

Research on the Mechanism of the Influence of Ideological and Political Theories Teaching in All Cour on the Learning Gains of Xizang Engineering Students

Bin Hong¹, Dan Li^{2,*}

¹School of Engineering, Xizang University, Lhasa, 850000, China

²School of Marxism, Xizang University, Lhasa, 850000, China

*Corresponding author: 17773327131@163.com

Keywords: Teaching Ideological and Political Theories teaching in All Cour, Xizang engineering majors, Professional identity, Learning adaptability, Learning gains

Abstract: Ideological and Political Theories teaching in All Cour is the foundation for cultivating "reliable, useful and retainable" scientific research and academic talents in engineering majors of Xizang colleges and universities. The development of Ideological and Political Theories teaching in All Cour in engineering majors of Xizang universities has made significant progress. With the continuous deepening and optimization of Ideological and Political Theories teaching in All Cour, the students' professional identity and learning adaptability have become the bottlenecks restricting the students' learning gains. Therefore, through the pre-survey, we determined to take the students of the College of Engineering of Xizang University as the survey object, and on the basis of the existing research and related literature, we constructed the theoretical model of Curriculum Ideological and Political Theories teaching in All Cour-Learning Adaptability-Professional Identity-Learning Harvest, and formulated the Learning Adaptability Scale and the Learning Harvest Scale applicable to the engineering majors of Xizang students. We also formulated the learning adaptability scale and the learning gain mechanism scale applicable to Xizang engineering students, and empirically analyzed the sample data with SPSS 26.0 and AMOS statistical software. The results show that Ideological and Political Theories teaching in All Cour has a significant positive effect on students' learning gains, and both learning adaptability and professional identity play a partial mediating effect in the influence of Ideological and Political Theories teaching in All Cour gains. This paper reveals the relationship between curriculum Ideological and Political Theories teaching in All Cour and learning adaptability, professional identity and learning gain, which is of great significance to the development of the theory and practice of curriculum Civics in Xizang colleges and universities.

1. Introduction

The purpose of Ideological and Political Theories teaching is that teachers introduce ideological and political education resources while teaching specialized knowledge, forming a synergistic effect

of explicit education and invisible education, so as to achieve the effect of education in a silent manner. This kind of education concept, which aims at realizing the principle of "establishing morality and educating people", is conducive to the cultivation of engineering talents with firm political beliefs and solid professional skills that can contribute to the socio-economic development of Xizang. With the continuous improvement of the teaching system of Civic Politics in the curriculum, students' adaptability and professional recognition have become new challenges for the development of Civic Politics in the teaching of engineering in Xizang.

Adaptability refers to an individual's ability tendency to actively adjust his or her own functioning and psychological state to facilitate his or her ability to achieve better development [1]. Scholars mainly conduct research on students' learning adaptability from three dimensions: influencing factors, measuring tools and relationship with academic performance. In the dimension of influencing factors, Yu Haibo found that students' learning attitudes and habits, as well as teacher-student relationship and classroom environment have a significant effect on students' learning adaptability [2]. In the dimension of measurement tools, Baker et al. designed the questionnaire and evaluated the questions of college students' adaptability from four aspects: learning, social, emotional and attachment [3]. Regarding the research on the relationship between students' learning adaptability and achievement, most scholars believe that learning adaptability is an important factor affecting students' academic performance and get roughly the same conclusion that students' learning adaptability is positively proportional to their academic performance [4]. Meanwhile, the formation of professional identity is related to teacher-student interaction and course delivery mode [5].

In summary, scholars have conducted a lot of research on students' adaptability and professional identity in learning, and applied the research results to specific practice, which has achieved certain results in promoting students' learning gains and physical and mental health development. However, scholars have conducted fewer studies on the relationship between students' adaptability and professional identity in Civics and Ideological and Political Theories teaching in All Cour and learning gains. Based on this, this paper takes Xizang engineering as a case study, and explores the impact of students' adaptability and professional identity on learning gains under Ideological and Political Theories teaching in All Cour, with a view to laying a solid foundation for the sustainable development of Ideological and Political Theories teaching in All Cour.

