Development of Tailored Teaching Model for Beginning Piano Level among Visually Impaired Students

Chun Chen[1], Pornpan Kaenampornpan[2], Pongpitthaya Sapaso[3]

Abstract

Music education for visually impaired individuals faces significant challenges due to traditional methods relying heavily on visual cues. This study addresses this gap by developing a tailored teaching model for beginning piano instruction among visually impaired students. Through a multi-phase methodology, including pilot teaching, expert interviews, and formal teaching sessions, the study integrates innovative pedagogical strategies and adaptive technologies to create an inclusive learning environment. The pilot teaching phase was conducted at a specialized school for the blind and deaf in Jiangsu, China, involving six visually impaired students with varying levels of piano learning experience. Expert interviews were conducted with three individuals with expertise in music education for visually impaired individuals. The formal teaching phase comprised six new visually impaired students and spanned three months, with assessments conducted after the 5th and 10th lessons to evaluate learning progress. Results demonstrate the effectiveness of the tailored teaching model in fostering meaningful musical experiences and promoting musical proficiency among visually impaired students. Suggestions for further research and implementation of tailored teaching models are provided to enhance access to music education for visually impaired individuals.

Keywords: *Music Education, Visually Impaired Students, Tailored Teaching Model, Piano Instruction, Inclusive Learning Environment.*

Introduction

Music education fosters creativity, cognitive development, and emotional expression. However, individuals with visual impairments often face significant barriers when pursuing this education, especially at the beginning piano level (Baker & Green, 2016; Campayo–Muñoz & Cabedo–Mas, 2017; Váradi, 2022). The need for tailored teaching models specifically designed to meet the needs of visually impaired students remains a critical gap in educational practice. Traditional approaches to music education often rely heavily on visual cues, such as sheet music and demonstrations, which can pose significant challenges for visually impaired learners (Opie, 2018; Susanto & Nanda, 2018; Conway, 2020). Despite the remarkable talent and resilience of visually impaired musicians, the need for specialized teaching models tailored to the unique needs of visually impaired students remains a pervasive issue. Despite advancements in assistive technologies, comprehensive teaching approaches must be designed specifically for beginning piano instruction among visually impaired learners (Quaglia, 2015; Baker & Green, 2017; Sobol, 2017; Payne et al., 2020).

The absence of tailored teaching models for beginning piano instruction among visually impaired students represents a multifaceted challenge with significant implications for educational equity and social inclusion (Blake, 2018; Nell, 2019). Traditional teaching methods, which rely predominantly on visual stimuli, present formidable barriers to learning for visually impaired individuals, limiting their access to music education and hindering their musical development. Moreover, the lack of inclusivity in music education perpetuates social and cultural marginalization, depriving visually impaired students of opportunities for artistic expression and participation in musical communities (Palmer, 2018; Wilson & MacDonald, 2019; Cho, 2021; Patel et al., 2023).

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[1] Faculty of Fine and Applied Arts, Khon Kaen University, Thailand; chunchen.kku@gmail.com.
[2] Faculty of Fine and Applied Arts, Khon Kaen University, Thailand; pornpan@kku.ac.th.
[3] Faculty of Fine and Applied Arts, Khon Kaen University, Thailand; spongpit@kku.ac.th.

Efforts to address the needs of visually impaired musicians have primarily focused on adaptive technologies and accommodations within mainstream music education settings (Darrow & Adamek, 2017; Gonda, 2023). While these initiatives have improved accessibility to some extent, they often fail to provide a truly inclusive learning experience tailored to visually impaired learners' unique sensory and cognitive needs (Ahmad, 2015; Miyauchi, 2020). Consequently, visually impaired students continue to encounter barriers to accessing music education at the beginning of the piano level, impeding their musical growth and depriving them of the numerous benefits of music learning (Trainor, 2005; Baker, 2014; Reyes, 2018).

The primary objective of this study is to develop a tailored teaching model for beginning piano instruction specifically designed to meet the needs of visually impaired students (Abbas et at., 2024). This model will integrate innovative pedagogical strategies, adaptive technologies, and sensory-based learning techniques to create an inclusive and engaging learning environment (Lersilp et al., 2021; Marshalsey, 2023). The proposed teaching model aims to facilitate meaningful musical experiences and foster musical proficiency among participants by addressing visually impaired learners' diverse learning styles and sensory limitations (Youssef & Al Malek, 2023; Sihombing & Lumbantobing, 2024).

