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P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

Design Thinking Approaches of Secondary Music Teachers Towards a Creative Pedagogical Culture

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Received: 19 June 2025 **Revised**: 20 July 2025 **Accepted**: 22 July 2025

Available Online: 25 July 2025

Volume IV (2025), Issue 3, P-ISSN – 2984-7567; E-ISSN - 2945-3577

https://doi.org/10.63498/etcor418

Abstract

Aim: This study aimed to determine the significant impact of design thinking approaches for the creation of pedagogical intervention among Secondary Music teachers within the Schools Division of Quezon Province. Specifically, this study sought to measure the significant extent of how the educators exhibit the procedures under design thinking approaches as well as their capacity to create pedagogical interventions, how design thinking approaches affect the development of pedagogical interventions, and what model of design thinking approaches can be developed based from the findings of this study.

Methodology: This quantitative research employed a correlational design to gather perceptions among one hundred one (101) teachers across the Schools Division of Quezon. A survey questionnaire was developed to gather quantitative data for the mentioned variables. For statistical analysis of data, one sample t-test, analysis of variance, and regression analysis were used.

Results: Based on the survey, the design thinking approaches is practiced with significant extent except for prototyping, which is deemed to be empowered further. Aside from that, there is a significant extent on the practice of creating pedagogical interventions. Furthermore, the results of regression analysis posited that design thinking approaches impact the creation of pedagogical interventions. Lastly, this study developed a creative builder model inclined towards the use design thinking approaches in improving the creation of pedagogical interventions among Music teachers.

Conclusion: Design thinking approaches have significant impact on the creative pedagogical intervention of teachers.

Keywords: *Design thinking approaches, Music Education, Pedagogical Intervention*

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Introduction

Creativity is vital in pedagogy, particularly in teaching subjects like Music wherein lack of student interest as well as insufficient adequate resources are encountered. To compensate for the lack of interest of most learners in Music classes, teachers are required to be more creative (Sungurtekin, 2021). In the Philippine public school context, music educators face challenges in engagement and instructional support. To address these, teachers must implement innovative strategies rooted in creativity (Pashia, 2019). The onset of technological advancements opened a wider window for the teachers' creativity to flourish (Henriksen et al., 2021). To further modulate this, teachers could capitalize on the process of design thinking approach. Recent local studies have also underscored the need to equip educators with adaptive and future-ready pedagogical competencies, especially when facing persistent classroom constraints and shifting student needs (Carvajal et al., 2025).

Design Thinking Approach, a non-linear, human-centered problem-solving method, offers potential in education by involving all stakeholders in the development of solutions. Design Thinking Approach is useful because it could provide the school personnel a bird's eye view of the clientele's concerns (Dam & Siang, 2020). This approach promotes collaborative idea generation based on empathy, context, and shared experiences. Design thinking approaches allow every member of the community to share their experiences so that it could be of great use in developing a certain intervention. That is the power of design thinking approaches, and it could bring forth development to the schools which will practice it (Riddle, 2016). While widely adopted in business, its application in music education remains underexplored. Moreover, promoting problem-solving approaches among teachers aligns with efforts to future-proof the education curriculum by making it more dynamic and learner-responsive (Amihan, et al., 2023).

Creative pedagogical approaches, such as project-based learning and technology integration, can significantly enhance music instruction. These methods empower learners through exploration, self-expression, and active engagement (Ephraim, 2021). In teaching music, a creative pedagogical approach offers a myriad of opportunities to engage students in a more immersive and interactive learning experience. Encouraging students to explore diverse musical genres, styles, and instruments is beneficial (Bylica & Bauman-Field, 2022). Allowing them to experiment and express themselves through different types of music is critical for the success of teaching and learning in music. Integrating technology and software that enables students to compose, mix, or create their own music can foster creativity and exploration (Fanchamps et al., 2024). For teachers, the Design Thinking Approach provides a framework to develop relevant and responsive teaching strategies. This study aims to assess secondary music teachers' perceptions of their creativity and their awareness or use of the Design Thinking Approach. The goal is to inform the development of interventions that enhance music instruction through creativity-driven methods.

Objectives

The purpose of this study is to look at design thinking approaches of secondary music teachers towards a creative pedagogical culture.

