

# Learning Styles of Music Major Undergraduates in Fundamental Music Theory: A Multimodal Learning Perspective in Fujian, China

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## Abstract

This study aims to investigate the learning styles of music major undergraduates enrolled in a fundamental music theory course in Fujian Province, China, and examine how instructional methods influence learning style adaptation. A descriptive survey-based research design was employed using a quasi-experimental approach, where participants were divided into an experimental group ( $n = 50$ ) and a control group ( $n = 50$ ). The experimental group received instruction using the Gordon Method, while the control group followed conventional teaching methods. Data were collected using the VARK Learning Style Questionnaire, which classified students into visual, auditory, reading/writing, and kinesthetic learning styles. Descriptive statistics, chi-square tests, and linear-by-linear association analysis were conducted using SPSS. The findings revealed that VARK Integrative was the dominant learning style before the intervention (58.0% in the experimental group and 52.0% in the control group). Post-intervention, VARK Integrative learners decreased to 52.0% and 46.0%, respectively, while VARK Selective and VAK learners increased significantly in both groups, with the experimental group showing greater changes ( $p = .006$ ) than the control group ( $p = .033$ ). The statistically significant shift in learning styles in the experimental group suggests that the Gordon Method enhanced cognitive flexibility and strategic learning. The findings underscore the importance of multimodal teaching strategies in music theory education and highlight the need for more adaptive instructional methods to accommodate diverse learning preferences. Future research should explore the long-term effects of multimodal learning approaches on student performance and engagement in music education.

**Keywords:** Multimodal Learning, VARK Model, Music Theory, Gordon Method, Learning Styles

## Introduction

Understanding learning styles in music education is essential for improving the academic success and learning outcomes of undergraduate students. Learning styles refer to the distinct ways individuals prefer to process, comprehend, and retain information (Fleming & Mills, 2012). In music education, learning styles play a critical role in shaping how students engage with complex theoretical concepts and develop musical skills (Vidyakala et al., 2018). Fleming's VARK model classifies learning styles into four main categories: visual, auditory,

reading/writing, and kinesthetic (Fleming & Mills, 1992). Visual learners prefer information presented in charts, graphs, and diagrams, while auditory learners benefit from listening to lectures and music. Reading/writing learners excel with written instructions and textual information, and kinesthetic learners learn best through hands-on activities and movement (Fleming, 2012). In music education, the multisensory nature of learning makes the VARK model particularly relevant, as music involves auditory (listening), visual (reading music), kinesthetic (playing instruments), and cognitive (analyzing music) components (Gault, 2005). Therefore, understanding how students integrate different learning modalities can provide valuable insights into effective teaching strategies in music education.

In recent years, there has been a growing recognition of the importance of multimodal learning in higher education. Multimodal learning refers to the simultaneous engagement of multiple sensory modalities—visual, auditory, reading/writing, and kinesthetic—when processing and applying knowledge (Fleming, 2012). Unlike monomodal learners, who rely on a single sensory modality, multimodal learners combine different channels to reinforce learning and improve retention (Leite et al., 2010). Research suggests that approximately 60–70% of students identify as multimodal learners, indicating that most learners benefit from varied instructional approaches (Gilakjani, 2012). In music education, multimodal learning is particularly effective due to the inherently complex and interactive nature of musical training. Combining auditory input (listening), visual information (sheet music), kinesthetic engagement (playing instruments), and cognitive analysis (theory) enhances overall musical understanding and performance (Harrison, 2010). Studies have shown that students who receive instruction through multiple modalities demonstrate higher comprehension, motivation, and performance levels compared to those taught using single-mode approaches (Moazeni & Pourmohammadi, 2013; VanderLugt, 2023).

Music education in China has traditionally relied on lecture-based methods, with a strong emphasis on auditory and theoretical instruction (Chen, 2017; Luo & Xu, 2023). While these methods may benefit auditory learners, they often fail to engage students who prefer visual, reading/writing, or kinesthetic learning styles (Zuo, 2021). In Fujian Province, where music education has been prioritized under national education policies (Ministry of Education of China, 2022), there is increasing awareness of the need to implement more adaptive and multimodal instructional strategies. However, the adaptation of teaching methods to reflect the diversity of student learning preferences remains limited. Research indicates that aligning teaching methods with students' preferred learning styles enhances understanding and performance, particularly in complex subjects such as music theory (Gilakjani, 2011; VanderLugt, 2023). The lack of flexibility in teaching strategies may contribute to variations in student engagement and academic outcomes, highlighting the need for a deeper understanding of how music majors in Fujian engage with multimodal learning.

