Research on the Development of Normal School Students' Teaching Design and Implementation Ability

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Abstract: Teaching design and implementation ability is the basic professional ability of teachers cultivated by education. Through the survey of 513 normal students, it is found that the normal students' instructional design and implementation capabilities have the following characteristics. The overall ability is above the average level; there are significant differences in grades, whether they have passed the national teacher qualification examination, and the length of internship; there is a gender difference in teaching implementation ability, and boys score lower than girls; teaching design ability and implementation ability are highly positively correlated. Curriculum system, national teacher qualification examination, length of internship, gender, etc. are important factors that affect the development of teachers' teaching design and implementation ability.

1. Introduction

The function of teaching is to provide an environment where learning can flourish through design and implementation.[1] Teaching design ability and implementation ability are the teachers' basic professional ability. Teaching design is a complex intellectual process to solve teaching problems [2]. It is a specific design and plan for each teaching link under theoretical guidance [3]. From the process point of view, teaching design ability includes the specific operational ability of target design, object analysis, content analysis and organization, method selection and use, media selection and application, and final effect evaluation [4]. Good teaching design must also be put into practice to achieve its defined goals. Teaching implementation is the process of teachers constructing, developing and adjusting course content [5]. Teaching implementation capabilities include explanation skills, introduction skills, teaching organization skills, blackboard writing skills, and ending skills [6]. Some researchers have proposed that the emotional quality (self-coordinating ability) of the implementing subject should be an integral part of the implementing ability [7].

Teaching design and implementation capabilities are different from those of endowment and potential teachers [8], and their training is one of the core tasks of teacher development. Teachers colleges should strengthen the relevant curriculum for teaching design and implementation, and pay attention to the timing of teaching practice [9]. Shambaugh N, Magliaro S (2001) [10] believes that the three themes of contemporary learning theory are the foundation of teaching methods. (Learning is a constructive process; learning is positioned and mediated in a social context; teaching is "assisting performance") Emphasizing learning in terms of methods is a shift in contemporary teaching concepts. With the change of teaching concepts brought about by information technology, some people think that wisdom education has become the main theme of educational development in the era of technological

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change [11].

At present, there are some outstanding problems in normal school students' teaching design and teaching implementation ability [12][13][14]. For example, the normal students themselves are not very confident about the relevant abilities, and their self-assessments in writing skills, classroom organization, and monitoring ability are very low. Some normal students can't design teaching independently. The teaching strategy adopted is inconsistent with the "processes and methods" in the teaching goal, and the actual application level is low.

In order to better understand the relevant situation of normal students and provide reference opinions for promoting the reform of teacher education and teaching, this study uses a survey method to study the normal students' teaching design and teaching implementation ability (Referred to as "TDTI ability"), analyze its characteristics and discuss the training of normal students' related abilities.

2. Research method

2.1 Subject

The third and fourth grade normal school students in three universities and colleges in Changsha, Xiangtan and Huaihua in Hunan Province. Students at this stage have received corresponding training. In the end, a total of 565 questionnaires were collected, and 513 valid questionnaires were collected, with an efficiency of 90.80%. Among them, there are 90 boys and 423 girls; 255 in the third grade and 258 in the fourth grade.

2.2 Research tools

This research refers to the questionnaires compiled by Zhang Jie [13] and Ting Yuhua [14] to form two questionnaires for teaching design ability and teaching implementation ability. In this study, the Split-haif Questionnaire for Teaching Implementation Ability is 0.804, and the Split-haif Questionnaire for Teaching Implementation Ability is 0.874, which met the conditions of use. The study uses Likert's five-point scale to score, the higher the score, the more shows that the normal students have the teaching design ability or implementation ability described in the project.

3. Research result

3.1 The overall situation of normal school students' teaching design and teaching implementation ability

The results are shown in Table 1. The average interval between the total score of teaching design ability of normal school students and the ability factor is [3.490, 3.738], and the overall average level of teaching design ability of normal school students is at the upper middle level. The ability to choose teaching strategies has the highest score (M=3.738), and the lowest score is the ability to analyze teaching content (M=3.490). The average score of the teacher's teaching implementation ability and the average value of the ability factor is [3.414, 3.729], indicating that the teacher's teaching implementation ability is at the upper middle level. Teaching reflection ability has the highest score, and teaching organization ability has the lowest score.

Table 1 Overall situation of normal school students' teaching design ability and implementation ability

Item	Mean（M）	Standard deviation（SD）
Total score of teaching design ability	3.570	0.540
Factors with high scores in design ability (choice of teaching strategy)	3.738	0.660
Factors with low scores in design ability (analysis teaching content ability)	3.490	0.624
Total score of teaching implementation ability	3.549	0.566
Factors with a high score in implementation ability (teaching reflection ability)	3.729	0.736
Factors with a low score in implementation ability (teaching organizational ability)	3.414	0.675

3.2 Analysis of the difference between teaching design and implementation abilities of normal students

3.2.1 Differences in teaching design abilities of normal students

Table 2 shows that the teaching design abilities of normal students in different grades are significantly different ($t=-3.801$, $p<0.01$), and the grade three scores are lower than grade four. In terms of whether or not they pass the national pedagogical examination, normal students' teaching design abilities ($t=3.382$, $p<0.01$) show significant differences. Normal students who have not passed the pedagogical examination have lower average scores.

