

An Empirical Study on the Group Differences of College Teachers' Professional Calling Under the Background of Sustainable Development

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ABSTRACT

This paper discusses the importance of teachers' professional calling in promoting the sustainable development of education, and studies the group differences of College Teachers' professional calling through quantitative analysis. It uses the interview method to help teachers to investigate and study the cognition of sustainable development of education. The results show that the cognition of sustainable development of university teachers is above the average level. There are significant differences in the cognition of teachers of different groups on sustainable development of education. In order to reveal the status quo and group differences of college teachers' sense of calling, a questionnaire survey was conducted by using the sense of mission scale (CVQ). The results show that the vocational calling of current college teachers is above the average level. Different groups of teachers have significant differences in their professional calling and scores of various dimensions.

Keywords: University teachers. Sustainable development. professional calling

AIMS

The main purpose of this study is to explore the status quo of college teachers' cognition of sustainable development and group differences in their professional calling. On the basis of quantitative research, this paper proposes to enhance teachers' calling through teachers' professional reflection and school value guidance, so as to promote the realization of the goal of sustainable education.

1.BACKGROUND

The importance of teachers' professional calling in promoting sustainable development and the shortcomings of existing research are listed as follows.

1.1. Teachers' calling promote the importance of sustainable development

The concept of sustainable development brings new vision, new opportunities and challenges to education. It also puts forward higher requirements for the development of teachers, including requirements pointing to the Sustainable Development Goals ¹.

In Article 7 of the 2030 Sustainable Development Goals for Education (2016), the Ministry of Education of China proposes to ensure that all learners master the knowledge and skills necessary to promote sustainable development. The knowledge and skills mentioned in this article are largely dependent on school education, especially higher education. For example, Merma Molina Gladys et al. have proposed digital competence as a key capability for sustainable development. It cannot be achieved without the integration of values in education². There are also foreign scholars studying how to integrate ESD into physics curriculum. They want students to be able to think about a better life by studying physics³.

The overall goal of sustainable development education in higher education is to integrate the principles, values and practices of sustainable development into all aspects of higher education. It builds a more sustainable future for future generations in terms of environmental integrity, economic viability ⁴. Therefore, the realization of the goal of sustainable development education requires teachers to have the concept and professional quality of sustainable development education⁵. It also calls for teachers to have a higher sense of calling.

Wang Jie, Vice President of Schneider Electric China, said in an interview: Sustainable development work makes me more sense of calling⁶, which shows that calling is closely related to the realization of sustainable development goals. Sustainable development calls for all-round development of human beings, and educating human beings is the eternal and lofty historical mission of education⁷. Teachers with a high professional calling will put more energy into their work and achieve higher performance ⁸. The benign development of education can constantly cultivate the all-round development of people to meet the requirements of sustainable development. The goal of human sustainable development can be realized ⁹.

To sum up, the development of society requires university teachers to have a correct cognition of sustainable development and sustainable development education, which builds and elevates its sense of calling to contribute to the achievement of the Sustainable Development Goals. This is also the main purpose of this study.

1.2. The shortcomings of existing research

According to literature analysis, the research on sustainable development in China lags behind by 32 years globally. But China is far ahead in the volume of research over the last 20 years. Only 2.2% of these research results are related to education and English literature accounts for 75.4%. In the field of sustainable development, there are very few researches on teachers. They are all recently published literatures, among which the most recent one is "An Analysis of the Mechanism of Sustainable Development of Rural Teachers in the New Era" ¹⁰.

In CNKI, "professional calling", "sense of vocation" and "sense of vocation of teacher" were searched respectively. As of February 28, 2021, 898 articles, 110 articles and 7 articles in academic journals can be retrieved. Its main research groups are preschool teachers and primary and secondary school teachers. Data show that the calling is the focus of academic research in recent years. However, as a core element supporting teacher professional development, the sense of professional calling has not attracted the attention of researchers.

Through the research review, the following problems are found in the research of this field: In terms of sustainable development research, domestic scholars pay insufficient attention to education; In terms of the study on the sense of professional calling, domestic scholars pay insufficient attention to teachers; In terms of the research on teachers' professional calling, domestic scholars have not paid enough attention to the group of university teachers; At present, no scholars have explored the issue of teachers' sense of calling in the context of sustainable development.

