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The Impact of Dance Teaching Methods on the Psychophysical Well-being of Pre-service Teachers: A SEM Analysis of Student Satisfaction as a Mediating Factor

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Abstract
Background and Aim: The psychophysical well-being of pre-service teachers significantly influences their academic performance and professional development trajectory. While dance education offers recognized benefits for physical and mental health, empirical research examining the differential impacts of various teaching methodologies on well-being remains underdeveloped. This study investigates how Traditional Teaching Methods (TTM), Modern Teaching Methods (MTM), and Practical Teaching Methods (PTM) affect the psychophysical well-being of pre-service teachers, with specific attention to student satisfaction as a potential mediating mechanism.
Materials and Methods: The research employed Structural Equation Modeling (SEM) to analyze data from 300 undergraduate pre-service teachers across six strategically selected teacher-training universities in Guangxi, China. A validated structured questionnaire (Cronbach's $\alpha = 0.833$) measured teaching methods, student satisfaction, and psychophysical well-being dimensions. Analyses included descriptive statistics, reliability testing, factor analysis, correlation analysis, and path modeling using SPSS 26 and AMOS to assess both direct and indirect effects.
Results: Analysis revealed that TTM ($\beta = 0.878$) and MTM ($\beta = 0.819$) exerted stronger effects on student satisfaction than PTM ($\beta = 0.735$). Student satisfaction demonstrated a significant direct effect on psychophysical well-being ($\beta = 0.507$, $p < 0.01$), functioning as a key mediating variable between teaching methods and well-being outcomes. While path coefficients from Figure 2 indicated direct relationships between teaching methods and well-being (TTM: $\beta = 0.41$; MTM: $\beta = 0.40$; PTM: $\beta = 0.08$), Table 8 emphasized the predominance of indirect effects through student satisfaction. Modern teaching methods received the highest student recognition ($M = 4.27$, $SD = 0.67$) among all approaches.
Conclusion: The findings suggest that enhancing pre-service teachers' psychophysical well-being requires a dual focus on optimizing teaching methodologies and improving student satisfaction. While traditional and modern approaches demonstrated stronger effects than practical methods, an integrated pedagogical framework might yield optimal outcomes. Future research should explore blended teaching approaches that leverage the strengths of each method while addressing implementation challenges in dance education for pre-service teachers.
Keywords: Dance Education; Teaching Methodologies; Student Satisfaction; Psychophysical Well-being; Pre-service Teachers

Introduction

The psychophysical well-being of university students has become an essential factor in evaluating the quality of higher education, particularly as mental health concerns among students continue to rise. In China, depression and anxiety are among the most prevalent mental health issues, with a national survey reporting that 21.48% of college students are at risk of depression (National Mental Health Survey of China, 2023). Guangxi, a southwestern border region of China, faces unique socio-economic challenges, including disparities in educational resources and a high proportion of students from low-income families. A recent study found that 38.6% of pre-service teachers in Guangxi experience moderate to severe anxiety due to financial constraints and academic pressure, which significantly impacts their mental health and professional development. Given the vital role that well-being plays in shaping future educators' effectiveness and career longevity, identifying practical interventions to support their psychophysical health is crucial.

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Dance education, widely recognized for its ability to promote physical and emotional well-being, offers a promising avenue for improving mental health among pre-service teachers. As a performative art, dance fosters self-awareness, emotional regulation, and social adaptability, making it an effective tool for mitigating stress and enhancing psychological resilience (Salihu et al., 2021). Additionally, participation in dance has been linked to increased self-efficacy and social engagement, both of which are critical for maintaining overall well-being (Wang et al., 2024). Despite these benefits, limited empirical research has examined how different dance teaching methods influence psychophysical well-being, particularly in structured academic settings. Traditional Teaching Methods (TTM), Modern Teaching Methods (MTM), and Practical Teaching Methods (PTM) each offer distinct instructional approaches, yet their relative effectiveness in fostering well-being remains underexplored.

To address this gap, this study employs Structural Equation Modeling (SEM) to systematically evaluate the impact of different dance teaching methods on the psychophysical well-being of pre-service teachers in Guangxi. A particular focus is placed on the mediating role of student satisfaction, as engagement and perceived learning experiences significantly influence educational outcomes. By analyzing how TTM, MTM, and PTM contribute to well-being through student satisfaction, this research aims to provide evidence-based insights that inform dance pedagogy in teacher training programs. Ultimately, these findings will support the development of a more structured and student-centered approach to dance instruction, enhancing both mental health and professional preparedness among future educators.