The problem lies in the limited understanding of how music majors in Fujian Province adopt multimodal learning styles in music education. While some students may excel through auditory instruction, others may benefit more from visual aids, written exercises, or hands-on activities (Fleming & Mills, 2012). Despite evidence supporting the benefits of multimodal learning, many educators continue to employ uniform instructional methods that do not reflect the diversity of student learning preferences (Xu, 2011). This mismatch between teaching strategies and learning styles may hinder students' ability to engage with complex

musical content, leading to lower motivation and inconsistent academic performance (Chen, 2017). Furthermore, the complexity of music theory requires higher-order cognitive skills, which are more effectively developed when instructional methods align with students' preferred learning styles (Leite et al., 2010). The challenge is not only to identify the dominant learning styles among music majors but also to design pedagogical strategies that reflect this diversity, thereby improving student engagement and learning outcomes.

This study seeks to address the research question: What are the learning styles of music major undergraduates in the fundamental music theory course in Fujian Province, China, based on multimodal learning? The investigation aims to classify the learning styles of students using the VARK model and explore how these preferences relate to their engagement and academic performance in music theory. Understanding these learning styles can provide valuable insights into the cognitive and sensory processing patterns of music majors, offering a foundation for more personalized and effective teaching methods. By focusing on multimodal learning, the study intends to uncover patterns in how students integrate visual, auditory, reading/writing, and kinesthetic modalities in their learning process. The findings from this study can inform the development of more effective instructional strategies tailored to students' learning preferences, thereby enhancing music theory education in Chinese higher education.

The significance of this study lies in its potential to improve both the theoretical understanding and practical application of multimodal learning in music education. From a theoretical perspective, the findings will contribute to the body of knowledge on learning styles and multimodal learning, expanding the understanding of how sensory modalities influence musical learning and performance (Calissendorff, 2015). From a practical perspective, the results can help educators design more engaging and effective music theory curricula that cater to diverse learning styles. For example, incorporating visual aids for visual learners, enhancing aural training for auditory learners, and providing hands-on activities for kinesthetic learners could lead to improved student outcomes (Harrison, 2010). Moreover, the study's findings could inform policy recommendations aimed at improving music education quality in Chinese higher education. By addressing the gap in understanding how multimodal learning influences music theory education, the study aims to provide valuable insights into the design of more adaptive and student-centered teaching methods.

### **Literature Review**

Multimodal learning refers to the use of multiple sensory modalities—visual, auditory, reading/writing, and kinesthetic—when acquiring, processing, and applying knowledge. It emphasizes the engagement of different perceptual and cognitive channels simultaneously or alternately, enhancing the understanding and retention of information (Fleming & Mills, 2012). Fleming's VARK model, which categorizes learning styles into visual, auditory, reading/writing, and kinesthetic, provides a structured framework for understanding multimodal learning (Fleming & Mills, 1992). According to Fleming (2012), most students are multimodal learners, combining different sensory channels to process information more effectively. Multimodal learning has gained traction in higher education due to its capacity to engage diverse learner preferences and improve comprehension and motivation (Amanian et al., 2020). In the context of music education, multimodal learning is particularly significant due to the inherently multisensory nature of music (Harrison, 2010). Music education involves

visual components (reading sheet music), auditory components (listening to music and instructions), kinesthetic elements (playing instruments or conducting), and theoretical understanding (analysis of harmony, rhythm, and structure) (Gault, 2005). Effective music instruction, therefore, requires teaching strategies that address these multiple sensory inputs. Research suggests that combining auditory, visual, and kinesthetic learning methods enhances student performance and motivation in music theory and practice (Gilakjani, 2011; VanderLugt, 2023). By engaging multiple senses, students develop a more holistic understanding of musical concepts and improve their technical and expressive skills (Forrester, 2018). Therefore, multimodal learning is highly relevant to music education and essential for developing effective instructional strategies in music theory.

