

ENHANCEMENT GUIDELINES OF LIFELONG LEARNING ABILITIES FOR STUDENTS IN YULIN NORMAL UNIVERSITY, CHINA*

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Abstract

The objectives of this research were: 1) to study the lifelong learning abilities level of students, and 2) to propose the enhancement guidelines of lifelong learning abilities for students at Yulin Normal University, China. Sample group was 217 first-year students enrolled in 2024 academic year from Faculty in Mathematics and Statistics at Yulin Normal University, China. and conducted interviews with 5 education administrators from this institution. This study adopted a mixed-methods approach, employing questionnaires and interviews as the main research. Data analysis by using percentage, mean, standard deviation and content analysis.

The research results found that: 1) The lifelong learning abilities of first-year students were at high level, and 2) the guidelines of lifelong learning abilities for students at Yulin Normal University, China have multiple approaches.

Keywords: Enhancement guidelines, Lifelong learning abilities, Self-directed Learning

Introduction

With the rapid development of technology, cutting-edge technologies such as artificial intelligence and big data not only reshaped the industrial landscape but also profoundly changed the demand structure of the labor market. The transformation has made the ability to engage in lifelong learning a crucial factor for individuals to maintain their competitiveness. With many new industries are constantly emerging, which requires individuals to possess the ability to continuously learn and adapt to new environments. This trend places

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higher demands on individuals' adaptability, and they need to build a regular and systematic learning mechanism to cope with the constantly changing external environment. As the main force entering the workplace, college students must establish a lifelong learning awareness. Only by constantly learning and self-updating can they achieve sustainable development in their future careers and maintain long-term advantages in the increasingly complex and changing competitive environment. UNESCO (2015) pointed out in "Rethinking education: towards a global common good?" that global changes and uncertainties, lifelong learning must be established as the organizational principle of the entire education system. Gao Kai (2023) found that college students have significant deficiencies in self-directed learning, lack of learning plans and strategies. Wang Xiaosu's (2019) research further confirmed that college students were affected by the changes. The strength of their lifelong learning abilities is directly related to personal sustainable development and social adaptability. Therefore, universities should integrate cultivating students' lifelong learning abilities into talent cultivation goals. In light of its importance Yulin Normal University was established in 1945, It is a comprehensive local undergraduate institution. During the crucial period when the concept of lifelong learning is integrated into higher education and local undergraduate institutions are undergoing transformation towards application-oriented models, Yulin Normal University is facing similar practical problems in cultivating students' lifelong learning abilities. Currently, the teaching model of this university still focuses mainly on imparting knowledge, neglecting the cultivation of students' lifelong learning capabilities. Moreover, students generally have unclear learning goals, insufficient motivation, and lack of the ability to explore actively. This not only affects their current studies but also hinders the formation of students' lifelong learning abilities. The existence of these problems highlights the necessity of researching the current situation of students' lifelong learning abilities at this university and proposing improvement strategies.

In conclusion, enhancing students' lifelong learning ability is of vital importance to both the students themselves and the development of the school. Studying the current situation of students' lifelong learning ability can help them identify their strengths and weaknesses. Relevant improvement

strategies can not only assist students in improving this ability but also provide practical and feasible teaching improvement suggestions for teachers, promoting the school to perfect the lifelong learning cultivation system and thereby enhancing the quality and competitiveness of talent cultivation. Moreover, this research outcome can also serve as a reference for other universities.

Objectives

1. To study the level of lifelong learning abilities of students at Yulin Normal University, China.
2. To propose the enhancement guidelines of lifelong learning abilities for students at Yulin Normal University, China.

Literature Review

Theory of lifelong learning ability: 1) Lifelong Education Theory: The concept of "lifelong education" was systematically expounded and advocated by the French adult educator Paul Langevin, who advocated that individuals should continuously learn throughout their lives to achieve self-optimization and promote the construction of a learning society (Li Weizhe, 2011). With the enhancement of citizens' awareness and the continuous increase in learning demands, the transformation of lifelong education into lifelong learning has become a trend. (Wang Xiaosu, 2019). and 2) Self-directed Learning Theory: Self-directed Learning Theory was first proposed by Allen Tough and further developed by scholars such as Knowles. Its core lies in establishing the subjectivity of adult learning (Wang Xiaosu, 2019). This theory does not deny the value of external support; the improvement of an individual's self-directed learning ability requires timely intervention from others and the integration of external resources. External support and the subjectivity of learners complement each other (Shen Kui, 2017). The self-directed learning ability cultivated during the university stage can lay a solid foundation for lifelong learning.