The significance is in developing a tailored teaching model to address their unique needs, contributing to the broader discourse on disability rights. The findings have practical implications for music educators, curriculum developers, and policymakers. By promoting the participation of visually impaired individuals in music education, the study challenges societal stereotypes and perceptions of disability. It also showcases the musical talents of visually impaired musicians, fostering greater acceptance and appreciation of diversity. Developing a tailored teaching model for piano instruction among visually impaired students represents a significant step towards inclusive education and equal opportunities for all.

Materials and Methods

Pilot Teaching

The pilot teaching phase was foundational in developing the tailored teaching model. It was conducted at a specialized school for the blind and deaf in Jiangsu, China, where six visually impaired students aged 8 to 12 participated. These students were grouped based on their prior piano experience into beginner, intermediate, and advanced levels. The pilot teaching consisted of ten lessons, each lasting 1 hour and 15 minutes.

Research Process

During each pilot teaching session, students engaged in interactive learning activities tailored to their proficiency levels. Group A comprised students with no prior piano experience, Group B included those with approximately two years of experience, and Group C consisted of a highly talented student with an extensive musical background in saxophone playing. Teaching sessions were recorded, and detailed teaching journals were maintained to document teaching objectives, challenges encountered, teaching methodologies employed, and students' learning outcomes.

Interviews

Three experts with diverse backgrounds in music education and experience working with visually impaired students were interviewed. The experts included a music teacher from a blind and deaf school, a music teacher from a particular education school, and a visually impaired musician and composer. The interviews focused on exploring common difficulties in blind music classes, effective teaching strategies, and suitable teaching materials for visually impaired learners.

Formal Teaching

Building upon the pilot teaching and expert feedback insights, formal teaching sessions were conducted with six new visually impaired students at the same school. These students were in grades two to six and

had no prior experience in piano study. The formal teaching phase spanned three months and comprised ten individual lessons, culminating in a final recital. Assessments were conducted after the 5th and 10th lessons to objectively evaluate students' learning progress.

Teaching Methods for Beginner Piano Learning

To ascertain effective teaching methodologies and essential skills for novice piano students, the researcher thoroughly explored and analyzed widely used piano teaching materials, including the "Faber Piano Adventures" and "Bastien Piano Basics" textbook series. Additionally, the researcher examined significant piano examinations such as the ABRSM (Associated Board of the Royal Schools of Music) and the Chinese national grading examinations for piano. These resources provided valuable insights into teaching objectives and methodologies for beginner piano studies (ABRSM, 2024).

Furthermore, the study integrated diverse perspectives from scholarly articles and books discussing piano beginner learning. It was observed that fundamental skills such as maintaining correct body and hand posture, practicing finger techniques, mastering the five-finger position, employing appropriate fingering, and utilizing different articulation techniques were crucial for students on piano learning journeys. These foundational skills facilitated current learning and played a pivotal role in shaping future proficiency and performance.

ABRSM serves as the premier exam board of the Royal Schools of Music, administering over 650,000 music exams and assessments annually across 93 countries. According to the ABRSM official website, candidates are evaluated based on comprehensive skills encompassing performance, technique, notation, listening, and musical perception.

The ABRSM website provided detailed marking criteria for all instruments, including the piano. An outstanding performance is characterized by highly accurate notes and intonation, fluent rhythm, well-projected tonal qualities, and an expressive interpretation of the music, as shown in Table 1.

