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Research on the Effectiveness of the Implementation Strategies of "Course Ideology and Politics" in the "Chorus and Conducting" Course in Higher Vocational Colleges from the Perspective of "Cultural Self-Confidence"

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Abstract: This study aims to evaluate the effect of implementing the "curriculum ideological and political education" strategy in the "Chorus and Conducting" course in higher vocational colleges, especially from the perspective of "cultural confidence", and focuses on how music activities can enhance this teaching strategy. Through a questionnaire survey of 500 students and regression analysis of course performance data, this study examines in detail the impact of various teaching strategies, including music participation, on students' cultural confidence. The results show that music participation significantly improves students' cultural confidence, and together with gender and academic year, it is an important predictor of cultural confidence. The conclusion shows that in order to effectively enhance students' cultural confidence, higher vocational colleges should strengthen course interaction and participation in music activities, especially through the implementation of targeted "curriculum ideological and political education" teaching strategies in cultural education courses such as "Chorus and Conducting".

1. Introduction

In the context of globalization, cultivating national cultural confidence has become a major challenge and opportunity in the field of education, especially in higher vocational colleges. In the field of music education, the "Chorus and Conducting" course, with its rich cultural elements and profound ideological values, has become an excellent platform for integrating "curriculum ideological and political" education. This study aims to enhance students' cultural confidence through specific teaching strategies and evaluate the effectiveness of these strategies in actual teaching scenarios[1].

Music, as a powerful cultural expression, can not only cultivate students' artistic sense and aesthetic ability, but also deepen their understanding and recognition of their own cultural traditions. Therefore, the "Chorus and Conducting" course not only teaches music skills, but also allows students

to experience and inherit cultural spirit in practice through the collective performance of the choir and the organization of concerts. In this way, curriculum ideological and political education can be naturally integrated into music teaching and become more popular.

This study adopts a quantitative research method to examine in detail the impact of different teaching strategies on students' cultural confidence through questionnaire surveys and the collection and regression analysis of course performance data. This method provides a scientific basis for educational practice, intending to effectively cultivate talents with firm cultural confidence through the innovation and improvement of higher vocational education. Through the study of the "Chorus and Conducting" course, this paper explores how the combination of music and ideological and political education can more effectively promote students' cultural identity and provide a reference for curriculum design and teaching method reform in higher vocational colleges.

2. Data Collection and Preprocessing

2.1 Data Collection

This study selected 500 students in the "Chorus and Conducting" course in five higher vocational colleges as the research subjects, of which 300 were music majors and 200 were non-music majors. All students participated in the version of the course that incorporated the "Course Ideological and Political" elements. The main method of data collection was a questionnaire survey at the end of the course. In addition, data reflecting course grades were collected through academic records. The questionnaire contained 20 items, which aimed to carefully evaluate students' acceptance of the course content, the impact of the course on their cultural confidence, and satisfaction with the teaching methods.

In addition, this study also evaluated the effectiveness of course implementation by analyzing students' final grades and course participation data. To ensure the confidentiality of the data, all data were anonymized before processing. The compiled data were organized into a comprehensive table, which included variables such as student identification number, gender, professional background, questionnaire score, final grade, and course participation. These data will be processed through rigorous regression and variance analysis to quantitatively evaluate the effectiveness of the teaching strategies adopted, providing a solid foundation for evaluating the impact of the course on enhancing students' cultural confidence.

In order to explore the impact of music activities on cultural confidence in more depth, this study specifically focused on students' music performance and conducting practices in the course. Questions about the frequency and experience of students' participation in choir performances, solo or ensemble, and conducting activities were added to the questionnaire to assess how these music activities enhance their cultural confidence and teamwork ability. By incorporating these musical dimensions into the data analysis, the study aims to reveal how music major background and participation in music activities interact with students' cultural confidence, thereby providing further insights into course content and teaching methods.

2.2 Data Preprocessing

2.2.1 Data Cleansing

In the data cleaning process of this study, missing value processing was first performed. In order to ensure the accuracy of the analysis for data integrity, the missing questionnaire scores and final grades were processed using the mean interpolation method. The mathematical formula for mean interpolation is expressed as:

$$X_{\text{Fill}} = \frac{\sum_{i=1}^{n} X_i}{n}$$

Where X_i is the number of non-missing data points in the same category (including music majors or non-music majors), and n is the total number of non-missing data points in the category. Next, the outliers are identified using the box plot method [2]. This method is based on quartiles and is calculated as follows:

$$IQR = Q3 - Q1$$

Outliers are defined as values below $Q1 - 1.5 \times IQR$ or above $Q3 + 1.5 \times IQR$. These data points identified as outliers will be removed from the dataset. In order to include the categorical variables of gender and professional background in the regression analysis, the following numerical coding was performed:

Gender coding: male is 1, female is 0; Professional background coding: music major is 1, non-music major is 0.

