Explicit/Implicit Teachers' Professional Identity and Learning Engagement of State-Financed and Non-State-Financed Normal Students Majoring in PE: A Comparative Study

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Abstract: Based on the dual-systems models in cognition, the differences of explicit. implicit teachers' professional identity and learning status between state-financed and non-financed funded normal students majoring in Physical Education are compared. A total of 354 students majoring in Physical Education in a normal university (including 136 state-financed students and 218 non-state-financed students, 297 males and 57 females) participated in the study. Results show that the overall level of teachers' professional identity of all students is medium to high, the overall level of learning engagement is medium to slightly high, and the overall level of implicit teachers' professional identity is also higher than the theoretical median. However, there is no significant difference in explicit, implicit teachers' professional identity and learning engagement between state-financed students and non-state-financed students (ps >.05); but there is a significant positive correlation between explicit teachers' professional identity and learning engagement (r=.69.p<.01), and the correlation between implicit teachers' professional identity and learning engagement is of critical significance(r=.15, p=.057), suggesting the need to strengthen and improve students' vocational spirit, enhance their professional identity of physical education teacher and promote learning engagement.

Keywords: Implicit, Teachers' Professional Identity, PE

1. Introduction

Implicit cognition, also known as unconscious cognition, is proposed relative to explicit cognition [1]. From the perspective of the characteristics of cognitive mechanism, implicit cognition is stronger than explicit cognition and is not or rarely affected by individual emotional state, so it may have a more stable protective effect on individual survival and development [2]. This dual-systems models of cognition (explicit/implicit) suggests that the research of professional identity should examine not only the explicit identity under consciousness, but also the unconscious potential implicit identity, so as to have a comprehensive understanding and grasp of professional identity. As the main source of future teachers, studying in university is the early stage of normal students' career. Their professional identity will directly affect their current learning state and future working state [3-4]. Compared with teachers of other disciplines, physical education teachers' teaching environment and teaching mode are relatively special [5]. As the reserve force of future physical education teachers, especially the state-financed normal students trained as future rural physical education teachers, it is very necessary to investigate and understand their explicit and implicit professional identity and learning status, so as to better carry out the education of physical education normal students.

2. Methods

2.1. Participants

A comprehensive survey is adopted for state-financed normal students, and convenient sampling and cluster sampling are adopted for non-state-financed normal students. All participants were selected from the natural class, and completed the survey in their spare time. A total of 354 students (including 297 males and 57 females) from the Grade 2018-2020 of Physical Education Major (8 natural classes,

including 3 state-financed classes and 5 non-state-financed classes) in a normal university participated in the survey. The basic information of the participants such as gender and age is shown in the table 1.

Table 1: Information of students majoring in Physical Education participating in the study (n=354).

	State-financed(n=136)	Non-state-financed(n=218)
Grade 2018	Male: 41, Female: 6 Mean Age: 21.83±1.17 years	Male: 78, Femalev11 Mean Age: 21.87±1.13 years
Grade 2019	Male: 26, Female: 12 Mean Age: 20.61±1.08 years	Male: 67, Femalev11 Mean Age: 20.81±1.07 years
Grade 2020	Male: 39, Female: 12 Mean Age: 19.52±0.84 years	Male: 46, Female: 5 Mean Age: 19.80±1.11 years

2.2. Measurements

2.2.1. Measurement of explicit physical education teachers' professional identity

The measurement of PE Teachers' professional identity selects the Pre-service PE Teachers' Professional Identity Questionnaire developed by Zhang [6]. The questionnaire includes four sub-dimensions of value and Expectation Identity, Ability Identity, Emotional Identity and Input Identity, with a total of 21 items. The questionnaire adopts the Likert 5-point scoring method with 1-5 points from "completely inconsistent" to "fully consistent". The higher the total score, the higher the degree of professional identity. On the contrary, the lower score, the lower the degree of professional identity. 3 points are the critical value of identity level. Zhang's research results show that the questionnaire has good reliability and validity, and can be used as a measurement tool to evaluate the pre-service physical education teachers' professional identity.

2.2.2. Measurement of implicit professional identity of Physical Education Teachers

According to the principles and procedures of implicit self-esteem Implicit Association Test (IAT) of Greenwald and Banaji [7], the implicit teachers' professional identity IAT was developed to measure the implicit professional identity to the PE teachers. The test is seven groups of standard IAT tests, and the measured values are calculated using the improved D-score algorithm [8]. The higher the D score, the more positive the implicit evaluation of their professional cognition.

