *The Rite of Spring* is a groundbreaking work that revolutionized music with its bold language and rhythms. It has influenced various art forms and, as such, served as an interesting starting point for interdisciplinary PBL. Through qualitative phenomenological research, we aimed to understand how students interpreted this interdisciplinary experience and its implications for higher music education. The study focused on six pianists who integrated visual art, staging and verbal expression into their piano interpretation through PBL, shedding light on how such an approach can broaden students' competencies in an ever-changing world. The key research question was: How did the participating students understand and interpret the experience of interdisciplinary PBL centered on Stravinsky's *The Rite of Spring*? The research question was formulated based on existing literature and preliminary observations made during initial discussions with students. Although previous studies have emphasized the advantages of PBL approaches and interdisciplinarity, there has been limited in-depth exploration of how students personally interpret and experience such projects, particularly within the context of advanced music studies. The aim was therefore to reveal the subtle ways in which students engage with and comprehend interdisciplinary PBL processes, thereby addressing a gap in current research and offering potential insights for future pedagogical practices.

2 Materials and methods

2.1 Methodology

This research on the views of the six piano students on a master's degree course who engaged in the PBL involves qualitative research methods. Given that the intention was to conduct an in-depth exploration of a group of participants in the context of PBL, an interpretative phenomenological analysis (IPA) best suited the needs of this study. In phenomenological research, the focus is on understanding the essence of shared lived experiences rather than merely describing individual life stories (Creswell, 2007). To achieve this, it is essential to explore how individuals interpret and make sense of their experiences—a process that is grounded in phenomenology, hermeneutics and idiography. Phenomenology provides the philosophical foundation by emphasizing the study of phenomena as experienced from a first-person perspective. It seeks to uncover the core meaning of participants' experiences by examining their perceptions and consciousness (Langdridge, 2007). Hermeneutics complements this approach by acknowledging that interpretation is an integral part of understanding human experiences. It emphasizes that participants and researchers interpret the meanings of experiences through a process of double hermeneutics, whereby the researcher attempts to understand how participants interpret their own experiences (Smith et al., 2009). This interpretative process recognizes that meaning is constructed through language and context. Idiography emphasizes the particular, focusing on detailed understanding of individual cases or experiences. In this study, idiography guides the analysis toward capturing the unique perspectives of each student, while also identifying common themes across participants.

The aim of IPA is thus to explore how participants make sense of the phenomena under investigation, while also acknowledging the researcher's interpretative role, which is documented through reflective notes and diaries (Pietkiewicz and Smith, 2014). This dual interpretative process enables a nuanced understanding of participants' subjective experiences within the PBL environment.

The data collected includes the researcher's notes in a research diary, transcripts of phenomenological interviews and reflective evaluation diaries maintained by the participating students.

2.2 Participants

The six piano students of the master's program at the Academy of Music at the University of Ljubljana represent a purposive and *ad hoc* sample, which ensures that the study is also personally meaningful for the participants, and allowed me as the researcher to capture the details of this group who experienced interdisciplinary PBL. All six pianist students in the second year of the master's program at the Academy of Music, who are attending the author's lectures in special piano didactics, were included in the study. The author was a mentor of an educational and artistic research project at the Academy of Music entitled "I. Stravinsky: *The Rite of Spring—Transformation of the Artist.*" The students participated in the research voluntarily, motivated by their own interest. In order to better conceal their identities, they are referred to in the research by the following code names: S1, S2, S3, S4, S5 and S6.

2.3 Survey procedure

The data collection process took place from March 2024 to January 2025. The individual steps were monitored by the researcher's diary entries, supplemented by documented conversations with the students, ongoing documentation of the collaborative rehearsals, evaluation of the group's dynamics, and discussions about the artistic project, including video recordings of the concert presentations. This process allowed all the participants to go as deep as possible into the experience and to learn about the expression of that experience. After the last performance, I asked the participating students to describe their experience of the whole PBL as accurately and reflectively as possible in a written evaluation using open-ended questions. This was the basis for the preparation for the in-depth interviews. A phenomenological interview was then conducted with each student involved.

The phase 1 involved the PBL plans and orientations that we set out at the beginning of the process, following Bender (2012). The planning of the group was quickly completed, as everyone unanimously agreed to participate. This was followed by research aimed at gathering information, the design and development of the project and initial evaluation of the presentation, the second phase of research, then the development of the final presentation and concert performance. During this I regularly recorded and otherwise documented conversations with students, with ongoing documentation of collaborative rehearsals, evaluations of group dynamics and discussions of the artistic project, including video recordings of the concert presentations, in a research diary (RD). Weekly meetings began with discussions about the PBL experience. During these discussions, participants were encouraged to recognize and report on their experiences. At the same time, efforts were made to establish a safe, confidential and cohesive environment. This environment was fostered through consistent and transparent communication to ensure that participants felt respected and valued, and by maintaining confidentiality regarding personal reflections and group interactions shared during the meetings. The effectiveness of this environment is evident in the openness and trust demonstrated by participants during interviews and collaborative activities, and in their willingness to share personal insights and engage earnestly in the process.

As the researcher was also the lecturer, it is important to acknowledge the potential for bias and influence on the participants' responses. To mitigate this, I employed several strategies: I maintained reflexivity through ongoing journaling of my thoughts and reactions; I explicitly communicated to participants that their feedback was valued and would not affect their standing in the course; and I created a non-judgemental atmosphere during interactions. While supervision or involvement from an independent third party was not part of this study, these steps were taken to enhance the credibility and trustworthiness of the research process.

Creating the above-described environment was crucial for both the integrity of the research and for facilitating the phenomenological interviews in Phase 2, where trust between the interviewer and the participant is vital for exploring their personal experiences (Kordeš, 2008; Petitmengin, 2006).

Two- to three-hour weekly meetings from March to the end of June were carried out to gather information on the subject of

Stravinsky's *The Rite of Spring* in the initial phase of the project. Initial discussions about the experience of PBL were followed by the design and development of the project and initial evaluation. During the July and August holidays, the students studied the piano performance independently. We then continued with weekly PBL sessions in September until the final concert presentation on 4 December. Gradually, through research, we developed the final presentation and presented it twice at the Academy of Music of the University of Ljubljana and once at the EPTA Piano Days, held at the National House (*Narodni dom*) in Maribor. The performances were recorded with a video camera.

In the phase 2 of the research, following the final implementation of the project on 4 December 2024, I invited the participants to reflect on their experiences by responding in written form to open-ended questions. This process provided valuable insights into the students' perspectives on interdisciplinary PBL. Based on their written reflections, I then planned targeted one-on-one interviews to further explore and deepen my understanding of their experiences and interpretations.

The interviews were partly structured with pre-designed questions that I adapted to the participants during the interviews. Normally IPA interviews last at least an hour, but ours lasted between 30 and 40 min, as we already had access to a lot of data collected in the RD and the participants' evaluation notes. In addition, I already had an established, trusting relationship with students, which helped to make the process quicker and more efficient. Indeed, I believe that active listening and an established trusting relationship with the participants were key to generating the data for this research. I conducted the interviews via Zoom; i.e., in an environment where only the participant and I were present. This helped to ensure a sense of safety and confidentiality, increase participant comfort, prevent interruptions and eliminate the possibility that the presence of others could contaminate the data.