Concept of lifelong learning ability: 1) Policy of lifelong learning ability: The Council of the European Union released the "Recommendations on Key Competencies for Lifelong Learning" in 2018, systematically constructing an updated eight-core competence system, providing an authoritative framework for

the practice of lifelong learning capabilities. Jiang Zemin clearly stated in his report to the 16th National Congress of the Communist Party of China in 2002: “We should foster a learning society in which all people engage in learning and pursue lifelong learning, thereby promoting the all-round development of individuals.” (Jiang Zemin, 2002). In terms of ability cultivation, the "China Education Modernization 2035" issued by the Central Committee of the Communist Party of China and the State Council (2019) clearly requires that learning ability, innovation ability and adaptability be regarded as the basic abilities for lifelong development and be integrated throughout all levels and types of education. And 2) Definition of lifelong learning ability: Lifelong learning ability is a comprehensive quality that runs through an individual's entire life, adapts to the needs of both the individual and society, and encompasses lifelong learning awareness, Self-directed learning ability, and the ability to transform information and knowledge (Gao Kai, 2023). The constituent elements of lifelong learning ability dynamically adjust with the development of the times. The core lies in that individuals actively respond to changes in the era throughout their entire lives, based on their own needs, by planning, monitoring and evaluating the learning process through various means, stimulating their potential to adapt to social requirements. It is a comprehensive combination of knowledge, skills and attitudes (Zhao Jie, 2021).

In researcher's opinion, the lifelong learning ability refers to the comprehensive ability system that an individual acquires, updates and integrates knowledge, skills and attitudes continuously throughout their life cycle, to adapt to social changes and their own development needs, through formal and non-formal learning. This ability not only includes the ability to independently plan, monitor and evaluate the learning process, but also demonstrates the qualities of integrating information, solving problems, communicating and cooperating, and adapting to changes. It is not only the foundation for personal career development and social integration, but also a key ability for achieving comprehensive, coordinated and sustainable development.

Methodology

The Population and the Sample Group

The Population: 483 first-year students enrolled in 2024 academic year from Faculty in Mathematics and Statistics at Yulin Normal University, China.

The Sample Group: Based on Krejcie and Mogan sampling table (1970), the sample group of this research was 217 first-year students enrolled in the 2024 academic year from the Faculty of Mathematics and Statistics at Yulin Normal University, China. The sample group was selected by accidental random sampling.

Research Instruments: questionnaires and interviews.

Questionnaire: The questionnaire is divided into two parts. The first part is a survey of basic information about the respondents, including gender, major, and weekly self-study duration. The second part is a 5-point Likert scale designed from five dimensions: self-directed learning ability, information literacy, problem-solving ability, thinking ability, and collaborative ability. The index of objective congruence (IOC) of the questionnaire was examined by three experts. A total of 44 questions with IOC values ranging from 0.67 - 1.00 were selected and distributed to 30 students for try-out. The reliability of the questionnaire was obtained by Cronbach's Alpha Coefficient (1951). The reliability was 0.98. The questionnaire can be used to collect data to study the current situation of lifelong learning abilities of students in Yulin Normal University, China.

Interview: The first part is the Introduction of background information. The second part includes a series of open-ended interviews. There is a total of 10 questions, these questions were developed based on the five variables and the items with the lowest scores in the questionnaire for each variable. Through content analysis, the suggestions of five experts were summarized. To collect the respondents' opinions on the guidelines for enhancing the lifelong learning ability of students at Yulin Normal University.

Data Collection: The researcher distributed questionnaires to the sample group and collected 217 valid responses within the specified time. The researcher conducted face-to-face interviews with 5 respondents and recorded the results. After completing the collection of the preset number of questionnaires and

verifying reliability and validity, the researchers conducted statistical analysis on all the data obtained from this survey.

