

Research on Professional English Teaching Strategies of Forest Fire Prevention Postgraduates based on Professional Identity Theory

Zhongliang Gao, Hechenyang Wang, Qiuhua Wang, Tengteng Long, Zhi Li,
Xiaona Li

College of Civil Engineering, Southwest Forestry University, Kunming Yunnan 650224, China

Abstract

Forest fire prevention is an important pillar of my country's forestry development, and professional English builds a bridge for forest fire researchers to learn advanced technologies and improve management policies. This paper uses the theory of professional identity to analyze factors such as students' effort, professional identity, emphasis, and learning motivation. In view of the negative impact of students' majors, this paper explores new teaching strategies including professional identification, teaching innovation, and professional practice, and constructs a survey. Analyze the system to enhance the role of English teaching for forest fire protection graduate students.

Keywords

Forest Fire Prevention; Professional Identity Theory; Professional English; Strategy Exploration; Evaluation System.

1. Introduction

Forest fire prevention and control is an important part of the International Strategy for Disaster Reduction (ISDR), as well as an important component of sustainable development, maintaining global climate balance and protecting biodiversity. China's forest area ranks fifth in the world with a total of 220 million hectares[1], but the level of forest fire research needs to be further improved. Among them, forest fire monitoring systems, early warning systems, information systems and other fire prevention and control measures need to be improved, forest fire prediction models, innovative exploration of prevention and control strategies need to be further enhanced, and it is important to train forest fire prevention talents.

Professional English is a good bridge for China's forest fire research to learn mature forest fire management methods and advanced forest fire prevention and control tools, and a good command of professional English helps to study cutting-edge information and discuss forest fire problems. During the postgraduate study of forest fire prevention, learning professional English can solve the language barrier, effectively read high quality and forward-looking journal literature, learn the principles of forest fire prediction and simulation from other countries, attend seminars on forest fire and post-fire ecology, and improve their academic level. Therefore, the study of professional English is indispensable in the personnel training stage.

2. Current Status of Domestic and International Research

Professional identity originates from the psychological concept, which is the psychological experience and feeling of people's self. Erikson (1963) introduced the concept of professional identity for the first time and concluded through his research that professional identity refers

to the learner's emotional identification with the acquired expertise, which is a dynamic psychological feeling. Professional identity is divided into self-identification and identification with others. Self-identification is highly subjective and is based on self-sense; others' identification is based on certain material basis and outstanding achievements. Using the psychology of "identity" of professional identity can improve learning efficiency.

Shen Liming[2] et al. used professional identity theory to explore the strategy of cultivating English majors in local universities from two aspects of intervention policy and practice policy and to construct an English teaching system. Wu Huijuan[3] et al. analyzed and explored the bottlenecks and constraints of English talents in five colleges and universities in Yunnan Province from the perspective of professional identity theory, and the results showed that stimulating students' deep motivation, improving teachers' ability, strengthening professional practical training, and improving employment quality could enhance the sense of identity and the quantity of professional talents. Li Hui-jie[4] et al. used the section co-release model to explore the influence of professional identity on independent learning ability of Jiangxi college students, and the results showed that professional identity plays a facilitating role. Based on professional identity theory, Guo Jinxiu[5] et al. analyzed students' professional cognition, emotion and learning behavior from curriculum, teaching content and career guidance, and proposed strategies for talent training quality. Chen Zhu[6] analyzed the overall situation, individual differences, and influencing factors of students' professional identity in a survey conducted by three "985" universities in Shanghai. The results showed that the scores of professional identity in each sub-dimension were ranked as follows: identification behavior > emotional experience > cognitive evaluation > professional commitment; the correlation of influencing factors was ranked as follows: family and friends factor > professional factor > school factor > social factor.

