ISSN: 1813-4890

An Analysis of Interdisciplinary Thematic Teaching Competencies Among Primary School PE Teachers in Chaozhou

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Abstract

In order to ascertain the current status of primary school PE teachers' interdisciplinary thematic teaching (ITT) capabilities in Chaozhou City and to enhance these capabilities, an empirical study was conducted using literature review, questionnaire surveys and mathematical statistics. The findings revealed that: Primary school PE teachers in Chaozhou demonstrate strong cognitive abilities in ITT; however, they have limited experience of participating in interdisciplinary teaching training. Furthermore, differences in interdisciplinary teaching capabilities were observed between teachers of different genders and those from different types of schools.

Keywords

Primary school PE teachers; interdisciplinary; teaching competence.

1. Introduction

1.1. Research Background

The 'Compulsory Education Physical Education and Health Curriculum Standards (2022 Edition)' explicitly state: 'Curriculum content should be carefully selected and designed with a focus on developing students' core competencies; each subject must ensure that at least 10% of teaching time is devoted to interdisciplinary thematic teaching (ITT). By reinforcing the interconnections between disciplines, enhancing the comprehensiveness and practicality of the curriculum, and cultivating students' ability to apply multidisciplinary knowledge to solve problems in real-life contexts (Ministry of Education of the People's Republic of China, 2022), this fully highlights the requirements for primary school PE teachers' ability to conduct ITT in the new era." In traditional primary school physical education, PE teachers tend to focus more on strengthening pupils' sporting skills and physical fitness; their overall awareness and ability to integrate content from other subjects remain relatively low (Lin, 2025). At present, although the 'Compulsory Education Physical Education and Health Curriculum Standards (2022 Edition)' set higher standards for PE teachers' ability to teach cross-curricular themes, in actual teaching practice, many schools have lagged behind in cultivating this ability among their PE teachers. Consequently, PE teachers' capacity for cross-curricular teaching is insufficient to meet the requirements set out in the curriculum standards (Xia, 2024). It is therefore necessary to intensify research into the interdisciplinary teaching capabilities of PE teachers. Through empirical research into the interdisciplinary teaching capabilities of primary school PE teachers in Chaozhou, this study identifies pathways for professional development, thereby providing a theoretical basis and practical guidance for the establishment of interdisciplinary teaching and research communities at the school level. At the same time, it offers valuable insights for research into the interdisciplinary teaching capabilities of primary school PE teachers in other regions.

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1.2. Research Subject

The subject of this study is the ITT competence of primary school PE teachers in Chaozhou. The study surveyed a total of 151 PE teachers working in primary schools in Chaozhou.

1.3. Research Methods

1.3.1. Literature Review

Electronic news publications were consulted, and relevant academic papers were identified and analysed using the China National Knowledge Infrastructure (CNKI) database, with the keyword 'interdisciplinary thematic learning'. Documents and information from the official websites of education authorities were also collected.

1.3.2. Expert Interviews

Experts were interviewed regarding the current status of ITT by primary school PE teachers, as well as the selection and development of evaluation indicators for its effectiveness.

1.3.3. Scale Measurement Method

The measurement was conducted using the 'PE Teachers' Interdisciplinary Teaching Competence' scale developed by the research team. The scale employs a 5-point Likert scale and has been validated for reliability and validity, ensuring its scientific rigour. The survey was conducted among primary school PE teachers in Xiangqiao District, Chao'an District and Raoping County, Chaozhou City. A total of 160 electronic questionnaires were distributed to teachers, with 160 returned and 151 deemed valid, yielding a response rate of 94.38%.

1.3.4. Mathematical and Statistical Methods

The statistical software SPSS was utilised to conduct statistical analyses of the differences in various aspects of PE teachers' ITT competencies across different categories.

2. Research Findings and Analysis

2.1. Analysis of Primary School PE Teachers' Cognitive Abilities in Interdisciplinary Teaching in Chaozhou

Cognitive abilities in interdisciplinary teaching are crucial to the successful implementation of such teaching and play a pivotal role in this process (Zhao & Su, 2024).

