International Journal for Housing Science and Its Applications
Publish August 10, 2025. Volume 46, Issue 4 Pages 590-598

https://doi.org/10.70517/ijhsa46453

# The effect of teacher competence on educational opportunities for music education students: The mediating role of learning inputs

**Ying Sun[1,*], Xinxin Zhang[1] and Ruichen Wang[1]**
[1] Music and Dance Academy, Nanjing Normal University of Special Education, Nanjing, Jiangsu, 210000, China
Corresponding authors: (e-mail: vocalmusic123@sina.com).

**Abstract** As a discipline that combines artistry and education, the teacher competencies of music education majors have a significant impact on students' educational opportunities. This paper examines the impact of teacher competence on students' educational opportunities in music education majors and investigates the mediating role of learning inputs in this context. The study used Structural Equation Modeling (SEM) to analyze the data, based on a questionnaire survey of teachers and students majoring in music education in a university, and 411 valid questionnaires were collected. It was found that teacher competence had a significant positive effect on students' educational opportunities (path coefficient = 0.163, $p<0.001$) and that teacher competence also had a more significant effect on students' learning input (path coefficient = 0.184, $p<0.01$). Further analysis showed that learning input played a partial mediating role between teacher competence and educational opportunities and the mediating effect was 58.8%. In particular, all dimensions of learning inputs (behavioral inputs, cognitive inputs, affective inputs, and social interaction inputs) significantly affected educational opportunities, and the mediating effect of affective inputs was the least. The results suggest that improving teacher competence and student learning input can effectively improve the educational opportunities of music education majors, thus providing some practical basis for the improvement of educational quality.

**Index Terms** Teacher Competence, Learning Input, Educational Opportunity, Mediating Role, Structural Equation Modeling, Music Education

## I. Introduction

With the society's emphasis on art education, the scale of music education in higher education has gradually risen. Music education needs professional teachers to guide students' learning and development, but the reality is that many schools' music teachers are not professional, and they do not have a comprehensive grasp of music knowledge and teaching methods [1]-[3]. In addition, the current teacher training process of music education in most schools is relatively short, which makes it difficult to meet the demand for professional music teachers, which leads to a gap between the level of music education and the demand [4], [5]. Moreover, in poorer or discriminated areas, there are generally weak teachers and few qualified music teachers, resulting in a lack of professional guidance for students in the process of music learning [6], [7]. It is for this reason that the probability of music education students switching employment after graduation is close to 40% [8]. It is evident that music teacher competence is related to the quality of teaching and students' educational opportunities.

Educational opportunities for students majoring in music education encompass basic opportunities for equitable use of educational resources, opportunities for advancement to higher education, opportunities for performance, and opportunities for all-around development. However, the reality is that only a few students have the above educational opportunities. This difference is reflected at both the institution level and the teacher level, with top music institutions and teachers with strong credentials more likely to have access to master classes, large-scale public performances, and opportunities for further study [9], [10]. As a music teacher, you should have solid professional knowledge of music, including music theory, music history, instrumental performance skills, etc. As well as good teaching skills, including music theory, music history, instrumental performance skills, etc., you should have good teaching skills. As well as having good teaching skills, including teaching methods, teaching tools, student counseling and other aspects of the ability, which are related to student achievement and subsequent development [11]-[13]. In addition, music teachers' artistic cultivation is also part of the basic skills, which is manifested in music cultivation, aesthetic interest, emotional expression, cultural literacy and other aspects [14], [15]. Only with solid professional knowledge, superb teaching skills and noble artistic cultivation and other abilities,

music teachers can truly lead by example, influence students implicitly, cultivate excellent musical talents, and improve the conversion rate of education.

With the deepening of educational reform, how to improve the quality of education and promote the overall development of students has become one of the core issues of current educational research. As the core participant of educational activities, the improvement of teachers' ability directly affects students' learning outcomes and future development opportunities. Music education, as a special field integrating art and subject education, the professional competence of its teachers not only affects the classroom teaching effect, but also determines the learning input of students and their future educational opportunities.