2. Theoretical assumptions and model construction

2.1 Ideological and Political Theories teaching in All Cour and Learning Gains

Ideological and Political Theories teaching in All Cour carries the role of cultivating college students' moral competence and overall development, and exploring the path to improve the learning gain of Xizang engineering students under the teaching of curriculum civics can lay a solid talent foundation for the engineering construction and economic development of Xizang. According to the definition of curriculum ideology and politics [6], it is known that political thought is accompanied by the entire professional teaching classroom and can have a certain positive impact on the students' outlook on life and values, so hypothesis 1 is proposed:

H1: There is a significant positive correlation between the teaching and learning gains of the Ideological and Political Theories teaching in All Cour.

2.2 Ideological and Political Theories teaching in All Cour and Political Teaching, Learning Adaptation, and Learning Gains

The implementation of Ideological and Political Theories teaching in All Cour is to integrate the elements of ideological and political education into the professional curriculum, and then

subconsciously influence students' thoughts and behaviors. Due to the change in educational philosophy, it causes the existence of an adaptation stage in students' professional knowledge learning. Students' good adaptability may make them have a strong interest in learning, on the contrary, students may have adverse emotional reactions such as anxiety or depression affecting the effectiveness of learning [7]. Therefore, student adaptability can be set as a moderating variable, that the better the effectiveness of Ideological and Political Theories teaching in All Cour, the student's learning adaptability will increase, and the improvement of learning adaptability will lead to an increase in the learning gains, which led to the formulation of hypothesis 2:

H2: Student learning adaptations will moderate the relationship between Ideological and Political Theories teaching in All Cour and learning gains.

2.3 Ideological and Political Theories teaching in All Cour, Professional Identity, Learning Gains

Professional identity is the college students' love for their majors, recognition of the value of their majors and majors-related careers, and at the same time willingness to accept the professional and occupational norms, and hope to take this career as a goal for their own development, and so on. Scholars have found that teachers' teaching philosophy, teaching methods, and teacher quality all have an impact on students' professional identity [8]. Ideological and Political Theories teaching in All Cour as a new teaching philosophy may affect students' professional identity. Professional identity also interferes with students' academic performance [9]. It can be seen that professional identity will have a role between teaching and learning gains in Ideological and Political Theories teaching in All Cour. Therefore, it is believed that there may be a mediating role of professional identity between the teaching of Ideological and Political Theories teaching in All Cour and learning gains. Hypothesis 3 is thus proposed.

H3: Professional identity plays a mediating role in the influence of Ideological and Political Theories teaching in All Cour on students' learning gain.

Based on the above research hypotheses, we construct the theoretical model of "Ideological and Political Theories teaching in All Cour Teaching-Learning Adaptability-Professional Identity-Learning Gains", in which professional identity is the mediator and learning adaptability is the moderator, as shown in Figure 1. The model is shown in Figure 1.

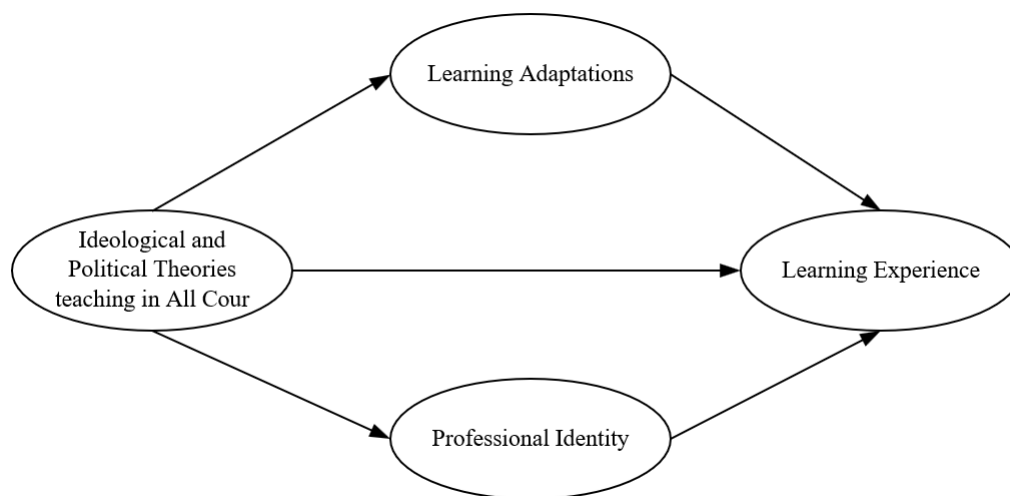


Figure 1: Ideological and Political Theories teaching in All Cour Teaching-Learning Adaptability-Professional Identity-Learning Gain Theoretical Hypothesis Model