2.1.1. The Philosophy of Interdisciplinary Physical Education

The philosophy of interdisciplinary thematic teaching(ITT) in physical education serves as the guiding principle for such teaching and has a profound impact on the implementation of the physical education curriculum. Interdisciplinary physical education enhances students' overall competence by breaking down traditional barriers. Under this teaching model, subjects are no longer viewed in isolation but are interconnected. This implies that PE teachers are not confined to teaching physical skills and health knowledge alone. Furthermore, single-subject teaching can make learning seem tedious for students, whereas interdisciplinary teaching can stimulate their interest in learning.

Table 1: PE Teachers' Perceptions of Interdisciplinary Thematic Learning in Physical Education (N=151)

Level of awareness	Number of PE teachers	Percentage
Very familiar with	30	19.87%
Have a certain understanding	59	39.07%
Not sure	54	35.76%
I've heard of it, but I'm not sure what it is	6	3.98%

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I've never heard of it	2	1.32%

A survey on the interdisciplinary teaching awareness of primary school PE teachers in Chaozhou revealed that, as shown in Table 1, only 3.98% and 1.32% of PE teachers had 'I've heard of it, but I'm not sure what it is' or 'I've never heard of it' interdisciplinary thematic learning in physical education and health. This indicates that interdisciplinary thematic learning in physical education is widely recognised by primary school PE teachers in Chaozhou. This is primarily due to the thorough interpretation and implementation of the new curriculum standards. As interdisciplinary themes constitute a key feature of the new standards, many teachers have kept pace with the times and attached great importance to them. Furthermore, school teaching departments and higher-level administrative authorities have taken practical and effective measures to ensure thorough implementation and adequate follow-up supervision.

2.1.2. Level of Participation in Training and Learning Activities Related to Interdisciplinary Physical Education

To gain a deeper understanding of primary school PE teachers' cognitive abilities regarding interdisciplinary teaching in Chaozhou, it is essential to investigate the extent to which they participate in training and learning activities related to interdisciplinary teaching. Such training and learning activities represent the most direct means for teachers to learn about and engage with interdisciplinary teaching concepts, and they have a direct impact on teachers' ability to apply these teaching methods in the classroom.

Table 2: Current Participation in Interdisciplinary Teaching Training Activities among PE Teachers (N=151)

Level of participation	Number of PE teachers	Percentage
7 times or more	10	6.62%
5–6 times	15	9.93%
3–4 times	25	16.56%
1–2 times	50	33.11%
0 times	51	33.77%

The data in Table 2 show that, of the 151 primary school PE teachers surveyed, only 10 reported having participated in training and learning activities related to interdisciplinary teaching on seven or more occasions. Of these, 16.56% had participated 3–4 times, 33.11% had participated 1–2 times, and 33.77% had not participated at all. Although the majority of primary school PE teachers have some experience of participating in interdisciplinary teaching training, the frequency of such participation is low. This reflects that the level of attention paid to interdisciplinary physical education by education authorities and schools still needs to be improved. Economic factors determine educational outcomes; the primary reason many teachers have not participated in training is the underdevelopment of the region and insufficient funding, making it difficult to achieve universal training or rotational training for all staff. The Chaozhou Municipal Education Bureau primarily adopts the approach of training key personnel or members of master teacher studios, using a 'point-to-surface' strategy to radiate influence and provide exemplary leadership. Strengthening teacher development and collaborative teaching research, establishing platforms for interdisciplinary collaboration, and refining teaching research mechanisms will help enhance teachers' interdisciplinary teaching capabilities (Deng, 2026).

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2.2. A Comparative Analysis of ITT Competencies Among Primary School PE Teachers in Chaozhou

Conducting a comparative study of the ITT competencies of different types of PE teachers helps to clarify the current state of these competencies and enables more targeted efforts to enhance them among these teachers.

