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Research Article

Examining the moderating effect of saxophone teaching methods on the relationship between nationalization of music education and student motivation and achievement

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The creativity and general cognitive development of students are greatly aided by music education. In China, the government has taken action to nationalize the curriculum in recognition of the value of music education and to ensure that children across the country receive consistent, excellent music training. This study aimed to examine the impact of student motivation on academic achievement. Furthermore, it explored the mediating role of student motivation and the moderating role of saxophone teaching methods. The study includes a sample of 375 college students in China and uses a quantitative cross-sectional design. The acceptance and integration of culturally appropriate music curricula, teaching strategies, and educational resources are referred to as nationalizing music education. Understanding the effects of nationalization on students' learning results requires a thorough understanding of student motivation and academic success in the music classroom. The principal data collection tool for this study is a survey questionnaire that examines the nationalization of music education, saxophone teaching techniques, student motivation, and academic accomplishment. The gathered data are examined using statistical techniques like PLS-SEM and moderation analysis. The results of the study demonstrated a direct and favorable relationship between music education and academic performance. Furthermore, it was discovered that students' motivation played a mediating role in this association, indicating that increased levels of motivation amplified the beneficial influence of music education on academic achievements. Moreover, it was noted that teaching modes play a moderating influence, where the use of experimental teaching methods amplifies the impact of music education on academic accomplishment, especially in practical and creative areas. This research enhances the current understanding by presenting empirical evidence of the complex connection between music education, students' motivation, and teaching methods.

Keywords: Academic achievement; Nationalization of music education; Saxophone teaching methods; Student motivation

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1. Introduction

The standardization of teaching techniques, curricula, and evaluation procedures is part of this nationalization endeavor. Educators, decision-makers, and researchers need to comprehend how

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saxophone teaching techniques affect pupil motivation and achievement in the framework of nationalized music education (Zhipeng & Zhipeng, 2022). Researchers can learn more about the success of particular teaching methods by analyzing this link, which may then be used to shape future Chinese music education policies and instructional strategies. A very common instrument in modern music teaching is the saxophone. To improve students' saxophone learning outcomes and experiences, various teaching strategies have been used (Li et al., 2021). These techniques could include various instructional strategies like individualized instruction, group projects, improvisation, or technological integration (Abdelrahman, 2020).

Fundamental elements in music education are achievement and motivation. Student motivation is what fuels their involvement, perseverance, and all-around enthusiasm in music education (Abdelrahman, 2020). The level of mastery and skill development students have gained is reflected in their achievement, on the other hand. Teaching strategies, curriculum design, and cultural context are just a few of the variables that have an impact on both motivation and achievement (Wu et al., 2020). College tune education in China is a rapidly expanding field this is going through giant changes and improvements. Evaluation and assessment in China place a strong emphasis on students' college-level academic performance in music instruction. Academic achievement refers to the level of competence, knowledge, and abilities that students gain in their music studies (Khan et al., 2019). The assessment of academic success in music education considers several variables, including theoretical understanding, performance skills, composition, and evaluation (Wang, 2022).

The Chinese music education system is a complete framework that integrates traditional Chinese music and Western musical traditions. Around the nation, there are conservatories and specialized music schools where students can learn music from an early age (Zhu et al., 2023). This program offers a comprehensive education in music theory, history, and performance methods. The pentatonic scale is a fundamental component of Chinese music, which is distinguished by a variety of modes (Zhang, 2021). These modes provide the basis of Chinese musical compositions, reflecting the country's rich cultural legacy and history. A variety of instruments are taught to the students, such as Western instruments like the saxophone and traditional Chinese instruments like the guzheng and pipa (Wei, 2022). Individual and group classes are used in order to provide a full education in music theory, technique, and performance. Group performances and ensembles play a huge role in the curriculum, promoting cooperation and talent development (Zhu et al., 2023). Chinese tune has played an critical part in Chinese culture for ages, transmitting conventional values, traditions, and emotions. Deeply ingrained in cultural events, ceremonies, and rituals, it still holds significant importance in modern settings (Han, 2022). Chinese educational institutions, particularly prominent conservatories and music schools, have played an important role in the development of the music education system by providing a structured curriculum, access to experienced professors, and performing opportunities (Peirong et al., 2023).

Conceptual teaching strategies put a strong emphasis on helping students comprehend musical concepts, theories, and principles (Li et al., 2021). These approaches place a strong emphasis on learning new things and honing analytical abilities. Through lectures, discussions, and demonstrations, the instructor may introduce the students to theoretical concepts and ideas during conceptual teaching. Giving scholars a organization basis in track theory is the purpose for them to use in their composition, performance, and evaluation (Steinmayr et al., 2019; Wang, 2022). Experimental teaching techniques emphasize participation and practical application. With the help of experience, experimental and conceptual teaching techniques assist students to investigate and learn musical ideas (Abdelrahman, 2020). These strategies emphasize collaboration, improvisation, and experimentation. The objective is to promote problem-solving abilities, musical expressiveness, and creativity. The Chinese government has acknowledged the value of music instruction in fostering pupils' imagination, artistic expression, and general cognitive growth (Gorgoretti, 2019). As a result, they have been spending a lot of money on standardizing the music

education curriculum to offer students across the nation consistent and excellent music teaching (Qi & Cao, 2022).

The significance of student motivation in undergraduate music education in China cannot be overstated, as it directly impacts their level of engagement, perseverance, and achievement in their musical studies. The term "motivation" relates to a student's inner drive and desire to participate in music study, practice, and performance. Understanding student motivation is crucial for educators and institutions because it has a direct impact on how committed, diligent, and successful students are in their study of music (Li et al., 2021). Students' internal desire and appreciation for music as well as their innate interest in learning and performing are examples of their intrinsic motivation. Intrinsic motivation can be greatly influenced by elements like a real love for the art form, a personal passion for music, and a strong feeling of musical identity (Steinmayr et al., 2019). External variables that affect students' involvement and participation in music instruction are referred to as extrinsic motivation. Extrinsic motivators in the context of undergraduate music education in China could include incentives, competitiveness, and professional aspirations (Chen & Yang, 2019; Scales et al., 2020).

The current study was established by examining the moderating effect of saxophone teaching methods on the relationship between the nationalization of music education and student motivation and achievement in Chinese college students. The present study evolved Self-determination theory. It is defined as "a theoretical framework in psychology that emphasizes the formation of personality and human motivation" (Lee & Li, 2008). According to this theory, motivation and well-being are driven by humans' innate psychological demands for autonomy, competence, and relatedness.