After collecting notes from the RD, evaluation notes and verbatim transcripts of the interviews, I transcribed the data using Microsoft Word. The language used by the students in the interviews was predominantly dialectal, so I have grammatically edited some of the words from the interviews and diary entries for clarity. The aim was to be as clear as possible, while also preserving the meaning of what was said. One interview was conducted in English at the request of the student for ease of expression. In all other cases the interviews were conducted in Slovenian, which I then translated. I have changed the names that appear during the interviews between slashes into codes / S1, /. When labeling quotations, I have first written the student's code, e.g., S4. The following letter indicates whether the quotation is an interview (I), a written evaluation (E), or a research diary (RD) record. For example, S4E means that the quotation is a statement made by student S4 in their written evaluation with reflection. For statements from the RD I have added the date of the statement.

Throughout the research, I aimed for reliability by employing the epoché method (Moustakas, 1994), which involves identifying and setting aside preconceptions in order to remain open to participants' narratives and confront data objectively. Keeping a research diary was essential for avoiding bias, as it prioritized the voices of the participants over my own. As a PBL tutor with personal views on this teaching approach, I focused solely on data from the diary, evaluation notes, interviews and video recordings of the performances, enabling triangulation. To enhance validity, I employed consensus validation (Mesec, 1998) by providing participants with transcripts to review,

confirm and supplement. One participant clarified and expanded on their responses, and reviewed my notes to ensure understanding. Lincoln and Guba (1985) emphasize that participant checking is crucial for credibility. I conducted this through participant review and regular validation meetings, ensuring consistency and accuracy (Figure 1).

2.4 Data analysis process

The data collected was analyzed using IPA, which is the preferred data collection approach that "invites participants to offer a rich, detailed and first-person account of their experiences" (Smith et al., 2009, p. 56). IPA helped me to gain a deeper understanding of the students' experiences of PBL.

All cases were first studied as single case studies. I read the transcripts several times in the initial phase of data analysis, and when reading the transcripts of the interviews I additionally listened to the audio recordings in order to get as close to the data as possible. This was important in order to prepare the interpretative analysis. On each reading, I annotated the text with notes and initial ideas in the right margin of the transcript. I did the same with the written evaluations and the notes from the RD. Following Smith and Osborn (2008) suggestion, on a separate sheet of paper I collected the emergent themes in chronological order, as they appeared in the transcript. I applied this procedure for each participant "on their own terms, to take account of their individuality" (Smith et al., 2009, p. 100). After analyzing each transcript, I produced a final table of the overarching themes and their sub-themes, following Smith and Osborn's (2008) suggestion that themes should not only be selected on the basis of their prevalence in the data, but also on the basis of the richness of the passages highlighting those themes, and the way in which the themes help to illuminate other aspects of the narrative. The next stage involved finding links between the emerging themes, grouping them according to conceptual similarity and descriptively labeling each group. In doing so, I dropped themes with a weak evidential basis. As a result, I extracted four main themes and 12 sub-themes, which I present in the analysis, through which links were also established with the theoretical frameworks of the PBL (Table 1).

3 Results and discussion

The purpose of the IPA was to examine how the participating students understood and interpreted the experience of an interdisciplinary PBL on the theme of Stravinsky's *The Rite of Spring* and what meaning this experience had for them. Four overarching themes emerged from the abundant data: the search for artistic freedom, reduced performance anxiety, a positive experience of the group, and expanded perceptions of future professional possibilities.

3.1 Main theme 1: the search for artistic freedom

At the very beginning, when we chose the theme of Stravinsky's *The Rite of Spring*, the students strongly emphasized the understanding of this work as an opportunity to seek artistic freedom. They
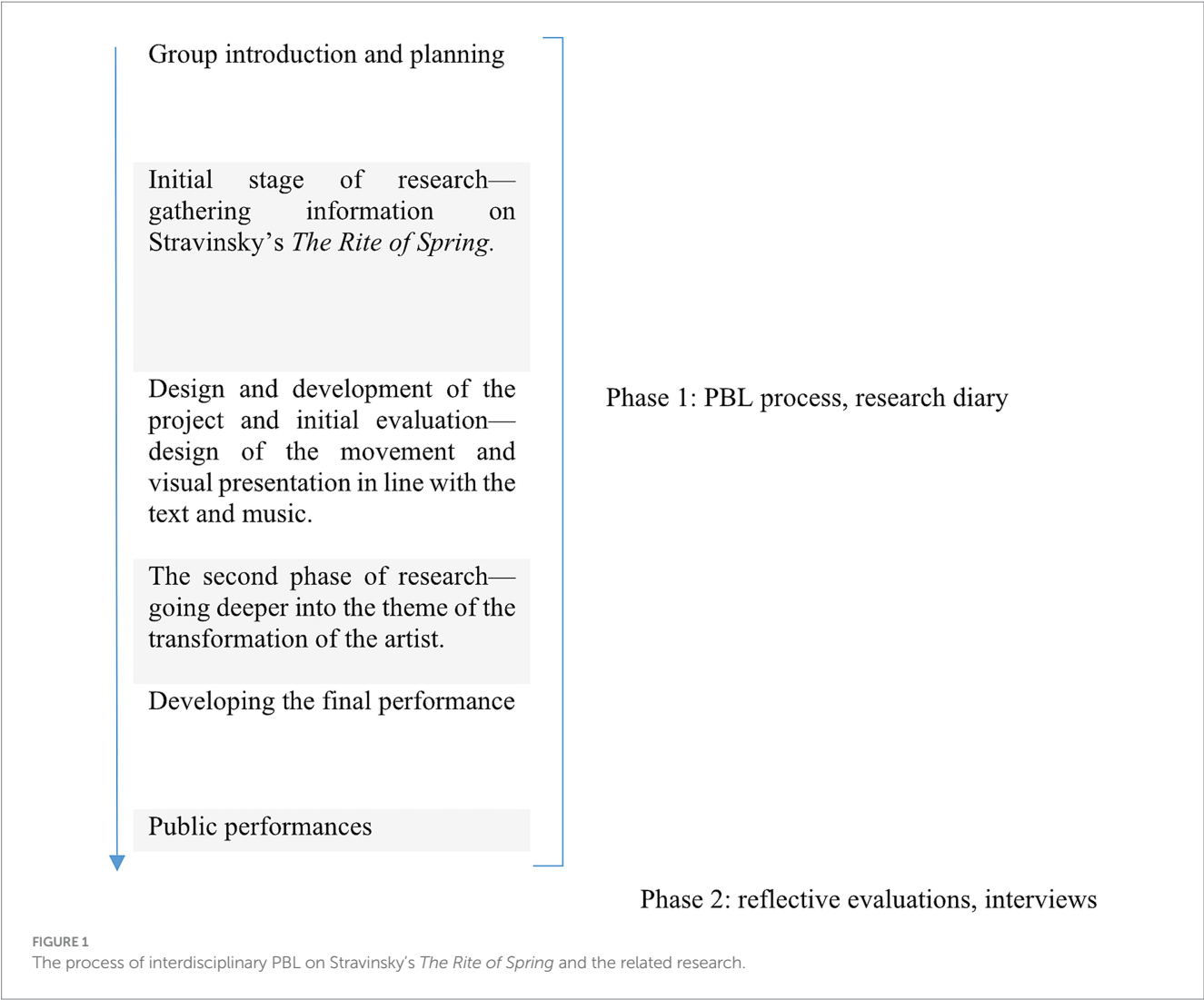
Group introduction and planning

Initial stage of research—gathering information on Stravinsky's *The Rite of Spring.*

Design and development of the project and initial evaluation—design of the movement and visual presentation in line with the text and music.