Objectives

1. To compare the effects of different dance teaching methods on pre-service teachers' psychophysical well-being
2. To investigate the relative effectiveness of each teaching approach for different dimensions of well-being
3. To analyze the mediating role of student satisfaction in the relationship between teaching methods and well-being outcomes.

Literature Review

Dance teaching methods have evolved alongside shifts in educational philosophy, each offering distinct advantages and limitations. Traditional Teaching Methods (TTM) emphasize structured, teacher-centered instruction, focusing on technical precision through repetitive training. While this approach enhances skill development, it often restricts students' creative expression and adaptability. In contrast, Modern Teaching Methods (MTM) integrate constructivist principles, encouraging improvisation and self-directed learning to cultivate critical thinking and individualized artistic expression. These methods have been particularly effective in fostering resilience in high-pressure learning environments (Leijen et al., 2008). Meanwhile, Practical Teaching Methods (PTM) extend dance education beyond the classroom by incorporating real-world applications, such as community performances and collaborative projects. This hands-on approach not only refines technical skills but also promotes social responsibility and engagement with broader societal issues (Dryburgh, 2021). While each of these methods has been widely implemented in dance education, their comparative effectiveness in fostering psychophysical well-being remains underexplored, particularly for pre-service teachers navigating the challenges of professional training.

Psychophysical well-being is a complex and multidimensional construct encompassing physical health, emotional stability, and social adaptability. As an embodied art form, dance has long been recognized for its therapeutic potential, contributing to mental resilience, emotional regulation, and self-efficacy. Studies indicate that systematic dance training can enhance cardiovascular fitness, improve stress management, and elevate overall mood (Lütke Lanfer et al., 2022). Despite these well-documented benefits, existing research primarily examines dance's general impact on well-being rather than its specific effects on pre-service teachers undergoing rigorous professional preparation. Additionally, while standardized tools such as the GHQ-12 are commonly used to measure anxiety, depression, and stress levels, these

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instruments may not fully capture the unique challenges associated with teacher training, such as professional identity formation and classroom performance pressures. Given these gaps, further research is needed to assess how different dance pedagogies contribute to the well-being of aspiring educators.

Student satisfaction serves as a key mediating factor between teaching methods and psychophysical well-being. Satisfaction is shaped by multiple dimensions, including course design, faculty-student interaction, and perceived learning outcomes. In dance education, where learning is an experiential and physical process, interactive and engaging teaching approaches can significantly enhance students' motivation and emotional investment in their studies (Chao et al, 2021). Research suggests that student-centered learning environments, which balance structured instruction with opportunities for exploration and personal expression, contribute to both greater satisfaction and improved well-being. However, the precise mechanisms through which different teaching methods influence these outcomes remain unclear. Understanding how TTM, MTM, and PTM impact student satisfaction and, in turn, psychophysical well-being, is essential for optimizing dance education strategies in teacher training programs. This study seeks to fill this research gap by examining the interplay between teaching methodologies, student engagement, and well-being outcomes among pre-service teachers.

Conceptual Framework

Research Hypotheses are:

H1: Different teaching methods (Traditional teaching method (TTM), Modern teaching method (MTM), and Practical teaching method (PTM)) have varying effects on the psychophysical well-being of pre-service teachers.

H2: Compared to PTM, TTM, and MTM have a more significant impact on the psychophysical well-being of pre-service teachers.

H3: The Practical teaching method (PTM) has a positive and significant effect on the psychophysical well-being of pre-service teachers.

H4: Student satisfaction serves as a mediating variable in the relationship between different teaching methods and the psychophysical well-being of pre-service teachers.

The framework of this study is shown in Figure 1.

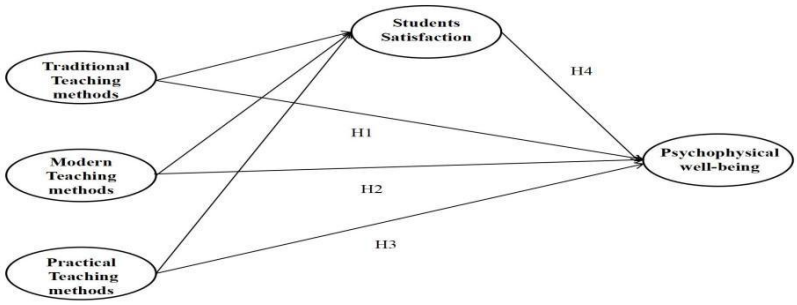

Figure 1 Hypothetical Model of the Effects of Different Dance Teaching Methods on Psychophysical Well-being of Pre-service Teachers
Note: Constructed by the author

Methodology

1. Research Design

This study employs a descriptive-causal research design to examine the relationships between dance teaching methods (independent variable), psychophysical well-being of pre-service teachers (dependent variable), and student satisfaction (mediating variable). A descriptive-causal design was selected over experimental alternatives because the study aims to analyze naturally occurring relationships rather than manipulate variables in a controlled setting. Given the nature of educational settings, experimental control

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over teaching methods would be impractical, whereas a descriptive-causal approach allows for an in-depth understanding of how different teaching strategies influence well-being and satisfaction in real-world classroom environments.