Specifically, the study aimed to answer the following research questions:

1. To what significant extent do the respondents exhibit:
   1.1. empathizing;
   1.2. defining;
   1.3. idealizing;
   1.4. prototyping;
   1.5. testing;
   1.6. inspiring; and
   1.7. nurturing?
2. To what significant extent do the respondents create pedagogical interventions in terms of:
   2.1. stating objectives;
   2.2. conceptualization;
   2.3. implementation;
   2.4. monitoring; and
   2.5. evaluation?
3. To what extent are the effects of the design thinking practices to the creation of pedagogical interventions?
4. Based on the findings, what design thinking approaches of secondary music teachers towards a creative pedagogical culture can be develop?

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Hypothesis

Given the stated research problems, the hypothesis was tested at 0.05 level of significance.

H_0: Design thinking approaches has no significant impact on creating pedagogical intervention.

METHODS

Research Design

This research employed a quantitative approach, using numerical data to analyze findings objectively. Specifically, a descriptive-correlational research design was adopted to address the research questions. Descriptive research design is suitable for portraying the population's perceptions of a particular phenomenon. In this case, the study aimed to capture the perspectives of secondary Music teachers on the design thinking approach and the establishment of a creative pedagogical culture. Through the use of surveys, it sought to describe how these educators perceive these concepts in their teaching contexts. On the other hand, the correlational aspect of the study examined the relationship between the two key variables: the design thinking approach and creative pedagogical culture. The presence or absence of a significant relationship between these variables guided the formulation of interventions to strengthen both constructs. This approach aligns with similar studies that examined relationships between teaching approaches and instructional culture in education (Carvajal et al., 2024; Carvajal, et al., 2023).

Population and Sampling

The study respondents consisted of Music teachers from public high schools in the First Congressional District of Quezon. This district includes the municipalities of Burdeos (8 Music teachers), General Nakar (19), Infanta (12), Jomalig (7), Lucban (22), Mauban (8), Pagbilao (14), Panukulan (6), Patnanungan (12), Polillo (9), Real (7), and Sampaloc (9). The study employed purposive sampling to ensure that only Music teachers handling the subject concurrently with other MAPEH components were included. This sampling method is appropriate in educational research where specific expertise or roles are necessary for reliable insights (Pangilinan, 2025; Sanchez, et al., 2022).

Instrument

To collect the necessary data, the researcher utilized a structured survey questionnaire designed specifically for secondary Music teachers. The Likert-scale instrument captured responses aligned with the research objectives. It was composed of four sections: (1) respondents' profile and the creative culture in their schools, (2) perceptions on components of the design thinking approach, and (3) views on the existing creative pedagogical culture in their context. The questionnaire underwent content and face validation by educational experts, particularly professors and supervisors in the MAPEH discipline. Ensuring instrument validity and reliability is essential for quality research outcomes and is a practice emphasized in contemporary educational investigations (Abenojar et al., 2025; Sanchez, 2023).

Data Collection

Data were gathered during the 2023–2024 school year across the Schools Division of Quezon, particularly in the First Congressional District. After obtaining permission from relevant school authorities, the validated questionnaire was converted into a Google Form for digital administration. This approach facilitated efficient data gathering while preserving accuracy and confidentiality. Surveying was considered the most appropriate method for collecting quantitative responses from Music teachers. Similar data collection strategies have been effective in related studies involving educators in varied contexts (Muñoz & Sanchez, 2023; Salendab & Sanchez, 2023).

Treatment of Data

Several statistical tools were used to analyze the data. A one-sample t-test was employed to determine the significance of the variables addressed in research questions 1 and 2. This statistical technique assesses whether the population mean significantly differs from a predefined benchmark or standard value. In this study, it measured the extent to which Music teachers apply the design thinking approach and implement creative pedagogical practices. Additionally, regression analysis was used as an inferential statistical method to explore the relationship between the design thinking approach and pedagogical intervention strategies. This analysis helped identify which aspects of design thinking influence the development of creative teaching strategies. The application of regression analysis to link teaching practices and educational outcomes is supported by other academic inquiries into instructional strategies and leadership effectiveness (Carvajal et al., 2024; Sanchez et al., 2024).