The objective of this study was to examine the influence of music education on students' academic performance, taking into account the mediating effect of students' motivation and the moderating effect of teaching methods, notably conceptual and experimental approaches. This study examined a wide variety of educational contexts, including primary, secondary, and higher education institutions. The study aimed to examine the correlations among music education, motivation, and teaching methods, specifically investigating how these variables interacted and impacted academic achievement. The study attempted to derive insights that may be widely applied to educational practices by analyzing these interrelationships.

2. Literature Review

2.1. Self-Determination Theory

According to the self-determination theory, persons are motivated by inborn psychological desires for relatedness, competence, and autonomy (Sichivitsa, 2007). These requirements are thought to be crucial for psychological development, growth, and general well-being. Supporting student autonomy entails giving them options, chances for self-direction, and a sense of control over their education. Students are more likely to be intrinsically motivated, engaged, and persistent in their learning when they believe they have autonomy in their academic endeavors, including the ability to choose activities or set goals (Kinney, 2019). Higher levels of motivation and academic success are generally fostered by teachers who cultivate a loving and supportive classroom climate that respects students' autonomy. Giving students the right challenges, helpful criticism, and chances to practice and use their abilities is essential to supporting their competence growth. Students feel competent when they believe they can complete academic assignments and can observe their learning progress. Their motivation, engagement, and academic success are subsequently increased as a result (Abdelrahman, 2020). The significance of having a good rapport with classmates and teachers is emphasized by the requirement for relatedness. Numerous studies show that students are more likely to exhibit intrinsic motivation, a keen interest in learning, and a readiness to take on difficult academic projects when their requirements for autonomy, competence, and relatedness are addressed. As it encourages sustained effort, improved comprehension, and effective application of knowledge, higher academic achievement has been

linked to intrinsic motivation (Lee & Li, 2008; Qi & Cao, 2022). In contrast, students may feel diminished motivation, disengagement, and lower academic accomplishment if their requirements for autonomy, competence, and relatedness are not effectively met. This may happen if students feel overly restricted, think their assignments are pointless or too difficult, or do not have good relationships with their teachers and peers. By providing a friendly and autonomy-supporting learning environment, encouraging students' sense of competence, and fostering positive relationships inside the classroom, educators can put the SDT tenets into practice (Howard et al., 2021; Kinney, 2019). They can improve students' motivation, engagement, and eventually academic performance by doing this.

2.2. Cases Related to Chinese Saxophone Education

2.2.1. Case 1: Integrating Chinese Folk Music

A teacher realized the value of incorporating Chinese folk music into the curriculum in one instance of teaching Chinese saxophone to increase student motivation. The instructor chose classic folk tunes and orchestrated them for saxophone ensembles (Gustiani, 2020). Students were able to connect with their cultural history while learning saxophone techniques by including these well-known songs. Students were more motivated and committed to their saxophone practice as a result of this strategy, which not only piqued their curiosity but also created a feeling of pride in their musical heritage.

2.2.2. Case 2: Ensemble playing and collaborative learning

In another instance, a Chinese music school's saxophone instructor concentrated on promoting a collaborative learning environment (Qi & Cao, 2022). The instructor encouraged pupils to take part in chamber music and saxophone ensembles. Students who participate in group practices and concerts not only improve their musical abilities but also create close relationships with their peers. Students were inspired by one another, shared musical inspiration, and enjoyed the process of composing music together thanks to this collaborative approach's encouraging and motivating environment (Abdelrahman, 2020). As a result, saxophone education saw a considerable boost in student motivation and involvement.

2.2.3. Case 3: Individualized training and goal setting

A teacher at a private saxophone studio used goal-setting and personalized training to increase the learning motivation of her students. To better understand each student's distinct learning needs, strengths, and objectives, the teacher conducted individual assessments. The instructor created practice regimens, repertoire choices, and learning resources specifically for each student in light of these assessments (Khan et al., 2019). In addition, the teacher worked with the pupils to establish worthwhile objectives that took into account their interests and desires. This individualized method gave students more agency, boosted their sense of ownership, and inspired them to advance and succeed in their saxophone studies.

2.2.4. Case 4: Using multimedia and technology resources

A saxophone instructor in a contemporary Chinese music school used technology and multimedia tools to raise student interest and engagement. For saxophone instruction, the teacher used interactive learning tools, online learning resources, and virtual practice tools (Elpus & Abril, 2019). These resources gave students hands-on, aesthetically appealing learning opportunities. Additionally, to motivate pupils and expose them to a variety of musical genres, the teacher combined audio and video recordings of well-known saxophonists and performances. Learning to play the saxophone became more fascinating because of the incorporation of technology and multimedia materials, which also gave students useful resources and motivational ideas (Scales et al., 2020).

2.3 Music Education and Students' Academic Achievement

In Chinese institutions, it has been found that music education improves students' academic performance. Students must successfully apply their cognitive abilities to learn to read music, play an instrument, and participate in chorus, or other group activities (Elpus & Abril, 2019). These cognitive abilities can be applied to other academic subjects, improving academic performance. Rhythm, patterns, and proportions are examples of shared aspects between music and mathematics. Studies have demonstrated that learning music helps enhance mathematical abilities such as numerical fluency, spatial-temporal thinking, and conceptual understanding (Howard et al., 2021). Additionally, since learning music involves listening, reading, and interpreting musical symbols, which can improve reading comprehension and language development, music education can improve language skills. The growth of executive functioning, which has been linked to academic success, can be facilitated by these abilities (Wang, 2022). Students can express their feelings, gain self-confidence, and forge social bonds through music education. Teamwork, cooperation, and communication skills are fostered by involvement in musical ensembles and performances (Abdelrahman, 2020). The development of students' socioemotional abilities can benefit both their general well-being and academic performance. Music education frequently includes active and immersive learning, which can increase students' interest in and involvement with their studies. Students perform better academically when they like and find happiness in performing music because they are more likely to approach their academic subjects with the same level of interest. Gustiani (2020) studied how middle school pupils' music instruction affected their cognitive function and academic achievement. Children who engaged in music instruction outperformed their peers in academic subjects and cognitive tasks like working memory and attention, according to Wu et al (2020). Additionally, they outperformed their colleagues who did not take part in music education on cognitive tests. Khan et al (2019), a partnership of education, arts, and policy organizations, undertook research on the advantages of music education on student attainment. The results indicated that students' cognitive abilities, such as problem-solving, spatial-temporal thinking, and pattern identification, were favorably benefited by music education. This resulted in increased academic performance (Scales et al., 2020). Thus, the researcher hypothesized that;

H1: Music education significantly influences students' academic achievement.