2. Population and Sample

The target population consists of undergraduate students from six major teacher-training universities in Guangxi: Guangxi Normal University, Nanning Normal University, Yulin Normal University, Guangxi Minzu Normal University, Guangxi University of Science and Technology, and Guangxi Vocational Normal University. These universities were selected to ensure regional, institutional, and curricular diversity, representing different student demographics and educational structures.

Sampling followed a non-probability purposive sampling method, targeting third-year pre-service teachers who were actively engaged in dance coursework as per China's Ministry of Education requirement of two dance credits for graduation. Each university contributed 50 participants, ensuring balanced institutional representation and a total sample size of 300 respondents.

The sample included both male and female students, with gender distribution and demographic characteristics recorded for statistical analysis. The sample size was determined based on Structural Equation Modeling (SEM) requirements, which recommend a minimum of 100 cases for models with five or fewer constructs (Hair et al., 2019). Given that the study's hypothesized model contains three constructs, a minimum of 250 respondents was required. To account for potential incomplete or invalid responses, the sample was expanded to 300 participants, meeting the necessary conditions for SEM analysis.

3. Research Instrument

The structured questionnaire for this study was developed based on a synthesis of the literature and expert consultation, covering three dimensions: Traditional, Modern, and Practical teaching methods, Psychophysical well-being, and student satisfaction. The questionnaire consisted of 24 items on a five-point Likert scale ranging from "strongly disagree" to "strongly agree".

Traditional Teaching Methods (3 items), Modern Teaching Methods (3 items), and Practical Teaching Methods (3 items); Psychophysical well-being (12 items); and Student Satisfaction (3 items), capturing overall perceptions of the teaching methods.

The content validity of the current questionnaire was confirmed by the item-objective congruence (IOC) index, with all items scoring above 0.80 in the validity ratings of the questionnaire by five experts. In addition, the reliability of the questionnaire was high, with Cronbach's alpha coefficients ranging from 0.7 to 0.9 for all dimensions.

4. Data Collection

Data were collected between September and October 2024 using both online and offline methods to maximize participation and response accuracy:

Online: The questionnaire was distributed via Questionnaire Star, a widely used survey platform in China, with responses collected over two weeks.

Offline: Research assistants distributed paper questionnaires during scheduled classes and academic meetings. Each session lasted approximately 30 minutes, ensuring students had adequate time to complete the survey.

To ensure data integrity, all completed questionnaires were screened for completeness before analysis. Random checks were conducted throughout data entry to identify and remove invalid responses. The final dataset included 300 valid responses, achieving a 100% valid response rate due to strict data verification procedures.

5. Data Analysis

Descriptive data collected were analyzed using SPSS 26 to summarize sample characteristics. Descriptive statistics, including frequencies, percentages, means (M), and standard deviations (SD), were analyzed to summarize the distribution of key variables such as gender, age, and learning experiences.

AMOS was used to validate the proposed causal model, mediator variable (student satisfaction), and dependent variable (psychophysical well-being). Model fit indices, including GFI, AGFI, RMR, and

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RMSEA, were tested to assess the reliability of the model representation and its consistency with the theoretical framework.

Results

1. Descriptive statistical analysis

This study analyzed 300 valid samples from university students in Guangxi, China, ensuring balanced representation across six institutions (16.7% each). The gender distribution included 116 males (38.7%) and 184 females (61.3%), ensuring cross-institutional comparability and reducing bias.

Table 1 presents the mean (M), standard deviation (SD), skewness (Sk), and kurtosis (Ku) of the observed variables, offering statistical support for participants' overall perceptions of dance teaching methods and psychophysical well-being. The results indicate that Modern teaching methods received the highest recognition (M = 4.27, SD = 0.67), suggesting that participants highly favor their flexibility, interactive nature, and ability to stimulate engagement and improve learning outcomes. Additionally, the low standard deviation (SD = 0.67) reflects a high degree of consistency in participants' evaluations of this method.