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Ethical Considerations

Ethical guidelines were strictly observed throughout the study. In adherence to the Data Privacy Act of 2012, all personal data from the respondents were securely stored in encrypted digital folders to ensure confidentiality. A consent form was included in the initial section of the survey to inform participants about the study's objectives and to request their voluntary participation. This ensured transparency and respect for participants' rights. The researcher affirms that there were no conflicts of interest in the conduct of this study. Ethical adherence to research procedures and informed consent is fundamental in educational studies and reflects best practices in safeguarding participant rights (Carvajal et al., 2025; Sanchez & Sarmiento, 2020).

RESULTS and DISCUSSION

This section presents the findings regarding the practice of design thinking approaches among MUSIC teachers and how it could affect the creation of pedagogical interventions.

Significant Extent of Design thinking approaches

The following are the findings pertaining to the significant extent on how Music teachers practice design thinking approach in terms of its steps: empathizing, defining, idealizing, prototyping, and testing.

Significant Extent in Design Thinking Approaches

Table 1 presents the one-sample t-test results examining the extent to which Music teachers practice the steps of Design Thinking Approaches. A test value of 3.25 was used, representing the boundary for "Strongly Agree."

Table 1. One Sample T-test Results for the Significant Extent in Design Thinking Approaches

Design Thinking	t	df	p	Mean Difference	95% CI Lower	95% CI Upper
Empathizing	2.742	46	0.009	0.165	0.044	0.286
Defining	2.610	46	0.012	0.144	0.033	0.254
Ideating	5.570	46	<.001	0.344	0.219	0.468
Prototyping	0.827	46	0.412	0.050	-0.072	0.172
Testing	3.097	46	0.003	0.188	0.066	0.311
Design Thinking (Overall)	3.512	46	0.01	0.178	0.076	0.280

Based on the statistical results, most of the steps in Design Thinking Approaches garnered p values less than a=0.05, signifying that these were practiced in such extent. This excludes prototyping, wherein the value is 0.412, showing that the practice is not fully extent. Nevertheless, the overall level of practice of design thinking approaches is 0.001, showing that the said approach is practiced in such extent. One notable result from the data is the lack of statistical significance in terms of prototyping. It could be implied that although Music teachers practice the indicators under prototyping, their level of practice for this step did not meet the extent. This show that improvement can be made to further empower the teachers on developing prototypes as part of design thinking approaches. This step can be related with a more thorough data-driven procedures under research, and teachers tend to be discouraged with it due to its difficulty (Dam & Siang, 2020). That is the reason why school administrators need to encourage the teachers to provide a more powerful exposure towards research if ever they want to venture in design thinking approaches.

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Significant Extent of Music Teachers' Practice of Creating Pedagogical Approaches

This section presents how Music teachers practice the steps of creating pedagogical interventions, as examined through the dimensions of stating objectives, conceptualization, implementation, monitoring, and evaluation.

Table 2. Teachers' Practice of Creating Pedagogical Interventions: Stating Objectives

Indicators	Mean	Descriptive Level	SD	Mean Diff.	t	Sig. (2-tailed)
Objectives are specific	3.617	Strongly Agree	0.534	0.367	4.714	<.001
Objectives are measurable	3.745	Strongly Agree	0.441	0.495	7.694	<.001
Objectives are attainable	3.702	Strongly Agree	0.462	0.452	6.705	<.001
Objectives are relevant	3.766	Strongly Agree	0.428	0.516	8.265	<.001
Objectives are time-bound	3.617	Strongly Agree	0.534	0.367	4.714	<.001

Test Value = 3.25 | N = 101 | df = 100

The results indicate that teachers significantly practice proper formulation of objectives, with all p-values below 0.001. This suggests that teachers are skilled in setting SMART (Specific, Measurable, Attainable, Relevant, Time-bound) goals when developing pedagogical interventions in Music. Therefore, it could be implied that teachers practiced or at least were aware on how to establish objectives in line with creating pedagogical interventions particularly in Music. Producing sound objectives in making interventions in education is crucial since it dictates the direction on their development and implementation (Ventista & Brown, 2023)

Table 3. Teachers' Practice of Creating Pedagogical Interventions: Conceptualization