2.4. Students' Motivation and Students' Academic Achievement

The Self-Determination Theory (SDT) offers a framework for comprehending motivation and how it affects academic performance (Howard et al., 2021). The fundamental psychological demands of students for autonomy, competence, and relatedness are stressed by SDT. Students' motivation is increased, which results in better academic performance when they have a sense of autonomy, an opportunity to exhibit competence, and strong interactions within the learning environment. When people are motivated internally to complete a task for the intrinsic rewards it offers, this is referred to as having intrinsic motivation. According to Zhou et al (2020), students who are intrinsically motivated typically achieve more academically. Students are more likely to engage in deep learning, persevere in the face of difficulties, and achieve better academically when they have a genuine enthusiasm for their studies. Extrinsically motivated people are those who are driven by external rewards or a desire to prevent unpleasant outcomes (Passini et al., 2015). Extrinsic motivation can affect academic achievement, although the results are less definite. Others contend that depending solely on extrinsic rewards may lower intrinsic motivation and limit long-term academic achievement, even if some research indicates that extrinsic rewards, such as grades or recognition, can have a favorable impact on academic performance (Erbas & Demirer, 2019). The concentration on information acquisition and competence development among students who have a mastery orientation is typically connected with higher academic accomplishment. On the other side, students who prioritize performance place a higher priority on showcasing their skills in comparison to others, which may not always result in the best academic results. According to

studies based on the achievement goal theory, there are two basic orientations of student motivation: mastery goal orientation and performance goal orientation (Chen & Yang, 2019; Madigan & Kim, 2021). Students who are mastery goal-oriented concentrate on competence development, learning, and skill improvement. Students who are mastery goal-oriented typically perform better academically (Flórez-Aristizábal et al., 2019). Students who have a performance goal orientation, on the other hand, are more concerned with proving their skills to others, and their academic success can vary depending on the situation and the performance comparison standards utilized. Studies have emphasized the value of autonomy and teacher assistance in fostering student motivation and academic success (Chung et al., 2019; Li et al., 2021). Students are more likely to be motivated and engaged, and achieve better academic results when they perceive supportive and caring teacher-student connections and have the opportunity to make decisions and exercise autonomy in their learning (Zhipeng & Zhipeng, 2022). Thus researcher hypothesized that;

H2: Students' motivation significantly influences students' academic achievement.

2.5. Mediating Role of Students' Motivation

In Chinese institutions, student motivation can have a significant impact on how engaged, persistent, and academically successful they are (Gustiani, 2020). Students' innate desire and delight to participate in musical activities for their very own sake is referred to as intrinsic motivation. Chinese college students' intrinsic motivation for song education can be boosted via elements such as a personal interest in music, a ardour for analyzing and performing, and a sense of autonomy in musical expression (Abdelrahman, 2020). Extrinsic motivation refers to variables that influence students' participation in music education on the outside, such as awards, accolades, or grades. It is important to balance extrinsic and intrinsic motivations to sustain long-term engagement and foster a real love of music (Gustiani, 2020). Extrinsic motivators can have an effect. How motivated students are can be greatly impacted by how much they believe they are capable and talented musicians. Students' perception of competence and motivation to progress and achieve in music education are influenced by opportunities for skill development, mastery experiences, positive feedback, and constructive challenges (Gorgoretti, 2019). For promoting student motivation, teachers' contributions and the learning environment in the classroom are essential. Teachers who are encouraging and supportive and who provide students with opportunities for participation and autonomy may have a beneficial impact on their motivation. Motivation can also be increased by creating a welcoming and accepting classroom environment that promotes cooperation, creativity, and musical expression (Gustems-Carnicer et al., 2019; Qi & Cao, 2022).

Peer interactions, such as making music together or performing, can boost students' motivation in music classes. By fostering shared experiences, collaboration, and feedback, supportive connections and peer support foster motivation (Khan et al., 2019). It is critical to understand that each student may have a different motivating profile and that motivation varies depending on the level of music education. Additionally, the motivation of students in music instruction may be impacted by cultural aspects and the unique educational environment at Chinese colleges (Wu et al., 2020). Thus, undertaking focused research in the setting of Chinese colleges would offer greater insights into the variables impacting student motivation in Chinese music education. Ollerhead, (2019) in Music Education explored how student motivation affected the relationship between middle school students' participation in music and academic success. The results revealed that the association between music engagement and academic success was significantly explained by students' motivation (Kinney, 2019). It has been discovered that intrinsic motivation, in particular, mediates the beneficial effects of music education on academic outcomes. Howard et al. (2021) suggested that self-efficacy and task value, two motivational factors, partially mediated the link between formal music training and academic success. Students' self-confidence and how highly

they valued the academic tasks had an impact on their motivation, which in turn had an impact on their academic success (Elpus & Abril, 2019; Scales et al., 2020).

H3: Student's motivation mediates the relationship between music education and students' academic achievement.

2.6. Moderating Role of Teaching Modes (Conceptual and Experimental)

Saxophone teaching techniques are used in college music classes in China to promote learning and engagement (Zhipeng & Zhipeng, 2022). Conceptual teaching and experimental teaching techniques are two popular teaching strategies utilized in music education. The goal of conceptual teaching is to increase students' comprehension of basic musical theories and concepts. It seeks to increase students' understanding of music by introducing them to its theoretical underpinnings, guiding principles, and structures (Steinmayr et al., 2019). Concepts are presented using lectures, demonstrations, and debates in the conceptual teaching approach. It places a focus on developing a solid theoretical grounding and critical thinking abilities in music. The emphasis of experimental education is on engaging with music actively and practically. Experiential learning, discovery, and creative expression are given top priority. This method encourages students to actively participate in a range of musical activities, such as playing an instrument, singing, producing, and experimenting (Chung et al., 2019; Li et al., 2021). Collaboration and original problem-solving are encouraged by the frequent use of group projects, ensemble playing, and performances in experimental instruction. It is crucial to remember that these instructional strategies are not incompatible with one another, and a blend of conceptual and experimental methods can be helpful in music education (Chen & Yang, 2019). Depending on the curriculum, available materials, and the subject-matter competence of the instructors, many teaching techniques may be employed in Chinese universities. The objectives of the music program, student needs, and intended learning results should all be taken into account while choosing the best teaching strategies (Madigan & Kim, 2021).