The second phase of research—going deeper into the theme of the transformation of the artist.

Developing the final performance

Public performances

Phase 1: PBL process, research diary

Phase 2: reflective evaluations, interviews

FIGURE 1
The process of interdisciplinary PBL on Stravinsky's *The Rite of Spring* and the related research.

TABLE 1 Main themes and sub-themes.

Main themes	The search for artistic freedom	Less performance anxiety	Positive experience of the group	Reflections on artistic and pedagogical development
Sub-themes	The desire to break free from established performance norms A desire to explore Excitement Uncertainty	Involvement in the story Less self-focus	Working toward a common goal Feeling safe Collaboration Interconnectivity	More ideas about artistic creation More ideas about teaching work

highlighted the desire to break free from established performance norms and also the desire to explore, which is often neglected in traditional music education. The poet and writer Mateja Perpar artistically combined both the artist's desire for liberation and the themes of pagan ritual in a text for recitation in PBL. Rituals can symbolize transformation and liberation from entrapment, which for the students meant the possibility of seeking artistic freedom. The novelty and otherness of the project, which promised this liberation, provoked feelings of both excitement and uncertainty. The theme of the search for artistic freedom is therefore expressed through the

sub-themes: the desire to break free from established performance norms, the desire to explore, and feelings of excitement and uncertainty.

3.1.1 Sub-theme: The desire to break free from established performance norms

When we started to explore the theme of Stravinsky's *The Rite of Spring* through the PBL, I focused more on the theme of the Earth and pagan rituals, while the students unanimously emphasized their desire to be free from the rules of performance. *The Rite of Spring* is, after all,

a revolutionary work that truly changed the musical and choreographic landscape of the 20th century. The premiere of this ballet in Paris in 1913 caused quite a scandal, because it was so radical and different from anything known up to that time. Stravinsky introduced unusual rhythms, dissonance and unpredictable melodic lines, which broke with traditional musical forms and structures. Similarly, Vaslav Nijinsky's choreography featured unusual movements, primal and physical dance elements that challenged classical ballet norms. Nijinsky used expressive movements that reflected human instincts and emotions, thus moving far away from the elegant and sophisticated movements of traditional ballet. *The Rite of Spring* thus became a breakthrough work in the history of music and ballet, opening up a new direction in artistic creation.

For students, this work represented an opportunity to explore beyond the conventional rules or norms of piano performance. The sub-theme the desire to break free from established performance norms encapsulates their wish to break away from traditional, often rigid standards of piano performance, such as conventional interpretative boundaries. It encompasses a broader aspiration to experiment with their own expressive potential and challenge the norms of musical expression. This involves incorporating elements from other art forms, such as dance, poetry, visual art and theater. Essentially, it is about creating space for personal artistic freedom and innovation rather than strictly conforming to established performance conventions. As S4 reflected, their desire was *"to break free from this structure, from the rules that have been hammered out. To be able to express myself more freely. And more joy"* (S4RD, 8 April 2024). S4 expressed that this longing for freedom was closely tied to seeking greater joy in pianistic expression. This need to move beyond established structures and norms points to a difficulty that young artists often face; that is, the need to express themselves and their emotions more freely. Behind this may be a fear of criticism from others, which would trigger a move away from the agreed norms of piano performance. Young musicians are also confronted with the feeling that they do not have enough space to experiment outside contemporary norms, as de Ruijter (2023) also notes. Performers are afraid to deviate from contemporary performance norms, preferring to conform to agreed expectations of what the styles of individual composers should sound like, as Stam (2019) confirms. This is further reinforced by examination marking, which re-emphasizes accepted norms and values (Hill, 2018). This fear is a barrier to more experiential, passionate performance. S2 expressed the desire for this passion on stage. They whished to*"indulge in the moment on stage, here and now, with the same passion I feel for the world of ideas,"* (S2E) aiming to bring their creative and conceptual enthusiasm into their performances. They aimed to connect with their inner passion and artistic imagination, seeing this as essential for achieving greater focus and presence during performances. This reflects an awareness of the importance of focusing on the immediate experience of performing, as well as allowing the music to unfold naturally. For musicians, it is crucial to be able to let go of over-controlling the performance, surrendering to the sound and expressiveness with confidence, and thus creating a more expressive performance.

3.1.2 Sub-theme: desire to explore

The students expressed a desire to explore in their music education, which can make an important contribution to greater freedom of expression. By this they most often mean the opportunity

to improvise, the chance to do innovative projects, but also to explore a wide range of interpretative possibilities. For S1, S2, S3 and S4, this desire was manifested through the expression of a lack of opportunities for exploration. S1 reflected *"In all these years we have not had the opportunity to do some research"* (S1RD, 15 April 2024). The statement reveals an emotional reflection on the extensive years of learning and studying the piano. S1 emphasizes that, despite dedicating significant time to practicing and studying large amounts of music, there has been a lack of opportunities to explore and interpret the music personally. This situation highlights a predominantly teacher-centered approach, which is well established in Western classical music education (Harris, 2014; Mackworth-Young, 1990; Montandon, 1998; Pucihar, 2023, 2024). In such settings, learning often involves following musical notation and the teacher's ideas, with limited space for independent exploration.

Trapkus (2020) notes that many musicians, even at the university level, have limited or no experience in studying music notation or shaping their own interpretation. They often attend lessons without a clear, personal interpretative framework, relying instead on the teacher to provide interpretation rather than learning how to develop it themselves. This underscores a predominant teacher-centric model.

In contrast, the learner-centered approach—serving as the foundation for PBL (Tobias et al., 2015)—emphasizes strategies such as discovery, exploration, collaborative planning, and self-assessment across various domains of music and piano education. Here, the teacher's role shifts to that of a guide, encouraging students to deepen their understanding, develop independent ideas, and engage in reflective practice. This approach supports technical progression, musical skills, stylistic and character interpretation, and the ability to select appropriate practice strategies to meet specific goals and achieve desired performance outcomes (Pucihar, 2023).

The lack of opportunities to experiment and explore one's own creative abilities may lead to the frustration of young artists, who tend to rely on established norms for fear of failure or criticism. As such, young artists are often trapped in frameworks that limit their freedom. Despite this, there is a yearning for liberation, which can then lead to internal conflicts.