3. Questionnaire design and data collection

3.1 Questionnaire design

Based on the existing literature and classic scales, combined with the actual situation of Xizang engineering courses Civics teaching to carry out the questionnaire design, this questionnaire contains five parts: (1) students' personal characteristics; (2) Ideological and Political Theories teaching in All Cour part of the main use of Zhou Li-Min et al [10]'s Ideological and Political Theories teaching in All Cour evaluation scale, contains the teacher Civics competence, the integration of teaching resources, the integration of social resources, the teachers and students emotion, Teaching process implementation 5 dimensions, a total of 5 items; (3) learning adaptability part mainly refers to Guo Jidong et al [11] learning adaptability scale, containing 3 dimensions (teaching content adaptability, teaching environment adaptability, teaching mode adaptability), a total of 8 items; (4) professional identity part mainly combines with the professional identity scale compiled by Lammers et al [12], including (4) The part of professional identity is mainly based on the professional identity scale developed by Lammers et al, which contains 4 items including "having a lot in common with students of the same engineering major". (5) The Learning Gains section was revised with reference to the North American Survey of Students' Study Engagement (NSSE) questionnaire, totaling five question items.

The survey data on students' acceptance of professional knowledge in the context of Ideological and Political Theories teaching in All Cour originated from a field questionnaire, which was selected by Xizang engineering students based on classroom reality combined with their own perceptions. On this basis, in order to ensure the rationality of the questionnaire, a number of experts related to Ideological and Political Theories teaching in All Cour of engineering majors were consulted to finalize the questionnaire. The measurement of course Civics teaching, learning adaptability and professional identity are all based on a five-point Likert scale from 1 to 5, with an incremental scale from "Strongly Disagree" to "Strongly Agree".

3.2 Data collection

The pre-survey found that the engineering major of the College of Engineering of Xizang University is committed to cultivating high-quality talents who are "reliable, useful and stayable" and who are needed to serve the local social and economic development of Xizang. The curriculum system of engineering majors in this college consists of general education courses, professional courses and practical courses, which is characterized by a reasonable proportion of credits allocated to each type of courses and the inclusion of knowledge of multiple disciplines. Therefore, the engineering majors of Xizang University in the class of 2019-2022 were selected as the typical representatives of engineering majors in Xizang during October-November 2023 for the distribution of formal questionnaires and data collection of different course types. A total of 234 questionnaires were distributed by statistics, and after sorting and screening, 20 invalid questionnaires were excluded, and 214 valid questionnaires were accumulated, with a questionnaire validity rate of 91.45%.

4. Analysis of results

4.1 Descriptive statistical analysis of the sample

The composition of the questionnaire sample is shown in Table 1. The gender of the sample shows that there are more males than females, which is in line with the phenomenon of "more males, less

females" in most engineering majors. In terms of grade structure, the proportion of students in each grade is relatively balanced. The ethnic structure is dominated by Han and Xizang students, and the total proportion of Han and Xizang students reaches 95.8%. In terms of place of origin, the number of students from other provinces or autonomous regions is higher than that of students from the Xizang Autonomous Region, with the other provinces or autonomous regions being dominated by students from the western and southwestern provinces and regions such as Sichuan, Yunnan, Qinghai and Gansu.

Table 1: Demographic characteristics of the student sample

Variant	Categories	Frequency	Proportions
Sex	Men	51	23.9%
	Women	162	76.1%
Grade	Second-year university student	66	31.0%
	Third-year university student	48	22.5%
	Fourth-year university student	57	26.8%
	Fifth-year university student	42	19.7%
Nation	The Han ethnic group	126	59.2%
	The Zang ethnic group	78	36.6%
	Other minorities	9	4.2%
Birthplace	Xizang Autonomous Region	87	40.8%
	Other provinces or autonomous regions	126	59.2%

In addition, based on SPSS 26.0 to analyze the correlation between multiple constructs through Pearson's correlation coefficient, based on the results of the correlation coefficient, it can be seen that the standardized coefficient of Ideological and Political Theories teaching in All Cour and Learning Harvest is 0.604, and it is significant on the 99% significance, so there is a significant positive correlation between the two and therefore Hypothesis 1 is valid.