Students who get instruction using conceptual teaching techniques can build a strong foundation of knowledge and comprehension that will help them understand challenging ideas and theories. When students are inspired to use this understanding in their studies, it can help them attain higher academic goals (Liu et al., 2019). These instructional strategies help pique students' curiosity and internal motivation to explore and learn more by emphasizing conceptual comprehension. Driven students are more likely to be engaged, persist with their studies, and do well in class. When learning concepts, teachers typically want their students to employ their critical thinking abilities, information analysis, and application of theoretical knowledge (Erbas & Demirer, 2019). Higher-order thinking abilities are connected to these cognitive processes and academic success. Academic performance may advance when pupils are inspired to participate in these higher-order cognitive tasks. Through active participation in actual music-making activities, experimental teaching approaches actively engage students and increase their drive (Bresler, 2021). The likelihood that students will put effort into their academics and, as a result, do better academically is higher when they are driven to actively participate in these activities. Students gain useful skills and self-efficacy the conviction that they can succeed through practical learning. Students who are driven and confident are more likely to set challenging objectives, persist through difficulties, and achieve outstanding academic performance (Han, 2023). Creative thinking, improvisation, and individual expression are frequently emphasized in experimental teaching techniques. A sense of fulfillment and happiness can result from students being encouraged to express themselves via music, which may have a favorable impact on their academic performance (Ogbonna et al., 2019). Thus, researcher hypothesized that;

H4: Teaching modes like conceptual and experimental teaching methods moderate the relationship between student's motivation and students' academic achievement.

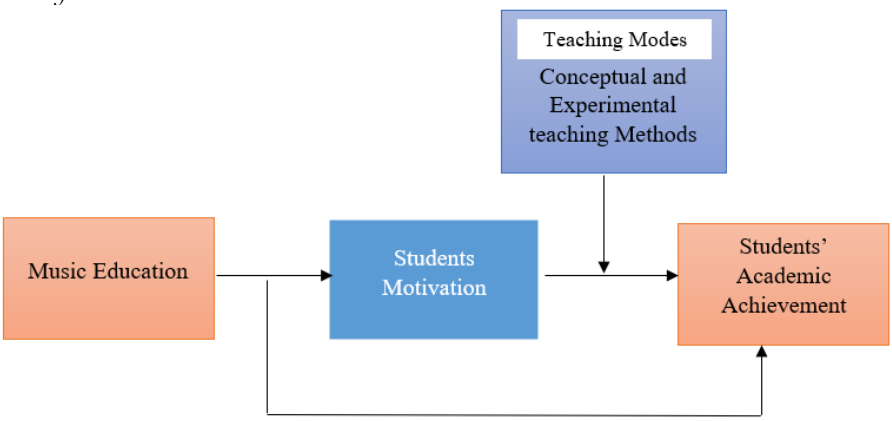
2.7. Gap in the Literature

Although numerous studies have examined the correlation between music education and academic achievement (Al-Husban, 2020; Jian, 2022; Orejudo et al., 2021), there is a significant lack of research on how students' motivation and teaching methods, specifically conceptual and experimental approaches, mediate and moderate this relationship (Kinney, 2019). The role of motivation is crucial in students' involvement with any educational program. Insufficient motivation results in a loss of interest and reduced effort, eventually impacting academic achievements (Jian, 2022). Nevertheless, there have been limited investigations that have thoroughly explored the function of students' motivation as an intermediary in the correlation between music education and academic accomplishment (Cherukunnath & Singh, 2022). By examining the role of students' motivation levels in influencing this relationship, we can enhance our comprehension of the fundamental mechanisms involved.

Moreover, the different methods of instruction, specifically the decision between conceptual and experimental techniques, can influence the effect of music education on academic performance (Duan et al., 2022). Conceptual teaching styles prioritize theoretical comprehension and the acquisition of knowledge, whereas experimental techniques concentrate on practical abilities and innovative implementation (Kumar, 2021). The influence of teaching styles on music education has not been thoroughly investigated, and research is scarce on how these modes may interact with the impact of music education on academic performance (Chen & Chen, 2021). This study seeks to elucidate the intricate relationship between music education, student motivation, and instructional approaches by addressing the existing gaps in the literature. Gaining a comprehensive understanding of these interactions is crucial for educators, policymakers, and researchers who aim to maximize students' educational experiences and utilize music education to improve academic performance.

The study model has been developed (see Figure 1) based on the above-discussed literature and hypothesis development.

Figure 1
Study Framework



3. Method

3.1. Research Design

The primary goal of the study is based on the deductive technique, and the study's methodology is quantitative with a descriptive focus. The effects of music education on students' academic achievement in China, the role of student motivation as a mediator, and the role of teaching methods as a moderator were all incorporated into this conceptual study model, and testable hypotheses were generated. Data was collected by using a cross-sectional research design. A 5-point Likert scale was used to measure the responses of participants. Non-probability sampling was used because there were insufficient accurate population statistics. Convenience sampling was

employed using the non-probability sampling method to collect the data. The fact that most respondents find it difficult to grasp the goal of the study and how to reply was also taken into account; therefore, a brief explanation was provided in the questionnaire for the respondents' understanding. It was essential to get accurate data and superior results for this study to be generalizable. The ethical aspects of this study were also taken into account, and it was promised to all respondents that the information they submitted would be kept confidential and utilized only for this study's research purposes. There were 375 respondents in all, all of whom were college students in China. All respondents were asked to complete questionnaires after a sample of Chinese college students was chosen for data gathering. Then, using those data, SMART PLS was used to run all the statistical tests necessary for this study. To examine the Chinese development perspective, tests for instrument reliability, correlation, and regression were run.

3.2. Participants

The current study demonstrates the impact of self-determination theory in addition to the effects of music education on students' academic accomplishment in China, the role of student motivation as a mediator, and the role of teaching methods as a moderator. These findings are presented in Table 1 together with demographic information. Students from Chinese institutions concurred that gender, age, location, education level, and instrument were the factors most crucial to determining students' academic success. A breakdown of the population is seen in Figure 1.

Table 1
Characteristics of the participants

Variable and classification	*Number of responses*	*Percentage*
Gender		
Male	220	59
Female	155	41
Education		
Facutly of Arts	210	56
FSc	140	37
Other	25	7
Area		
Urban	190	51
Rural	185	49
Instrument		
Clarinet	120	32
Flute	92	24
Trumpet	85	22
Trombone	65	18
Other Instruments	13	4

Note. FA: Facutly of Arts; FSc: Faculty of Science.