Another issue regarding the desire to explore, try new things or improvise is the high expectations that pianists have developed through years of musical training, which includes demanding performance, exam, competition, entrance test and audition challenges. Piano students who reach university level have had to demonstrate high levels of piano performance, and expect a lot from themselves in this regard. S2 expressed this tension, stating, *"As a classically trained musician, I have high expectations and I dare not improvise"* (S2RD, 15 Apr 2024). This reflects how S2 perceives difficulty in improvising, likely linked to feelings of insecurity, fear of failure, or an internalized standard shaped by the traditions and didactics of classical piano education. The comment about being *"classically trained"* underscores a strong internal structure that influences their approach to musical exploration and improvisation. Their identity as a musician is linked to certain standards and norms, which influence their confidence with regard to improvisation. S2's inner reality is shaped by years of training that emphasized technical and interpretative perfection, which makes it difficult for them to create and improvise in a relaxed manner. Nevertheless, the statement *"I dare not improvise"* suggests a desire to improvise, albeit with some clear encouragement and structure.

Students often talk about improvisation because they tend to label anything that deviates from established norms and standards as improvisation. Sometimes improvisation is used to describe any kind of creative exploration, or any action that differs from the conventional expectations of piano performance. However, in the project, the students and I were not concerned with improvisation, but rather with exploring the expressive possibilities of both interpretation and performance. Perhaps paradoxically, one's own expression can be richly explored despite following the strict instructions of the composer, which is what Stravinsky wanted. He argued that musicians should reproduce the composer's works with respect for historical facts and not for their own career interests. The performer was thus expected to take a strictly objective approach, following the composer's explicit will without adding anything (Stravinsky, 1970). We thus followed the score and the composer's markings exactly, yet there remains an infinite possibility of exploring what tone, movement, feel, mood and other means of musical expression will best express the composer's intentions. An additional area of exploration was the inclusion of other arts—artistic text, pictorial projection and movement. Through it all, the students explored the possibilities of expressing their ideas about *The Rite of Spring*, and they were very pleased with this. As S6 remarked, *"This project has brought me a lot of satisfaction and inspiration" (S6E)*. They also emphasized the importance of overcoming fears and limitations—*"stepping out of your comfort zone"*—and the value of *"taking risks and exploring."* The courage to take risks in the context of PBL is also highlighted by Carnawi et al. (2017). This brings great satisfaction and inspiration and we can perceive an important message that students need to be offered a space of exploration even at the highest levels of music education.

3.1.3 Sub-theme: enthusiasm

S1, S3, S4 and S6 expressed their feelings of enthusiasm at the decision to have an interdisciplinary PBL on Stravinsky's *The Rite of Spring*. Their enthusiasm was also reflected in the highlighted feelings of joy, positive expectation and self-confidence. For instance, S1 described feeling *"very excited about it at the start"* and *"could not wait for it to start"* (S1I). Similarly, S4 recalled feeling *"excited straight away"* and *"confident that we were going to do a great job"* (S4I). This strong enthusiasm was linked to the response to a new opportunity to participate in something that was new and innovative, and it created a belief that the project would be a success. S6 also expressed happiness about being part of something new and the chance to *"grow artistically"* (S6E).

The prevalence of positive feelings of enthusiasm can also be seen as an important factor in overcoming the obstacles that arise in such projects.

3.1.4 Sub-theme: uncertainty

Nevertheless, the novel nature of the project also contributed to feelings of uncertainty and trepidation. All the students highlighted feelings of insecurity in relation to the idea of choreography and movement expression. We divided the piano duet score into three roughly equal sections to ensure smooth and logical transitions between parts. The students were paired up and each pair was assigned one section to perform. While two students played the piano duet, the remaining four focused on choreography that reflected the story or message through movement expression. This

setup enabled each student to perform musically and express themselves through movement. Exposing themselves in front of an audience through movement expression represented uncertainty for the students. S5 reflected, *"I've never exposed myself in this way before, so I had some trepidation about it, but at the same time I found it very tempting"* (S5I). However, while the first steps into the unknown were often accompanied by feelings of stress and anxiety, these did not last. Through the process of working together, the initial uncertainty gradually dissipated. S2 noted that *"the idea of choreography was a bit scary at first and it was hard to imagine myself performing something like that in front of an audience. Nevertheless, I was immediately enthusiastic about the project and the sometimes unthinkable soon became something achievable, natural"* (S2E). Similarly, S1 shared: *"Oh yes, I have to say, it was a bit stressful from the beginning. The uncertainty of what was going to happen /…/ but after we got through a couple of rehearsals, it just disappeared very quickly"* (S1I).

From the students' statements, it is evident that their initial feelings of worry, trepidation and fear were gradually replaced by *"more and more enthusiasm"* (S3I) for the project. This suggests that uncertainty can serve as a motivation to explore new possibilities and overcome one's own limitations, and thus opens up a space for exploring how uncertainty can become a key part of the creative process that fosters the growth and development of individuals. In this way, young artists can face their insecurities and use them as a tool to explore their own limits and potentials. As such, insecurity is not only seen as an obstacle, but as a starting point for discovering new possibilities of artistic creation. The students' ability to manage the uncertainties that arise from self-reflection as a formative factor in the performance of the PBL represents the potential for personal and artistic development.

3.2 Main theme 2: Less performance anxiety

Being involved in an interdisciplinary artistic experience helped to free the young pianists from performance anxiety, as they were less self-focused and more involved in the story itself. They experienced less stress as they focused on the overall action on stage rather than on their own concerns with regard to playing the piano. Their attention therefore shifted from focusing on themselves to focusing on the collective performance.

Although we did not think about performance anxiety in the PBL, all the students pointed out that while they usually experienced performance anxiety, stage fight and trepidation, this experience was different.

Performance anxiety is a natural, emotional and physiological response to the stress of public performance. The debilitating forms of performance anxiety, however, are severe and persistent responses that go beyond the normal adaptive response to situations of high-stakes musical evaluation, and can negatively affect the quality of musical performance and the musician's life in general (Gómez López and Sanchez Cabrero, 2023; Habe, 1998, 2024). The prevalence of performance anxiety among musicians in training, or even among professionals, is alarmingly high. Dalia (2014) states that between 60 to 80% of professional musicians suffer from extreme forms of performance anxiety, and 20% of students decide to abandon their musical careers because of it.

Performance anxiety is also an important and commonly discussed topic among students at the Academy of Music in Ljubljana, so it is not surprising that it was also raised by the students in this study.

The inclusion of an interdisciplinary artistic experience meant that the piano performance was part of a larger performance. Although this was more demanding, as the students also performed movement elements and paid attention to recitation and image projection, the musical performance itself became less taxing. Simultaneously, an artist recited poetry on stage, and the scene was enriched with visual projections, creating a multidimensional performance that engaged multiple senses and artistic disciplines. S4 shared said that *"there were so many other things that playing was just one part of the performance and it was a lot easier/…/ Any stress or nervousness that would certainly have been present just performing the piano part was therefore significantly reduced"* (S4I).

The students' statements showed that the key to this was to be involved in the story and focus less on themselves. This suggests that the participating students' involvement in the story, emotional empathy with the meaningful message that was important to them, and consequently less focus on themselves, reduced performance anxiety before and/or during the performance. Odena and Cabrera (2006), in an action research study where clarinet students engaged in a dramatization of *The Magic Flute*, also found that the use of different skills reduced anxiety and helped the participants' confidence when playing at a final performance.