Indicators	Mean	Descriptive Level	SD	Mean Diff.	t	Sig. (2-tailed)
1. Innovations aligned with the problem	3.681	Strongly Agree	0.471	0.431	6.269	<.001
2. Innovations are effective	3.596	Strongly Agree	0.496	0.346	4.778	<.001
3. Innovations are resourceful	3.702	Strongly Agree	0.462	0.452	6.705	<.001

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4. Innovations are research-based	3.489	Strongly Agree	0.585	0.239	2.805	0.007
5. Innovations are timebound	3.596	Strongly Agree	0.496	0.346	4.778	<.001

Test Value = 3.25 | N = 101 | df = 100

All indicators under conceptualization were found to be significantly practiced ($p < 0.05$). Teachers exhibit resourcefulness despite limited access to resources, especially in remote settings. Despite the reports that resources are scarce especially in far-flung areas, the teachers use the materials available in their areas to produce interventions for their students. In summary, teachers conceptualize pedagogical interventions in a manner where it is connected with the problems identified beforehand (Mallillin, 2022).

Table 4. Teachers' Practice: Implementation of Interventions

Indicators	Mean	Descriptive Level	SD	Mean Diff.	t	Sig. (2-tailed)
1. Implements on time	3.468	Strongly Agree	0.504	0.218	2.964	0.005
2. Ensures proper objective alignment	3.553	Strongly Agree	0.544	0.303	3.820	<.001
3. Includes all target participants	3.532	Strongly Agree	0.504	0.282	3.832	<.001
4. Follows implementation guidelines	3.596	Strongly Agree	0.496	0.346	4.778	<.001
5. Adapts to challenges using alternative ways	3.596	Strongly Agree	0.538	0.346	4.405	<.001

Overall Mean = 3.549 | Test Value = 3.25 | N = 101 | df = 100

Music teachers showed strong implementation practices, even when faced with limitations or challenges. All indicators are statistically significant ($p < 0.05$). The results reflect the current trend of innovation implementation in public schools, where teachers care to adapt on the challenges within their class to implement their activities. Regardless of whether the implementation of interventions was tasked by the higher ups or such were voluntarily

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done by the teachers, the implementations were being taken cared off to address the problems manifested by the students (Walls, 2020).

Table 5. Teachers' Practice: Monitoring of Interventions

Indicators	Mean	Descriptive Level	SD	Mean Diff.	t	Sig. (2-tailed)
1. Monitors participants' performance	3.553	Strongly Agree	0.544	3.820	3.820	<.001
2. Monitors feedback mechanisms	3.553	Strongly Agree	0.544	3.820	3.820	<.001
3. Monitors procedural implementation	3.574	Strongly Agree	0.542	4.108	4.108	<.001
4. Monitors innovation elements	3.574	Strongly Agree	0.500	0.324	4.451	<.001
5. Monitors post-implementation progress	3.617	Strongly Agree	0.534	0.367	4.714	<.001

Monitoring is strongly practiced, suggesting that Music teachers track performance, adherence to plans, and progress consistently and effectively. Based on the survey results, the respondents strongly agree that all the statements pertaining to monitoring has been practiced in their schools. This shows the due implementation of the school in keeping the programs implemented with due supervision. Monitoring is important in teaching to maintain quality education and in this case, troubleshoot the problems which may emerge from the implementation of interventions (Komar et al., 2019).

Table 6. Teachers' Practice: Evaluation of Interventions

Indicators	Mean	Descriptive Level	SD	Mean Diff.	t	Sig. (2-tailed)
1. Conducts post-conferences or reviews	3.57	Strongly Agree	0.542	0.324	4.108	<.001
2. Conducts data-based evaluations	3.489	Strongly Agree	0.505	0.239	3.248	0.002

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3. Identifies challenges during implementation	3.532	Strongly Agree	0.504	0.282	3.832	<.001
4. Troubleshoots emerging problems	3.532	Strongly Agree	0.504	0.282	3.832	<.001
5. Develops future plans based on evaluation	3.511	Strongly Agree	0.505	0.261	3.536	<.001

Overall Mean = 3.528 | Test Value = 3.25 | N = 101 | df = 100

All indicators show a significant extent of evaluation practice ($p < 0.05$). Music teachers recognize the importance of post-evaluation in crafting future instructional decisions. The results show that the Music teachers perceived that they practice or at least know the creation of pedagogical interventions with such extent that they follow the proper guidelines in the development and evaluation of interventions prescribed by the Department of Education. It is in the initiative of the school heads and department heads to produce an environment by which teachers could craft interventions. Aside from that, the teachers may be provided with brainstorming activities and learning sessions to produce and implement interventions for the enhancement of the students' performance in Music (Dogan & Batdi, 2021).