Learning styles represent the preferred ways individuals process and internalize information. Fleming's VARK model classifies learning styles into four main categories: visual, auditory, reading/writing, and kinesthetic (Fleming & Mills, 1992). Visual learners prefer to learn through images, diagrams, and charts; auditory learners benefit from listening to lectures, music, and discussions; reading/writing learners prefer textual information and written instructions; and kinesthetic learners engage best with hands-on activities and movement-based learning (Fleming, 1995). In music education, learning styles play a crucial role in shaping students' ability to engage with and retain musical information. For example, auditory learners often excel in recognizing musical patterns and memorizing compositions through listening (Harrison, 2010). Visual learners benefit from reading sheet music and understanding music notation, while kinesthetic learners thrive when playing instruments or participating in physical movement exercises (Gault, 2005). Reading/writing learners may find success in analyzing musical texts and theoretical works. The multifaceted nature of music education demands that educators adapt their teaching methods to accommodate these diverse learning styles (Leite et al., 2010). Effective music instruction often involves integrating multiple learning styles simultaneously, reinforcing theoretical understanding with practical application (Fleming & Mills, 2012).

Several studies have examined the relationship between learning styles and academic performance in music education. Research has consistently shown that aligning teaching methods with students' preferred learning styles improves engagement, comprehension, and performance (Gilakjani, 2011; VanderLugt, 2023). For instance, Moazeni and Pourmohammadi (2013) reported that students taught using multimodal strategies demonstrated higher retention rates and more positive learning experiences than those taught using a single-mode approach. Leite et al. (2010) found that multimodal learners tend to outperform monomodal learners in complex cognitive tasks, particularly in music theory and performance. However, gaps remain in understanding how learning styles influence music education outcomes. While many studies have explored the impact of learning styles in general education, fewer have focused specifically on music theory education (Dhanapal et al., 2021; Forrester, 2018). Additionally, most research relies on self-reported data from learning style inventories, which may not fully capture the dynamic and contextual nature of learning in music (Gilakjani, 2012). Pashler et al. (2008) caution against over-reliance on learning style models, arguing that empirical evidence supporting their effectiveness remains limited. These gaps highlight the need for more targeted research on the intersection of learning styles and music education.

Multimodal learning refers to the simultaneous engagement of multiple sensory channels during the learning process (Fleming, 2001). Unlike monomodal learners, who prefer a single sensory input, multimodal learners benefit from using multiple learning styles concurrently or switching between them based on the learning context (Fleming & Mills, 1992). Research suggests that approximately 60–70% of students identify as multimodal learners, indicating that most learners prefer diverse instructional methods (Leite et al., 2010). In music education, multimodal learning is particularly effective due to the complex nature of musical training. Music involves auditory (listening), visual (reading music), kinesthetic (playing instruments), and cognitive (theoretical analysis) components (Gault, 2005). Studies by Harrison (2010) and Forrester (2018) indicate that students who receive instruction through multiple modalities demonstrate higher comprehension, motivation, and performance levels. For example, combining visual aids (sheet music) with auditory input (listening exercises) and hands-on practice (instrument playing) enhances overall musical understanding and retention (Tanwinit & Sittiprapaporn, 2010). Multimodal learning strategies also foster greater student engagement by providing multiple entry points for understanding complex musical concepts (Ridwan et al., 2019).

Fleming's VARK model categorizes learners based on their sensory preferences. Visual learners benefit from diagrams, charts, and visual aids (Fleming & Mills, 1992). Auditory learners excel through listening to lectures, discussions, and music (Fleming, 2001). Kinesthetic learners prefer physical activities such as playing instruments, conducting, or composing through trial and error (Leite et al., 2010). Reading/writing learners prefer textual input and often process information more effectively through reading and note-taking (Gilakjani, 2012). In music education, auditory and kinesthetic learning styles are particularly dominant (Gault, 2005). Auditory learners excel in aural skills, while kinesthetic learners thrive in performance-based activities (Harrison, 2010). Visual and reading/writing styles complement these skills by enhancing theoretical understanding and analytical thinking (Leite et al., 2010). Effective music instruction requires a balance of these styles to accommodate individual differences and promote a comprehensive understanding of music theory and practice (Forrester, 2018).