Psychophysical well-being (M = 4.08, SD = 0.65) also scored high, suggesting participants view current teaching methods as beneficial to mental and physical health. Traditional teaching methods (M = 3.98, SD = 0.70) were valued for their structured approach, though with greater variability in perception. Practical teaching methods (M = 3.89, SD = 0.83) scored lower, possibly due to resource limitations and inconsistent implementation.

Student satisfaction (M = 3.66, SD = 0.87) was the lowest-rated variable, reflecting concerns over curriculum design, teaching strategies, and teacher-student interaction. A greater standard deviation indicates significant variability in student experiences.

Skewness (-1.12 to -0.24) and kurtosis (-0.40 to 2.74) values suggest a generally normal distribution. Modern teaching methods showed the highest positive skewness (Sk = -1.12) and kurtosis (Ku = 2.74), indicating consistently favorable ratings, whereas student satisfaction exhibited the broadest score distribution (Ku = -0.10), highlighting diverse opinions.

Overall, modern teaching methods received the highest recognition, while student satisfaction scored the lowest, suggesting that although teaching effectiveness is acknowledged, improvements are necessary to enhance student satisfaction. Additionally, the relatively high score for psychophysical well-being indicates that teaching methods may have a positive impact on students' psychophysical well-being.

Table 1 Descriptive statistics of observed variables

Variables	Min	Max	M	SD	Sk	Ku	Level of perception
- Traditional teaching method	1	5	3.98	0.70	-0.37	0.40	High
- Modern teaching method	1	5	4.27	0.67	-1.12	2.74	High
- Practical teaching method	1	5	3.89	0.83	-0.49	-0.4	High
- Psychophysical well-being	1	5	4.08	0.65	-0.35	-0.16	High
- Students Satisfation	1	5	3.66	0.87	-0.24	-0.10	High

2. Reliability Test

Cronbach's Alpha coefficient is used to assess the internal consistency of a questionnaire or scale, i.e., reliability. The Alpha coefficient ranges from 0 to 1, with higher scores indicating better internal consistency of the scale. Cronbach's Alpha coefficient is 0.833, a value which indicates that the scale has a high degree of internal consistency reliability. In general, when the alpha coefficient is between 0.7 and 0.9, the reliability of the scale can be considered good (Cronbach, 1951).

Table 2 Cronbach's Alpha

Scale	Cronbach's Alpha	N of Items
Traditional teaching method	.787	3

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Scale	Cronbach's Alpha	N of Items
Modern teaching methods	.801	3
Practical teaching methods	.850	3
Student Satisfaction	.936	3
Psychophysical well-being	.905	12
Total	.833	24

3. KMO and Bartlett's (1951) Test of Sphericity

To assess whether the dataset was suitable for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were conducted. According to Kaiser's (1974) criterion, the KMO value of 0.894 falls within the "meritorious" range, indicating that the dataset is well-suited for factor analysis.

Additionally, Bartlett's test of sphericity yielded an approximate chi-square value of 5076.539, with a significance level of Sig. = 0.000 ($p < 0.001$). This result confirms that the correlation matrix is not an identity matrix, further supporting the dataset's suitability for factor analysis (Bartlett, 1951).

Table 3 presents the results of the KMO and Bartlett's test of sphericity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.894**
Bartlett's Test of Sphericity	Approx. Chi-Square	5076.539
	df	276
	Sig.	.000

In this study, principal component analysis (PCA) was conducted on the questionnaire data to explore the underlying structure of the variables. As shown in Table 4, the results indicate that the first six factors had eigenvalues greater than 1, specifically 9.802, 2.534, 1.616, 1.395, 1.205, and 1.134, collectively accounting for 73.693% of the total variance. According to Kaiser's criterion (Kaiser, 1960), factors with eigenvalues greater than 1 should be retained, confirming that these six factors effectively capture the primary variance in the dataset.

Furthermore, the rotation sums of squared loadings optimized the factor structure, ensuring a more balanced variance contribution across factors. The rotated six factors explained 15.107%, 14.541%, 13.565%, 10.665%, 10.514%, and 9.300% of the variance, respectively, with a cumulative variance explanation of 73.691%, indicating a stable factor structure that effectively reflects the latent relationships among variables.

From a trend perspective, the first factor contributed the most to the total variance (42.840%), significantly surpassing the others, highlighting its central role in measurement. However, as the number of factors increased, the contribution of each factor gradually declined, suggesting that variance distribution was concentrated, a pattern consistent with factor analysis in social science research. Based on these findings, the six-factor model was deemed appropriate for this study, with further validation through the factor loading matrix to ensure the structural integrity of the questionnaire and the validity of the measurement dimensions.