Merlo Gia[7] et al. used observation teaching method and reflective writing to teach 135 college students structured reflection based on professional identity theory, and surveyed and analyzed students' professional knowledge and professional perceptions, and the results verified the facilitating effect of professional identity theory. Carvalho Luara[8] et al. surveyed and analyzed 2,291 students, divided into three groups: no experience, experience related to professional, and experience unrelated to professional three groups of experience were used to assess the role of internship experience on students' professional identity using a semantic neural network approach, and the results showed that the no-experience group was the only network with compound content words that was not conducive to professional identity enhancement, and the group with experience related to the major had high professional identity. Du Xiangyun[9] et al. used a problem-based and project-based learning (PBL) approach with data-based, qualitative: motivation, goal setting, planning Tomlinson Michael[10] et al. explored the individual and group professional identity and determinants of different types of higher education students by scoring each of the eight items on a study of 433 students in Australia, and the results showed that Engelbertink Monique M.J. et al[11]. conducted a qualitative analysis and quantitative evaluation of Spanish and Dutch students in terms of the degree of reflection on their professional image, self-esteem, task perception, work motivation and future outlook, and the results showed that work motivation had a high confidence level and 40% of the students reached the average level in one or more areas.

The level of professional identity affects the input of students' knowledge and the output of national talents. Using reverse thinking to build a professional English teaching strategy for forest fire prevention from multiple perspectives such as employment prospect, learning motivation and curriculum is very beneficial to enhance professional English learning and cultivate high quality and high level comprehensive talents for forest fire prevention and control.

3. Teaching Strategies Exploration

3.1. Teaching Objectives

By investigating the recognition and effort value of forest fire prevention graduate students in this major, we explore the teaching objectives of professional English by integrating the graduate students' own English proficiency. The teaching of professional English is different from the learning of popular English in that the terminology of professional English is not common and there are many cases of familiar words with partial meanings, which are applied English teaching. Effective teaching of professional English can improve learners' vocabulary of professional English terms, academic syntactic structure, learners' ability to independently read foreign professional literature, books, conference proceedings, and write and embellish academic articles in English, and teaching based on professional identity theory can also improve learners' identification with their own profession and enhance their motivation, attention and effort in learning.

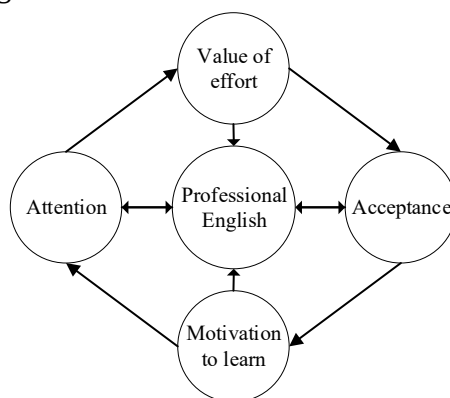


Fig 1. Teaching Objectives Diagram

3.2. Teaching Program

The teaching program uses both direct and indirect methods. The direct approach is to innovate the content and teaching methods, and the indirect approach is to enhance students' motivation indirectly through professional identification, professional practice, and professional outlook by improving their professional identity.

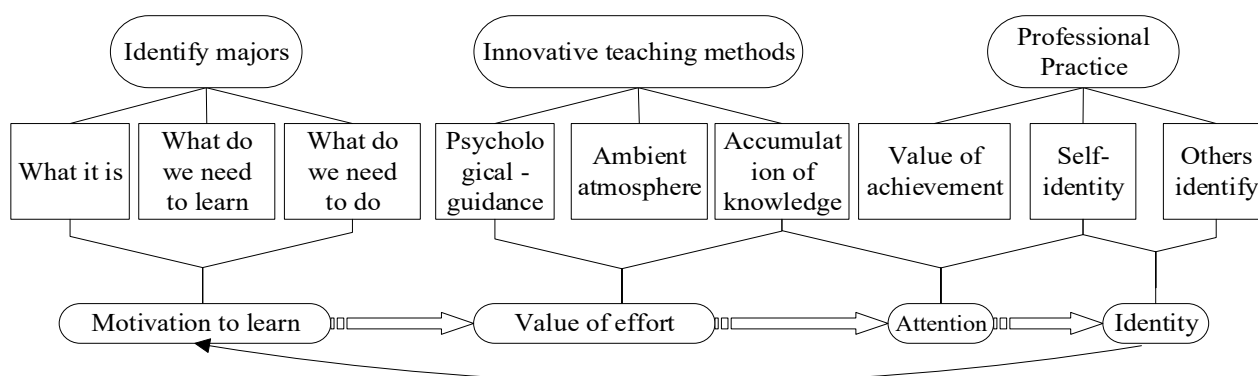


Fig 2. Teaching plan flow chart

3.2.1. Professional Identification

During the teaching period, it is necessary to introduce students to the three main characteristics of their profession: "what it is, what they learn, and what they do". By letting students understand the origin and nature of the profession, the students will be able to promptly relieve the deviation of their professional identity in the process of education,