Despite its widespread use, the VARK model has faced criticism. Pashler et al. (2008) argue that empirical evidence supporting the effectiveness of tailoring instruction based on learning styles is limited. They suggest that learning outcomes are influenced by multiple factors beyond sensory preferences, including motivation, prior knowledge, and cognitive ability. Rogowsky et al. (2015) caution against pigeonholing students into fixed learning styles, as learning is inherently flexible and context-dependent. Nonetheless, the VARK model remains a valuable tool for understanding student preferences and designing more inclusive teaching methods (Leite et al., 2010). Incorporating multimodal strategies ensures that instructional methods address diverse learning needs, even if strict adherence to the VARK framework is unnecessary (Gilakjani, 2012).

Music theory education benefits from the integration of multiple learning styles. Aural training, visual aids, hands-on practice, and analytical exercises provide a comprehensive learning experience (Gault, 2005). Research suggests that students perform better when instructional methods reflect their learning preferences (Moazeni & Pourmohammadi, 2013). For instance, providing written scores alongside listening exercises and performance tasks



reinforces understanding and retention (Gilakjani, 2012). Multimodal instruction allows students to engage with music theory on multiple levels, leading to deeper learning and improved performance (Harrison, 2010).

Multimodal learning and the VARK model offer valuable insights into music education. While empirical support for learning style-based instruction remains mixed, research indicates that diversified teaching methods improve engagement and performance (Gilakjani, 2012; VanderLugt, 2023).

### **Methodology**

This study adopted a descriptive survey-based research design to investigate the learning styles of music major undergraduates enrolled in a fundamental music theory course in Fujian Province, China. A descriptive research design was selected because it allows for the identification of patterns and trends in student learning preferences and provides a structured framework for examining the relationship between multimodal learning and academic performance (Fleming, 2012). The study employed a quasi-experimental approach, where participants were divided into two groups: an experimental group that received instruction using the Gordon Method and a control group that followed conventional teaching methods. The survey-based method facilitated the systematic collection of quantitative data, enabling the classification and analysis of learning styles based on the VARK model (visual, auditory, reading/writing, and kinesthetic). This design was appropriate for exploring how different teaching approaches influenced students' learning preferences and engagement in music theory instruction. The structured nature of the survey ensured consistency and accuracy in data collection, allowing for meaningful statistical analysis and generalizable findings.

The study involved a sample of 100 first-year undergraduate music majors from colleges and universities in Fujian Province. According to the Fujian Provincial Examination and Education Institute (2023), there are 18 institutions in the province offering undergraduate music programs, with a combined annual enrollment of approximately 1,100 students. A purposive sampling strategy was employed to select participants from institutions with accredited music programs, ensuring that the sample represented the diversity of the student population in terms of musical background, gender, and learning preferences. The sample consisted of 25 male and 75 female students, reflecting the typical gender distribution in music education. Participants were randomly assigned to either the experimental group ( $n = 50$ ) or the control group ( $n = 50$ ). The experimental group received instruction using the Gordon Method, which emphasizes audiation and kinesthetic engagement in music learning, while the control group followed conventional lecture-based instruction. Informed consent was obtained from all participants before data collection, and they were assured of the confidentiality of their responses and their right to withdraw from the study at any time. Ethical guidelines related to participant privacy and data protection were strictly followed throughout the study.

The instrument used was the VARK Learning Style Questionnaire, developed by Neil Fleming (1995), which is widely used in educational research to assess learning preferences (Fleming, 2012; Shah et al., 2013; Krich et al., 2018). The questionnaire classifies learners into four categories: visual, auditory, reading/writing, and kinesthetic. For this study, the

questionnaire was adapted to the context of music education by including additional questions related to music theory and performance. This adaptation ensured that the questionnaire captured learning preferences relevant to music instruction. The modified questionnaire was reviewed by a panel of experts in music education and educational psychology to ensure content validity. The questionnaire consisted of multiple-choice questions and was administered online using the Questionnaire Star platform, which facilitated efficient data management and response tracking. Participants took approximately 10 minutes to complete the questionnaire. The VARK questionnaire has been shown to have high reliability and validity in previous research (Fleming, 2012; Shah et al., 2013), making it a suitable tool for assessing learning preferences in this context.

Data collection was conducted through the Questionnaire Star platform. Participants completed the questionnaire individually in a controlled setting to ensure consistency and accuracy. The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including mean, standard deviation, and frequency distribution, were calculated to identify patterns and trends in learning style preferences. A chi-square test was conducted to determine the significance of differences in learning styles before and after the intervention, and a linear-by-linear association was calculated to assess the strength of the relationship between the intervention and shifts in learning preferences. The results were summarized in tables and figures for clarity and interpretation.