Table 2 Differences in teaching design abilities of normal students

Factor		M	SD	t	P
gender	male	3.44	0.58	-0.987	0.324
	female	3.57	0.56		
grade	three	3.48	0.53	-3.801**	0.000
	four	3.66	0.54		
Whether to pass the exam	yes	3.61	0.51	3.382**	0.001
	no	3.45	0.63		

**** means p<0.01, * means p<0.05**

3.2.2 Differences in teaching ability of normal students

Table 3 shows that there is a significant difference in the ability of normal students to implement teaching in terms of gender, grade, and whether or not they pass the pedagogical examination. The performance score of male students is significantly lower than that of female students ($t=-1.995$, $p<0.05$), and the performance score of third grade students is significantly lower than that of fourth grade students ($t=-2.547$, $p<0.05$). The scores of normal students who passed the pedagogical examination are higher than those who failed ($t=2.957$, $p<0.05$).

Table 3 Differences of normal students' teaching implementation ability

Factor		M	SD	t	P
gender	male	3.43	0.57	-1.995*	0.047
	female	3.52	0.53		
grade	three	3.49	0.60	-2.547*	0.011
	four	3.61	0.52		
Whether to pass the exam	yes	3.45	0.63	2.957*	0.003
	no	3.61	0.51		

**** means p<0.01, * means p<0.05**

3.2.3 Analysis of the difference between internship duration and teaching design ability and teaching implementation ability

There is a significant difference in the length of internships ($F=2.5391$, $p<0.05$) in the teaching design ability of normal students. Normal students with higher internship time have higher scores. As shown in Table 4.

Table 4 Differences in teaching design and implementation abilities of internship duration

	Internship duration (M±SD)							
	1 week (n=46)	2 week (n=135)	3 week (n=31)	1 month (n=77)	1-2 month (n=144)	one semester (n=160)	F□	p□
Designing ability	3.52±0.66	3.48±0.54	3.52±0.49	3.46±0.57	3.56±0.52	3.69±0.50	2.539	0.028*
Implementation ability	3.56±0.76	3.51±0.60	3.48±0.45	3.49±0.59	3.53±0.53	3.62±0.52	0.888	0.489

**** means p<0.01, * means p<0.05**

3.3 Correlation between normal students' teaching design ability and implementation ability

The test results are shown in Table 5. When the significance level $P<0.01$, the correlation coefficient of TDTI ability is 0.796, and there is a high positive correlation between TDTI ability.

Table 5 Correlation analysis of teaching design ability and teaching implementation ability

Spearman correlation coefficient	$.796^{**}$
Significance (two-tailed)	.000
Cases	513

**** means p<0.01, * means p<0.05**

4. Discussion

4.1 The general level of TDTI ability of normal students

Normal students are generally at the upper middle level in terms of TDTI ability. Normal students have relatively low ability to analyze teaching content and teaching organization. This may be related to the normal students' inadequate reserve of information about the semester characteristics of their courses, the age characteristics of students, and the lack of practical experience.

4.2 Relevant properties of normal students' TDTI ability

The correlation coefficient of TDTI ability is 0.796, that is, the teaching design ability and implementation ability of normal students are highly positively correlated. This reflects the development of normal students in which the teaching design ability and implementation ability of the students complement each other. It is meaningless to argue which link is more important in real life, and all aspects of educational ability complement each other [15].

4.3 The difference of TDTI ability of normal students

The TDTI ability of normal students is significantly different in grades and whether they pass the pedagogical examination, which can be mutually verified with related research. Yang Aijun's research [16] shows that the higher the grade, the richer the knowledge and the stronger the teaching skills. The reformed teaching materials examination can not only determine whether teachers and students have teaching ability, but also test the training effect of normal colleges and universities [17]. It is necessary for normal colleges and universities to make corresponding adjustments and build up ability-oriented teachers. Educational curriculum system [18].

The teaching design ability of normal students differs in the time of internship, indicating that educational practice has an impact on the development of teaching ability of normal students. According to regulations, the education practice of normal students should be no less than half a year. Studies have shown that after normal students participate in educational internships, the teaching ability of pre-service teachers has improved [19]. There is a gender difference in implementation ability, which may be related to the emotional quality of professional learning. Related studies have found that male normal students have a lower sense of accomplishment than girls [20]. Low sense of accomplishment leads to low motivation and affects ability development.

5. Conclusion

The teaching design ability and teaching implementation ability of normal students are on the middle and slightly higher level. There is a high positive correlation between these two capabilities. The results show that grade, gender, internship time, and teacher qualification exams are important influencing factors for the development of teaching design and implementation abilities of normal students. It is recommended that the current training of teacher education professionals should pay attention to the guiding significance of the teaching materials examination, build a curriculum system suitable for it, and give some special incentives to male normal students.

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