enhance their attention, and lead them to establish a sense of belonging; by learning the content of the teaching, they can broaden their understanding of the professional field, acquire theoretical knowledge and independent experimental operations, and further enhance their sense of professional identity from the practical content in social practice, so that students can set the professional After students accumulate certain theories, they are introduced to the direction of employment, employment content and employment prospect with the practical content, and the excellent workers of this profession are invited to make a presentation to stimulate the sense of honor and motivation. The establishment of a good relationship of belonging, the deepening of identity and understanding will stimulate the students' initiative and purpose in teaching, and enhance the learning efficiency.

3.2.2. Teaching Method Innovation

Professional English teaching is different from universal English learning, traditional teaching methods are inefficient, highly applicable but poorly targeted, Journal club teaching method, TBL-LBL-PBL interactive teaching method and interactive flipped micro-classroom teaching method can be used to innovate the content of the overall situation of students and local talent needs. The innovation of course teaching is to build a quality teaching environment, stimulate learning interest and enhance students' learning initiative, to strengthen the language and professional foundation and connect with cutting-edge technology, and to encourage students to form a stable professional outlook.

Teaching innovation in professional courses is a key to improve students' learning efficiency and an important way to develop professional identity, affecting them psychologically, environmentally, and in terms of employment. The difference in teaching content has a direct impact on learning initiative. Different teaching methods have different subjects, and each role in teaching has a lighter or heavier sense of participation. A student-oriented teaching method will make students feel more involved, enhance their interest, initiative and self-learning ability, and improve their problem-solving ability, so they can better connect with the actual work and explore the frontier direction; different teaching programs create a big difference in the learning atmosphere and environment, and flipped classroom or interactive programs can create The flipped classroom or interactive program can create a good learning environment, and the active atmosphere, purposeful learning and mutual discussion can enhance students' problem solving efficiency, critical thinking and knowledge accumulation. Students' sense of participation is satisfied and their value is realized, which enhances their professional identity and deepens their knowledge retention. The probability of actively exploring new knowledge and learning new skills in order to solve the problems in the discussion increases; the guidance of teaching contents can influence students' employment tendency; the discussion and answer of practical problems prompt students to choose technical positions, and science and technology prompt students to choose academic theoretical research positions.

3.2.3. Professional Practice

Participation in practice is the best way to combine theoretical knowledge and practical use of English. Practicum combines theoretical knowledge and practical work content to enhance professional identity in terms of both self-identification and identification with others. In the process of running the practical project, the professional skills will enhance the sense of self-achievement, and the acquisition of new knowledge will stimulate the curiosity and initiative, enhance the professional identity and learning motivation, and achieve self-identity; the results of the practical project are also the embodiment of self-identity and the basis for gaining the identity of others, which can be achieved by participating in translating literature, taking minutes of meetings, volunteering in forestry conferences, etc. Regular display of real-life high-tech containing this specialty stimulates students' psychological expectation of the future and motivates them to establish goals.

3.3. Integrated Assessment

Target data were obtained by questionnaire for quantitative assessment and analysis. The survey was divided into a control group, experimental group #1, and experimental group #2. The control group was taught only traditional teaching; Experimental group No. 1 was taught professional identity enhancement and traditional teaching; Experimental group No. 2 was taught professional identity enhancement and new teaching methods. The students' effort value, professional identity, importance, learning motivation, professional English level and English application ability were tested and recorded, and the principal component analysis and KMO and Bartlett's spherical test in SPSS25.0 were applied to judge the effectiveness of the teaching program. The expected professional identity questionnaire (Table 1) can analyze the three experimental groups' own understanding of the major and their future study status; the professional English proficiency questionnaire (Table 2) can understand the changes of professional English proficiency.