Table 1 results show the gender of male students of college in China were 59% and female were 41%. The age of college students in China at 12-15 was 48%, 15-20 was 42%, and above 20 was 10%. The education of college students in China FA was 56%, FSC were 37% and others were 7%. The area of college students in China was 51%, and in rural was 49%. The instruments used by college students of China Clarinet were 32%, Flute was 24%, Trumpet was 22%, Trombone was 18% and other instruments were 4%.

3.3. Data Collection and Analysis

A questionnaire with a 5-point likert scale adaptation was used to collect the data. The demographics section of the questionnaire was the first, and the last section asked questions about the variables that were employed in this study. Gender, age, education, area, and instrument information for each participant. The independent, mediating, moderating, and dependent

components make up the study's second section. Here is a breakdown of each variable along with the original text that each variable was taken from. The first predictive variable in this study was music education, and 5 items total were adopted from the study (Gorgoretti, 2019) based on a 5-point likert scale for this variable. Five questions for the study's students motivation variable were likewise taken from (Howard et al., 2021) and were also based on a 5-point likert scale. Eight items were adopted from the research of (Zhipeng & Zhipeng, 2022) in the teaching modes of conceptual and experimental approaches for the measuring of this variable. To keep the scale uniform, these items were likewise based on a 5-point likert scale. Using a 5-point likert scale and, the 4 items of (Steinmayr et al., 2019) were used to assess students' academic achievement. These questions were similarly based on a 5-point likert scale, with 1 representing the respondent's strongly opposing response and 5 being the greatest close-ended option that expresses strong agreement. Following data collection, the instrument's dependability was checked, and a reliability study was done where the Cronbach alpha value was assessed. All of the items that were modified were tested variable by variable and the Cronbach alpha value was more than 0.70 across the board (Memon et al., 2021). All of the statistical tests were run following the instrument's validation.

4. Results

The current study looks at examining the moderating effect of saxophone teaching methods on the relationship between the nationalization of music education and student motivation and achievement in China colleges, as well as how self-determination theory evolved.

4.1. Composite reliability, Cronbach's Alpha, and AVE

The measurement model researcher would need to create a thorough measuring model to investigate the moderating impact of saxophone teaching methods on the relationship between the nationalization of music education and student motivation and achievement in Chinese universities (Sarstedt et al., 2022). Composite reliability, a measurement of the latent variable's internal consistency or reliability, is calculated by dividing the variance of the variable's actual score by the variance of the variable as a whole. Cronbach's Alpha and the composite dependability scores were both higher than 0.70 for the variables under consideration. Even though the average variance extracted [AVE] values for discriminant validity were higher than 0.50, convergence validity and high reliability were still demonstrated (Purwanto & Sudargini, 2021). The composite dependability values ranged from 0.854 to 0.913, greater than the cutoff range of 0.70. The data for average extracted variance and Cronbach's alpha are listed in Table 2 and Figure 2 Composite Reliability.

4.2. Discriminant Validity

Discriminant validity in the context of music education for growth would entail ensuring that the investigated constructs— investigate the moderating impact of saxophone teaching methods on the relationship between the nationalization of music education and student motivation and achievement in Chinese universities. Discriminant validity is the "ability of a measure to distinguish between constructs that are theoretically different" (Memon et al., 2021). Researchers should do confirmatory factor analyses to check that the measures are assessing separate constructs to achieve discriminant validity. Confounding factors should also be taken into account, and alternate hypotheses for the relationships under examination should be taken into account. The HTMT scores below 1 significantly confirm the discriminant validity. The ability of a measurement tool to discriminate between the construct or concept it is intended to measure and other unrelated constructs or conceptions is referred to as discriminant validity, according to (Hair et al., 2020). HTMT results offer additional support for the discriminant validity as illustrated in Table 3.

Table 2
Composite reliability, Cronbach's Alpha, and AVE values

Construct / Item	*Loadings*	*CA*	*CR*	*AVE*
Music Education		0.865	0.903	0.651
ME1	0.752			
ME2	0.819			
ME3	0.867			
ME4	0.777			
ME5	0.813			
Students Motivation		0.854	0.895	0.632
SM1	0.753			
SM2	0.761			
SM3	0.836			
SM4	0.847			
SM5	0.773			
Teaching Modes		0.913	0.930	0.624
TM1	0.797			
TM2	0.808			
TM3	0.757			
TM4	0.796			
TM5	0.802			
TM6	0.819			
TM7	0.826			
TM8	0.706			
Students' Academic Motivation		0.868	0.911	0.719
SAA1	0.829			
SAA2	0.911			
SAA3	0.905			
SAA4	0.736			

Note: CR=composite reliability; AVE=average variance extracted; CA= Cronbach's Alpha.