Table 4 presents the variance explained by each factor

Total Variance Explained						
Component	**Initial Eigenvalues**			**Rotation Sums of Squared Loadings**		
	Total %	**of Variance**	**Cumulative %**	**Total %**	**of Variance**	**Cumulative %**
Q1	9.802	40.840	40.840	3.626	15.107	15.107
Q2	2.534	10.560	51.400	3.490	14.541	29.648
Q3	1.616	6.733	58.133	3.256	13.565	43.213
Q4	1.395	5.812	63.945	2.560	10.665	53.878

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Total Variance Explained						
Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total %	of Variance	Cumulative %	Total %	of Variance	Cumulative %
Q5	1.205	5.022	68.966	2.523	10.514	64.392
Q6	1.134	4.725	73.691	2.232	9.300	73.691
Q7	.915	3.813	77.505			
Q8	.728	3.032	80.537			
Q9	.544	2.268	82.805			
Q10	.473	1.971	84.776			
Q11	438	1.823	86.599			
Q12	.407	1.697	88.296			
Q13	.383	1.597	89.893			
Q14	.343	1.431	91.324			
Q15	.306	1.275	92.599			
Q16	.282	1.176	93.775			
Q17	.278	1.158	94.933			
Q18	.247	1.029	95.961			
Q19	.225	.936	96.898			
Q20	.189	.788	97.686			
Q21	.185	.770	98.455			
Q22	.159	.664	99.199			
Q23	.116	.484	99.603			
Q24	.095	.397	100.000			

Note: Extraction Method: Principal Component Analysis.

As shown in Table 5, the rotated component matrix confirms that most measured variables align well with their expected six-factor structure. Student satisfaction loaded onto Factor 3 with values of 0.636,0.591, and 0.627, indicating high internal consistency and supporting its validity as an independent variable. Traditional teaching methods loaded onto Factor 1 with loadings of 0.727, 0.655, and 0.660, demonstrating strong convergent validity, effectively capturing the characteristics of this instructional approach.

Similarly, Modern teaching methods loaded onto Factor 5 with loadings of 0.695, 0.688, and 0.769, reflecting a well-defined measurement structure. Practical teaching methods were primarily associated with Factor 4, with loadings of 0.839, 0.847, and 0.704, confirming that the items reliably reflect the core attributes of practical teaching.

The psychophysical well-being (PPW) dimension was predominantly associated with Factor 6, with PPW1 and PPW2 exhibiting strong loadings (0.686 and 0.839, respectively), suggesting robust measurement capability. However, PPW3 (0.692) displayed some degree of cross-loading, which may require further examination to ensure its construct validity.

Overall, the factor analysis results appear stable, supporting the structural validity of the measurement model and providing a solid foundation for subsequent regression analysis.

Table 5 presents the rotated component matrix.

Rotated Component Matrix						
Title	factor					
	1	2	3	4	5	6
TTM1	.137	.282	.727	.325	.130	.021
TTM2	-.131	.116	.655	.186	-.006	.308
TTM3	.005	.189	.660	.222	.113	.258
MTM1	.061	.148	.084	.157	.695	.365
MTM2	.115	.224	.391	.151	.688	.102

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Title	Rotated Component Matrix factor					
	1	2	3	4	5	6
MTM3	.098	.114	.150	.320	.769	.084
PTM1	.118	.027	.222	.839	.109	.091
PTM2	.113	.048	.168	.847	.140	.124
PTM3	.130	.038	.226	.704	.294	.207
SS1	.527	.075	.636	.137	.362	.079
SS2	.515	.175	.591	.101	.328	.107
SS3	.461	.152	.627	.085	.374	.131
PPW1	.382	.039	.223	.085	.308	.686
PPW2	.192	.104	.162	.229	.135	.839
PPW3	.279	.294	.328	.146	.140	.692
PPW4	.047	.719	-.071	-.099	.424	-.020
PPW5	.193	.740	.142	-.085	.190	.120
PPW6	.254	.708	.215	.038	.151	.107
PPW7	.125	.790	.257	.137	-.133	.114
PPW8	.456	.635	.158	.211	.101	.119
PPW9	.525	.596	.217	.244	.040	.100
PPW10	.790	.222	.103	.137	-.040	.201
PPW11	.803	.240	.016	.159	.018	.146
PPW12	.793	.239	.031	-.013	.217	.197

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.Rotation converged in 8 iterations.