3.2.1 Sub-theme: involvement in the story

All the participating students stated that they felt part of a common story in the project, and this was reflected in the quality of their performances, and in their artistic creation. They described transformative experiences in which they were able to move away from the fear of performing and give themselves over to the story, leading to higher quality and more enjoyable performances. S3 remarked that, during their performances, they *"did not have any trepidation at all,"* and instead felt *"really looking forward to every single one of those performances"* (S3I). This time, the story was in the foreground, *"which began and ended in such a very beautiful way"* (S3I) and made for a more complete experience.

S6 reflected that they *"just left myself to be in this role"* similar to how they feel when using their creative side, feeling *"more relaxed and do not think too much about all of the difficulties that can come"* (S6E). Playing a role can also be seen as being involved in the story, and this enabled the student to be more relaxed and *"enjoy the whole process"* (S6E). Acting in a role that also included physical expression is associated with the creative part of the brain, allowing for more relaxation and less thinking about potential mistakes.

3.2.2 Sub-theme: less self-focus

S1, S2, S4 and S5 expressed less self-focus when engaged in the interdisciplinary artistic project, which also reduced their performance anxiety and led to better musical performances. S2 shared that *"it was easier to just go with the flow and the story,"* (S2I) highlighting how a reduced focus on oneself—*"without being preoccupied with oneself"*—was relaxing and allowed the process of performing to flow. It can be seen that such a refocusing helps to reduce self-criticism, which leads to greater relaxation during the

performance. S4 similarly noted that *"I actually paid the most attention to what was happening on stage and not to my piano part"* (S4I). This shift of attention from one's own concerns to the wider scene can help to reduce stress. By saying that *"the quality did not suffer,"* they suggested that the reduced stress or nervousness actually resulted in a better quality performance. S4 also added that when they had their faces painted, the mask had the effect of making them less focused on themselves: *"You are distancing yourself from yourself, the person"* (S4I). The story, and the fact that they were wearing a mask, meant that it was easier for this student to distance themselves from their own high expectation that they have *"to play those passages in the second movement, in the sixth bar, so well."*

S5 described the lowering of expectations at the moment when others were on stage. At that point, the sense of self as a performer was lost, and with it the expectations for oneself: *"Even when the others came, somehow that feeling of the performer that we always have, that somehow, the expectations and all that, somehow got lost"* (S5I).

Besides, the statement *"I was in the moment when we were playing"* (S5I) indicates a state of intense focus or flow. Musicians describe flow as an ecstatic state in which the music spontaneously emerges. Similarly, Habe and Biasutti (2023) point out that a state of flow is experienced when musicians create their best performances.

S4 described this experience in a similar way—*"We've all fallen into a bit of a trance, I think"* (S4I)—and this suggests that during the performance the students were able to surrender to the current moment, which allowed them to forget any anxiety they might have had. This shift into a state of intense focus or flow can lead to better performances, as individuals reduce their preoccupation with their own thoughts and self-criticism.

At the time of writing, I have not found any research to support the assumption that less self-focus means less performance anxiety. However, research does find that increased self-focus has a worse effect on performance than focusing attention on the expressive quality of the sound, i.e., having an external focus (Atkins, 2017; McNevin et al., 2003; Mornell and Wulf, 2019). In *The Rite of Spring*, the students directed their attention to the story and the overall performance, and thus outward, and their internal attention or focus on the self faded away, along with their high expectations for themselves. Moreover, the documented recordings of their performances show they were of very high quality, which suggests that interdisciplinarity, i.e., the inclusion of other artistic elements, may have the power to reduce performance anxiety, if the performers manage to get sufficiently involved in the story and thus avoid excessive self-focus.

S6, based on their own experience, stated that this kind of PBL can make a significant contribution to reducing performance anxiety, and thus would like to see young learners given similar opportunities: *"I felt that it's very important for young students to be to have the opportunity to be a part of projects like this to connect piano playing with this kind of stage performance, because I think it helps a lot with overcoming fear of the /./ performance anxiety"* (S6I).

3.3 Main theme 3: Positive experience of the group

All the students involved saw the positive experience of the group as a *"one of the most important aspects"* (S2I) of the PBL.

This positive group experience included the sub-themes of working toward a common goal, feeling safe, cooperating and being connected.

3.3.1 Sub-theme: working toward a common goal

Three participants (S1, S3 and S4) stressed the importance of collective effort, where the equal participation of group members proved to be the basis for achieving common goals. Equal effort toward a common goal also contributed to the feeling of joy. S3 described *The Rite of Spring* project as *"one of the best experiences I have had as an artist, because we all worked together to produce the best results within our abilities and time constraints"* (S3E). This dynamic strengthened teamwork and created an atmosphere in which every student felt motivated and valued.

3.3.2 Sub-theme: feeling safe

The majority of students (S1, S2, S3, S4 and S5) expressed the feeling of safety they experienced in the group. This feeling is crucial for a positive dynamic, as it allows the open communication and exchange of ideas without fear of rejection. It encourages participants to step out of their comfort zone and contribute to a sense of belonging. S1 pointed out that *"normally, I'm not the kind of person who is the first to speak up about something, but in this group I felt safe to speak up"* (S1I). It was also important for the students to feel equal and to express themselves without fear of rejection: *"We created an environment where we felt safe and therefore dared to make proposals that in the past we would have preferred to have reconsidered, reworked or even discarded many times ourselves"* (S4E).

A sense of security helps to exchange ideas, which are essential for the implementation and success of the project and for contributing equally to the overall process. The participants expressed how they were aware of the value of their contributions in the process, which helped them to develop original ideas and thus helped to make the project unique.

3.3.3 Sub-theme: collaboration

Four students (S3, S4, S5 and S6) further stressed the importance of collaboration, with S4 stating that the experience of PBL made this even more apparent to them: *"Yes, I think it* [i.e., producing a performance] *is very collaborative"* (S4I).

S3 added that the group work also encouraged the exchange of ideas. *"It was really great for me to see all the different ideas that we brought with us, and then somehow put them together into this story that made sense"* (S3I). Collaboration is thus not limited to the sharing of tasks, but evolves into a dynamic process of exploring new ideas, which are indispensable for the implementation of a project and give it meaning.

Taking advice and being open to others' opinions thus became the foundation for growth, both individually and as a group, and the students learned that others can bring new perspectives and solutions. S5 stated that at first they thought that they had enough knowledge at academic level to find their own answers to the problems the project raised, but *"then later I realized that sometimes it happens that somebody else finds a better solution than you were able to"* (S5I). This echoes Zhang et al. (2023), who note that PBL is an important form of collaborative learning that has a positive impact on the development

of students' abilities. More specifically, by engaging in group work in real-life projects, this approach enhances the interpersonal skills of cooperation and communication (Konrad et al., 2021; Setyowidodo et al., 2020).

3.3.4 Sub-theme: interconnectivity

Engaging in PBL fostered deeper connections among the students involved, as they moved from fellow students to friends. S6 described how participation in the project led to the formation of closer bonds among students who initially knew each other only as colleagues. Before the project, their relationships were thus at a superficial level, with no deeper contact. Then through the process of working together they became friends who had shared valuable experiences with each other. S6 also noted that despite the initial assumption that they did not have much in common, they discovered many similarities when working together. *"I realized that we are actually very similar, and the music connected us on different levels"* (S6I). Music thus emerged as a language that transcended superficial differences and enabled them to connect on a more profound level.