Figure 2
Assessment of Algorithm

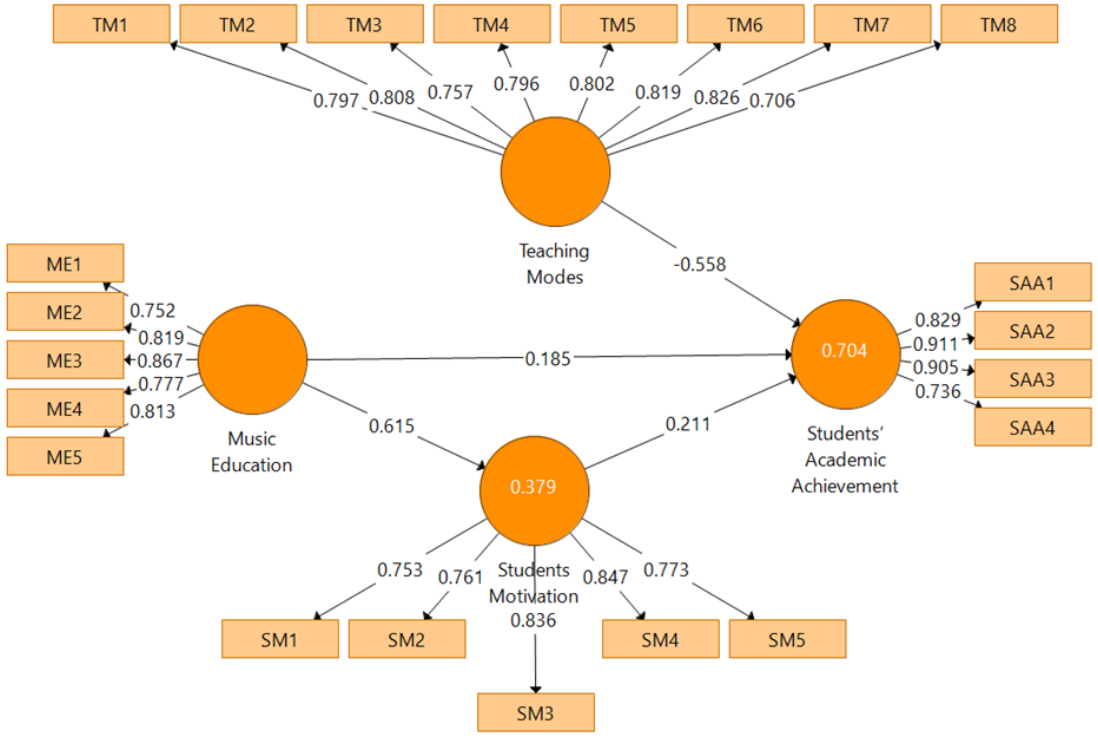


Table 3
Discriminant validity

	ME	*SM*	*SAA*	*TM*
Music Education	0.807			
Students Motivation	0.615	0.795		
Students' Academic Achievement	0.669	0.645	0.848	
Teaching Modes	−0.635	−0.574	−0.796	0.790

4.3. R-Square

R-squared (R^2) is a statistical measure that "represents the proportion of variation in the dependent variable that is explained by the independent variables in a regression model", according to Purwanto and Sudargini (2021). Examine how the teaching of the saxophone affects the relationship between student motivation and achievement and the nationalisation of music education in Chinese institutions in the context of music education for growth. It would also include taking into account how student motivation functions as a mediator and teaching styles as a moderator. R2 can be used to gauge how well the regression model fits the data in general (Purwanto & Sudargini, 2021). Table 4 displays the R square and Adjusted R square values for students' academic achievement and motivation. The coefficient of determination (R^2) for the variable "Students' Motivation" is 0.379, whereas the adjusted R^2 is 0.377. This suggests that around 37.9% of the variation in students' motivation may be explained by the factors or variables considered in the analysis. The corrected R^2 accounts for the number of predictors in the model and is slightly lower, namely at 37.7%, indicating a little decrease resulting from the inclusion of more variables in the regression. Conversely, the R^2 score for "Students' Academic Achievement" is significantly greater at 0.704, with an adjusted R^2 of 0.701. This indicates that a substantial amount, around 70.4%, of the variation in students' academic performance may be accounted for by the factors being examined in the analysis. The modified R^2 remains highly correlated, at 70.1%, confirming the strong reliability of the model.

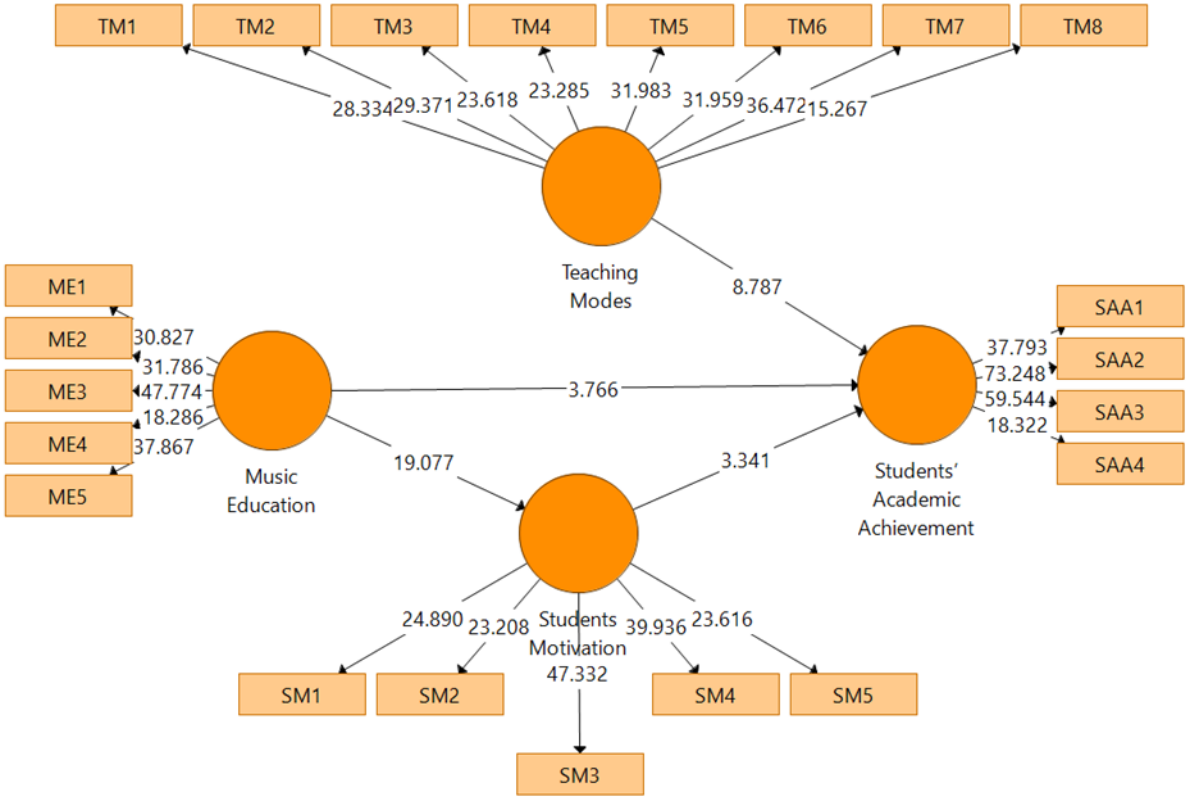
Table 4
Assessment of R-square

	R^2	Adjusted R^2
Students Motivation	0.379	0.377
Students' Academic Achievement	0.704	0.701

4.4. Direct Relationship

A statistical analytic method known as a structural equation model (SEM) is used to assess and estimate the relationships between distinct components in a theoretical framework (Memon et al., 2021). Using a SEM, it is possible to investigate the direct and indirect relationships between these constructs, as well as the mediating role of student motivation in the conceptual and experimental relationships between music education and academic achievement. This theory can be used to guide the choice of applicable constructs and the development of hypotheses on their relationships in a SEM. An alternative to statistical processes is typically utilized when a modeling technique is unreliable, challenging to use, or necessitates the employment of complicated formulas to generate standard errors (Purwanto & Sudargini, 2021).