4. Correlation Analysis

Table 6 presents the results of the correlation analysis among the study variables. The strength of relationships between variables was classified based on Pearson correlation coefficients, following these criteria: 0.90–1.00 indicates an extremely high correlation, suggesting a very strong statistical relationship; 0.70–0.89 represents a high correlation, reflecting a stable statistical connection; 0.50–0.69 is classified as a moderate correlation, indicating a significant association; 0.30–0.49 is considered a low correlation, meaning a relatively weak but still statistically meaningful relationship; and 0.00–0.29 suggests a very low or negligible correlation, implying little to no statistical connection.

The results indicate that student satisfaction and psychophysical well-being exhibited the strongest correlation ($r = 0.664$, $p < 0.01$), suggesting that higher satisfaction with teaching methods is associated with improved psychophysical well-being. Additionally, modern teaching methods and student satisfaction showed a moderately strong correlation ($r = 0.566$, $p < 0.01$), highlighting the positive impact of modern approaches on student learning experiences. Similarly, traditional teaching methods were also positively correlated with student satisfaction ($r = 0.562$, $p < 0.01$), indicating that structured and systematic teaching approaches still play a significant role in shaping students' academic experiences.

By contrast, practical teaching methods exhibited the weakest correlation with psychophysical well-being ($r = 0.385$, $p < 0.01$), though the relationship remained statistically significant, suggesting that while practical methods contribute to well-being, their impact is relatively smaller compared to other teaching approaches.

Overall, all correlations reached statistical significance ($p < 0.01$), confirming strong interrelationships among the variables and further supporting the validity of the research hypotheses.

Table 6 Table of correlation tests

Observed variables	1	2	3	4	5
1. Traditional teaching method	1.00				
2. Modern teaching method	.486**	1.00			

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Observed variables	1	2	3	4	5
3. Practical teaching method	.498**	.471**	1.00		
4. Student satisfaction	.562**	.566**	.459**	1.00	
5. Psychophysical well-being	.479**	.503**	.385**	.664**	1.00

Note. *p<.05; **p<.01; ***p<.001

5. Regression Analysis

Table 7 presents the standardized factor loadings (β), standard errors (SE), t-values, and coefficients of determination (R^2) for each variable. The results indicate that student satisfaction (SS) had the most significant impact on psychophysical well-being, with a standardized factor loading of 0.504, a t-value of 8.932, and an R^2 of 0.441, suggesting a strong explanatory power.

Following this, modern teaching methods (MTM) exhibited a standardized factor loading of 0.153, a t-value of 2.811, and an R^2 of 0.465, indicating a significant influence on psychophysical well-being. Traditional teaching methods (TTM) ranked next, with β = 0.107, a t-value of 1.944, and an R^2 of 0.473, demonstrating a moderate effect.

By contrast, practical teaching methods (PTM) showed the weakest impact, with a standardized factor loading of 0.028, a t-value of 0.549, and an R^2 of 0.148, indicating limited explanatory power for psychophysical well-being.

Overall, these findings suggest that student satisfaction and modern teaching methods play a crucial role in enhancing psychophysical well-being, while the impact of practical teaching methods remains relatively weak. These results further support the validity of the research hypotheses.

Table 7 Standardized Parameter Estimates for the Causal Model Examining the Effects of Dance Teaching Methods on Psychophysical Well-being and Student Satisfaction

Variables	Standardized factor loadings (β)	SE	t	R2
- Traditional teaching method	.107	.051	1.944	.473
- Modern teaching method	.153	.052	2.811	.465
- Practical teaching method	.028	.040	.549	.148
Psychophysical well-being	-	-	-	.474
- Student satisfaction	ss	.042	8.932	.441

Note. *p<.05; **p<.01; ***p<.001

This study utilized Structural Equation Modeling (SEM) to examine the effects of different teaching methods (TTM, MTM, PTM) on psychophysical well-being (PPW) and student satisfaction (SS) among pre-service teachers. As shown in Table 8, the findings reveal distinct effect patterns across different pathways.

Regarding student satisfaction, all three teaching methods exerted significant direct effects, with the Traditional Teaching Method (β = 0.878) having the strongest impact, followed by the Modern Teaching Method (β = 0.819), while the Practical Teaching Method (β = 0.735) showed the weakest influence. These results indicate that TTM and MTM more effectively enhance student satisfaction directly, whereas PTM plays a relatively smaller role in this regard.