The transition from superficial to deeper connections among the students through a shared artistic experience illustrates the power of art as a unifying force. It also demonstrates how the collaborative making of art can have a positive impact on social dynamics and contribute to the formation of communities and friendships that last beyond the formal educational environment. PBL is thus not only an academic process, but also an emotional and social one, with Puangpunsi (2021) confirming that this form of learning enables students to pursue their goals not only academically, but also personally.

3.4 Main theme 4: reflections on artistic and pedagogical development

All six students stated that after the project they had a wider range of ideas with regard to the possibilities available for artistic creation, and five of them said they had more ideas about the possibilities of creative pedagogical work. The positive experience of PBL thus enabled them to recognize its value in relation to their own artistic creation, as well as for learning in general. S2 expressed a clear recognition of their own fear and uncertainty before starting new projects, stating that they had not dared to take risks and try new approaches before, and that the project thus acted as an opportunity for change. This highlights the importance of creating an environment that encourages innovation and experimentation, which leads to breaking through personal barriers. S2 noted a new way of looking at artistic creation, in which success and fulfillment can be achieved through innovative approaches. They concluded that one's initial unpreparedness or imperfection should not be a barrier—*"you do not need to be perfect to start something"*— and that it is necessary to just begin working, *"because only through starting something can you improve"* (S2I).

The students placed the highest value on the interdisciplinarity of the PBL in terms of future professional opportunities, i.e., on the integration of diverse arts. Spelt et al. (2009) also consider that the aim of interdisciplinary education is to provide a more comprehensive understanding of complex content by integrating information or

methods from two or more academic disciplines (Spelt et al., 2009). The students highlighted the importance of interdisciplinarity in both artistic and pedagogical work, and the theme of reflections on artistic and pedagogical development is thus divided into two sub-themes: expanded ideas about artistic creation and expanded ideas about pedagogical work.

3.4.1 Sub-theme: more ideas about artistic creation

The students had little previous experience of interdisciplinary PBL, and so engaging with this project presented new ideas and encouraged them to go deeper into artistic creation and interpretation. S4 noted the positive influence of the other arts involved on the energy and musicality of the final performance: *"The movement, recitation and painting had a significant impact on the musical performance, as I noticed that the performances in the classroom could not compare to the energy and musicality of those that were performed with the support of all the other artistic elements"* (S4E).

Similarly, S6 noted the new dimensions of expression that were made possible by the integration of other arts. Their statement on this reflects the important, and perhaps transformative, realization that artists do not only act as creators, but as *"channels through which energy and inspiration flow"* (S6E). This implies the deep connection between artistic creation and the inner world of the artist.

In this context, S2 expressed regret that the integration of various arts is often neglected, thus reflecting the view that musicians can enrich their perception and expression by crossing the boundaries of different artistic disciplines. *"I am aware that most of my piano performances will not include movement, painting or recitation, but I can incorporate these into the study process to enrich and deepen my perception and expression of music"* (S2E).

S5 added that their experience of interdisciplinary PBL *"will influence my future work, especially by making my perception of the performance more realistic, and I will approach live performances with more confidence"* (S5E). The development of self-confidence in students engaged in PBL is also highlighted by Weber (2016).

The greater range of ideas about artistic creation, as noted by the students, underline the benefits of an interdisciplinary approach to art, which can encourage the individuals involved to develop a deeper understanding of their own artistic creation.

"I felt that the realization [of the performance] *was much stronger and deeper than I could have imagined at the beginning of the project"* (S3E).

These statements show that bringing interdisciplinarity to the musical arts can broaden the participants' understanding of music as a complex, multidimensional art form, and enrich their experience, understanding and recreation of works of art.

3.4.2 Sub-theme: more ideas about teaching work

The students recognized the potential of integrating different artistic disciplines into their teaching work, and that this approach would be able to enrich the learning process for their students. Their insights and reflections in this regard show a willingness to transfer and explore the PBL experience in their future careers as teachers.

S3 highlighted the opportunities available to expand pedagogical activities into areas beyond traditional music education, such as the fine arts in general and computer-aided teaching. The latter, like digitalization, is increasingly present in all forms of education. While acknowledging the challenges of organizing and managing group projects, S3 expressed confidence in their abilities to do this: *"Of course, I still have great challenges ahead of me in organizing, managing and implementing group projects, but I am confident that I will be able to cope with this in my teaching career"* (S3E).

S6 expressed a desire *"to pass this experience on to young musicians in my teaching work by presenting music not only through the technical aspects of playing, but also through the exploration of one's own emotions in music."* They emphasized that this approach not only develops technical skills but also encourages *"the integration of body and sound"* through innovative exercises and approaches to learning and teaching the piano. S6 added, *"I will encourage them to tell a story through music that is honest and personal, helping them to find their own artistic voice"* (S6E).

The PBL experience examined in this study, in which the students focused on the story of *The Rite of Spring*, was important to them and thus seems to have created an intention to adopt a similar process in their own pedagogical work.

S5 commented on the possibilities of combining musical works with *"extra-musical artistic content or movements,"* (S5E) both in their own performances and in their teaching work, with the use of interdisciplinary elements being considered especially important.

The students' reflections in this content echo widespread notions in the literature that pedagogical work based on the integration of musical works with different artistic creations can enhance students' potential with regard to their artistic and emotional development.

4 General discussion

This research was inspired by the work in music education and related fields which emphasized the importance of interdisciplinary and experiential learning approaches. Notably, Blumenfeld et al. (1991) emphasized the importance of authentic, student-centered projects, and Belwal et al. (2020), Weber (2016) and Zen et al. (2022) discussed innovative, collaborative and enquiry-based strategies that align with 21st-century skills. Furthermore, Biesta (2021) work on project-based learning as a pathway toward world-centered music education highlights the existential dimension of teaching. From this perspective, education extends beyond merely transmitting knowledge and skills; it involves directing students' attention toward the world and fostering their capacity to understand and engage with its complexities. Biesta advocates moving beyond curriculum-centric models to prioritize student agency and existential engagement within learning processes. Dillon (2023) further enriches this discourse by emphasizing the importance of student-centered, experiential and meaningful learning experiences that promote personal and social development in music education.

The motivation behind the interdisciplinary PBL was to create opportunities for students to engage with new and creative challenges, thereby encouraging exploration and collaborative learning. This approach is in line with ongoing efforts in music education to develop creative, interdisciplinary environments that prepare students for the complexities of contemporary musical practice.

The findings of this study demonstrate how participating students interpreted and experienced interdisciplinary PBL centered on Igor Stravinsky's *The Rite of Spring*. Four overarching themes emerged: the search for artistic freedom, reduced performance anxiety, positive group dynamics, and reflections on artistic and pedagogical development. Students perceived the theme of *The Rite of Spring* as an opportunity to break free from established performance norms, inspiring them to explore their own artistic creation. At the same time, they had mixed feelings of excitement and uncertainty about the innovative nature of interdisciplinary PBL. However, this process contributed to reducing performance anxiety as students connected more deeply with the story and message of their work, shifting their focus from self-consciousness to collective performance. This aligns with research indicating that narrative engagement can alleviate performance-related stress (Odena and Cabrera, 2006).