Based on the deficiencies and existing problems of the above research, this paper puts forward the requirements for the realization of the educational goals of sustainable development, which analyzes the status quo of university teachers' cognition of sustainable development and explores the group differences of their sense of calling.

2. RESEARCH METHOD

Two research methods were used in this paper. As the first research method, interview research was used to explore the cognitive level of college teachers towards sustainable development. Questionnaire survey was used as the second research method to reveal the group differences of college teachers' sense of professional calling.

2.1. Interview Research

2.1.1 Object Of Research

A total of 256 teachers in colleges and universities in Jilin Province were randomly selected as pre-interview subjects. It takes into account gender, age, educational background, school, professional title and curriculum. Through screening, 106 qualified teachers were interviewed in depth. The description of interviewees is shown in Table 1.

2.1.2 Research Tool

This study intends to adopt the structured interview method. The research tool was a questionnaire, which was

developed by 10 experts through work analysis and tested and revised and distributed to the respondents. The questionnaire consists of six survey items besides basic information.

Q1 Are you familiar with the content and objectives of sustainable development?

Q2 Are you familiar with the content and objectives of ESD?

Q3 Do you think teachers should take social responsibility for promoting sustainable development?

Q4 Do you think sustainable development education is important for talent cultivation in universities?

Q5 Do you have the intention to participate in public welfare activities of sustainable development education?

Q6 Will you contribute to the achievement of sustainable education goals in your future work?

The questionnaire uses a 6-point scoring system (where 0 means "no" and 5 means "yes"). The higher the score, the higher the awareness. 106 questionnaires were issued and the recovery rate was 100%. The questionnaire was confirmed to be valid.

2.2. Questionnaire Survey

2.2.1 Object Of Research

It takes a random sampling method. A questionnaire survey was conducted among teachers of different genders, ages, educational backgrounds, professional titles and course types in colleges and universities (including university 211, general colleges and vocational colleges) in Jilin Province.

2.2.2 Research Tool

It uses the scale CVQ (Calling and Vocation Questionnaire) developed by Dik et al. (2012) to measure calling. CVQ has been established with good reliability and validity. There are 24 items in the scale. The measurement work has two aspects: mission perception and mission seeking. This study only used 12 items of job mission perception.

The questionnaire was scored on a 6-point scale (where 0 means "strongly disagree" and 5 means "strongly agree"). It calculates the average score for each dimension and for the whole questionnaire. A higher score indicates a stronger sense of professional calling.

2.2.3 Data Collection And Processing

A total of 485 questionnaires were collected. It removes ineligible questionnaires such as perfunctory answers and omissions. It obtained 467 valid questionnaires with an effective rate of 93.4%.

The α coefficient of this questionnaire is 0.916. It has good reliability. The results of questionnaire confirmatory factor analysis were as follows: $\chi^2 = 769.573$, $df = 203$, $\chi^2 / df = 3.791$, less than 4; RMSEA = 0.069, less than 0.08; GFI = 0.914, AGFI = 0.923, NFI = 0.917, CFI = 0.908, TLI = 0.922, IFI = 0.909, all greater than 0.9. All the indicators meet the

requirements of surveying. Questionnaire has high efficiency.

3.RESULTS AND DISCUSSION

3.1.The cognitive status of teachers' sustainable development

The average score of sustainable development cognition of college teachers was 3.42.The average score of each question is ranked from low to high: Q2, Q1, Q5, Q3, Q6, and Q4.The P values were 0.043 (gender), 0.047 (age), 0.046 (educational background), 0.093 (professional title), 0.022 (school), 0.037 (course) and 0.048 (famous teacher) for difference test regardless of the items.

The statistical results show that the cognition of university teachers towards sustainable development is generally above the average level. The low score of Q2 indicates that the current awareness of college teachers for sustainable development education is not high. The highest Q6 score indicates that most teachers are willing to make efforts to promote the achievement of goals. The standard deviations of Q1 and Q2 are relatively high and the data are relatively discrete, which indicates that there is a great difference in the cognition degree of college teachers on sustainable development and sustainable development education. Median numbers of both 3 and 4 indicate that more than 50% of college teachers' scores are above the average for each item. The mode number of Q2 item is 2, which indicates that more than 50% of college teachers' cognitive score on the meaning of vocational calling is below the medium level.