In terms of psychophysical well-being, none of the three teaching methods (TTM: β = 0.437, MTM:β = 0.403, PTM: β = 0.080) demonstrated a direct effect; instead, their influence was mediated through student satisfaction. This suggests that teaching methods alone do not directly enhance psychophysical well-being but rather operate through improving student satisfaction to generate indirect benefits. Notably, student satisfaction exhibited a direct effect on psychophysical well-being (β = 0.507), indicating that higher satisfaction with teaching methods leads to greater psychophysical well-being among pre-service teachers. Overall, TTM and MTM are more effective in improving student satisfaction, while PTM has a relatively weaker impact. Furthermore, student satisfaction serves as a critical mediating variable in therelationship between teaching methods and psychophysical well-being, emphasizing the importance ofenhancing

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student experiences and satisfaction in the learning process. These findings provide empiricalsupport for optimizing future teaching strategies, suggesting that educators should holistically consider both student satisfaction and psychophysical well-being when selecting and implementing teaching methods to achieve optimal educational outcomes.

Table 8 Effect size from cause variables to effect variables

Effect variable / Cause variables	Student satisfaction (R2 = 0.441)			Psychophysical well-being (R2 = 0.474)		
	Total effect	Indirect effect	Direct effect	Total effect	Indirect effect	Direct effect
Traditional teaching method	.878	-	.878	.437	.437	-
Modern teaching method	.819	-	.819	.403	.403	-
Practical teaching method	.735	-	.735	.080	.080	-
Psychophysical well-being	-	-	-	-	-	-
Student satisfaction	-	-	-	.507	-	-507
Model fit indices: $\chi 2$ = 1672.991 df =246, p =.000 GFI = .661, AGFI = .587, RMR = .161, RMSEA = .139						

The Structural Equation Model (SEM) of Different Teaching Methods, Student Satisfaction, and Psychological Well-being of Pre-service Teachers.

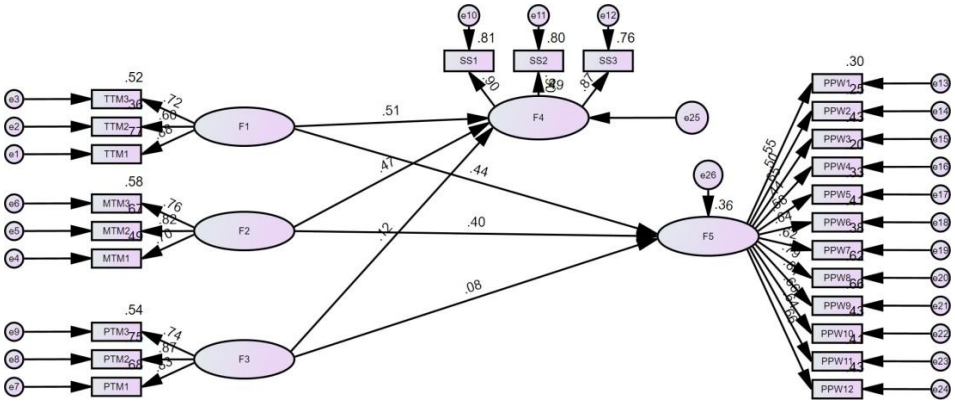

Figure 2 A structural equation model illustrating the effects of teaching methods on student satisfaction and psychophysical well-being
Note: Constructed by the author

The standardized path coefficient diagram illustrates the varying impacts of Traditional (F1), Modern (F2), and Practical Teaching Methods (F3) on Student Satisfaction (F4) and Psychophysical Well-being (F5).

F1 exerts the strongest influence on Student Satisfaction (β = 0.51) and directly enhances Well-being (β = 0.41), suggesting its dual role in shaping learning experiences and well-being. F2 significantly impacts Student Satisfaction (β = 0.44), but its direct effect on Well-being (β = 0.40) is weaker, indicating a stronger reliance on mediation through satisfaction. F3 has the weakest effects on both Satisfaction (β = 0.12) and Well-being (β = 0.08), showing limited direct influence.

Student Satisfaction (F4) strongly affects Well-being (β = 0.36), highlighting its mediating role across all teaching methods. While F1 has the most direct impact on well-being, F2 depends more on satisfaction as a mediator, and F3 shows minimal contribution. Future improvements should focus on strengthening the positive effects of practical teaching methods to enhance both student satisfaction and well-being.

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Discussion

This study used Structural Equation Modeling (SEM) to examine the impact of Traditional (TTM), Modern (MTM), and Practical Teaching Methods (PTM) on the psychophysical well-being (PPW) of pre-service teachers and the mediating role of student satisfaction (SS). Findings indicate that teaching methods do not directly influence PPW but instead operate through student satisfaction.

H1: Teaching methods influence PPW differently → Supported. TTM ($\beta = 0.437$), MTM ($\beta = 0.403$), and PTM ($\beta = 0.080$) showed varying effects on PPW, with stronger indirect effects through student satisfaction. TTM and MTM were more effective in promoting well-being due to their structured and interactive approaches.