In the field of music education, teachers' competence is mainly reflected in professional knowledge, educational and teaching skills, and teaching results. Through the demonstration of their professional competence, teachers can not only enhance the academic level of students, but also stimulate students' interest and commitment to learning, thus improving students' educational opportunities. However, the specific mechanisms by which teacher competence affects students' educational opportunities have not been fully explored. Therefore, this paper will explore how teacher competence affects students' learning engagement and their educational opportunities through quantitative analysis, and further investigate the mediating role of learning engagement in this context.

This paper adopts Structural Equation Modeling (SEM) as the main research method to construct a theoretical model between teacher competence, learning input and educational opportunities, taking into account the actual situation of music education majors. Data were obtained through questionnaires and analyzed using statistical software such as SPSS and AMOS. Specifically, the study first looks at the multidimensionality of teacher competence and examines how it affects students' learning input, and then explores the mediating role of learning input between teacher competence and educational opportunities.

From a research design perspective, this paper will not only focus on the direct influence relationship, but also on the indirect effects between potential variables. Through the use of Bootstrapping method, the mediating effect of learning inputs between teacher competence and educational opportunities will be verified. Ultimately, the study will provide empirical data support for the field of music education to help enhance strategies related to teacher competence and students' educational opportunities.

## II. Theoretical models and research hypotheses

### *II. A. Construction of the theoretical model*

#### II. A. 1) Structural equation modeling

Structural equation modeling (SEM) is a statistical method used to describe complex relationships between multiple variables. The most basic structural equation models are factor analysis models, including exploratory factor analysis (EFA) and validation factor analysis (CFA). The main purpose of EFA is to find a finite number of uncorrelated latent factors to reveal the intrinsic relationship of a given set of externally observed variables as a method of data exploration. CFA is mainly used to build a more accurate validation factor analysis model under certain theoretical and hypothetical conditions. CFA is mainly used to build a more accurate validated factor analysis model under certain theoretical assumptions. This type of model is usually identified by given fixed parameters, and the results obtained have a certain degree of interpretability. However, in CFA, correlations between latent variables are given rather than regression relationships, i.e., reflecting the effects of certain latent variables on other latent variables. Therefore, further generalization based on CFA yields more generalized SEM models, the most classical of which is the LISREL model.

The model consists of two parts, the measurement equation as well as the structural equation. The measurement equation is defined by the following validated factor analysis model:

$$y_i = \Lambda_1 \eta + \varepsilon_y \quad i = 1, 2, \ldots, p1 \tag{1}$$

$$x_i = \Lambda_2 \xi + \varepsilon_x \quad i = 1, 2, \ldots, p2 \tag{2}$$

where $y_i$ and $x_i$ are the extrinsic observables in dimensions $p_1 \times 1$ and $p_2 \times 1$, respectively, $\Lambda_1$ and $\Lambda_2$ are the factor loading matrices in dimensions $p_1 \times q_1$ and $p_2 \times q_2$, respectively, $\eta$ and $\xi$ are the latent variables in dimensions $q_1 \times 1$ and $q_1 \times 1$, respectively, and $\varepsilon_y$ and $\varepsilon_x$ represent the corresponding random error terms, respectively. It is assumed that $\varepsilon_y$ and $\varepsilon_x$ are uncorrelated with their respective latent variables $\eta$ and $\xi$ and their respective distributions follow a normal distribution with mean 0. The relationship between the different latent variables is then determined by the relationship between the different latent variables.

The relationship between the different latent variables is then defined by the following structural equation:

$$\eta = \Pi \eta + \Gamma \xi + \delta \tag{3}$$

where $\eta$ represents the endogenous latent variables in $q_1 \times 1$ dimensions, $\xi$ represents the exogenous latent variables in $q_2 \times 1$ dimensions, and $\Pi$ and $\Gamma$ are the unknown parameter matrices indicative of the relationship between the latent variables in $q_1 \times q_1$ and $q_1 \times q_2$ dimensions, respectively. The $\delta$ is the $q_1 \times 1$-dimensional random error term. It is usually assumed that $I - \Pi$ is non-singular and that there is no correlation between $\xi$ and $\delta$, all with mean value 0. Assume that $\Phi$, $\Psi_\delta$, $\Psi_{\varepsilon_y}$, and $\Psi_{\varepsilon_x}$ are the covariance matrices of $\xi$, $\delta$, $\varepsilon_y$, and $\varepsilon_x$, respectively. Thus the total covariance matrix is:

$$\Sigma = \begin{pmatrix} \Lambda_1 (I-\Pi)^{-1}(\Gamma\Phi\Gamma^T + \Psi_\delta)(I-\Pi)^{-T}\Lambda_1^T + \Psi_{\varepsilon_y} & \Lambda_1 (I-\Pi)^{-1}\Gamma\Phi\Lambda_2^T \\ \Lambda_2\Phi\Gamma^T (I-\Pi)^{-T}\Gamma\Phi\Lambda_1^T & \Lambda_2\Phi\Lambda_2^T + \Psi_{\varepsilon_x} \end{pmatrix} \tag{4}$$

This covariance matrix contains all the unknown parameters. Let $S$ be the sample covariance matrix of observable data, which can be used as an unbiased estimate of the true value of the covariance matrix. Therefore, a statistical method based on $S$ can be established to analyze $\Sigma$. Define $f[S,\Sigma]$ as an objective function that measures the difference between $S$ and $\Sigma$, and obtain an estimate of the unknown parameter in $\Sigma$ by minimizing this objective function. Under the assumption of normality, the estimation of parameters can be based on the generalized least squares method or the great likelihood method.

In this paper, the great likelihood method is used to estimate the parameters of the model. Assuming that $X = c(y_i, x_i)$ is a $p \times 1$-dimensional, random sample from a multivariate normal distribution $N(u_0, \Sigma_0)$, and that $\Sigma_0$ contains $q \times 1$-dimensional unknown parameters, its sample covariance matrix $S$ is distributed according to the Wishart distribution, with the density function denoted as:

$$f(S \mid \Sigma_0) = C * \frac{\exp\left(-\frac{n-1}{2}\mathrm{tr}\Sigma_0^{-1}\right)}{\left|\Sigma_0\right|^{\frac{n-1}{2}}} \tag{5}$$

where $C$ is the regularization constant. Its negative log-likelihood function is:

$$-\log C + \frac{n-1}{2}\left[\log\left|\Sigma(\theta)\right| + tr\Sigma(\theta)^{-1}\right] \tag{6}$$

The $\theta$ denotes a vector containing all unknown parameters. Thus, its difference function can be represented as:

$$\begin{aligned} F_{ML}(\theta) &= \log\left|\Sigma(\theta)\right| + tr\Sigma(\theta)^{-1} - \log\left|S\right| - p \\ &= tr\Sigma(\theta)^{-1} - \log\left|S\Sigma(\theta)^{-1}\right| - p \end{aligned} \tag{7}$$

Let $\theta_M$ be the great likelihood estimate of $\theta$, which approximates the true estimate $\theta_0$ of $\theta$ under large sample size conditions, while the corresponding standard error estimate can be derived from the inverse matrix of the information matrix. The model fit goodness-of-fit test can be assessed with the help of the likelihood ratio, i.e.:

$$LR = \frac{f(S \mid \Sigma(\theta_M))}{f(S \mid (n-1)n^{-1}S)} \tag{8}$$

where the numerator is the variance function under the current set of $\theta_M$ parameter estimates, and the denominator is expressed as the variance function under any parameter space. Based on the theory of great likelihood, the asymptotic distribution of the negative logarithmic form of the LR is a chi-square distribution with degrees of freedom $\frac{p(p+1)}{2} - q$, and statistical inferences are made given a significance level $\alpha$.

**II. A. 2) Theoretical models**

The theory of total quality management is applied to the field of pedagogy, following the principle of the big quality concept, taking teaching quality and employment opportunities as an important part of education quality management, throughout the whole process of the education system, which directly affects the quality of education's talent cultivation and realizes a good cycle, so it is extremely necessary to discuss the relationship between teaching quality and employment opportunities. Therefore, based on the teacher competence and educational opportunities of music education majors, the theoretical model of this study is shown in Figure 1, which

constructs the relationship between teacher competence, learning input and educational opportunities of music education majors.