From the perspective of group difference analysis, male teachers are more aware of the content and importance of sustainable development than female teachers. The cognitive level of young teachers is higher. The higher the degree, the higher the awareness of sustainable development. The cognitive degree of theory course teachers is higher than that of practical training course teachers. The teachers who were awarded the title of famous teacher showed a higher level of cognition on the importance of sustainable development education, their willingness to participate in sustainable development public welfare activities and their efforts to promote sustainable development in the future.

3.2.Group differences in teachers' calling

3.2.1 Descriptive statistical results of college teachers' calling

According to the descriptive statistics of the data, the average score of college teachers' sense of calling is 3.29.The average score of each question is ranked from low to high, as shown in Table 2.

Descriptive statistical results are discussed below :

The cognitive score of college teachers' sense of calling is low.They also scored lower on the altruistic items in their own jobs. Teacher occupation like, love and satisfaction scores are higher.

The standard deviations of S2, S8 and S11 are relatively high, and the data are relatively discrete.It shows that there are great differences in the attitude of college teachers to the recognition, persistence and cognition of the meaning of

professional calling.

Median numbers of 3 and 4 indicate that more than 50% of college and university teachers scored above average in all categories. The mode number of items in S11 is 2, which indicates that more than 50% of college teachers' cognitive score on the meaning of vocational calling is below the medium level.

3.2.2 The Group Difference Test of College Teachers' Professional Mission

The interaction effect test was conducted with important demographic variables (gender, age, educational background, professional title, title of famous teacher, school level, etc.), and it was found that the interaction effect among all variables was not statistically significant (P values were all greater than 0.05). By comparing the scores of different groups of teachers, it is found that the differences of the factors and total scores of the sense of calling in demographic variables are statistically significant. The specific test results are shown in Table 3.

The test of group differences is discussed as follows:

There are differences in the professional calling among teachers of different genders. The profession of male teachers is higher than that of female teachers. This is consistent with the current phenomenon that many men are willing to choose teaching as their lifelong career.

Different age groups have different professional calling. With the growth of age and years of work, teachers' sense of mission will improve.

Different groups of teachers with different educational backgrounds have different professional calling. The higher the degree, the higher the sense of vocation score. However, there is no obvious difference in the love, persistence and dedication of the work.

There are significant differences in professional calling of teachers with different titles. Teachers with high professional titles also have a relatively high sense of professional mission.

There are differences in professional calling of teachers at different university 211. The calling of university teachers is generally high. The vocational calling of teachers in higher vocational colleges is relatively low.

There are differences in professional calling of college teachers with different curriculum types. Teachers who teach theoretical courses have a slightly higher sense of professional calling than those who teach experimental and practical training. However, there is no obvious difference in their commitment, responsibility and persistence in their work.

There are significant differences in professional calling of teachers with or without the title of famous teacher. The professional calling of teachers who are awarded the title of teaching master is significantly higher than that of ordinary teachers.

4. CONCLUSION AND STRATEGY

4.1. Conclusion

Through the above research procedures and analysis, the following conclusions are drawn:

Teachers' cognition of sustainable development is above the average level. The lowest score was for understanding the content and objectives of sustainable development education. Sustainable development education efforts scored highest; There are group differences in teachers' cognition of sustainable development.

Teachers' professional calling is above the average level. The lowest score was found in sense of meaning. Teachers scored highest for perceived pride in their profession. There are group differences in teachers' sense of calling.

By analyzing the group differences of teachers' cognition of sustainable development and sense of professional calling, it can be seen that the group differences are different in terms of gender, age and professional title. Male teachers have higher awareness of sustainable development than female teachers. Male teachers have a higher sense of professional calling than female teachers. Young teachers have higher awareness of sustainable development, but lower sense of professional calling. There is no group difference in the cognition of sustainable development of professional title, but there is significant group difference in the sense of professional calling.