### **Results and Discussions**

The findings from the VARK Learning Styles Questionnaire provided insights into the learning preferences of music major undergraduates enrolled in the Fundamental Music Theory course in Fujian Province, China. The results, as shown in Table 1, revealed that the dominant learning style among students prior to the intervention was VARK Integrative, which remained the most prevalent post-intervention in both the experimental and control groups. However, there was a notable shift toward more selective multimodal learning styles, particularly VARK Selective, VARK, and VAK learners, in the experimental group following the intervention using the Gordon Method. This shift suggests that the intervention influenced students' ability to adapt and refine their learning strategies, indicating that the Gordon Method may have played a role in enhancing cognitive flexibility and strategic learning. The chi-square test confirmed that the changes in learning styles were statistically significant in both the experimental and control groups ( $p < .001$ ). However, the greater increase in multimodal learning preferences among the experimental group suggests that the Gordon Method had a stronger influence on learning style adaptation compared to conventional teaching methods.

Table 1

*Comparison of Pre- and Post-Intervention Learning Styles for the Experimental and Control Groups*

Learning Style	Experimental Group		Control Group	
	Pre-Intervention (n = 50)	Post- Intervention (n = 50)	Pre-Intervention (n = 50)	Post- Intervention (n = 50)
VARK Integrative	29 (58.0%)	26 (52.0%)	26 (52.0%)	23 (46.0%)
VARK Selective	3 (6.0%)	4 (8.0%)	2 (4.0%)	6 (12.0%)
VARK	7 (14.0%)	7 (14.0%)	3 (6.0%)	5 (10.0%)
AK	3 (6.0%)	4 (8.0%)	6 (12.0%)	3 (6.0%)
ARK	2 (4.0%)	–	2 (4.0%)	–
VRK	1 (2.0%)	2 (4.0%)	3 (6.0%)	1 (2.0%)
VK	2 (4.0%)	2 (4.0%)	1 (2.0%)	2 (4.0%)
VAK	1 (2.0%)	2 (4.0%)	5 (10.0%)	8 (16.0%)
VAR	1 (2.0%)	1 (2.0%)	1 (2.0%)	–
VR	–	–	1 (2.0%)	1 (2.0%)
RK	1 (2.0%)	2 (4.0%)	–	1 (2.0%)
Total	50 (100.0%)	50 (100.0%)	50 (100.0%)	50 (100.0%)

The dominance of VARK Integrative learning styles before the intervention reflects the complex and multimodal nature of music education, which requires the integration of multiple sensory modalities such as visual (notation and scores), auditory (listening and aural skills), reading/writing (theory and analysis), and kinesthetic (playing instruments and conducting). Sutela and Ahonen (2024) and Papadogianni et al. (2024) noted that music education inherently engages multiple modalities, making it necessary for learners to process and integrate information across different sensory channels. The high percentage of VARK Integrative learners aligns with Papadogianni's argument that effective music learning relies on the simultaneous engagement of visual, auditory, and motor systems. This suggests that music theory education naturally supports multimodal learning, but the Gordon Method appears to have enhanced the ability of students to refine and strategically adopt more selective learning approaches. The reduction in VARK Integrative learners post-intervention, coupled with the increase in VARK Selective and VAK learners, suggests that students began to focus more on specific sensory channels as they adapted their learning strategies to the Gordon Method's multimodal structure.

The increase in VARK Selective learners (from 6% to 8% in the experimental group and from 4% to 12% in the control group) suggests that students became more strategic and selective in their learning preferences post-intervention. Fuchs et al. (2023) argued that strategic learning occurs when students develop cognitive flexibility and metacognitive awareness, allowing them to adapt their learning strategies based on task demands and instructional methods. The Gordon Method, by engaging multiple sensory modalities and providing structured learning sequences, may have enhanced students' ability to identify and adopt more effective learning strategies. Similarly, the increase in VAK learners post-intervention suggests that the Gordon Method's emphasis on kinesthetic engagement through movement and rhythm training influenced students' learning preferences. Research by Subagja and Rubini (2023) highlighted the importance of kinesthetic learning in developing musical technique and performance, supporting the argument that the Gordon Method's kinesthetic focus may have contributed to the observed increase in VAK learners. This



suggests that the Gordon Method facilitated a deeper connection between theoretical understanding and practical application, reinforcing the importance of integrating kinesthetic learning into music education.