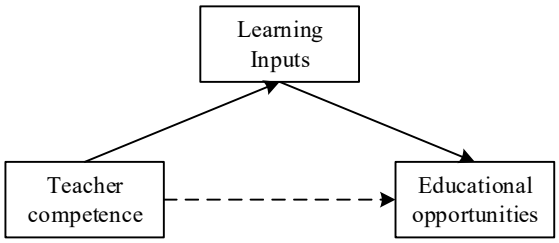


Figure 1: Theoretical model of this study

### *II. B.Research hypotheses*

In conjunction with the proposed theoretical model, this study proposes the following hypotheses:

H1: Teacher competence in music education has a significant positive effect on students' educational opportunities.

H2: Teacher competence in music education has a significant positive effect on students' learning engagement.

H3: There is a significant positive effect of learning engagement of music education majors on educational opportunities of students.

H4: Learning engagement of music education students plays a significant mediating role between teacher competence and educational opportunities in schools.

### *II. C.Research design and questionnaires*

#### II. C. 1) Measurement of variables

Various dimensional variables of professional teacher competence, student learning engagement, and educational opportunities were defined and measured in the context of the music education program.

(1) Teacher competence

This paper argues that the teacher competence of music education major can be divided into four dimensions: music professional level A1, education and teaching ability A2, teaching research and development ability A3 and education and teaching achievement A4. Based on this, the questionnaire was developed and measured on a 5-point Likert scale: 1 means "not at all compliant", 2 means "not compliant", 3 means "average", 4 means "compliant", and 5 means "completely compliant".

(2) Learning input

Guided by the learning input theory, this study decided to adopt four indicators, namely, behavioral input B1, cognitive input B2, affective input B3, and social interaction input B4, a division that better reflects the basic characteristics of music education majors' learning input. Among them, behavioral input includes the dimensions of participation, persistence, and concentration, which are measured by participation in classroom activities and time, the extent to which students remain engaged, and concentration on full attention to learning, respectively. Cognitive input includes three dimensions of cognitive strategies, metacognitive strategies, and motivation to learn, which denote the strategies used for learning activities, the learning process for monitoring and assessment, and the internal and external motivation for learning activities, respectively. Affective inputs include the dimensions of self-efficacy, self-regulation, and interest. Social interaction input includes the dimensions of teacher-student interaction and student-student interaction.

(3) Educational opportunities

Educational opportunity refers to the higher income of music education students under the premise of freedom, fairness, safety and human dignity, which is manifested in the degree of access to employment opportunities, job stability, social security, career development prospects and job satisfaction. It is divided into four dimensions: job quality C1, job stability C2, career development prospects C3 and job satisfaction C4.

#### II. C. 2) Data sources

The survey object of this study is the teachers and students of music education majors, and a questionnaire survey was conducted on the teachers and students of music education majors in a university, 438 questionnaires were distributed and 411 valid questionnaires were recovered, with an effective recovery rate of about 93.84%. The questionnaire survey was conducted using graded sampling, where each member of the overall study population was first assigned to a group, and then the group was randomly selected, from which the sample was then

randomly drawn, the group could be drawn in multiple steps, and the sample precision increased with the increase of the steps.

## III. Statistics and model testing

### *III. A. Analysis of variances*

Since demographic characteristic variables affect the academic engagement and educational opportunities of music education majors, it is necessary to analyze the variability in the academic engagement and educational opportunities of the survey respondents accordingly, i.e., analysis of variance (ANOVA). In this study, both independent samples t-test and one-way ANOVA were used, in which independent samples t-test was utilized to analyze the variability of gender in terms of academic engagement and educational opportunities of music education majors, and one-way ANOVA was used to explore whether grade level would have a significant differential effect on their academic engagement and educational opportunities.