Figure 3
Assessment of Bootstrapping



For H1, the coefficient is 0.185, which suggests a positive correlation between music instruction and academic ability. The T statistic, with a value of 3.766, exceeds the thresholds typically used to determine statistical significance. The p-value of 0.000 indicates an extremely high level of statistical significance. Therefore, H1 is accepted. Similarly, the findings of the study indicate that the coefficient of H2 is 0.211, which suggests a favorable correlation between students' motivation and their academic accomplishment. The T statistic, with a value of 3.341, exceeds standard significance thresholds. The p-value of 0.001 indicates a high degree of statistical significance. Therefore, H2 is accepted. Table 5 and Figure 3 shows the result of the direct hypothesis.

Table 5
Direct Effect

	Original Sample (O)	*t*	*p*	*Decision*
Music Education → Students' Academic Achievement	0.185	3.766	.000	Accepted
Students Motivation → Students' Academic Achievement	0.211	3.341	.001	Accepted

4.5. Mediating Effect

The relationship between music education and students' academic achievement was significant after student motivation was included as a mediating element. The findings in Table 6 indicate that the coefficient for the pathway from "Music Education" to "Students Motivation" to "Students' Academic Achievement" is 0.130. The T statistic, with a value of 3.233, surpasses traditional significance standards substantially. The p-value of 0.001 indicates a high degree of statistical significance. The results validate that "Students' Motivation" serves as a substantial mediator, partially elucidating the impact of music education on academic accomplishment.

Table 6
Mediating Effect

	Original Sample (O)	*t*	*p*	*Decision*
Music Education → Students Motivation → Students' Academic Achievement	0.130	3.233	0.001	Accepted

4.6. Moderating Effect

The self-determination theory provides a helpful framework for understanding the differences and divergent measures between academic accomplishment, student motivation, conceptual and experimental teaching methods, and music education. Additionally, it would include taking into account the role that student motivation plays as a mediator and the role that conceptual and experimental teaching methods play as moderators (Hair et al., 2020). Table 7 data demonstrates this effect, demonstrating how conceptual and experimental teaching methods can attenuate the relationship between students' motivation and academic achievement (B = −0.558, p = .000). Table 7 and Figure 4 illustrates the relationship between academic achievement, conceptual and experimental teaching methods, student motivation, and music instruction.

Table 7
Moderator Hypothesis Testing

	B	*t*	*p*	*Decision*
Music Education * Teaching modes → Students' Academic Achievement	−0.558	8.787	.000	Accepted

Figure 4
Moderating Effect

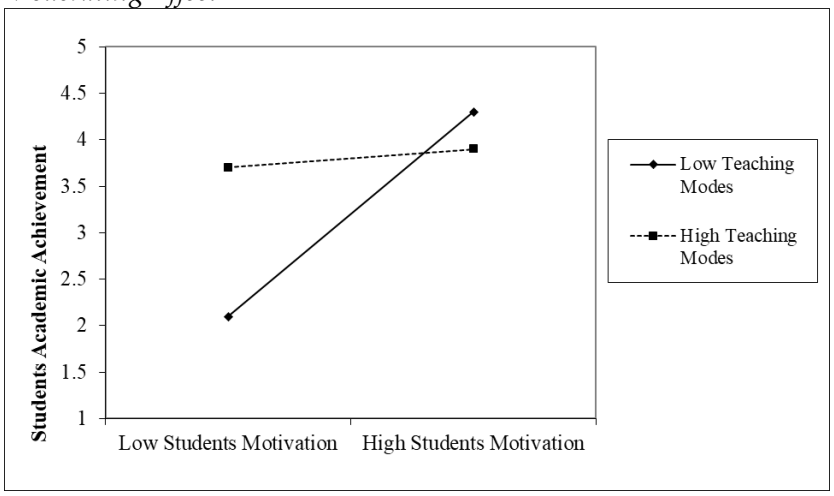


Table 8
Summary of Hypotheses

		Original Sample (O)	*t*	*p*	*Decision*
H1	Music Education → Students' Academic Achievement	0.185	3.766	.000	Accepted
H2	Students Motivation → Students' Academic Achievement	0.211	3.341	.001	Accepted
H3	Music Education → Students Motivation -> Students' Academic Achievement	0.130	3.233	.001	Accepted
H4	Students Motivation * Teaching Modes → Students' Academic Achievement	−0.558	8.787	.000	Accepted

5. Discussion

The current study examines the moderating effect of saxophone teaching methods such as conceptual and experimental methods on the relationship between the nationalization of music education and student motivation and students' academic achievement in China colleges, as well as the self-determination theory involved. All hypotheses were accepted.

Music education has a positive and significant impact on students' academic achievement. Students who have these favorable self-perceptions are more likely to accept challenges and have confidence in their talents in academic contexts (Madigan & Kim, 2021). Numerous studies have shown a strong correlation between music education and various aspects of academic performance, including cognitive skills, language development, mathematical abilities, and overall academic achievement (Abdelrahman, 2020; Wu et al., 2020). Music education requires the development and utilization of various cognitive skills, such as attention, memory, problem-solving, and critical thinking. Engaging in musical activities, such as reading sheet music, playing instruments, and participating in ensemble performances, stimulates these cognitive processes (Cherukunnath & Singh, 2022). Music education involves learning to read, understand, and interpret musical notation, which involves similar cognitive processes to language acquisition. Research has shown that students who receive music education tend to have stronger language skills, including vocabulary development, reading comprehension, and verbal communication (Egana-delSol et al., 2019). Hence H1 is supported.

Students' motivation has a positive and significant impact on students' academic achievement. Students who are motivated are more inclined to put up extra effort and participate actively in their academic tasks (Gustems-Carnicer et al., 2019). Motivation plays a crucial role in determining the level of effort, persistence, and engagement that students invest in their learning. When students are motivated, they are more likely to set goals, work diligently, and actively participate in the educational process. Motivated students are willing to put in the necessary effort and persist in the face of challenges (Taherkhani et al., 2022). They are more likely to dedicate time to studying, completing assignments, and seeking additional resources or support when needed. Motivated students set clear and achievable goals for their academic performance (Lee, 2022). They have a sense of direction and purpose, which guides their actions and efforts. Setting specific, measurable, and realistic goals helps students stay focused and provides a framework for monitoring their progress (Loi & Thanh, 2022). Hence H2 is supported.