4.2 Reliability and validity test

In the study of factors affecting learning gains and learning adaptability by Ideological and Political Theories teaching in All Cour, the scale obtains data test is an important prerequisite to satisfy the subsequent analysis. This study analyzes the internal consistency of each dimension of the scale based on the Cronbach α coefficient for the reliability test. The results of the reliability test for the scales of Ideological and Political Theories teaching in All Cour, Learning Adaptation, Teaching Content Adaptation, Teaching Mode Adaptation, Teaching Environment Adaptation, Professional Identity and Learning Gains are shown in Table 2, and their Cronbach α coefficients are all greater than 0.700, which indicates that each scale has good internal consistency and the results of the reliability test meet the requirements.

Table 2: Analysis of scale reliability test

Variant	Cronbach α	Item count
Ideological and Political Theories teaching in All Cour	0.856	5
Learning adaptations	0.775	2
Adaptation of teaching content	0.736	3
Adaptation of teaching models	0.737	3
Adaptation of the teaching environment	0.809	3
professional identity	0.804	4
learning experience	0.851	5
Overall Scale	0.842	25

Validated factor analyses of the Learning Adaptability Scale and the Mechanisms of Influence of Ideological and Political Theories teaching in All Cour on Learning Gains Scale were conducted using AMOS software.

In the learning adaptability scale, the values of $CMIN/DF = 1.765$, $RMSEA = 0.060$, IFL , TLI and CFI are all greater than 0.900, respectively, 0.971, 0.956 and 0.970, which are satisfactory and within the acceptable range for each indicator. Then the fitness test of the scale of the mechanism of influence of Ideological and Political Theories teaching in All Cour on learning gains was carried out, and the values of $CMIN/DF$, $RMSEA$, IFL , TLI and CFI were in the good range, thus indicating that the fitness of the CFA model for both the scale of learning adaptability and the scale of the mechanism of influence of Ideological and Political Theories teaching in All Cour on learning gains was good.

On the basis of good validation factor analysis fit of the overall scale, the convergent validity (AVE) and combined reliability (CR) of the dimensions of the scale were tested according to the standardized factor loading coefficients of each question item calculated by the CFA model, and the results of convergent validity of the test scale are shown in Table 3. In this study, the convergent validity (AVE) value of the overall scale was greater than 0.45, and the combined reliability (CR) was greater than 0.7, indicating that the scale had good convergent validity.

Table 3: Convergent validity of the scale

Concept	Measurement indicators	Estimate	AVE	CR
Ideological and Political Theories teaching in All Cour	Teachers have comprehension and execution of Ideological and Political Theories teaching in All Cour in engineering programs	0.786	0.548	0.858
	Effective combination of Ideological and Political Theories teaching in All Cour elements and engineering expertise in teaching and learning	0.648		
	Teachers have good professional ethics and dedication to rooting in the snowy plateau	0.774		
	Voluntary Student Participation Interaction in Curriculum Civics Teaching	0.784		
	Effective Integration of Social Resources with Xizang Plateau Characteristics in Ideological and Political Theories teaching in All Cour	0.700		
Learning adaptations	Adaptation of Theory Courses Improved under Ideological and Political Theories teaching in All Cour Instruction	0.770	0.635	0.777
	Adaptation of practical courses under Ideological and Political Theories teaching in All Cour has been improved	0.823		
Adaptation of teaching content	Highly theoretical and logical content of engineering courses leads to insufficient mastery of specialized knowledge	0.554	0.494	0.741
	Discomfort due to the difficulty of engineering theory and practical courses	0.737		
	Feeling overburdened by the large number of knowledge points in engineering theory and practical courses	0.794		
Adaptation of teaching models	Less relevance of Ideological and Political Theories teaching in All Cour content to professional skills leads to boredom in the classroom	0.671	0.484	0.736
	There is resistance to forcefully implanting Ideological and Political Theories teaching in All Cour in the	0.616		