#### III. A. 1) Gender-specific effects

Independent samples t-test is a test method to measure the significant difference between the means of demographic variables with two groups of classification, in order to measure whether different genders will have a differentiated impact on learning inputs and educational opportunities, the thesis utilizes the data statistical analysis software SPSS22.0 to divide the survey data into two types of clusters for males and females, and therefore uses the independent samples t-test to conduct the analysis of variability, based on the gender-based independent Sample T-test results are shown in Table 1.It can be found that the overall learning input and educational opportunity means of female students are slightly higher than those of male students.Within the 95% confidence interval, the difference caused by gender is only reflected in the stability of the job (sig.=0.025<0.05), while the Sig value of the learning input and the dimensions and other dimensions of the educational opportunity is greater than 0.05, which indicates that gender has a significant role in the There is no significant difference in the level of job quality, career prospects and job satisfaction and learning input dimensions.

Table 1: Independent sample T test results based on gender

| Dimension | Gender | Mean | Variance | | Mean difference | |
|---|---|---|---|---|---|---|
| | | | F | Homogeneity | t | Significance |
| B1 | Male | 3.273 | 0.148 | Yes | 0.108 | No |
| | Female | 3.508 | | | | |
| B2 | Male | 3.355 | 0.116 | Yes | 0.365 | No |
| | Female | 3.646 | | | | |
| B3 | Male | 3.295 | 0.204 | Yes | 0.409 | No |
| | Female | 3.446 | | | | |
| B4 | Male | 3.445 | 0.459 | Yes | 0.149 | No |
| | Female | 3.674 | | | | |
| C1 | Male | 3.255 | 0.567 | Yes | 0.214 | No |
| | Female | 3.582 | | | | |
| C2 | Male | 3.322 | 0.165 | Yes | 0.025 | Yes |
| | Female | 3.669 | | | | |
| C3 | Male | 3.169 | 0.742 | Yes | 0.763 | No |
| | Female | 3.316 | | | | |
| C4 | Male | 3.244 | 0.632 | Yes | 0.445 | No |
| | Female | 3.635 | | | | |

#### III. A. 2) Impact of different grade levels

One-Way ANOVA (One-Way ANOVA) is used to test whether there is a significant difference in the means of demographic variables having two or more subgroups of categories, in order to measure whether different grade levels differentially affect students' commitment to learning and educational opportunities. The paper categorized grade level into four groups of variables, freshman, sophomore, junior, senior and above, and the results of the one-way ANOVA based on grade level are shown in Table 2. The Sig value of job satisfaction was 0.201, which was greater than 0.05 at the 95% confidence interval, indicating that grade level did not constitute a significant difference in the job satisfaction of music education majors. And the Sig values of the dimensions of learning commitment, job quality, job stability, and career development prospects are less than 0.05, which indicates that

the difference of students' grade level constitutes a significant difference in the impact of learning commitment and its dimensions, employment quality and job quality, job stability, and career development prospects, and the Sig value is less than 0.01, which indicates that grade level has a greater differential impact on it.

Table 2: Analysis of single factor variance based on grade

| | | Sum of squares | Df | Mean square | F | Sig. |
|---|---|---|---|---|---|---|
| B1 | Intergroup | 78.129 | 3 | 3.822 | 1.753 | 0.007 |
| | Within group | 153.979 | 407 | 3.786 | | |
| B2 | Intergroup | 110.862 | 3 | 3.718 | 1.567 | 0.001 |
| | Within group | 183.03 | 407 | 3.872 | | |
| B3 | Intergroup | 73.504 | 3 | 3.836 | 1.298 | 0.005 |
| | Within group | 112.935 | 407 | 3.685 | | |
| B4 | Intergroup | 137.845 | 3 | 3.469 | 1.339 | 0.003 |
| | Within group | 116.586 | 407 | 3.271 | | |
| C1 | Intergroup | 139.159 | 3 | 4.136 | 1.471 | 0.004 |
| | Within group | 198.979 | 407 | 3.839 | | |
| C2 | Intergroup | 124.889 | 3 | 3.121 | 1.718 | 0.002 |
| | Within group | 128.091 | 407 | 3.512 | | |
| C3 | Intergroup | 162.839 | 3 | 4.241 | 1.765 | 0.005 |
| | Within group | 154.461 | 407 | 4.944 | | |
| C4 | Intergroup | 24.417 | 3 | 4.569 | 1.248 | 0.201 |
| | Within group | 157.836 | 407 | 4.062 | | |