2.2.3. Measurement of learning engagement

In order to better examine professional identity, participants' learning engagement was also measured. The Learning Engagement Scale revised by Fang Laitan, Shikan and Zhang Fenghua [9] is selected. The revised scale has good reliability and validity. It includes three dimensions: Vitality, Dedication and Focus. This measurement adopts 7-level Likert style, with a total of 17 items. The higher the total score, the more learning investment.

3. Results

3.1. Comparison of explicit professional identity between state-financed and non-state-financed normal students

The survey results show that the overall level of PE Teachers' professional identity of students majoring in physical education, whether state-financed or non-state-financed, are both higher than the theoretical median, which are 4.03±0.57 points and 4.17±0.52 points respectively, but the variance results show that there is no significant difference between state-financed and non-state-financed students in all dimensions of professional identity (*ps*>. 05) (Table 2).

Table 2: Analysis of variance of explicit, implicit professional identity and learning investment between state-financed and non-state-financed students.

Variables	State-financed (n=136)	Non-state-financed(n=218)	*F*	*p*
Explicit professional identity	4.03±0.57	4.17±0.52	1.07	.28
Implicit professional identity	0.43±0.37	0.45±0.38	0.15	.53
Learning investment	3.51±0.61	3.66±0.54	3.59	.06

3.2. Comparison of implicit professional identity between state-financed and non-state-financed normal students

According to Greenwald's interpretation of the D score, D< 0.15, indicating almost no connection degree. D value is [0.15, 0.35], indicating a slight degree of connection. D value is in [0.35, 0.65], indicating medium degree of connection. D≥0.65, indicating strong connection. The IAT scores (D value) measured in this research are in the range of 0.35-0.6, indicating that students majoring in physical education have a medium degree of implicit professional identity. The result shows that students majoring in physical education, including state-financed and non-state-financed normal students, have higher scores of implicit professional identity, but there is no significant difference in implicit professional identity between state-financed and non-state-financed normal students (p>.05) (Table 2).

3.3. Comparison of learning engagement between state-financed and non-state-financed normal students

The results of the questionnaire survey on learning investment of college students majoring in physical education show that the scores of learning investment of public funded students are 3.51 ± 0.61 and that of non-public funded students are 3.66 ± 0.54. The overall level of learning investment is higher than the theoretical median, but the results of one-way ANOVA show that there is no significant difference in learning investment between public funded and non-public funded students (ps>.05) (Table 2).

3.4. Correlation of explicit, implicit professional identity and learning engagement

Pearson correlation analysis was conducted to explore the relationship between explicit, implicit professional identity and learning engagement. The results are shown in Table 3. It can be seen that there is a very significant positive correlation between explicit professional identity and learning engagement (r=.59, p<.01). The correlation between implicit professional identity and learning engagement was of critical significance (r=.15, p=.057), but no significant correlation between explicit professional identity and implicit professional identity was found.

Table 3: Correlation analysis of explicit, implicit professional identity and learning engagement.

Variables	1	2	3
Explicit professional identity		.17	.69**
Implicit professional identity			.15(*p*=.057)
Learning engagement			

1=Explicit professional identity, 2=Implicit professional identity, 3=Learning engagement, * *p*<.05, ** *p*<.01.

Results show the close relationship between professional identity and learning investment, and suggest the need to strengthen and improve students' professional identity spirit, enhance their sense of identity with PE teachers, and improve learning vitality, dedication and focus.

4. Conclusions

(1) The overall level of explicit teachers' professional identity of students majoring in physical education is medium to high, and the level of implicit teachers' professional identity is higher than the theoretical median. The level of learning investment is also medium and slightly high.

(2) There is no significant difference in explicit professional identity, implicit professional identity and learning investment between state-financed and non-state-financed normal students majoring in physical education.

(3) There is a significant positive correlation between explicit professional identity and learning investment, and the correlation between implicit professional identity and learning investment is of critical significance, suggesting that it is necessary to strengthen and improve students' professional identity spirit, enhance their professional identity to be physical education teachers and promote learning investment.

Acknowledgements

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