Data Analysis: The researcher verified the reliability and validity of the questionnaire, selected the valid ones for analysis, and conducted frequency and percentage statistics on the basic information of the respondents by gender, major, and weekly self-study duration. The researcher also conducted mean and standard deviation analyses on each research variable and carried out content analysis of the interview results. Through data analysis, the researcher identified the current shortcomings and based on this, proposed guidelines for enhancing the lifelong learning ability of students at Yulin Normal University.

Results

Objective 1: To study the level of lifelong learning abilities of students at Yulin Normal University, China.: In this study, 217 questionnaires were distributed and 217 valid questionnaires were retrieved, with an effective rate of 100%, which met the requirements for data collection.

Table 1. Statistical table for each variable (n = 217)

Lifelong learning abilities of students		$\bar{X}$	S.D.	Level	Ranking
1	Self-directed learning ability	3.69	0.60	high	4
2	Information literacy	3.90	0.58	high	1
3	Problem-solving ability	3.76	0.62	high	3
4	Thinking ability	3.68	0.64	high	5
5	Cooperative ability	3.82	0.65	high	2
Total		3.77	0.56	high	

According to table 1, found that students in five aspects were at a high level ($\bar{X}$ = 3.77, S.D. = 0.56). The highest mean was information literacy ($\bar{X}$ = 3.90, S.D. = 0.58), followed by cooperative ability ($\bar{X}$ = 3.82, S.D. = 0.65), and problem-solving ability ($\bar{X}$ = 3.76, S.D. = 0.62). respectively, and thinking ability is the lowest mean ($\bar{X}$ = 3.68, S.D. = 0.64).

Objective 2: To propose the enhancement guidelines of lifelong learning abilities for students at Yulin Normal University, China.: This study conducted interviews with 5 educational administrators. The analysis of the

interview results is as follows:

Table 2 Summary of the interview

Opinions of interviewee to the enhancement guidelines of lifelong learning abilities for students at Yulin Normal University, China.
1. Self-directed learning ability 1.1 Guidelines for enhancement of the Self-directed learning ability of students as follows: 1) Students should develop awareness of active learning. 2) Integrate online and offline educational resources to broaden the channels for self-directed learning. 3) Offer elective courses to guide students to explore learning interests and formulate personalized learning paths. 4) Lower the barriers for students to access and utilize self-study resources, 5) The school holds a seminar on autonomous learning.
1.2 On ways to encourage students to keep themselves more motivated to learn as follows: 1) Teachers incorporate typical cases into the classroom to analyze the pressure of social competition and clarify the value of continuous learning in terms of competitiveness. 2) The school grants students the freedom to choose the learning content. 3) Teachers integrate content with practical applications, to stimulate students' learning interest. 4) Teachers encourage students to reflect on learning methods. 5) Teachers should frequently encourage students to enhance their motivation for learning.
2. Information literacy 2.1 Enhancement of the Information literacy of students as follows: 1) Students should learn the methods of efficiently searching for, evaluating and applying information. 2) The school offers special lectures on information literacy. 3) The school procures high-quality online cultural literacy resources for students' use.

Opinions of interviewee to the enhancement guidelines of lifelong learning abilities for students at Yulin Normal University, China.

4) Carry out information literacy activities, such as organizing digital teaching skills competitions and practical research projects.

5) Students shall use information in a legal and compliant way and safeguard their online privacy.

2.2 Guidelines to develop students to analyze data from multiple sources critically and have higher levels of information literacy as follows:

1) Teachers guide students to collect, compare and analyze the information from various media sources.

2) Teachers incorporate critical thinking into the teaching process and guides students to evaluate the credibility of the information.

3) Teachers organize students to conduct discussions on specific topics and encourage them to express their own views actively.

4) Teachers can organize debate competitions for students to foster their critical thinking abilities.

5) Teachers instruct students how to use artificial intelligence tools.

3. Problem-solving ability

3.1 Guidelines to enhancement of the Problem-solving ability of students as follows:

1) Design interdisciplinary courses to guide students in solving practical problems and integrating knowledge from various fields.

2) Implement the project-based teaching model to cultivate students' practical application ability of theoretical knowledge.

3) Establish a mentorship system to guide students to learn from both internal schoolteachers and industry experts.