## *III. B. Empirical analysis*

### III. B. 1) Correlation test

In order to investigate the relationship between teacher competence, student learning commitment and educational opportunities in music education, this study first used correlation analysis to explore the relationship between each latent variable. The results of the analysis were measured by Pearson correlation coefficient to measure the relationship between the two variables, and the sample data were correlated by using SPSS23.0 statistical software, and the results of the correlation test are shown in Fig. 2, with ** denoting that the correlation is significant at the 0.01 level (two-tailed) and * denoting that the correlation is significant at the 0.05 level (two-tailed). The correlations between the variables of teacher competence, learning input and educational opportunities all reached the level of significance ($p<0.05$) and were positively correlated, i.e., the higher the competence of the teachers specializing in music education, the higher the learning input and educational opportunities of their students.

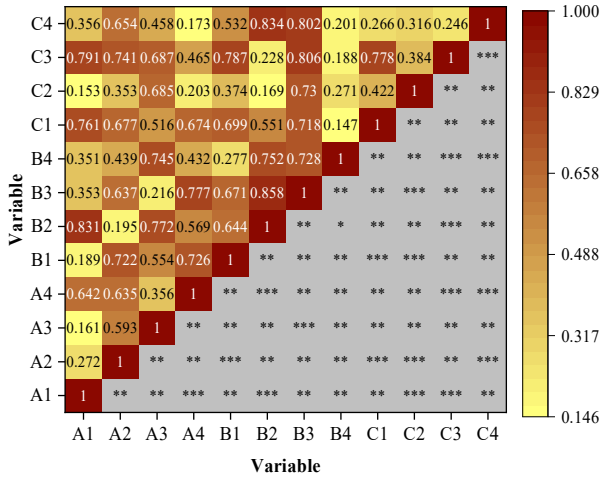


Figure 2: Results of correlation testing

### III. B. 2) Structural equation modeling analysis

The structural relationships between latent variables and their standardized path coefficients' estimates, T-values and hypothesis testing results, etc. are shown in Table 3, with *** denoting $p < 0.001$, ** denoting $p < 0.01$, and * denoting $p < 0.05$. All hypotheses passed the T-test, and the path coefficients were all significant at the confidence level of $\alpha = 0.01$. Hypotheses H1~H3 of this paper passed the test.

Table 3: Path hypothesis test

| Path relation | Standardized path coefficient | T value | Conclusion |
|---|---|---|---|
| Teachers ability→ Education opportunity | 0.163*** | 4.271 | Support |
| Teachers ability→ Learning input | 0.184** | 2.831 | Support |
| Learning input→ Education opportunity | 0.376*** | 3.749 | Support |

### III. B. 3) Mediated effects test

In order to further clarify the relationship between teacher competence, learning inputs and educational opportunities, and whether mediating effects of learning inputs occur, the study re-estimated the standard errors and confidence intervals of the indirect effects using Bootstrap technique. The total indirect effects of learning inputs were reported as shown in Table 4 after repeating the random sampling 1000 times in the original data (N=411) and calculating 95% confidence intervals. The upper and lower confidence intervals for the indirect effect do not include 0, which identifies the presence of a mediating effect, and the significance level Z-value = 6.23 > 1.96, which identifies the mediating effect as significantly present. Similarly, the direct effect was tested and the results showed that the direct effect was also significantly present in this study, therefore, it was concluded that learning inputs play a partially mediating role between teacher competence and educational opportunities, with a mediating effect of 58.8%. The effect sizes between 0.2-0.5, 0.5-0.8, and 0.8 and above were categorized as small, medium, and large, respectively, and the resultant effect size of this study was 58.8%, which leads to the conclusion that the learning input of music education majors plays a significant mediating role between teacher competence and educational opportunities.