The students also noted the importance of a positive group dynamic, which was manifested in the pursuit of a common goal and in feelings of security, collaboration and togetherness. While the importance of collaboration in PBL is also highlighted by other authors (Konrad et al., 2021; Setyowidodo et al., 2020; Zhang et al., 2023), this study showed that the process of collaboration on an artistic project also contributed to the formation of bonds of friendship among the students.

The study also revealed that interdisciplinary PBL broadens students' perceptions of their future development by encouraging the integration of diverse artistic disciplines into performance and teaching. Additionally, reflections on artistic and pedagogical development emerged, with students recognizing growth in their creative approaches and pedagogical understanding—highlighting the dual impact on artistic practice and teaching skills. Such approaches can deepen artistic perception and pedagogical effectiveness, aligning with current trends in higher music education that promote interdisciplinary skills.

The theme of the search for artistic freedom is closely linked to sub-themes such as the desire to break free from established performance norms and explore new expressive avenues, reflecting personal aspirations for creative independence. At the same time, sub-themes like involvement in the story and less self-focus reveal emotional and psychological dimensions, such as reducing performance anxiety and fostering a sense of engagement.

Examining the sub-themes more closely reveals that some are related to personal growth and emotional skills, such as feeling safe, and having less self-focus. The positive experience of the group emphasizes collaboration and working toward a common goal, both of which are essential social skills that help create a supportive learning environment. These group dynamics also foster interconnectivity among students. Finally, reflections on artistic and pedagogical development encompass personal growth, as well as career-oriented skills, such as innovative teaching strategies and new performance ideas.

Overall, these results suggest that interdisciplinary PBL provides a holistic developmental platform, enhancing artistic creation, reducing anxiety, fostering collaboration and expanding professional horizons. Given these benefits, wider implementation in music education is highly recommended. Practical challenges, such as time and resource constraints, need to be addressed to facilitate the broader adoption of interdisciplinary PBL in higher music education.

While these insights are promising, the small sample size and the unique nature of the project limit the generalizability of the findings. However, phenomenological studies are intentionally homogeneous and purposive (Smith et al., 2009), aiming to identify characteristic patterns and understand the dynamics of experience (Creswell, 2007; Mesec, 1998) rather than making broad generalizations. Future research involving larger and more diverse groups would help deepen our understanding. Additionally, comparing findings across different contexts and incorporating quantitative measures could provide more comprehensive evidence.

5 Conclusion

This study provides valuable insights into the transformative potential of interdisciplinary PBL in higher music education. By examining students' experiences of a PBL approach centered on Stravinsky's *The Rite of Spring*, the research emphasizes how such teaching methods can encourage artistic freedom, alleviate performance anxiety, foster positive group dynamics and expand students' pedagogical and creative perspectives. The findings show that combining different art forms in real-life projects encourages deeper engagement, personal development and collaborative abilities—qualities that are vital for contemporary musicians and educators.

The implications of this work suggest that adopting interdisciplinary, experiential PBL approaches can enhance the development of creative, resilient and collaborative artists. They also emphasize the importance of creating safe, supportive environments that encourage exploration and innovation. While further research with larger samples is needed, this study paves the way for the broader implementation of interdisciplinary projects in music education with the potential to prepare students more effectively for the demands of today's dynamic artistic landscape. Connecting music students with students and performers of other artistic disciplines can result in joint efforts that produce numerous unique creative works, enriching both the learning experience and the artistic community as a whole.

Data availability statement

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

Ethics statement

The studies involving humans were approved by Komisija za etiko, Filozofska fakulteta Univerze v Ljubljani. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

IP: Writing – original draft.

Funding

Acknowledgments

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.

Generative AI statement

The author declare(s) that no generative AI was used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

Anazifa, R. D., and Djukri, D. (2017). Project-based learning and problem-based learning: are they effective to improve student's thinking skills? *J. Pendidik. IPA Indones.* 6, 346–355. doi: 10.15294/jpii.v6i2.11100

Atkins, R. L. (2017). Effects of focus of attention on tone production in trained singers. *J. Res. Music. Educ.* 64, 421–434. doi: 10.1177/0022429416673842

Belwal, R., Belwal, S., Sufian, A. B., and Al Badi, A. (2020). Project-based learning (PBL): outcomes of students' engagement in an external consultancy project in Oman. *Educ. Train.* 63, 336–359. doi: 10.1108/ET-01-2020-0006

Bender, W. N. (2012). Project-based learning: Differentiating instruction for the 21st century. California: Corwin.

Biesta, G. (2021). World-centred education: A view for the present. New York: Routledge.

Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., and Palincsar, A. (1991). Motivating project-based learning: sustaining the doing, supporting the learning. *Educ. Psychol.* 26, 369–398.

Carnawi, C., Sudarmin, S., and Wijayati, N. (2017). Application of project based learning (PBL) model for materials of salt hydrolysis to encourage students' entrepreneurship behaviour. *Int. J. Active Learn.* 2, 50–58. Available at: https://journal.unnes.ac.id/nju/ijal/article/view/10603

Creswell, J. W. (2007). Qualitative inquiry and research design: Choosing among five approaches. *2nd* Edn. Thousand Oaks, CA: Sage.

Dalia, C. G. (2014). El Músico Adicto. La Musicorexia. Madrid, Spain: Ideamusica.

de Ruijter, S. (2023). Embracing the "wrong" in classical music interpretation: about finding balance between tradition and creativity in classical music performance. *J. Trial Error* 3:15. doi: 10.36850/h3yn-bd82

Dillon, J. E. (2023). Project-based learning: toward a world-centered music education. *Int. J. Educ. Arts.* 24, 1–17. doi: 10.26209/ijea24n13

Gómez López, B., and Sanchez Cabrero, R. (2023). Current trends in music performance anxiety intervention. *Behav. Sci.* 13:720, 1–15. doi: 10.3390/bs13090720

Habe, K. (1998). Izvajalska anksioznost pri glasbenikih. *Psihol. Obz.* 7, 5–27.

Habe, K. (2024). Kako zablesteti na odru? Dejavniki uspešnega glasbenega nastopanja. Univerza v Ljubljani: Akademija za glasbo.

Habe, K., and Biasutti, M. (2023). Flow in music performance: from theory to educational applications. *Psychol. Top.* 32, 179–195. doi: 10.31820/pt.32.1.10

Hanney, R. (2018). Doing, being, becoming: a historical appraisal of the modalities of project-based learning. *Teach. High. Educ.* 23, 769–783. doi: 10.1080/13562517.2017.1421628

Harris, P. (2014). Simultaneous learning. London: Faber Music Ltd.

Helle, L., Tynjälä, P., and Olkinuora, E. (2006). Project-based learning in post-secondary education—theory, practice and rubber sling shots. *High. Educ.* 51, 287–314. doi: 10.1007/s10734-004-6386-5

Hill, J. (2018). Becoming creative: Insights from musicians in a diverse world. New York: Oxford University Press.