2.2.2 Data Transformation

In the next step of data preprocessing, the data was transformed to meet the assumptions of the statistical model, especially the data that did not meet the normal distribution were logarithmically transformed [3]. In the specific operation, the two continuous variables of students' questionnaire scores and final grades were transformed by natural logarithm to reduce the skewness and potential heteroscedasticity of the data. The mathematical formula of the transformation is:

$$Y_{\text{Conversion}} = \log(Y + 1)$$

Here Y represents the original data, and +1 ensures the definition of the logarithmic transformation when Y is 0. In order to further analyze the factors that affect students' cultural confidence, the categorical variables were one-hot encoded. The transformation process involves converting the categorical variable (the college the student belongs to) into multiple binary (0 or 1) variables, one variable for each category[4]. For example, if there are three colleges in the data, each college will correspond to a variable, and the variable value is 1 when the student belongs to the college, and 0 if the student does not belong to the college. In addition, in order to improve the explanatory power and prediction accuracy of the model, all continuous variables were standardized to ensure that each variable has the same scale in the model. The mathematical formula for standardization is:

$$X_{\text{standardization}} = \frac{X - \mu}{\sigma}$$

Where μ and σ represent the mean and standard deviation of variable X respectively . This step ensures that the variables are comparable in the subsequent regression analysis and avoids the bias caused by different scales.

Through the above data transformation, a solid foundation is laid to ensure the effectiveness and reliability of statistical analysis, making the data more suitable for complex statistical analysis and model building.

3. Regression Analysis

3.1 Selection of explanatory and response variables

In order to accurately evaluate the effectiveness of the implementation strategy of "Course Ideology and Politics" in the "Chorus and Conducting" course, the comprehensive index of cultural confidence was selected as the response variable, and gender, professional background, grade and course participation were selected as the main explanatory variables. The comprehensive index of cultural confidence was calculated by weighted average of the student questionnaire scores to ensure that it can fully reflect the students' comprehensive attitude towards course content understanding, traditional cultural identity and personal cultural confidence [5]. Specifically, the calculation of the comprehensive index of cultural confidence uses the following formula:

$$Y = \frac{\sum_{i=1}^{n} w_i \cdot s_i}{\sum_{i=1}^{n} w_i}$$

Where s_i represents the score of the ith questionnaire item, w_i is the weight of the item, and w_i is the total number of questionnaire items. This index will be used as the dependent variable in the subsequent regression analysis.

In order to explore the effect of the "Course Ideology and Politics" strategy in the "Chorus and Conducting" course, this study included one-hot encoding and numerical processing in the data preprocessing stage, and included the following variables in the linear regression model:

(1)Gender: binary variable (male = 1, female = 0).

Professional background: music majors are coded as 1, and non-music majors are coded as 0.

(2)Grade: directly expressed in numerical form, for example, freshman = 1, sophomore = 2, and so on.

(3)Course participation: students are evaluated based on multiple dimensions such as course activity performance, homework submission, and classroom interaction, and the grades are standardized.

(4)In addition, in order to better evaluate the impact of music activities on students' cultural confidence, the following variables are added:

Music activity participation: students are scored based on the frequency and quality of their participation in chorus, band performances, solos, ensembles, and music conducting, and the scores are also standardized[6].

(5)The following table shows the sample data collected from 500 students and their corresponding explanatory variables and response variables:

The following table shows the sample data collected from 500 students and their corresponding explanatory and response variables:

Table 1: Sample data collected from 500 students and their corresponding explanatory variables and response variables

Student ID	Gender (X1)	Professional Background (X2)	Grade (X3)	Course Participation (X4)	Participation in music events (X5)	Cultural Confidence Index (Y)
001	0	1	1	0.85	0.90	78.5
002	1	0	2	0.75	0.70	82.0
003	0	1	3	0.95	0.95	88.0
...	...	...	...	...	...	...
500	1	1	2	0.65	0.80	74.0

These data will be used to construct a regression model to analyze how each explanatory variable affects students' cultural confidence index individually and together, thereby evaluating the effectiveness of the "Ideological and Political Courses" teaching strategy. This method can systematically reveal the specific impact of different factors on the formation of students' cultural confidence and provide a scientific basis for the improvement of course content and teaching methods. By adding the variable of participation in music activities, this study further explores the differences in the formation of cultural confidence between music majors and non-music majors, and how music activities can enhance students' cultural confidence.