Table 4: The total indirect effect report of learning input

| | Point estimate | S.E. | Z value | 95% confidence interval | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Total effect | 0.283 | 0.052 | 5.88 | 0.185 | 0.313 |
| Direct effect | 0.129 | 0.049 | 3.05 | 0.071 | 0.242 |
| Indirect effect | 0.176 | 0.024 | 6.23 | 0.018 | 0.146 |

Based on the results presented in the above data, the mediation effects were further disentangled to analyze to what extent the four aspects of learning inputs, namely, behavioral input B1, cognitive input B2, affective input B3, and social interaction input B4, specifically play a mediating effect between teacher competence and educational opportunities. The specific disentanglement effects are shown in Table 5. The upper and lower confidence intervals for the indirect effects do not include zero, so there are mediating effects for all four dimensions of student learning input. The factor of affective input played the smallest percentage of the mediating role between teacher competence and student educational opportunities in music education, with an estimated value of 0.028, while behavioral and cognitive inputs played higher mediating roles, with estimated values of 0.048 and 0.039.

Table 5: The mediation effect dissolves

| | Mediation path | Point estimate | S.E. | 95% confidence interval | |
|---|---|---|---|---|---|
| | | | | Lower | Upper |
| Total effect | Teachers ability→ Education opportunity | 0.283 | 0.052 | 0.185 | 0.313 |
| Direct effect | Teachers ability→ Education opportunity | 0.129 | 0.049 | 0.071 | 0.242 |
| Indirect effect | Teachers ability→Learning input→ Education opportunity | 0.176 | 0.024 | 0.018 | 0.146 |
| | Teachers ability→Behavior input→ Education opportunity | 0.048 | 0.015 | 0.254 | 0.346 |
| | Teachers ability→Cognitive input→ Education opportunity | 0.039 | 0.018 | 0.415 | 0.781 |
| | Teachers ability→Emotional input→ Education opportunity | 0.028 | 0.028 | 0.229 | 0.578 |
| | Teachers ability→Social interaction→ Education opportunity | 0.035 | 0.022 | 0.351 | 0.894 |

## IV. Ways to improve the competence of music education students

Teaching music education majors in colleges and universities mainly wants to improve students' professional teaching ability and provide a foundation for students to work in the society later for more educational opportunities. In the process of classroom teaching, teachers should not only develop students' music teaching skills, but also develop students' music learning literacy.

### *IV. A. Cultivate music aesthetic and appreciation skills*

Music teachers in colleges and universities should pay attention to cultivating students' professional aesthetic ability in teaching and deepening professional students' music learning sense. Teachers cultivate students' music learning appreciation ability in teaching, which will also effectively improve professional students' music learning literacy, and provide students with teaching ideas and improve their teaching ability in their future teaching work.

Teachers can develop students' music appreciation ability according to different types of music. For example, letting students listen to the content in the music repeatedly in the classroom, taking the form of letting students compare different music contents, to improve and enhance students' aesthetic and appreciation ability in music learning, and providing conditions for the improvement of students' music teaching level. Teachers should pay attention to the extensive cultivation of students' music aesthetic ability, so that students can come into contact with different forms of ethnic music, local music, modern music and so on during classroom learning, which will enhance and ensure the comprehensiveness of students in music learning.

### *IV. B. Developing Integrated Skills for Music Learning*

Teachers should develop integrated music skills in their teaching. Music teachers in colleges and universities should first improve their own teaching level, so as to ensure that students develop comprehensive music skills in their learning. For example, cultivate students' playing and singing skills, strengthen students' piano skills, and let students feel the charm of learning music in their own playing and singing practice. At the same time, attention should also be paid to the development of students' conducting skills in chorus, and the development of students' choral coordination ability in music learning to effectively meet the needs of students in future teaching.

### *IV. C. Fostering Creativity in Music Learning*

The cultivation of creativity refers to the cultivation of students' innovative thinking in learning in teaching. Teachers should pay attention to the use of appropriate teaching methods to cultivate students' sense of innovation in music learning, and let professional students feel the unique charm of music learning in innovation, so as to expand the road for students in the future teaching.