2.2.1. Differences in interdisciplinary teaching abilities between male and female PE teachers

Table 3: Results of the test on differences in the interdisciplinary thematic teaching(ITT) abilities of male and female PE teachers (N=151)

Factor	Gender: mean ± standard deviation Female(n=26)	Male(n=125)	T	P
Level of understanding of ITT's philosophy	3.39±1.04	4.18±0.89	-1.951	0.043*
ITT's contribution to student development	3.59±1.25	4.41±0.97	-2.034	0.044*
Level of proficiency in ITT	3.43±1.26	3.69±1.13	-1.062	0303
Selecting the level of difficulty for ITT teaching materials	3.38±1.48	3.72±1.26	-0.621	0.624
The difficulty of designing ITT content	334±1.32	3.31±1.21	0.171	0.456
The extent to which ITT is used	3.29±1.47	3.71±1.23	-0.547	0.629
The effectiveness of ITT	3.34±1.38	3.78±1.23	-1.264	0.332
Level of reflection on ITT after class	3.87±1.42	3.96±1.16	-0.961	0.447
The extent of efforts to improve ITT capabilities	3.89±1.15	4.01±1.17	-0.458	0.541
The level of teaching and research at ITT	2.42±1.42	3.33±1.34	-2.329	0.021*

(* p<0.05 ** p<0.01)

The data in Table 3 indicate that there are significant differences between male and female PE teachers in terms of their understanding of the philosophy of ITT, their perception of the extent to which such teaching promotes student development, and their capacity for interdisciplinary teaching and research. The p-value for the difference in the level of understanding of the philosophy of ITT between male and female PE teachers was 0.043* ($p < 0.05$); the p-value for the extent to which ITT promotes student development was 0.044*; and the p-value for the level of interdisciplinary teaching and research was 0.021*. Furthermore, the mean scores for all three factors were higher among male PE teachers than among female PE teachers, indicating that male PE teachers possess a greater understanding of the concepts of ITT and higher levels of teaching and research competence than their female counterparts. The underlying reason for this phenomenon is that ITT differs from traditional teaching content and

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models; it represents an emerging educational philosophy and approach. Male teachers typically show greater interest in these novel teaching concepts and research activities, and are more proactive in their implementation, whereas female teachers tend to prefer adhering to traditional teaching practices.

2.2.2. Differences in interdisciplinary teaching abilities among PE teachers in different types of schools

Table 4: Results of the analysis of differences in interdisciplinary thematic teaching(ITT) abilities among PE teachers in different types of schools (N=151)

Factor	School type :mean ± standard deviation			F	P
	Rural primary school(n=44)	Township primary schools(n=51)	Urban primary schools(n=56)		
Level of understanding of ITT's philosophy	4.14±1.08	4.18±1.03	4.33±0.92	0.877	0.443
ITT's contribution to student development	4.12±0.97	3.86±1.16	4.12±0.94	0.344	0.725
Level of proficiency in ITT	3.44±1.27	3.48±1.14	4.12±1.21	1.847	0.176
Selecting the level of difficulty for ITT teaching materials	3.32±1.52	3.43±1.27	4.15±0.95	2.798	0.048*
The difficulty of designing ITT content	3.17±1.45	3.36±1.28	3.71±1.47	0.927	0.419
The extent to which ITT is used	3.43±1.54	3.57±1.12	3.89±1.41	1.119	0.336
The effectiveness of ITT	3.29±1.33	3.55±1.14	4.24±0.92	4.345	0.015*
Level of reflection on ITT after class	3.69±1.31	3.89±0.94	4.41±0.93	2.314	0.116
The extent of efforts to improve ITT capabilities	3.72±1.18	3.78±0.95	4.21±1.03	1.449	0.254
The level of teaching and research at ITT	2.66±1.37	2.86±1.33	3.83±1.34	3.144	0.037*

(* $p<0.05$ ** $p<0.01$)

The data in Table 4 show that there are significant differences among PE teachers from different types of schools in terms of the perceived difficulty of ITT teaching materials, the effectiveness of ITT, and the level of ITT teaching and research.

The mean scores for all three factors among primary school PE teachers in urban areas were higher than those of their counterparts in rural towns; similarly, the mean scores for all three factors among primary school PE teachers in rural towns were higher than those of their counterparts in rural villages. This indicates that, when it comes to selecting teaching materials for cross-curricular thematic teaching, primary school PE teachers in urban areas find it easier than those in rural towns, whilst primary school PE teachers in rural towns find it easier than those in rural villages.

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In terms of teaching effectiveness in interdisciplinary topics, primary school PE teachers in urban and suburban areas perform better than those in town and village primary schools, whilst the latter perform better than their counterparts in rural primary schools.

When it comes to interdisciplinary teaching and research, primary school PE teachers in urban and suburban areas are more proactive than their counterparts in township schools, whilst those in township schools are more proactive than their counterparts in rural schools.