Table 1. Questionnaire on professional identity

Survey Type	Grade	Score
Degree of professional understanding		
Professional emphasis		
Degree of professional recognition		
Level of study effort		
Prospect understanding level		
Note: The grade (score) is divided into one (20), two (40), three (60), four (80), five (100); respectively, representing never heard of, do not understand, general, understand part of, very understand.		

Table 2. Professional english proficiency questionnaire

Survey Type	Assessment Type	Score
Professional English level	English Terminology Glossary	25
	English literature reading comprehension	25
	English literature summarization skills	25
	English colloquium listening situation	25
English Application Skills	English grammar usage	25
	English Literature Writing	25
	Forest Fire Frontier Technology Understanding	25
	English colloquium presentation skills	25

4. Conclusion

English is a course that takes a long time to accumulate, and surprise learning is not effective, and unsatisfactory test scores can lead to high frustration, so students' identification with English is clearly polarized. Students with high English proficiency and good learning methods are highly motivated corresponding to a high level of identification, while students with low English proficiency will be rejected in the learning process. The difficulty of the course content of professional English increases in the universal teaching, and the phenomenon of differentiation increases. Based on the professional identity theory, students can be actively guided through the negative effects of their professionalism, and their motivation and purpose of learning can be increased and maintained.

In addition to guiding students through professional identification, pedagogical innovation, and professional practice, it is important for teachers to act as guides, and the reflection of teaching

ability also directly students' degree of professional identification. Teachers can improve students' sense of professional honor and identity by improving their teaching skills, maintaining a good teacher image, and continuous learning to increase the value of professional English learning efforts. Schools and other educational institutions can improve the hardware and equipment for English learning and create "English corners" to create an English language environment at regular intervals.

Acknowledgments

This work was financially supported by Agriculture and Forestry Working Committee of China Academic Degree and Postgraduate Education Society Fund(2021-NLZX-YB77), Southwest Forestry University Education Fund(YB202104, 202018).

References

- [1] Food and Agriculture Organization of the United Nations, et al. UN releases State of the World's Forests 2020 report [EB/OL]. [2020-05-25]. <http://www.fao.org/publications/sofo/en/>.
- [2] Shen Liming, Sun Yanhua, Huadong. The construction of talent cultivation strategy of English education majors in local universities from the perspective of professional identity theory[J]. *Talent Intelligence*, 2020(17):147-148.
- [3] Wu Huijuan. Exploring the strategy of cultivating English majors in local universities based on professional identity theory: an empirical study of five universities in Yunnan Province[J]. *Journal of Dali University*, 2020, 5(07):117-122.
- [4] Li Huijie, Zhu Lingjuan, Huang Jichao, Wu Ziming. A study on the influence of college students' professional identity on independent learning ability--a mediation model based on learning motivation[J]. *Neijiang Science and Technology*, 2021, 42(11):81-83+14.
- [5] Guo Jinxiu. The construction of talent cultivation strategy of English education majors in local universities from the perspective of professional identity theory[J]. *Heilongjiang Higher Education Research*, 2018(01):148-152.
- [6] Chen Zhu. Research on the Professional Identity of Master's Students in Teaching Chinese as a Foreign Language[D]. East China Normal University, 2014.
- [7] Merlo Gia et al. MPRO: A Professionalism Curriculum to Enhance the Professional Identity Formation of University Premedical Students.[J]. *Medical education online*, 2021, 26(1) : 1886224-1886224.
- [8] Carvalho Luara et al. Professional identity and experience of undergraduate students: an analysis of semantic networks.[J]. *Psicologia, reflexao e critica : revista semestral do Departamento de Psicologia da UFRGS*, 2021, 34(1) : 14-14.
- [9] Du Xiangyun and Naji Khalid Kamal. Civil Engineering Students' Collective Agency and Professional Identity in a Problem- and Project- Based Learning Environment: Case from Qatar[J]. *Journal of Civil Engineering Education*, 2021, 147(4).
- [10] Tomlinson Michael and Jackson Denise. Professional identity formation in contemporary higher education students[J]. *Studies in Higher Education*, 2021, 46(4) : 885-900.
- [11] Engelbertink Monique M.J. et al. The reflection level and the construction of professional identity of university students[J]. *Reflective Practice*, 2021, 22(1) : 73-85.