Table 1. ABRSM Practical Music Grades, Piano Syllabus 2023 & 2024

Marking criteria

Grades Initial to 8	Pieces				
	Pitch	Time	Tone	Shape	Performance
Distinction 27–30	• Highly accurate notes and intonation	• Fluent, with flexibility where appropriate • Rhythmic character well conveyed	• Well projected • Sensitive use of tonal qualities	• Expressive, idiomatic musical shaping and detail	• Assured • Fully committed • Vivid communication of character and style
Merit 24–26	• Largely accurate notes and intonation	• Sustained, effective tempo • Good sense of rhythm	• Mainly controlled and consistent • Good tonal awareness	• Clear musical shaping, well-realised detail	• Positive • Carrying musical conviction • Character and style communicated
Pass 20–23	• Generally correct notes • Sufficiently reliable intonation to maintain tonality	• Suitable tempo • Generally stable pulse • Overall rhythmic accuracy	• Generally reliable • Adequate tonal awareness	• Some realisation of musical shape and/or detail	• Generally secure, prompt recovery from slips • Some musical involvement
Below Pass 17–19	• Frequent note errors • Insufficiently reliable intonation to maintain tonality	• Unsuitable and/or uncontrolled tempo • Irregular pulse • Inaccurate rhythm	• Uneven and/or unreliable • Inadequate tonal awareness	• Musical shape and detail insufficiently conveyed	• Insecure, inadequate recovery from slips • Insufficient musical involvement
13–16	• Largely inaccurate notes and/or intonation	• Erratic tempo and/or pulse	• Serious lack of tonal control	• Musical shape and detail largely unrealised	• Lacking continuity • No musical involvement
10–12	• Highly inaccurate notes and/or intonation	• Incoherent tempo and/or pulse	• No tonal control	• No shape or detail	• Unable to continue for more than a short section
0	• No work offered	• No work offered	• No work offered	• No work offered	• No work offered

Grades Initial to 8	Scales and arpeggios	Sight-reading	Grades Initial to 8	Aural tests
Distinction 19–21	• Highly accurate notes/pitch • Fluent and rhythmic • Musically shaped • Confident response	• Fluent, rhythmically accurate • Accurate notes/pitch/key • Musical detail realised • Confident presentation	Distinction 17–18	• Accurate throughout • Musically perceptive • Confident response
Merit 17–18	• Largely accurate notes/pitch • Mostly regular flow • Mainly even tone • Secure response	• Adequate tempo, usually steady pulse • Mainly correct rhythm • Largely correct notes/pitch/key • Largely secure presentation	Merit 15–16	• Strengths significantly outweigh weaknesses • Musically aware • Secure response
Pass 14–16	• Generally correct notes/pitch, despite errors • Continuity generally maintained • Generally reliable tone • Cautious response	• Continuity generally maintained • Note values mostly realised • Pitch outlines in place, despite errors • Cautious presentation	Pass 12–14	• Strengths just outweigh weaknesses • Cautious response
Below Pass 11–13	• Frequent errors in notes and/or pitch • Lacking continuity and/or some items incomplete • Unreliable tone • Uncertain response and/or some items not attempted	• Lacking overall continuity • Incorrect note values • Very approximate notes/pitch/key • Insecure presentation	Below Pass 9–11	• Weaknesses outweigh strengths • Uncertain response
7–10	• Very approximate notes and/or pitch • Sporadic and/or frequently incomplete • Serious lack of tonal control • Very uncertain response and/or several items not attempted	• No continuity or incomplete • Note values unrealised • Pitch outlines absent • Very uncertain presentation	6–8	• Inaccuracy throughout • Vague response
0	• No work offered	• No work offered	0	• No work offered

The piano initial grade assessment serves as a pre-grade evaluation, allowing pianists at the very beginner level to demonstrate and validate their learning outcomes while receiving feedback from others. To gain deeper insights into the standards of the ABRSM initial grade, this study will specifically examine the performance repertoire, scales and arpeggios, sight-reading test, and aural test details for the initial grade examination.

Data Analysis

All teaching processes were meticulously recorded and analyzed, including pilot teaching, expert interviews, curriculum development, and formal teaching sessions. Teaching journals, interview transcripts, and student performance assessments were subjected to qualitative and quantitative analysis to derive insights into the effectiveness of the tailored teaching model.

Results and Discussion

To accomplish the research objectives, the researcher implemented a series of methodologies, including pilot teaching, expert interviews, developing a teaching model, and formal teaching, to enhance the piano learning experience for visually impaired students. This section presents the findings derived from these methodologies in detail.