4) Mastering and applying technical tools for problem-solving can significantly enhance students' problem-solving ability.

5) Help students develop the ability to solve problems.

3.2 Guidelines to develop students to cultivate students' ability to integrate knowledge from different fields to solve complex problems as follows:

1) The school offers interdisciplinary courses to cultivate students' ability to solve problems using knowledge from multiple disciplines.

Opinions of interviewee to the enhancement guidelines of lifelong learning abilities for students at Yulin Normal University, China.

- 2) The school has organized interdisciplinary cooperative projects, inviting students from different majors to participate.
- 3) The school invites outstanding individuals to share their experiences, aiming to stimulate students' interest in learning.
- 4) Teachers encourage students to explore their areas of interest.
- 5) The school collaborates with enterprises and communities, and involves students in practical activities, thereby integrating and applying knowledge.

4. Thinking ability

4.1 Guidelines to enhance the thinking ability of students as follows:

- 1) Embed controversial topics in professional courses to guide students in multi-dimensional discussions and avoid a single way of thinking.
- 2) The school organizes thematic seminars on critical thinking skills to guide students to improve their logical reasoning competence.
- 3) Teachers integrate the concept of project-based learning into the curriculum framework to cultivate students' analytical thinking abilities.
- 4) Through classroom debates and presentation activities, students' thinking processes can be externalized.
- 5) Students are expected to take the initiative to develop and improve their higher-order thinking skills.

4.2 Guidelines to develop students to establish connections between new and old knowledge and cultivate their higher order thinking abilities as follows:

- 1) Teachers use tools such as mind maps to guide students in identifying the connections between new and old knowledge.
- 2) Teachers gradually introduce new concepts in the classroom, allowing students to construct them based on their existing knowledge.
- 3) Teachers encourage students to explore links between new and prior knowledge and reflect on their thinking processes.
- 4) Teachers should guide students to make multi-dimensional comparisons and conduct in-depth analyses.

Opinions of interviewee to the enhancement guidelines of lifelong learning abilities for students at Yulin Normal University, China.

5) Teachers link the new and old knowledge in the class by using a step-by-step question chain, which can cultivate students' higher-order thinking abilities.

5. Cooperative ability as follows:

5.1 Guidelines to enhance the cooperative ability of students as follows:

- 1) The course introduces group projects to encourage students to work collaboratively to achieve common goals and cultivate teamwork spirit.
- 2) The school holds teamwork seminars to enhance students' collaborative competence.
- 3) Students are expected to establish awareness of active collaboration.
- 4) Teachers encourage students to participate in club activities to cultivate their teamwork skills.
- 5) Teachers create an inclusive atmosphere in the classroom to enhance students' willingness to cooperate and communicate.

5.2 Guidelines to develop students to actively resolve internal conflicts within the team as follows:

- 1) The school provides conflict resolution training courses to improve students' conflict-handling capabilities.
- 2) Before the team project is launched, clearly define the division of labor and cooperation norms to effectively prevent and resolve conflicts.
- 3) Cultivate team members' ability to think from others' perspectives, reach consensus on viewpoints, and reduce the occurrence of conflicts.
- 4) Clearly define the division of responsibilities within the team to minimize work overlap and misunderstandings.
- 5) Carry out conflict simulation training and guide student groups to practice the conflict resolution process.

The interviewees put forward the following suggestions for improving the lifelong learning ability of students at Yulin Normal University: In terms of self-directed learning ability, students need to foster the habit of independent learning, while teachers may guide them to set learning goals and apply progressive rewards to enhance self-monitoring and arouse their intrinsic motivation, In terms of information literacy, students need to master efficient

methods for information retrieval, evaluation and application; teachers should integrate such skills into disciplinary teaching to comprehensively enhance students' information literacy, In terms of problem-solving ability, teachers can design interdisciplinary courses in teaching practice to realize the integration and application of knowledge; they can also promote project-based learning to help students accumulate practical experience, In terms of thinking ability, teachers can optimize students' thinking patterns and break their fixed thinking patterns through forms such as classroom debates; by relying on interdisciplinary tasks, they can cultivate students' systematic thinking and knowledge transfer abilities, In terms of cooperative ability, students need to develop a sense of cooperation; teachers can use course group projects to guide the division of labor, enhance teamwork spirit, encourage students to participate in extracurricular activities, and stimulate their motivation for active cooperation. And The school should strengthen support in terms of policies, environment and equipment, increase investment of human resources, finances and materials, and comprehensively enhance the lifelong learning ability of students at Yulin Normal University.