Significant Impact of Design Thinking Approaches and Creating Pedagogical Intervention

The last data to be presented is the statistical analysis of design thinking approaches 'impact in creating pedagogical interventions bases on the perception of Music teachers.

Table 7. Linear Regression between Design Thinking Approaches and Creating Pedagogical Intervention

Model Summary

Model	**RMSE**	**R^2**	**Adjusted R^2**	**R**
H_1	0.320	0.403	0.389	**0.634**

Table 7 shows the statistical results on linear regression between design thinking approaches and creating pedagogical intervention. Based on the results, the R value is 0.634, showing a strong relationship between design thinking approaches and creating pedagogical intervention. Moreover, linear relationship exists between the two variables. It means that the enhancement of innovative culture in schools greatly affects the process of designing a particular intervention or program to solve an identified problem. Music teachers 'ability to create a solution out of a problem using the design thinking approaches is dependent on their power to unravel their innovativeness. The findings imply that valuing the culture of innovation in their schools will lead to the successful practice of tailoring an intervention using design thinking approaches. But further analysis could indicate that the result of the survey may

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also reflect the view of Barsalaou (2018) stating that the use of design thinking process is a case-to-case basis depending on the context of the academe. With that, the public-school scene opted to focus more on post test data in realizing a plan. Therefore, based on this perception, the researcher opted to create a new framework that modified the steps of design thinking process. Anyway, the process is a non-linear one, meaning that it could be interchanged as stated by Dam and Siang (2021).

The Creative Model Builder

Based on the findings of the study, the researcher came up with a design thinking approach which will help the teachers to create an intervention to solve an impending problem in the teaching-and-learning process in Music classes. The creative model builder aims to guide not only the Music teachers but also academicians to craft an intervention based on the problems of the learners. The creative model builder will be composed of steps:

Defining. This initial step is about setting clear parameters and objectives. By defining the scope, challenges, and goals, it provides a solid foundation from which creativity can emerge. It's about understanding what needs to be addressed and pinpointing the direction of the efforts.

Inspiring. Once the goals are defined, the next phase is to inspire. This step involves generating energy and excitement around the project. It's about sparking ideas and motivation through various means be it through brainstorming sessions, inspirational talks, or exposure to related works. This stage aims to elevate the creative spirit and broaden the perspective of participants.

Empathizing. Empathy is central to this model as it involves understanding the needs and emotions of those who will benefit from the creative project. By placing oneself in the shoes of others, it becomes easier to ideate solutions that are not only innovative but also truly resonate with the target audience. This step ensures that the creative outputs are user-centered and meaningful.

Idealizing. With a clear understanding and inspired team, the next step is to formulate ideal solutions. This phase is about pushing boundaries and thinking beyond conventional solutions. It's an exploratory phase where the wildest ideas are welcomed and refined towards practicality. The goal here is to envision the best possible outcomes without the constraints of current realities.

Nurturing. The final step is about bringing these ideas to life. Nurturing involves developing and refining the concepts into tangible outcomes. It's also about maintaining the momentum and ensuring that the initial spark of creativity is sustained throughout the implementation process. This step is crucial as it's where the theoretical is turned into the practical, and where creative ideas are truly realized.