Pilot Teaching

The pilot teaching phase was conducted at a specialized school for the blind and deaf in Jiangsu, China. Six visually impaired students, aged 8 to 12 years old, participated in the pilot teaching sessions. These students exhibited varying levels of piano learning experience and abilities.

The pilot teaching curriculum comprised ten lessons, each lasting one hour and 15 minutes. Students were divided into three groups based on their learning abilities and piano proficiency levels. Group A consisted of two students with no prior piano learning experience; Group B included three students with approximately two years of piano study. Group C comprised a single student, aged 12, with advanced musical abilities and experience playing the saxophone, as shown in Table 2.

Table 2. Student Distribution in Pilot Teaching Groups

Group	Student Number	Students' Background
A	2	No prior learning experience with piano
B	3	Approximately two years of piano study
C	1	Advanced musical abilities; proficient saxophone player

In the pilot teaching sessions, students within each group were assigned specific learning targets and instructed to perform different piano pieces tailored to their proficiency levels. However, all students were encouraged to engage with each other's performances actively, providing peer-to-peer feedback and suggestions to enhance learning outcomes.

Furthermore, it is noteworthy that participants exhibited varying degrees of visual impairment, with three students experiencing complete blindness, two students perceiving light, and one student having limited vision. As traditional methods relying on visual aids were unsuitable for these students, the teaching approach primarily focused on auditory learning and memorization techniques.

Overall, the pilot teaching sessions provided valuable insights into the challenges and opportunities associated with teaching piano to visually impaired students, laying the groundwork for developing effective teaching strategies.

Interviews

The research interviewed three individuals with relevant experience and expertise in music education for visually impaired individuals. These interviews aimed to gain insights into the unique challenges and effective teaching strategies associated with piano instruction for blind students. Below are the profiles of the interviewees, as shown in Table 3.

Table 3. Interviewee Information

Interviewee	Background	Date
A	A music teacher at a blind and deaf school in Suzhou, China. Responsible for teaching visually impaired students music	October 31, 2023
B	A music teacher at a particular education school in Yangzhou, China, with over 30 years of experience. Also, a conductor for a blind wind ensemble	November 6, 2023
C	A visually impaired musician engaged in composing music in Beijing, China	November 10, 2023

The interviews encompassed a range of topics relevant to teaching piano to visually impaired students, including Braille sheet music, auditory learning techniques, challenges faced by blind students, and strategies for enhancing finger technique and music theory comprehension. Additionally, the researcher presented a curriculum for teaching blind students at the beginner level, incorporating insights from previous teaching experiences and scholarly research.

Furthermore, the three interviewees were invited to review the curriculum and provide feedback. Their input was invaluable in refining the curriculum to better address visually impaired students' needs and learning styles. The revised curriculum would subsequently be utilized in formal teaching sessions to evaluate its effectiveness in facilitating piano learning for blind students.

Use of Braille Sheet Music

The findings highlight the challenges and varying perspectives regarding using Braille sheet music in piano learning for visually impaired students. While some advocate for its utility, others emphasize the limitations and practical difficulties of accessing Braille resources, suggesting alternative methods such as learning by listening, as shown in Table 4.

Listening Ability of Visual Impairment Students

Most people assume visually impaired students have superior listening abilities to sighted counterparts. However, the interviewees' perspectives challenged this notion, as shown in Table 4.

Table 4. Interviewee Perspectives on the Listening Ability

Interviewee	Key point
A	Blind students' listening ability has individual differences; not all possess exceptional skills or perfect pitch. Despite increased reliance on hearing, blind students require training to develop better listening skills. Not all blind students benefit from extensive music education; some may still struggle with basic musical tasks
B	Misconceptions about blind students' superior listening ability arise from increased reliance on hearing in daily life. Not all blind students develop exceptional listening skills; training is essential. Access to Braille music resources is limited, hindering blind students' music education. Early listening training is crucial for maximizing blind students' musical potential
C	Blind students' listening ability varies, and while some may excel, not all possess heightened auditory skills. Blind students benefit from exposure to music education but do not universally possess superior listening abilities. Early exposure to music and cultivation plays a significant role in enhancing listening skills among blind students. Early listening training is essential for blind students to reach their full potential in music

Methods of Developing Memorization

Memorization plays a pivotal role in the piano learning journey of visually impaired students due to their reliance on auditory cues. Interviewees offered valuable insights into methods for enhancing blind students' memory retention, as shown in Table 5.