The reduction in ARK learners and the disappearance of ARK as a learning style category in both groups post-intervention suggest that students who initially demonstrated a preference for auditory, reading/writing, and kinesthetic learning may have adapted to a more balanced multimodal approach. Rohi and Nurhayati (2024) argued that multimodal learning approaches enhance cognitive processing and information retention by encouraging learners to integrate information across different sensory channels. The findings support this argument, as students appear to have diversified their learning preferences after exposure to the Gordon Method's multimodal instructional strategies. The shift toward more adaptive multimodal learning strategies indicates that students were able to respond to the instructional methods in a way that promoted greater cognitive flexibility and strategic learning, consistent with the findings of Gordon (2012) and Fleming and Mills (1992). This supports the idea that tailored, multimodal instructional strategies are more effective than rigid, single-mode approaches in music education.

Table 2

*Chi-Square Test Results for Learning Style Changes – Experimental and Control Groups*

Test Statistic	Experimental Group	Control Group
Pearson Chi-Square	143.781 (df = 72, $p < .001$ )	186.815 (df = 72, $p < .001$ )
Likelihood Ratio	67.246 (df = 72, $p = .637$ )	72.687 (df = 72, $p = .455$ )
Linear-by-Linear Association	7.652 (df = 1, $p = .006$ )	4.554 (df = 1, $p = .033$ )
N of Valid Cases	50	50

As shown in Table 2, statistical analysis using the chi-square test confirmed that the observed changes in learning styles were statistically significant in both the experimental and control groups ( $p < .001$ ). The greater increase in multimodal learning preferences among the experimental group, particularly the rise in VARK Selective and VAK learners, suggests that the Gordon Method had a stronger influence on learning style adaptation compared to conventional teaching methods. The significant linear-by-linear association in the experimental group ( $p = .006$ ) indicates that the Gordon Method contributed to a systematic shift in learning preferences, reinforcing the idea that targeted multimodal instruction enhances cognitive flexibility and strategic learning. Furthermore, the increase in the standard deviation values post-intervention in both groups suggests greater variability in learning styles among participants. This finding aligns with the argument that multimodal instruction allows students to experiment with and refine different learning strategies, leading to greater individual variation in learning preferences (Sharif & Uckelmann, 2024). The consistent increase in mean learning style scores in the experimental group (from  $M = 2.52, SD = 2.410$  to  $M = 2.88, SD = 2.767$ ) reflects the positive impact of the Gordon Method in enhancing students' capacity to engage with and adapt to complex musical learning tasks.

The patterns and trends observed in the data reflect broader theoretical arguments about the adaptability of learning styles and the effectiveness of multimodal instruction in music education. Gordon's (2012) theory of music learning emphasizes the need for instructional approaches that engage auditory, visual, and motor learning processes

simultaneously. The observed increase in VARK Selective and VAK learners post-intervention supports Gordon's claim that music learning is most effective when it involves integrated multimodal engagement. Similarly, Fleming and Baume's (2006) theory of learning style adaptability is reflected in the shift from VARK Integrative to more selective multimodal preferences, suggesting that the Gordon Method enhanced students' ability to align their learning strategies with the demands of the music learning process. The increase in cognitive flexibility observed among the experimental group underscores the importance of active and targeted instructional approaches in promoting adaptive learning strategies.

The findings have important implications for music education. The increase in VARK Selective and VAK learners post-intervention reflects the effectiveness of multimodal teaching strategies in enhancing music theory understanding and retention. Educators in music education programs should consider adopting multimodal instructional methods that incorporate visual, auditory, reading/writing, and kinesthetic elements to accommodate the diverse learning preferences of students (Leite et al., 2010). The Gordon Method, which emphasizes active listening, practical exercises, and analytical thinking, appears to be particularly effective in facilitating the transition toward more adaptive learning strategies (Harrison, 2010; VanderLugt, 2023). Furthermore, the reduction in single-mode learning styles suggests that multimodal teaching approaches encourage students to develop more balanced and adaptable learning strategies, which may lead to improved academic performance and motivation.