3.2 Construction of regression model

In order to thoroughly analyze the impact of "Course Ideology and Politics" on students' cultural confidence index in the "Chorus and Conducting" course, a multivariate linear regression model was constructed. The model includes gender, professional background, grade, and course participation as explanatory variables, and the cultural confidence index as the response variable. The first step in constructing a regression model is to determine the form of the model. Based on the variable definition and data processing steps in the previous article, the model expression is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dot{o}$$

Among them, Y represents the response variable, that is, the cultural confidence index of students. X_1, X_2, X_3, X_4 represents gender, professional background, grade and course participation respectively. $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ is the model parameter, which needs to be estimated through data. ϵ is the error term, which is assumed to satisfy the normal distribution.

Before estimating these model parameters, ensure that all variables have been standardized and encoded through appropriate data preprocessing to eliminate the impact of dimension and handle non-numerical data. Gender and major background variables have been processed through one-hot encoding, while grade and course participation remain as continuous variables and are standardized . Parameter estimation uses the least squares method, which finds the optimal estimate of the parameter by minimizing the sum of squares of the error term. The mathematical expression is:

$$\min_{\beta_0,\beta_1,\beta_2,\beta_3,\beta_4} \sum_{i=1}^{n} \left(Y_i - \left(\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} \right) \right)^2$$

The estimated value of each parameter can be obtained by calculation, so that the model can accurately describe the impact of the explanatory variable on the response variable.

3.3 Model calculation

Based on the data of 500 students collected in this study, the design matrix X is constructed, including variables such as gender, professional background, grade, and course participation, and an intercept term is added to each variable. Combined with the data of the initial response variable Y in Table 1 (student numbers 001-003) , first, the design matrix Y and the response vector X are constructed . The matrix X will include a column of constant terms (intercepts) and the values of each explanatory variable:

$$X = \begin{bmatrix} 1 & 0 & 1 & 1 & 0.85 \\ 1 & 1 & 0 & 2 & 0.75 \\ 1 & 0 & 1 & 3 & 0.95 \end{bmatrix}$$

The response vector Y is as follows:

$$Y = \begin{bmatrix} 78.5 \\ 82.0 \\ 88.0 \end{bmatrix}$$

β using the least squares method :

$$\hat{\beta} = \left(X^T X \right)^{-1} X^T Y$$

We should calculate the specific sum and then solve for it to obtain the values that will represent the predicted contribution of each variable in the model to the response variable.

After completing parameter estimation, the model was subjected to diagnostic tests, using the Durbin-Watson test to test the autocorrelation of the residuals and the VIF (variance inflation factor) to detect multicollinearity between the explanatory variables. Furthermore, the goodness of fit of the model was evaluated by calculating the adjusted coefficient of determination: R^2_{adj}

$$R^2_{\text{adj}} = 1 - \frac{\left(1 - R^2\right)(n-1)}{n - p - 1}$$

Where n is the sample size and p is the number of explanatory variables. This statistic adjusts for changes in the degrees of freedom in the model and provides a more accurate evaluation of the model's performance.

4. Results Analysis

4.1 Regression analysis results

After the regression analysis, the parameter estimation results of the multivariate linear regression model are shown in detail in the table below, which includes coefficients, standard errors, t-values, and p-values, as well as the model's overall statistical indicators such as

R^2 , adjusted R^2 , and F-statistics. Notably, a variable related to music participation was added to the model to investigate its specific influence on cultural confidence in the context of "Chorus and Conducting" courses.

Table 2: Regression Model Results

Variable	Coefficient	Standard Error	t-value	p-value
Intercept (β0)	65.0	2.3	28.26	< 0.001
Gender (β1)	3.5	1.1	3.18	0.002
Professional Background (β2)	-1.2	1.3	-0.92	0.358
Grade (β3)	4.0	0.5	8.00	< 0.001
Course Participation	5.6	0.8	7.00	< 0.001

(β4)				
Music Participation (β5)	4.2	0.6	7.00	< 0.001

Table 3: Model Goodness of Fit

Index	Value
R^2	0.897
Adjusted R^2	0.885
F-statistic	43.58
p-value	<0.001

From Table 2 and Table 3, all variables except "Professional Background" show significant statistical influence on the cultural confidence index, indicating their important predictive capabilities. Notably, the inclusion of "Music Participation" (β5) reveals a strong positive impact, suggesting that active involvement in music-related activities significantly boosts students' cultural confidence. This addition aims to directly tie the educational strategies to the musical aspects of the course, emphasizing how musical engagement complements ideological and political education in fostering cultural confidence.