Kean, A. C., and Kwe, N. M. (2014). Meaningful learning in the teaching of culture: the project-based learning approach. *J. Educ. Train. Stud.* 2, 189–197. doi: 10.11114/jets.v2i2.270

Konrad, T., Wiek, A., and Barth, M. (2021). Learning to collaborate from diverse interactions in project-based sustainability courses. *Sustainability* 13:9884. doi: 10.3390/su13179884

Kordeš, U. (2008). Fenomenološko raziskovanje v psihoterapiji. *Kairos* 2, 9–12.

Langdridge, D. (2007). Phenomenological psychology: Theory, research and method. London: Pearson Education.

Larmer, J., and Mergendoller, J. R. (2010). Seven Essentials for Project-Based Learning. *Educ. Leadersh.* 68, 34–37.

Larmer, J., Mergendoller, J., and Boss, S. (2015). Setting the standard for project based learning. Alexandria, VA: ASCD.

Lincoln, Y. S., and Guba, E. G. (1985). Naturalistic inquiry. Newbury Park, CA: Sage.

López-Íñiguez, G., Pérez Echeverría, M. P, and Pozo, J. I. and Torrado, J. A. (2022). Student-Centred music education: principles to improve learning and teaching. In: López-Íñiguez, G., Pérez-Echeverría, M. P., Pozo, J. I., and Torrado, J. A. (Eds.), *Learn. Teach. Music Studio, Student-Centred Approach, str.* Landscapes: The Arts, Aesthetics, and Education. Singapore: Springer. 31, 369–385. doi: 10.1007/978-981-19-0634-3_18

Mackworth-Young, L. (1990). Pupil-Centred learning in piano lessons: an evaluated action-research Programme focusing on the psychology of the individual. *Psychol. Music* 18:73.

Maida, C. A. (2011). Project-based learning: a critical pedagogy for the twenty-first century. *Policy Futures Educ.* 9, 759–768. doi: 10.2304/pfie.2011.9.6.759

McNevin, N. H., Shea, C. H., and Wulf, G. (2003). Increasing the distance of an external focus of attention enhances learning. *Psychol. Res.* 67, 22–29. doi: 10.1007/s00426-002-0093-6

Mesec, B. (1998). Uvod v kvalitativno raziskovanje v socialnem delu. Ljubljana: Visoka šola za socialno delo.

Montandon, M. I. (1998) Trends in piano pedagogy as reflected by the proceedings of the National Conference on piano pedagogy (1981–1995). Doctoral Dissertation. Norman, Oklahoma

Mornell, A., and Wulf, G. (2019). Adopting an external focus of attention enhances musical performance. *J. Res. Music. Educ.* 66, 375–391. doi: 10.1177/0022429418801573

Moustakas, C. (1994). Phenomenological research methods. Thousand Oaks, CA: Sage.

Odena, O. (2014). "Facilitating the development of innovative projects with undergraduate conservatory students" in Developing creativities in higher music education: International perspectives and practices. ed. P. Burnard (London and New York: Routledge), 127–138.

Odena, O., and Cabrera, I. (2006) "Dramatising the score: an action research investigation of the use of Mozart's magic flute as performance guide for his clarinet concerto." In: *9th international conference on music perception and cognition, 22–26 Aug 2006, University of Bologna, Italy*

Petitmengin, C. (2006). Describing one's subjective experience in the second person: an interview method for the science of consciousness. *Phenomenol. Cogn. Sci.* 5, 229–269. doi: 10.1007/s11097-006-9022-2

Pietkiewicz, I., and Smith, J. A. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychol. J.* 20, 7–14. doi: 10.14691/CPPJ.20.1.7

Puangpunsi, N. (2021). Learners' perception towards project-based learning in encouraging English skills performance and 21st century skills. *THAITESOL J.* 34, 1–24.

Pucihar, I. (2023). Moj prijatelj klavir za učitelje: koncepti, veščine in strategije pouka klavirja. Koper: Založba Univerze na Primorskem.

Pucihar, I. (2024). Poučevanje inštrumenta v glasbeni šoli v 21. stoletju. Glasba v šoli in vrtcu: revija za glasbene dejavnosti v vrtcu, za glasbeni pouk v osnovnih, srednjih in glasbenih šolah ter za zborovstvo. *Letn.* 27, št. 1–str. 2-11.

Ramos, P., and Botella Nicolás, A. (2021). El aprendizaje basado en proyectos en el aula de música: una revisión sistemática. *Period. Music.* 40, 1–15. doi: 10.35699/2317-6377.2020.24084

Sarath, E., Campbell, P. S., Myers, D., Chattah, J., and Higgins, L. (2014). Transforming music study from its foundations: A manifesto for progressive change in the undergraduate preparation of music majors. Task force on the undergraduate music major. DC: University of Washington, College Music Society.

Sarrazin, N. (2019). "The essence of problem-based learning and music" in Problem-based learning in the college music classroom. ed. N. Sarrazin (New York: Routledge), 3–14.

Setyowidodo, I., Jatmiko, B., Susantini, E., Handayani, A. D., and Pramesti, Y. S. (2020). The role of science project-based peer interaction on improving collaborative skills and physical problem solving: a mini review. *J. Phys. Conf. Ser.* 1521:022032. doi: 10.1088/1742-6596/1521/2/022032

Smith, J. A., Flowers, P., and Larkin, M. (2009). Interpretative phenomenological analysis: Theory, method and research. Thousand Oaks, CA: Sage Publications.

Smith, J. A., and Osborn, M. (2008). "Interpretative phenomenological analysis" in Qualitative psychology: A practical guide to research methods. ed. J. Smith (London: Sage), 53–80.

Spelt, E. J. H., Biemans, H. J. A., Tobi, H., Luning, P. A., and Mulder, M. (2009). Teaching and learning in interdisciplinary higher education: a systematic review. *Educ. Psychol. Rev.* 21, 365–378. doi: 10.1007/s10648-009-9113-z

Stam, E. W. (2019). In search of a lost language: Performing in early-recorded style in Viola and string quartet Repetoires. [doctoral dissertation, Leiden University].

Stravinsky, I. (1970). Poetics of music in the form of six lessons. England: Harvard University Press.

Thomas, J. W. (2000). A review of research on project-based learning. San Rafael, CA: The Autodesk Foundation.

Tobias, E. S., Campbell, M. R., and Greco, P. (2015). Bringing curriculum to life: enacting project-based learning in music programs. *Music. Educ. J.* 102, 39–47. doi: 10.1177/0027432115607602

Trapkus, P. (2020). Teaching musical interpretation: a student-centered model for addressing a fundamental concept. *Am. String Teach.* 70, 17–21. doi: 10.1177/0003131319891147

Weber, B. A. (2016). The effectiveness of participation in a project-based learning project on at-risk student self-efficacy. Dissertations and Theses. Paper 3363.

Zen, Z., Reflianto, S., and Ariani, F. (2022). Academic achievement: the effect of project-based online learning method and student engagement. *Heliyon* 8:e11509. doi: 10.1016/j.heliyon.2022.e11509

Zhang, R., Ji, S., and Jianwei, Z. (2023). Research on the quality of collaboration in project-based learning based on group awareness. *Sustainability* 15:11901. doi: 10.3390/su151511901