The third hypothesis of the study posited that the correlation between music education and students' academic achievement is influenced by student motivation. The empirical verification of this hypothesis would indicate that music education provides wider educational benefits through its motivational impact, reaching beyond the boundaries of musical growth. The ability of music instruction to enhance student engagement is extensively documented. These findings are corroborated by prior scholarly works. Music education fosters increased student involvement through active participation, creative expression, and self-directed learning. Cherukunnath and Singh, (2022) have shown that this greater level of involvement leads to enhanced student motivation, a crucial element in enhancing academic achievement. Moreover, studies have demonstrated that music instruction promotes cognitive and emotional growth. Jian (2022) discovered a positive correlation between the development of these skills and an increased sense of motivation in pupils, which in turn leads to improved academic achievement. The feeling of achievement obtained from attaining mastery over a musical instrument or a musical composition is a substantial result of music education. According to Vazou et al., (2019), achieving success greatly enhances students' self-confidence and increases their motivation, which positively affects their academic efforts. Hence H3 is supported.

Teaching modes like conceptual and experimental teaching methods moderate the relationship between student's motivation and students' academic achievement. Conceptual teaching strategies place more emphasis on conceptual understanding than rote memorizing (Qi & Cao, 2022). These teaching methods not only foster student engagement and motivation but also provide

opportunities for students to actively participate in the learning process, leading to improved academic performance. Conceptual teaching methods focus on helping students develop a deep understanding of concepts and principles rather than solely memorizing information (Liu et al., 2019). These methods encourage critical thinking, problem-solving, and application of knowledge. Experimental teaching methods involve hands-on experiences, inquiry-based learning, and active experimentation (Otifi et al., 2023). These methods provide students with opportunities to explore concepts through practical activities, experimentation, and problem-solving. By engaging students in active learning experiences, experimental teaching methods enhance their motivation by making learning interactive and enjoyable (Qiu & Luo, 2022). Hence H4 is supported.

6. Conclusion

This study investigates the impact of saxophone teaching methods on the relationship between nationalization of music education, student motivation, and academic achievement in Chinese institutions. The dynamics of music training are understood through the use of Self-Determination Theory. Indicating that music instruction can increase student excitement in Chinese college settings when linked with national policies and curricular standardstandards, the research backs up the link between student motivation and nationalization. Academic success is correlated with increased levels of student motivation, which is a critical component of academic performance. The study also reveals that nationalization, motivation, and academic achievement can be influenced by specific teaching methods in saxophone instruction. To maximize the benefits of nationalization on student involvement and academic achievement, teachers must carefully assess pedagogical tactics used in saxophone teaching. To improve the learning environment, teachers can incorporate Chinese musical traditions, encourage student participation, use visual and auditory aids, personalize instruction, and set realistic goals. Cultural influences and preferred learning styles of Chinese students should be considered, as these factors significantly impact motivation and success in learning the saxophone. Continual professional development is essential for saxophone teachers, as they can modify their teaching strategies to better address the needs of Chinese students in the nationalized music education context. By staying updated with the latest research and best practices, teachers can foster an environment that supports active engagement and a love for studying the saxophone.

7. Implications

Analyzing the moderating effect of saxophone teaching methods may provide empirical evidence of the effectiveness of various instructional strategies. It can have important practical implications by directing policy, teaching practices, and student support initiatives to examine the moderating effect of saxophone teaching methods on the relationship between the nationalization of music education, student motivation, and academic achievement in Chinese colleges. It can also have significant theoretical implications by advancing knowledge in the field. It would be used to support or refute the efficacy of present instructional approaches and identify which ones are most effective at boosting pupil motivation and academic achievement. Politicians and educational authorities can better understand how nationalization plans affect music education by using the study's findings. If they have a greater grasp of how these policies impact student motivation and accomplishment, they may be better able to make decisions regarding curriculum design, resource allocation, and teacher preparation. Understanding how saxophone teaching methods have a moderating effect may be useful for music educators. Then, they might adjust their instructional strategies to better meet the requirements of their students, increase their motivation, and improve academic success. Initiatives for teacher training and professional development may use this information. The necessity of adding teaching tactics that encourage student motivation is highlighted in the study, which may have an impact on how saxophone curricula are created in Chinese educational institutions. It might encourage the development of student-centered initiatives by fostering the autonomy, competence, and connectedness needed to boost motivation

and academic achievement. The study can aid college administrators and music teachers in identifying individuals who may require more assistance. Knowing the factors that influence motivation and performance enables educators to create interventions that are tailored to the needs of each student, such as additional practicing opportunities, personalized feedback, or peer collaboration.

8. Limitations and Future Research

The limitations of the current investigation are listed below. The study's exclusive focus on Chinese institutions limits the application of its findings to other pedagogical or cultural settings. If the study's sample size was inadequate, the conclusions might not be sufficiently representative or statistically significant. The findings might not apply to a larger population of saxophone-studying college students. The study uses self-report measures to assess student motivation and academic success, there is a possibility for self-report bias. The comments made by participants might not accurately reflect their true objectives or academic success, or they might not be socially acceptable. Without a control group or comparable condition, it becomes challenging to attribute the observed findings entirely to the moderating effect of saxophone instruction methods. Additional factors may have an impact on the relationship between student motivation, academic success, and the nationalization of music education. SMART PLS has some shortcomings despite being a useful tool for simulating structural equations. These include the possibility of bias when handling missing data, the potential for complex model structures to be limited, and the possibility of difficulties when assessing measurement model fit. Some of the upcoming suggestions from the present investigation are listed below. If similar research was conducted with a bigger, more diverse population, the conclusions would be more universally relevant. This may require recruiting students from various colleges, ethnic groups, and music education programs. A longitudinal research approach would enable researchers to examine the causal relationships and alterations over time. By gathering data several times, the study could provide more solid evidence of the moderating effect of saxophone teaching techniques on student motivation and academic success. If control groups or comparisons of alternative teaching methods were included in the same study, it would be simpler to identify the precise effects of saxophone instruction methods. This would enable researchers to make a stronger case for the moderating role that effective teaching methods have in the relationship between the nationalization of music education, student motivation, and academic success. Combining qualitative techniques, like as interviews or observations, with quantitative measurements could lead to a deeper understanding of the experiences and perspectives of college students learning the saxophone. Additionally, it would enable a more in-depth analysis of the factors influencing students' motivation and academic success. Investigating additional relevant factors, such as teacher-student relationships, parental involvement, or extracurricular activities that may affect student motivation and academic success may lead to a more thorough understanding of the complex dynamics at play in music education. By comparing the outcomes, it would be feasible to examine the relationships among the nationalization of music education, student motivation, and academic accomplishment in various educational systems and countries. This could highlight the unique characteristics at play in various scenarios and inform educational policies and practices.

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