4.2.Strategy

Based on the research conclusions and the background of sustainable development, it studies how to improve the quality of talent training and enhance the sense of professional calling of teachers. This study makes the following recommendations.

It provides career reflection from a personal perspective. It promotes a sense of professional purpose both cognitively and behaviorally. First of all, teachers realize their professional calling as college teachers, take moral education as the fundamental goal, pay attention to improve their professional calling through various ways, and then comprehensively improve professional quality.

It provides value guidance from the perspective of the school. It reinforces a sense of professional purpose through example setting and cognitive training. According to the conclusion of the study, it can pay more attention to the guidance of female teachers' professional identity and the policy guidance of female teachers' sustainable development. Higher vocational colleges should give more guidance to the professional calling and the values of moral education. We will guide young teachers, especially those with low academic qualifications and professional titles, non-backbone teachers and practical training teachers, to better realize their career development. In order to contribute to the achievement of the educational goals of sustainable development, they can experience higher career effectiveness and generate a stronger professional calling.

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Table 1 Description of interviewees

Gender structure	male	female	
Age structure	53 people	53 people	
Degree structure	25-35 years old	35-45 years old	45-55 years old
Title structure	35 people	36 people	35 people
School level	Bachelor degree and	master	Doctor degree and above

Course structure	below		
	32 people	33 people	41 people
The title of teacher	Junior	Intermediate	Senior
Gender structure	34 people	37 people	35 people
Age structure	university 211	general university	vocational college
Degree structure	28 people	48 people	30 people
Title structure	theoretical course teaching		practical course teaching
School level	56 people		50 people
Course structure	Teaching (skills) famous teachers, teaching backbone, etc		Non-famous teacher title
	15 people		91 people

Table 2 Descriptive analysis of college teachers' sense of mission (n=468)

Number	Question Number	Content	Average	standard deviation	median	Mode
1	S11	My existence would be less meaningful if I were not doing what I am doing	2.56	1.02	3	2
2	S4	I am willing to make sacrifices for the job I am in	3.01	0.99	3	3
3	S9	The work I'm doing is always in my mind	3.18	0.82	4	3
4	S8	I feel like I'm destined to do what I do now	3.21	1.15	3	3
5	S2	I like the job I'm doing more than anything else	3.24	1.01	3	3
6	S12	It has been a moving and fulfilling experience for me to do my current job	3.29	0.87	4	3
7	S3	I can get satisfaction from the work I do now	3.32	0.85	3	3
8	S6	Even if there are difficulties, I will continue to do my present job	3.38	0.91	3	4
9	S7	I know that doing what I do now will be a part of my life	3.45	0.96	4	3
10	S10	Even when I'm not doing what I'm doing, I	3.49	0.79	4	3

		think about work a lot				
11	S1	I like what I'm doing now	3.52	0.82	3	4
12	S5	When I describe myself to others, the first thing that comes to mind is what I do now	3.85	0.75	4	4

Table 3. Group difference test of college teachers' sense of professional mission (value P)

Item	gender	age	year	education background	the title of a technical post	school	course	famous teacher
S1	0.237	0.046	0.043	0.063	0.014	0.004	0.049	0.013
S2	0.182	0.021	0.033	0.061	0.008	0.010	0.032	0.008
S3	0.213	0.044	0.046	0.058	0.007	0.009	0.041	0.007
S4	0.097	0.034	0.030	0.053	0.009	0.042	0.066	0.010
S5	0.188	0.047	0.048	0.103	0.018	0.006	0.099	0.008
S6	0.048	0.035	0.028	0.047	0.002	0.007	0.060	0.009
S7	0.043	0.032	0.031	0.066	0.019	0.010	0.089	0.010
S8	0.047	0.035	0.037	0.046	0.002	0.008	0.041	0.003
S9	0.041	0.013	0.011	0.037	0.009	0.019	0.066	0.003
S10	0.039	0.028	0.028	0.031	0.007	0.042	0.059	0.001
S11	0.49	0.34	0.31	0.063	0.006	0.022	0.032	0.005
S12	0.028	0.029	0.027	0.043	0.013	0.012	0.047	0.001