In conclusion, the study demonstrated that music major undergraduates in the Fundamental Music Theory course in Fujian Province predominantly identified with the VARK Integrative learning style before the intervention. However, the shift toward more selective and multimodal learning styles after the intervention suggests that students adapted their learning strategies in response to the Gordon Method. The statistically significant changes in learning preferences, particularly in the experimental group, highlight the effectiveness of multimodal instructional strategies in enhancing music theory understanding and student engagement. The findings reinforce the theoretical framework supporting multimodal learning in music education and suggest that the Gordon Method enhances students' ability to adapt and refine their learning preferences in response to complex musical tasks.

## Conclusion

The study provided valuable insights into the learning preferences of music major undergraduates enrolled in the Fundamental Music Theory course in Fujian Province, China. The findings revealed that the dominant learning style among students prior to the intervention was VARK Integrative, which reflects the complex and multimodal nature of music education. However, a notable shift toward more selective multimodal learning styles, particularly VARK Selective and VAK learners, was observed in the experimental group following the intervention using the Gordon Method. The chi-square test results confirmed that the changes in learning styles were statistically significant, with a greater shift in the experimental group than the control group. This suggests that the Gordon Method effectively influenced students' ability to adapt and refine their learning strategies, highlighting the importance of multimodal instructional approaches in music theory education. The results underscore the dynamic nature of learning styles and the potential for targeted instructional methods to enhance students' cognitive flexibility and strategic learning.

The educational implications of these findings are significant for the teaching of fundamental music theory. The increase in VARK Selective and VAK learners post-intervention suggests that students benefited from a multimodal approach that engaged multiple sensory modalities—visual, auditory, reading/writing, and kinesthetic—simultaneously. This reinforces the argument that music theory education should incorporate diverse instructional strategies that address the varied learning preferences of students. The Gordon Method's emphasis on active listening, practical exercises, and analytical thinking appears to have played a crucial role in facilitating this shift. Educators in music programs should consider adopting similar multimodal teaching strategies to improve student engagement and comprehension. Furthermore, the reduction in single-mode learners suggests that multimodal instruction encourages students to develop more balanced and adaptive learning strategies, which could lead to improved academic performance and motivation.

The findings also highlight the importance of flexibility in teaching methods. Music education involves a complex interaction of cognitive, sensory, and motor processes, making it essential for instructors to adopt a dynamic and responsive approach to teaching. The increased variability in learning styles post-intervention indicates that students were experimenting with and refining their learning strategies in response to the instructional methods introduced during the course. This supports the theoretical framework proposed by Fleming and Mills (1992) and Gordon (2012), which emphasizes the effectiveness of multimodal instruction in enhancing learning outcomes. Future research should explore the long-term impact of multimodal teaching strategies on music performance and theory comprehension, as well as the influence of demographic factors such as gender, prior musical experience, and cultural background on learning preferences.

In conclusion, the study demonstrated that the Gordon Method effectively influenced the learning styles of music majors in the Fundamental Music Theory course in Fujian Province, encouraging a shift toward more adaptive and selective multimodal learning strategies. The statistically significant changes in learning preferences, particularly in the experimental group, highlight the value of multimodal instructional approaches in enhancing music theory understanding and student engagement. These findings contribute to the broader discourse on effective music pedagogy and suggest that incorporating multimodal strategies in music theory instruction can lead to more inclusive and effective learning experiences. By understanding and addressing the diverse learning styles of music majors, educators can create more engaging and supportive learning environments, ultimately improving student motivation, academic performance, and overall success in music education.

This study makes both theoretical and contextual contributions to the field of music education. From a theoretical perspective, the findings expand the understanding of multimodal learning in music education by demonstrating how the Gordon Method facilitates cognitive flexibility and strategic learning. The study supports Gordon's (2012) theory that music learning is most effective when auditory, visual, and motor learning processes are simultaneously engaged. Furthermore, the shift from VARK Integrative to more selective learning styles post-intervention reinforces the adaptability of learning styles, consistent with Fleming and Mills' (1992) framework. From a contextual perspective, this study addresses a gap in Chinese higher education by providing empirical evidence on the effectiveness of

multimodal learning in music theory instruction. The findings highlight the need for music educators in Fujian Province and beyond to adopt more adaptive and multimodal teaching methods to accommodate diverse student learning styles. This study informs curriculum design and pedagogical strategies, encouraging more personalized and inclusive approaches to music theory education.

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