Table 5. Interviewee Perspectives on the Memory Development Methods

Interviewee	Memory Development Methods
A	Interviewee A suggested using segmented practice and mastering rules to enhance blind students' memory. According to Interviewee A, while rote memorization was the primary method, understanding the music rules could improve learning efficiency. He recommended that when teaching a new piece, blind students should first listen to and sing the melody to memorize it, then focus on identifying the harmony. Understanding the piece's structure through repeated practice would help students discover patterns, akin to playing with construction toys
B	Interviewee B emphasized the importance of segmented practice and mastering rules for blind students. He highlighted that while rote memorization was essential, understanding musical principles could improve learning efficiency. Interviewee B suggested having blind students listen to and memorize the melody and then identify the harmony. Understanding the piece's structure through repeated practice would help them recognize patterns, similar to playing with construction toys
C	Interviewees A and C proposed utilizing technology to aid blind students' memory. Interviewee A suggested using tape recorders to memorize music, while Interviewee C recommended various technological tools. These tools included converting music scores into MIDI format or using voice-reading software to read out music scores. Such technological methods could provide constant access to music scores, allowing students to review and reinforce their memory.

Formal Teaching

The curriculum encompassed the teaching process, specific methodologies, and crucial details necessitating the teacher's attention. Rooted in the experiences of pilot teaching, interview findings, and expert opinions, the curriculum was designed considering various factors. Nonetheless, individual disparities among students, encompassing age, learning aptitude, and practice frequency, could influence the curriculum's efficacy and progress in teaching scenarios.

Formal teaching sessions were executed according to their structure to ascertain the curriculum's suitability for a broader spectrum of students beyond idealized contexts. Six students, originating from the same institution as the pilot teaching participants - a school for the blind and deaf in Jiangsu, were enrolled. These students, aged between 8 and 14, received ten lessons, each lasting 30 minutes.

For lessons 5 and 10, a learning rubric was devised to quantitatively evaluate students' progress, with assessments conducted in the subsequent sessions. For instance, the evaluation of lesson 6 transpired during lesson 7's preparatory phase. This approach, the researcher believed, would furnish more comprehensive results, considering students' practice post-lesson, significantly influencing their learning outcomes and performance levels. The scoring outcomes and individual students' learning statuses were documented and analyzed.

Student A

Student A, aged 10, exhibited notable interest in piano learning and possessed commendable listening ability and memory. While she typically grasped pieces thoroughly and executed them fluently, occasional neglect

of articulation, particularly staccato, posed a challenge. The teacher, recognizing this, emphasized articulation comprehension through repeated reinforcement and pre-performance recitation, culminating in improved performance and heightened awareness of articulation nuances.
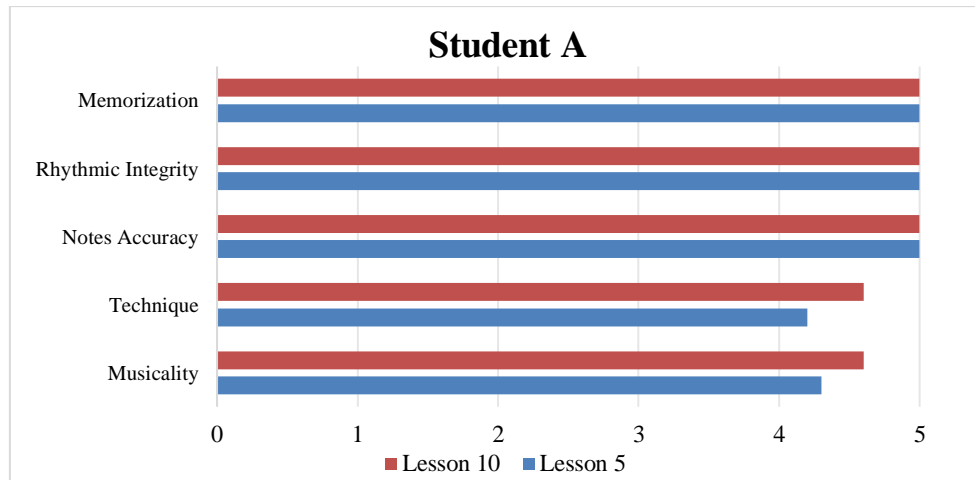
Figure 1. Evaluation Results of Student A