	teaching of engineering courses			
	Ideological and Political Theories teaching in All Cour Teaching Requires More Student Involvement Sessions Causing Program Maladjustment	0.789		
Adaptation of the teaching environment	Willingness to socialize and interact with students in the same engineering major	0.719	0.590	0.812
	Satisfied with the school's Civic Education and professional learning atmosphere	0.817		
	The school's educational resources are able to meet the learning needs of engineering courses	0.766		
Professional identity	Have much in common with students in the same engineering program	0.726	0.513	0.808
	Alignment of personal values with relevant professional values	0.777		
	Identify with engineering majors studied and students in the same program	0.707		
	The engineering program studied is an important reflection of the individual	0.649		
Learning experience	Acquisition of deeper theoretical knowledge and professional skills under the course Civics teaching	0.702	0.523	0.845
	Adjusted and improved their outlook on life and values under the course Civics teaching	0.705		
	Enhancement of one's own knowledge of one's major and future career under the course Civics instruction	0.781		
	Ideological and Political Theories teaching in All Cour in the curriculum develops one's leadership organizational and oral and written expression skills	0.704		
	Ideological and Political Theories teaching in All Cour in the curriculum helps foster teamwork and independent learning	0.720		

Table 4: Distinguished validity test of learning adaptability scale

Variant	Adaptation of teaching content	Adaptation of teaching models	Adaptation of the teaching environment
Adaptation of teaching content	0.494		
Adaptation of teaching models	0.614	0.484	
Adaptation of the teaching environment	0.447	0.626	0.590
Square root of AVE value	0.703	0.696	0.768

On this basis, the test of the discriminant validity of each dimension of the Learning Adaptability Scale was conducted, as shown in Table 4. As can be seen from the table, the standardized coefficients between the dimensions are smaller than the square root of the AVE value corresponding to each dimension, indicating that the differentiated validity between each dimension meets the requirements. It can be seen that this scale can provide a quantitative standard for subsequent research on student adaptation.

4.3 Hypothesis testing

4.3.1 Direct effect test

All the predictive effects of Ideological and Political Theories teaching in All Cour on learning gains ($\beta = 0.319, p < 0.001$) show significance, so hypothesis 1 is valid. As shown in Table 5. At the same time, the teaching of Ideological and Political Theories teaching in All Cour positively affects students' professional identity ($\beta = 0.511, p < 0.001$) and learning adaptability ($\beta = 0.570, p < 0.001$). And it can be known that students' professional identity ($\beta = 0.262, p < 0.001$) and learning adaptability ($\beta = 0.487, p < 0.001$) positively affect learning gains.

Table 5: SEM path relationship test

Pathway relationship		Estimate	S.E.	C.R.	P
Learning adaptations	← Ideological and Political Theories teaching in All Cour	0.57	0.091	6.525	***
Professional identity	← Ideological and Political Theories teaching in All Cour	0.511	0.082	5.963	***
Learning experience	← Learning adaptations	0.487	0.073	5.532	***
Learning experience	← Professional identity	0.262	0.065	3.641	***
Learning experience	← Ideological and Political Theories teaching in All Cour	0.319	0.075	3.668	***

4.3.2 Indirect effect test

Through the literature and path analysis, it is inferred that there is a mediating influence mechanism between Ideological and Political Theories teaching in All Cour and professional identity, learning adaptability and learning gain, so the mediating effect test of the structural equation model is carried out by using the Process 4.1 plug-in in SPSS 26 software, and the results are shown in Table 6. From Table 6, it can be seen that the upper and lower ranges of Boot CI are greater than 0, indicating that the mediating effect of learning adaptability and professional identity is significant, so hypotheses 2 and 3 are both valid, which is consistent with previous research literature and the current situation of carrying out engineering majors in Xizang.

Table 6: Mediating effects test

	Efficiency value	Boot standard error	Boot CI lower bound	Boot CI cap	Efficiency ratio
Aggregate effect	0.602	0.073	0.453	0.736	100%
Mediating effects of learning adaptations	0.219	0.056	0.120	0.333	36%
Direct effect	0.383	0.091	0.206	0.556	64%
Aggregate effect	0.161	0.047	0.079	0.260	100%
Mediating effects of professional identity	0.441	0.084	0.273	0.598	27%
Direct effect	0.602	0.072	0.460	0.741	73%

To summarize, when students receive the Ideological and Political Theories teaching in All Cour, it will stimulate their own learning gains, and it will stimulate the awakening of students' professional identity and learning adaptability, which in turn will play a role in students' learning gains.

Meanwhile, a learning adaptability scale for engineering majors in Xizang universities was developed based on three dimensions: content adaptability, teaching mode adaptability and teaching environment adaptability.