This phenomenon is primarily attributable to differences in the strength of PE teachers' interdisciplinary teaching and research capabilities. Such capabilities are built upon a foundation of sufficient interdisciplinary teaching and research resources. Urban and suburban schools, owing to their advanced educational philosophies, the regularisation of teaching and research practices, frequent and sustained daily teaching and research activities, and the high professional standards and well-established research habits of their teachers, have a distinct advantage. Primary schools in urban and district areas are able to provide PE teachers with a richer array of cross-curricular teaching resources. In contrast, rural and township schools are relatively underdeveloped, suffering from a lack of resources; PE teachers there participate in fewer teaching and research meetings and lack sufficient motivation. This results in regional disparities and variations in the strength of PE teachers' cross-curricular teaching and research capabilities.

3. Conclusion

Primary school PE teachers in Chaozhou demonstrate a strong understanding of ITT. They generally recognise the role and value of such teaching in pupils' development; however, they have limited experience of participating in interdisciplinary teaching training, with 33.77% having never taken part in such training. There are significant differences in the philosophies and teaching research capabilities regarding ITT between male and female primary school PE teachers in Chaozhou, with male teachers performing better than female teachers. Significant differences also exist among PE teachers in different types of schools regarding the difficulty level of selected ITT materials, the effectiveness of ITT, and the level of ITT teaching research. PE teachers in urban primary schools perform better than those in township primary schools, whilst those in township primary schools perform better than those in rural primary schools.

4. Recommendations

Primary school PE teachers in Chaozhou need to further refine their understanding of ITT and be encouraged to participate in ITT training through a combination of online and offline methods. Schools should organise ITT seminars for primary school PE teachers and require them to regularly review their ITT teaching practices, whilst conducting ITT-related research projects as a team within the physical education department. To enhance primary school PE teachers' ITT capabilities, efforts must be made to improve these skills collectively across various dimensions, including collaboration between teachers of different genders and those from different types of schools. By utilising the physical education resources of the Su Liping Distinguished Teacher Studio in Chaozhou City, the Liu Gengxun Distinguished Teacher Studio in Chao'an District, and the Chen Wenwei Distinguished Teacher Studio in Raoping County, 'High-Quality ITT Demonstration Activities' should be organised and promoted to grassroots schools to assist frontline PE teachers in improving their ITT capabilities.

ISSN: 1813-4890

Acknowledgements

Funding for the 2024 Hanshan Normal University Teaching Reform Project, entitled 'Interdisciplinary Thematic Learning and Research in Physical Education and Health'(Project No.PX-161241582).

Funded by the 2024 Hanshan Normal University Social Sciences Project: 'A Study on the ITT Competence of PE Teachers: An Empirical Study Based on the Implementation of the New Curriculum Standards for "Physical Education and Health" in Chaozhou' (Project No. XJY202401).

Research findings from the 2025 Guangdong Provincial Education Evaluation Association project: 'A Study on the ITT Competence of PE Teacher Trainees in Guangdong Province' (Project No. BDPG25107).

References

[1] Ministry of Education of the People's Republic of China. Compulsory Education Curriculum Framework (2022 Edition) [S]. Beijing: Beijing Normal University Press, 2022: 5.

[2] J. Xia : A Study on Strategies for Interdisciplinary Thematic Teaching in Primary School Physical Education [J]. Physical Education Horizons, (2025)No.1, p.109–111.

[3] J.H. Lin : A Study on Interdisciplinary Thematic Teaching Strategies in Primary School Physical Education from the Perspective of the New Curriculum Standards [J]. Research on Innovation in Winter Sports, Vol. 24 (2024) No. 5, p. 127–129.

[4] Z.Q. Zhao, Y.W. Su: A Survey of Junior High School Physics Teachers' Cognitive Abilities in Interdisciplinary Practical Teaching and Recommendations for Improvement [J]. Teaching and Management,(2024) No. 9, p.56–60.

[5] Z.M. Deng, H. Sun, Y.Z. Su: An Empirical Study on Interdisciplinary Thematic Learning in 'Physical Education and Health'—Taking Primary Schools in Chaozhou City as a Case Study [J]. Study on China Physical Science, Vol. 8 (2026) No. 1, p. 35–42.

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