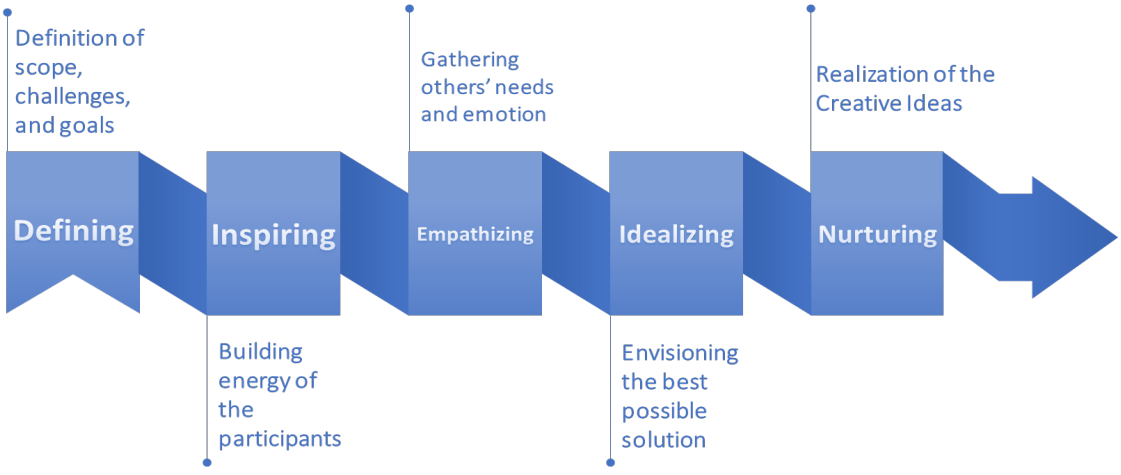

Figure 1. Creative Model Builder for Pedagogical Intervention in Music

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Conclusions

Based on the results, the R value is 0.634, showing a strong relationship between design thinking approaches and creating pedagogical intervention. Moreover, linear relationship exists between the two variables. Therefore, the findings signify that there is a significant relationship between design thinking approaches and creating pedagogical intervention. It could be concluded that design thinking approaches significantly affect the creation of pedagogical intervention, thus rejecting the null hypothesis.

Recommendations

Based on the findings and conclusions of this study, the following recommendations are strongly endorsed to improve the practices of Music teachers and school administrators in utilizing design thinking approaches to foster a creative pedagogical culture:

First, Music teachers must improve how they gather and process feedback from their students and fellow school members. One of the key observations from this study is the hesitation of learners and stakeholders to provide honest and constructive criticism due to fear of exposure or negative consequences. To address this, Music teachers should ensure that any feedback mechanism they use prioritizes confidentiality and psychological safety. Teaching the basics of the Data Privacy Act to students and stakeholders could instill trust, helping respondents feel more secure when expressing their insights. A secure and respectful feedback environment encourages more authentic responses, which are vital in identifying classroom challenges and developing targeted interventions.

Another recommendation is the inclusion of root cause analysis training in the professional development of Music teachers. Identifying a classroom challenge is not enough; teachers must be able to dig deep into the underlying causes before jumping to solutions. Various analytical tools like the Problem Tree, Fishbone Diagram, and Pareto Chart can be introduced to teachers to guide them through this crucial stage of the design thinking approach, defining the real problem. When teachers are trained to look beyond the surface-level symptoms, the interventions they design become more effective and sustainable.

Furthermore, school heads must work towards creating a liberal and supportive school culture that allows teachers to try out new methods without fear of criticism or failure. Traditional models of teaching, especially in rural settings, tend to resist change and encourage uniformity. However, creativity thrives where teachers are allowed to explore beyond convention. Providing flexibility in classroom instruction and evaluation systems, like integrating innovative strategies in the IPCRF-PPST objectives, can make room for creativity while still meeting institutional standards.

It is also important for teachers to write post-implementation reports about their classroom interventions. These may take the form of narratives, success stories, or formal action research outputs. When documented properly, these become valuable references for other educators, enabling knowledge transfer and promoting replication of effective practices. School administrators may create an archive or digital database to store these reports for future use by other Music teachers.

Lastly, the developed Creative Model Builder proposed by this study may serve as a guiding framework for school leaders and teachers in implementing design thinking in classroom settings. It can be used to develop policies, training modules, and evaluation guidelines aligned with the goal of nurturing a creative pedagogical culture. Future researchers may also validate this model further and apply it in different contexts such as Physical Education, Arts, or Health.

The recommendations presented aim to maximize the power of design thinking in developing innovative, inclusive, and effective pedagogical interventions that are grounded in creativity, collaboration, and continuous reflection.

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P - ISSN 2984-7842
E - ISSN 1908-3181

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E - ISSN 2945-3577
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P - ISSN 2984-7842
E - ISSN 1908-3181

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