H2: TTM and MTM have a greater impact on PPW than PTM → Partially supported. TTM ($\beta = 0.107$, $p < 0.05$) and MTM ($\beta = 0.153$, $p < 0.01$) had stronger effects than PTM ($\beta = 0.028$, $p > 0.05$), but their influence was primarily indirect. Further research is needed to understand how structured and interactive methods affect well-being.

H3: PTM significantly enhances PPW → Not fully supported. While PTM had a positive but weak effect ($\beta = 0.028$, $p > 0.05$), curriculum limitations and lack of structure may reduce its effectiveness. Enhancing teacher-student interaction, clear objectives, and structured feedback could improve its impact.

H4: Student satisfaction mediates the relationship between teaching methods and PPW → Strongly supported. Student satisfaction had a significant effect on PPW ($\beta = 0.507$, $p < 0.01$), confirming its role as a key mediator. While teaching methods alone do not directly enhance well-being, higher satisfaction leads to improved PPW.

Overall, the study highlights the importance of student satisfaction in shaping well-being and suggests optimizing teaching strategies to enhance both learning experiences and psychophysical health.

Conclusion

This study utilized Structural Equation Modeling (SEM) to examine the impact of Traditional (TTM), Modern (MTM), and Practical Teaching Methods (PTM) on the psychophysical well-being (PPW) of pre-service teachers, with student satisfaction (SS) as a mediating factor. The findings indicate that teaching methods influence PPW indirectly through student satisfaction rather than directly. TTM and MTM had the strongest effects on SS, which in turn enhanced PPW ($\beta = 0.507$, $p < 0.01$), while PTM had a weaker impact, likely due to resource constraints and course design limitations.

These results emphasize the importance of student engagement and experiential learning over mere skill acquisition. TTM provides structure, while MTM fosters an interactive learning environment, both contributing significantly to student satisfaction and well-being. However, PTM's lower effectiveness highlights the need for structured guidance, better resources, and feedback mechanisms to maximize its potential.

Despite its contributions, this study has limitations, including a sample limited to teacher-training universities in Guangxi, which may affect generalizability. Additionally, self-reported data may introduce bias, and the study did not account for hybrid or digital teaching models, which are increasingly relevant in modern pedagogy. Future research should explore blended instructional approaches and additional factors such as teaching styles, academic stress, and social support to create a more holistic framework for dance education.

Ultimately, this study highlights the central role of student satisfaction in effective dance teaching, advocating for a balanced approach that integrates structure, interaction, and experiential learning. Future teaching reforms should prioritize engagement and enriched learning experiences to enhance both student satisfaction and overall well-being.

Recommendations

This study revealed that student satisfaction (SS) scored relatively low across the three teaching methods (TTM, MTM, PTM), indicating that the current pedagogical approaches may not fully meet

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students' expectations. To enhance learning experiences, TTM should incorporate more interactive elements to reduce passive instruction, MTM should emphasize personalized learning strategies, and PTM should optimize practical resource allocation and provide stronger learning guidance. Moving forward, higher education institutions should prioritize fostering student engagement in their teaching reforms, creating more dynamic and adaptable instructional methods to increase students' sense of involvement and overall satisfaction with the curriculum.

Furthermore, the findings confirmed that student satisfaction serves as a crucial mediating factor between teaching methods and psychophysical well-being (PPW). This suggests that modifying teaching approaches alone is insufficient to directly enhance well-being; rather, improvements must be made through enriching the student learning experience. Therefore, universities should adopt more diverse instructional models, such as immersive learning, experiential teaching, and interdisciplinary integration. Additionally, greater emphasis should be placed on classroom interactions and tailored feedback, fostering deeper emotional connections and heightened learning motivation among students. Future research should delve further into the determinants of student satisfaction, including curriculum design, teaching styles, and social support systems, to establish a more comprehensive framework for pedagogical optimization.

Finally, differential analysis indicated that individual characteristics may influence the adaptabilityof various teaching methods. While some students thrive in structured learning environments, others favor exploratory approaches. Consequently, future teaching strategies should embrace differentiated instruction, catering to diverse learning styles. For instance, students who prefer systematic learning could benefit from more structured skill-training modules, while those inclined toward self-directed exploration might excel in task-based or problem-solving activities. Additionally, future research should examine demographic factors—such as academic level and educational background—as potential moderators of teaching effectiveness, enabling the development of more tailored instructional models that better serve distinct student groups.

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