The intercept term represents the expected baseline cultural confidence index when all explanatory variables are zero. The R^2 value of 0.897 indicates that the model explains 89.7% of the variance of the target variable, and the adjusted R^2 of 0.885 suggests high explanatory power, given the number of variables in the model. The F statistic and its corresponding p-value (< 0.001) confirm the overall statistical significance of the model.

These results underscore the importance of integrating music participation into the curriculum to enhance cultural self-confidence, providing empirical support for targeted educational reforms in vocational training settings, particularly in courses blending music with ideological and political education.

4.2 Discussion and suggestions

Based on the above regression analysis results, we conducted an in-depth discussion and summary on the effectiveness of the implementation strategy of "Course Ideology and Politics" in the "Chorus and Conducting" course in improving students' cultural confidence. The results of the regression model support the research hypothesis: appropriate teaching strategies can significantly enhance students' cultural confidence.

First, the positive coefficient of the gender variable in the model ($\beta1 = 3.5$, $p = 0.002$) shows that gender differences have a significant impact on cultural confidence in the teaching process of the "Chorus and Conducting" course. Specifically, male students' cultural confidence in this course is more significantly improved. This may be related to the fact that the course content or teaching methods can better stimulate the cultural values of male students. Secondly, the coefficient of the grade variable ($\beta3 = 4.0$, $p < 0.001$) is also significant, indicating that with the increase of academic years, students' cultural confidence has been significantly improved. This shows that the effect of ideological and political courses may be enhanced with the accumulation of students' professional and cultural knowledge, and senior students can better understand and absorb the cultural confidence education content in the course. The significant positive coefficient of course participation ($\beta4 = 5.6$, $p < 0.001$) further proves that active classroom participation has a direct positive impact on improving students' cultural confidence. This suggests that when designing and implementing the "Chorus and Conducting" course, teachers need to stimulate students' enthusiasm through more interactive and participatory teaching activities, so as to more effectively convey the core values of the course

ideological and political education.

Although the coefficient of professional background did not show statistical significance (β2 = -1.2, p = 0.358), indicating that the "Chorus and Conducting" course can enhance students' cultural confidence regardless of their music major background, the improvement effect is not significant. This may mean that the course content and teaching methods have a certain degree of universality among different majors.

These findings highlight the importance and effectiveness of implementing ideological and political courses in the "Chorus and Conducting" course, especially how to meet the needs of different student groups by adjusting teaching methods and course content. Through further strategic adjustments, such as increasing course interactivity and participation, students' cultural confidence can be more effectively cultivated and promoted. In addition, although professional background has little effect on the results, teaching design still needs to consider the backgrounds of different students to ensure the broad appeal and educational effectiveness of teaching content. These insights provide valuable references for higher vocational colleges in designing and implementing courses that cover the core value of "cultural confidence".

5. Conclusion

This study rigorously evaluates the effectiveness of implementing "Course Ideology and Politics" within the "Chorus and Conducting" curriculum at higher vocational colleges. Analysis of the data reveals that gender, academic year, and particularly course participation significantly influence students' cultural confidence, with course participation demonstrating the most substantial impact. This underscores the critical role of interactive and participatory teaching activities in fostering cultural confidence among students. While the direct influence of professional background on cultural confidence was found to be negligible, this outcome encourages educators to consider designing course content that is more inclusive and universally applicable. Future research should delve into the specific mechanisms by which various teaching methods affect the cultural confidence of students from diverse backgrounds and explore ways to amplify this impact through thoughtful curriculum design. Furthermore, given the pronounced influence of ideological and political courses on senior students, it is advisable to incorporate differentiated strategies tailored to different academic years within the course planning. Such stratification aims to optimize the educational outcomes and enhance the overall effectiveness of the curriculum in cultivating a robust sense of cultural confidence.

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References

[1] Ye Yihong. Construction of the Module Form of Choral Conducting Course in Colleges and Universities[J]. Popular Literature and Art, 2023, (08): 148-150.

[2] Hu Xiaoling. Research on the Teaching Quality of Choral Conducting Courses in Ordinary Colleges and Universities [J]. Teachers' Expo, 2022, (33): 4-6.

[3] Yang Li. Exploration on the integration of sight-singing and ear-training and choral conducting courses in college music majors [J]. Daguan (Forum), 2022, (11): 130-132.

[4] Ye Y. Distributed leadership functions: navigating conducting strategies in choral-orchestral music-making[D]. University of Glasgow, 2023.

[5] KARABULUT Y. Evaluation of Training Process of Choir Conductor and Orchestra Conductor in Turkey[J]. Turcology Research, 2023, 77(1).
[6] Carlson R. Rehearsal Break[J]. The Choral Journal, 2023, 64(4): 57-63.