Student B

Student B, aged 14, demonstrated logical aptitude and maintained smooth learning progress. However, when he encountered difficulty in chord transitions during lesson 9, he sought guidance and proactively engaged in rectifying his deficiencies. Leveraging his listening understanding, the teacher facilitated chord identification exercises, fostering improved comprehension and enhanced performance, evident in lesson 10's progress.
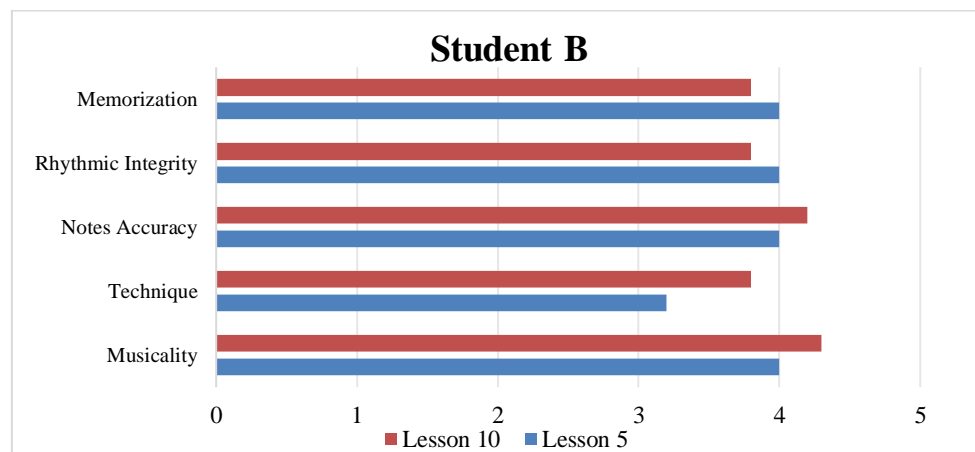
Figure 2. Evaluation Results of Student B

Student C

Student C, aged 11, exhibited keen interest but struggled with impatience and hastiness in playing without attentive listening. Through deliberate exercises emphasizing hand posture and note duration, the teacher instilled discipline and precision in Student C's playing, facilitating notable improvements in rhythmic accuracy and note execution throughout lessons.
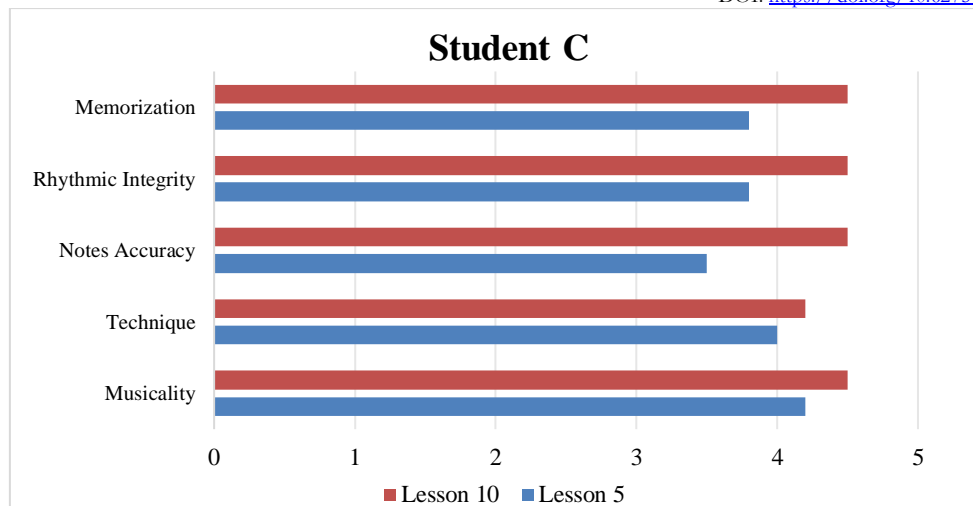
Figure 4. Evaluation Results of Student C