## V. Conclusion

By analyzing the relationship between teacher competence and students' educational opportunities in music education, this paper draws the following conclusions:

Teacher competence in music education has a significant positive effect on students' educational opportunities (path coefficient = 0.163) and also has a significant effect on students' learning input (path coefficient = 0.184). In addition, learning engagement plays a partial mediating role between teacher competence and educational opportunities and the mediating effect is 58.8%. The study suggests that enhancing teachers' professional competence not only directly affects students' educational opportunities, but also indirectly enhances educational opportunities through enhancing students' learning input.

Among the dimensions of learning inputs, behavioral inputs and cognitive inputs have the greatest impact on educational opportunities, and they each occupy a high mediating effect. In contrast, affective and social interaction inputs have less impact on educational opportunities, especially affective inputs, which have the smallest share of mediating effects. Therefore, the field of music education should focus on improving students' learning inputs, especially behavioral and cognitive inputs, while improving teachers' competence, so as to better promote students' educational opportunities and career development.

These findings are important references for music education policy makers, school administrators and educators in optimizing teaching quality and enhancing students' learning input and educational opportunities.

## Funding

This work was supported by grants from the 14th Five-Year Plan for Education and Science in Jiangsu Province (Key) (T-b/2021/38) and the Philosophy and Social Science Research Program for Universities in Jiangsu Province (2022SJYB0541).

## References


[1] Bautista, A., Yau, X., & Wong, J. (2017). High-quality music teacher professional development: A review of the literature. Music education research, 19(4), 455-469.

[2] Lorenzo, O., & Turcu, I. R. (2023). Higher music education in Romania in the context of the European Higher Education Area: an analysis from the lecturer's perspective. Music Education Research, 25(2), 147-159.

[3] Vidulin, S. (2021). Art music in school: Challenges, benefits and opportunities. Izazovi savremene obrazovne prakse u oblasti umetnosti-aktuelna pitanja, dileme i perspektive., 332-351.

[4] Rodríguez-Quiles, J. A. (2017). Music Teacher Training: A precarious area within the Spanish university. British Journal of Music Education, 34(1), 81-94.

[5] Çeliktas, H., Engür, D., & Özeke, S. (2022). A Thematic Review of the Studies on the Music Teacher Competencies in Turkey. International Education Studies, 15(1), 1-15.

[6] Wilson, A., Hunter, K., & Moscardini, L. (2020). Widening the gap? The challenges for equitable music education in Scotland. Support for learning, 35(4), 473-492.

[7] Hess, J. (2017). Equity and music education: Euphemisms, terminal naivety, and whiteness. Action, Criticism & Theory for Music Education, 16(3).

[8] Liusong, Y., & Charoenmongcolkij, S. (2023). The Employment of Undergraduates Music Major Students in China. Journal of Modern Learning Development, 8(8), 400-408.

[9] Powell, B. (2021). Equity in music education: Addressing equity and social justice in music education through modern band: Opportunities and challenges. Music Educators Journal, 108(2), 57-59.

[10] Ferm Almqvist, C. (2019). Towards offering equal learning opportunities for female students in popular music ensemble education: Relate, respond, and re-do. Music Education Research, 21(4), 371-386.

[11] Davidova, J. (2019). Music teacher's competences in the 21st century. Pedagogika, 134(2), 99-108.

[12] Odunuga, A. F., & Olaleye, O. A. (2018). TOWARDS MUSIC TEACHERS COMPETENCE ON STUDENTS'ACADEMIC ACHIEVEMENT: FRAMEWORKS FOR ASSESSING MUSIC TEACHING AND LEARNING. Journal of Arts and Social Sciences (OJASS), 18(2), 196-216.

[13] Abramauskiene, J. (2018). Professional competences of music teacher: Attitude of students. In Proceeding of the 4th International Conference on Education (Vol. 4, No. 2, pp. 105-114).

[14] Stukalenko, Z. M., & Negrebetska, O. M. (2020). Artistic and creative activity as a means of educating the professional culture of future teachers of music. Zhytomyr Ivan Franko state university journal. Pedagogical sciences, (3 (102)), 56-62.

[15] Meihuan, L. (2023). The development of cultural literacy and aesthetic thinking of music teachers in Chinese universities. Scientific Journal of Polonia University, 56(1), 148-153.