Discussion

The researcher summarizes the discussion into two parts, details as follows:

Objective 1: To study the level of lifelong learning abilities of students at Yulin Normal University, China.

The results show that the lifelong learning abilities of first-year students were at high level and are consistent with the conclusions of existing related studies as follows: Information literacy is at a relatively high level; this study is related to the research conducted by Gao Kai (2023). The scholar pointed out that universities should give full attention to information literacy education and cultivate students' information ability and knowledge internalization ability. Wang Xiaosu (2019) and Yang Lichun et al. (2021) also proposed that information literacy is an important component of lifelong learning ability. Cooperative ability is at a relatively high level, which is related to the research of Wang Xiaosu (2019). The scholar pointed out that excellent cooperation skills not only enable students to achieve smooth communication and efficient collaboration in interpersonal interactions but are also one of the core competencies that college

students should possess. Problem-solving ability is at a relatively high level. Li Feng et al. (2023) believe that problem-solving ability can help college students adapt to the needs of social and personal development and support students in analyzing and handling practical problems in interdisciplinary learning, innovative research projects, and internship practices. Self-directed learning ability is at a relatively high level, and this ability is the key support for lifelong learning. Dong Kunming (2021) believes that a high level of autonomous learning ability can facilitate self-analysis, goal setting, and evaluation, regulate learning behaviors and attitudes, and combine experience to solve problems and optimize the knowledge system. Thinking ability is at a relatively high level, and it is the core support for lifelong learning and the sustainable development of individuals. Dong Kunming (2021) and Li Feng et al. (2023) pointed out that thinking skills help students integrate and apply the knowledge they have learned and also enable them to use dialectical thinking to solve complex interdisciplinary problems.

Objective 2: To propose the enhancement guidelines of lifelong learning abilities for students at Yulin Normal University, China.

The guidelines of lifelong learning abilities for students at Yulin Normal University, China have multiple approaches have consistent with the conclusions of existing related studies as follows: The guide for enhancing lifelong learning capabilities of students at Yulin Normal University is highly consistent with the strategic goal of "building a lifelong learning system and establishing a learning society" in "China's Education Modernization 2035". This plan closely aligns with the core role of higher education and meets the demand for sustainable talent cultivation in the modernization of education consistent with school level: Schools need to construct a system for cultivating lifelong learning abilities, which is consistent with the research viewpoints of many scholars. Dong Kunming (2021) advocates building a learning feedback mechanism, forming a "teaching - curriculum - evaluation - feedback" loop, to provide systematic support for students' ability improvement; at the same time, it is suggested to strengthen teacher-specific training to enhance their professional capabilities in guiding students to collaborate and conducting thinking training. Wang Xiaosu (2019) proposed that schools should change their traditional curriculum concepts and

focus on imparting knowledge with practical value consistent with student level: College students need to enhance their awareness and ability of self-development, which is in line with Wang Xiaosu's (2019) viewpoint. This scholar suggests that students should shift from passive learning to active learning, correct their motivation and formulate learning plans; through self-reflection and correct attribution to summarize experiences, actively participate in practice to hone the ability of independent decision-making; actively engage in group collaboration and inquiry tasks, and in the process of interaction, improve cooperation skills and knowledge sharing abilities, laying a solid foundation for the continuous development of lifelong learning ability.

Recommendation

For Education Administrators: Education administrators should strengthen policy support, resource allocation, and environment creation to enhance students' lifelong learning capabilities in five key aspects, while improving institutional systems and teacher professional training.

For Teachers: Teachers can cultivate students' comprehensive abilities through classroom guidance, project-based learning and practical training, thus helping them enhance their lifelong learning capabilities.

For Students: Students can apply lifelong learning to their personal development and practice it continuously. and should take ownership of their learning, set goals, and develop self-directed learning skills to enhance their lifelong learning capabilities.

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