Student D

Student D, aged 11, initially showcased adequate progress but faltered in retaining acquired knowledge due to inconsistent post-lesson practice. Despite a willingness to learn, his lack of motivation and self-confidence hindered long-term retention. Interventions aimed at boosting confidence, such as performance opportunities and duets, proved effective in bolstering motivation and performance proficiency.
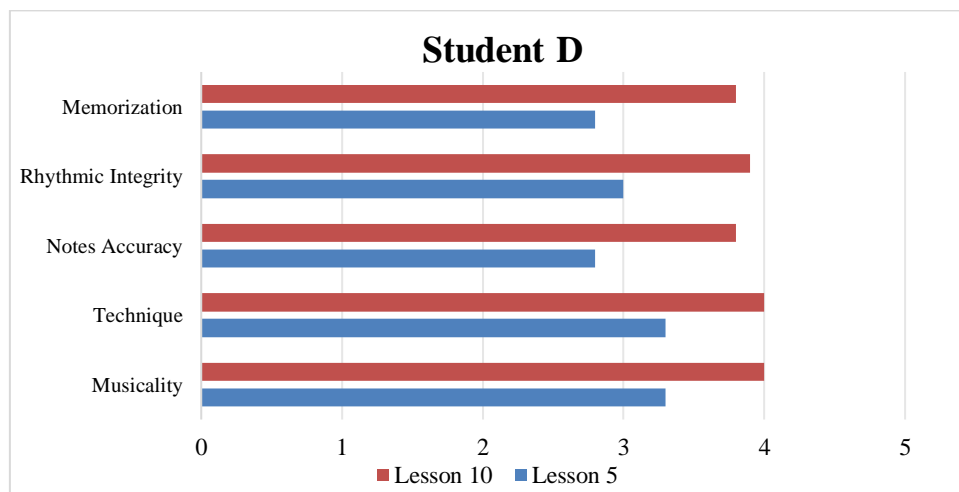

Figure 5. Evaluation Results of Student D

Student E

Student E, aged 8, faced challenges due to her young age and lack of prior music exposure. She struggled with pitch recognition and note accuracy but required additional guidance and peer support. With assistance from fellow students and tailored teaching approaches, she managed to maintain learning progress, albeit at a slower pace, showcasing gradual improvements in subsequent lessons.
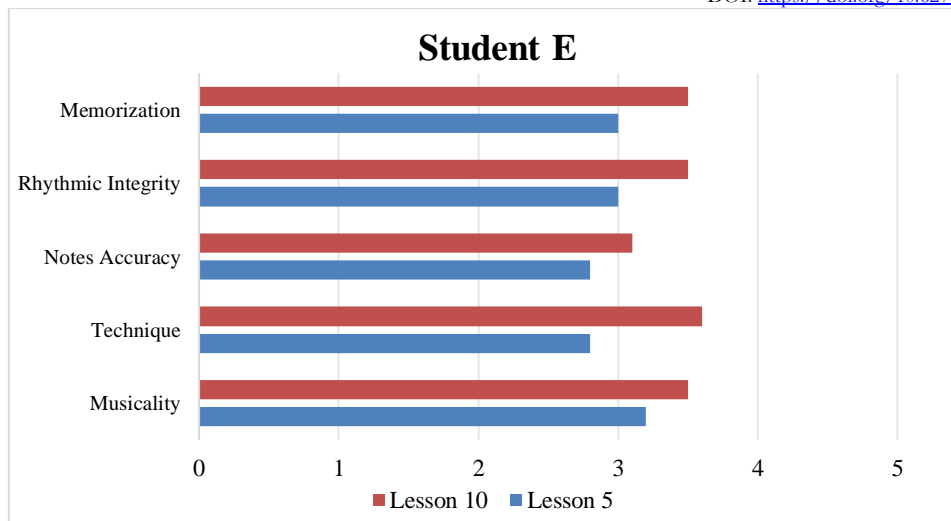
Figure 6. Evaluation Results of Student E