5. Conclusion

In the study of the influence mechanism of Ideological and Political Theories teaching in All Cour and Political Science teaching on learning gain in Xizang colleges and universities, we put forward the hypotheses with learning adaptability and professional identity as the mediating variables, and designed the questionnaire based on the previous research foundation, based on which we selected students of the College of Engineering of Xizang University to conduct the questionnaire survey, and formulated the students' adaptability scale applicable to engineering majors in Xizang colleges and universities. The results of the survey were combined to explore the influence mechanism of Ideological and Political Theories teaching in All Cour on students' learning gains, and it was concluded that for engineering majors in Xizang universities, Ideological and Political Theories teaching in All Cour significantly and positively affects students' learning gains, and both learning adaptability and professional identity play a partial mediating effect in the influence of Ideological and Political Theories teaching in All Cour on learning gains, so it is necessary to introduce Civics elements of professional identity and learning adaptability into the course Civics teaching in engineering majors. Therefore, engineering majors need to introduce the civics elements of professional identity and learning adaptability into their Ideological and Political Theories teaching in All Cour. Although this paper develops an adaptability scale applicable to engineering colleges and universities in Xizang, it does not incorporate the theoretical model of "curriculum civic-minded teaching-learning adaptability-professional identity-learning gain", which may affect the interpretability of the results to a certain extent. The explanatory power of the results may be affected to a certain extent, so the factors influencing the adaptability of Xizang engineering majors can be further improved.

Acknowledgements

Fund projects: The authors acknowledge the National Innovation and Entrepreneurship Training Program for College Students- "A Study on Students Adaptability of Ideological and Political Curriculum in Xizang Engineering Teaching" (Grant: 2 02310694007); The authors acknowledge the 2021 Xizang Autonomous Region Education Science Research Institute funded project- "Research on the Effectiveness of Ideological and Political Theories teaching in All Cour in Xizang Universities" (Grant: XZJYKT621002).

References

- [1] Xiefeng Lu. *Development and standardization of adaptability scale for college students [D]. Central China Normal University, 2003.*
- [2] Yu Haibo. *Analysis of influencing factors of higher vocational students' learning adaptability and strategies to improve it [J]. Education and Career, 2023(14):108-112.*
- [3] Baker, R. W., & Siryk, B. (1984). *Measuring adjustment to college. Journal of Counseling Psychology, 31(2), 179-189.* <https://doi.org/10.1037/0022-0167.31.2.179>
- [4] Yuting Li. *The relationship between academic adjustment and academic achievement of first grade students[J]. Mental Health Education in Elementary and Middle Schools, 2022, (14):9-14.*
- [5] Mao Zhihui, Sui Yifan. *Research on the Influencing Factors and Role Path of Professional Identity of Interdisciplinary Education Master's Degree Graduates--An Analysis Based on the Rootedness Theory[J]. Degree and Graduate Education, 2021, (06):83-89.*
- [6] Zhang Xin, Yang Huidi, Fan Xiaomei et al. *Exploration and practice of course ideology in teaching medical*

- physiology [J]. *Journal of Higher Education*, 2023, 9(36):193-196.
- [7] Liao Chunhua, Wu Zhenlun, Li Shuang. Research on the mechanism of course heterogeneity on students' online learning effectiveness [J]. *Research on E-Chemical Education*, 2023, 44(06):97-103.
- [8] Lu Yu, Yan Suyiqiu. The status quo of professional identity of auditing students and the path to enhancement[J]. *Education Observation*, 2023, 12(25):54-57.
- [9] YU Ji, MA Anqi. Research on the Role Mechanism of Engineering Students' Professional Identity, Institutional Support and Career Development - An Empirical Analysis Based on an Engineering Advantageous College[J]. *Research on Higher Engineering Education*, 2023(05):86-92.
- [10] Zhou Limin, Qi Zhanyong. Research on the Development of Evaluation Scale for Civic and Political Teaching in University Foreign Language Courses[J]. *Foreign language community*, 2023(03):71-77.
- [11] Guo Jidong, Li Yu, Liu Xiaohong. Construction and validation of a foreign language learning adaptability scale for college students[J]. *Foreign language community*, 2021, (01):46-53.
- [12] Lammers J C, Atouba Y L, Carlson E J. Which identities matter? A mixed-method study of group, organizational, and professional identities and their relationship to burnout[J]. *Management Communication Quarterly*, 2013, 27(4): 503-536.