Student F

Student F, aged 10, demonstrated enthusiasm but needed more discipline in adhering to instructional directives, particularly concerning hand positioning. Persistent encouragement and corrective guidance ultimately facilitated improved performance and adherence to prescribed techniques, highlighting the pivotal role of personalized support in addressing individual learning impediments.
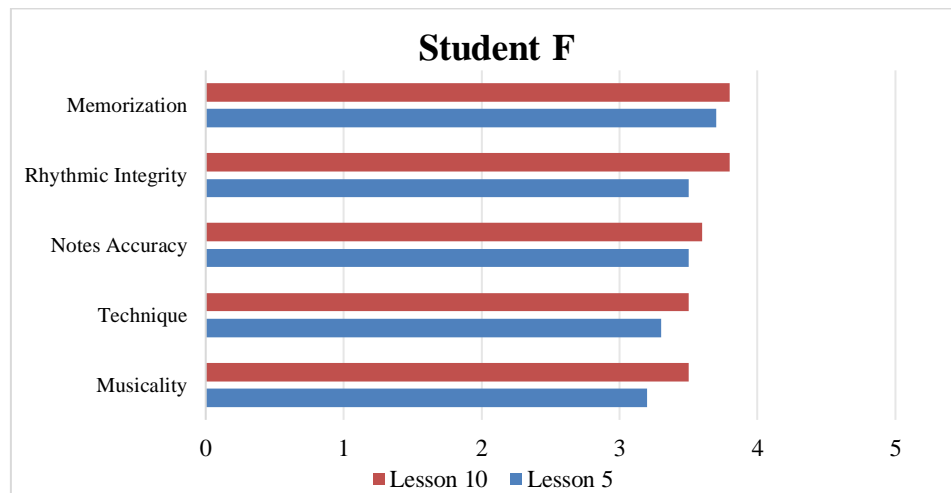

Figure 7. Evaluation Results of Student F

These evaluations underscored the significance of tailored teaching approaches and proactive interventions in fostering optimal learning outcomes among visually impaired piano students.

Discussion

Developing a tailored teaching model for beginning piano instruction among visually impaired students addresses a critical gap in music education. The introduction highlights visually impaired individuals' challenges in accessing traditional music education, emphasizing the need for specialized teaching approaches (Baker & Green, 2016). Consistent with prior research, this study adopts a multi-phase methodology, including pilot teaching, expert interviews, and formal teaching sessions, to develop and evaluate a tailored teaching model (Opie, 2018).

In the materials and methods section, the researchers detail the implementation of pilot teaching sessions at a specialized school for visually impaired students. By grouping students based on their proficiency levels and incorporating auditory learning techniques, the pilot teaching phase lays the foundation for developing the teaching model (Cho, 2021). Subsequent expert interviews provide valuable insights into the challenges and effective strategies for teaching piano to visually impaired students, informing the design of the tailored curriculum (Marshalsey, 2023).

The formal teaching sessions demonstrate the effectiveness of the tailored teaching model in facilitating piano learning for visually impaired students. Through individualized instruction and targeted interventions, educators address specific learning needs and foster meaningful progress among students (Wilson & MacDonald, 2019). These findings are consistent with the study's objectives and theoretical framework, prioritizing inclusivity and equitable access to music education (Patel et al., 2023).

Conclusions

In conclusion, developing a tailored teaching model for beginning piano instruction among visually impaired students represents a significant advancement in music education. By integrating innovative pedagogical strategies and adaptive technologies, educators can create an inclusive learning environment that accommodates the diverse needs of visually impaired learners (Quaglia, 2015). The findings of this study contribute to the broader discourse on disability rights and educational equity, emphasizing the importance of specialized teaching approaches in promoting social inclusion and fostering musical proficiency among visually impaired students (Trainor, 2005).

Further research and implementation of tailored teaching models are warranted to enhance access to music education for visually impaired individuals. By leveraging technology and incorporating best practices in inclusive education, educators can continue to advance the field of music education and promote equal opportunities for all learners (Youssef & Al Malek, 2023).

Conflict of interest: The authors declare no conflict of interest.

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