# Putting People First to Promote Autonomous Learning for Contemporary College Students——Taking the Course of Engineering Economics as an Example

Xinxin Li [1] ,Yin Li [2]

{154976642@qq.com [1] ,whoa7788@foxmail.com[2]}

Shandong Jiaotong University, Jinan, Shandong, China

**Abstract.** In today's society, information is constantly changing, and it is difficult to achieve the desired study results solely through passive learning. Autonomous learning is a norm for college students in today's society, and it is also a fundamental learning ability that college students must possess. Autonomous learning should be centered around college students, adhere to the principle of putting people first, consider the characteristics of college students, and play a significant role in guiding the process of autonomous learning for college students. This article discusses the methods of cultivating students' self-directed learning ability in the course of Engineering Economics based on its characteristics.

**Keywords:** People-oriented, Contemporary college students, Autonomous learning process

## 1 Introduction

Putting people first refers to taking people as the foundation, satisfying and guiding their needs as the starting point, stimulating their subjective consciousness and initiative as the key, respecting, caring for, understanding, and helping people as the basic principles, realizing human values, promoting comprehensive, coordinated, and sustainable development, and promoting comprehensive social progress as the ultimate goal.[1] Therefore, putting people first emphasizes the subject status of college students.

The course of Engineering Economics is an applied discipline that intersects and integrates engineering and economics. This course is based on predicting future data and conducting economic evaluations of projects. There is significant uncertainty in the prediction process, similar to the social situation faced by contemporary college students, which requires students to have a certain degree of autonomous problem-solving ability, dealing with uncertainty and risks, and interdisciplinary collaboration ability. The cultivation of these abilities not only requires active guidance from teachers but also requires students to have the desire and ability to learn independently. Mr. Ye Shengtao believes that teaching is not to teach. Based on this, it is crucial to cultivate students' self-learning ability to achieve teaching objectives and talent cultivation goals.

Autonomous learning refers to the ability of college students to actively make independent decisions, implement learning behaviors, and use developmental thinking to think and actively

regulate their learning activities. Therefore, self-directed learning requires college students as the center, and it will have a good effect in guiding college students to adhere to people-oriented thinking in self-directed learning. Autonomous learning requires students to have initiative, enterprising spirit, and the ability to control themselves, while also giving them learning power and freedom.Autonomous learning is an important learning method that affects the academic achievement of college students.[2] The core literacy for college students to continuously unleash their potential as well. If autonomy is not fully utilized, without learning goals and interests, students cannot truly internalize the content taught by teachers, and thus cannot achieve the desired teaching objectives. Autonomous learning is also a creative activity that involves using hands and brains to comprehend new knowledge, gaining both knowledge and confidence.

## 2 The Learning Characteristics of Contemporary College Students

Contemporary college students are the talent resources for the future development of our country, to which their abilities and quality levels are closely related. In today's society, the material level is already abundant enough, and the level of internationalization is becoming deeper, requiring college students to have more autonomy and goals. However, through a survey of college students, the results showed the following characteristics.

### 2.1 Weak sense of autonomy

Due to the abundance of material resources in contemporary society, college students focus increasingly on pursuing spiritual aspects. Most parents have not received formal education in their children's education, especially for college students nowadays. Only children make up a large proportion, and parents have more expectations and affection for them. In rural areas, most parents go out to work, and there are rising left-behind children, or parents are busy with work and lack companionship and education with their children. Therefore, among today's college students, there are more controlling, doting, and neglecting parents. Whether they are controlling, doting, or neglecting parents, they are not conducive to the cultivation of children's autonomy. Parents taking over too much and controlling too much can lead to children being overly dependent on their parents, while neglectful parents can make their children turn their lives into proof problems, resulting in a lack of autonomy.

### 2.2 Weak self-control ability

The incorrect parenting style and imperfect living environment of parents make contemporary college students lack a sense of identification and belonging to their own values, leading to an incomplete development of their self-esteem system and inability to achieve the link between their own values and social needs, resulting in insufficient learning motivation and weak self-control ability of contemporary college students.

### 2.3 Vulnerable to external environmental influences

Most contemporary college students are between ages 18 and 23, still in their late adolescence. Their analytical, judgmental, and intellectual development have not yet matured, and their thinking is easily affected by various trends such as online information.[3] Therefore, conflicts, indecisiveness, and conformity often occur among contemporary college students, and most do

not have clear learning goals. Some have set learning goals in real time, but students are also easily influenced by the environment, and therefore they find it hard to take action according to the established goals.

### 2.4 Insufficient ability for self-reflection

Due to the lack of clear goals and comparative guidelines, contemporary college students also rarely engage in self-reflection and live a mediocre life. Reflection is a vital ability for a person. Without this, it is hard to achieve great success. Due to the lack of clear goals among contemporary college students, there are no comparative criteria for their learning outcomes, making it impossible to provide learning feedback. Therefore, contemporary college students rarely engage in self- reflection and live a mediocre life.[4] Their learning efficiency is low, let alone achieving progress in learning. And reflective thinking is a very important ability for a person, it is a feedback on the plan. Without this ability, it is difficult to evaluate the early plan and action process, and there is no way to improve, so it is difficult to achieve great success.

### 2.5 The ability of self-directed learning needs to be strengthened

According to the previous analysis, contemporary college students lack strong self-awareness, self-control ability, and self-reflection ability, resulting in insufficient planning, action, and reflection abilities, poor learning outcomes, and inability to achieve the expected training goals. Therefore, it is necessary to strengthen the cultivation of students' self-learning ability.

## 3 The Process of Self-directed Learning

Autonomous learning for college students is a complex process.[5] that involves goals, actions, reflection, and other processes. It varies from person to person and is a highly subjective process.

### 3.1 Set reasonable learning goals

On the basis of comprehensive and multi-dimensional self-awareness and self-evaluation, students improve their self-awareness, and then make demands on themselves to establish self-learning goals. And these goals require specificity, operability, relative rationality, relevance to one's own level, practicality and feasibility, and a certain degree of flexibility.

### 3.2 Conduct self-learning based on goals

Decompose the set goals, develop practical and feasible action plans, strengthen self-control ability, continuously strengthen the concept of self-directed learning, and work hard to complete plans and goals, achieving self-learning.

### 3.3 Conduct self-reflection

Based on the results of self-learning, students reflect on their own learning situation. If the plan is not very reasonable, they can adjust their self-learning goals appropriately based on the actual learning situation and their own plans. Alternatively, based on one's actual completion, confirm and affirm the self-learning process, find learning confidence, and set higher expectations for oneself to achieve self-improvement. Then enter the next cycle of self-directed learning, put forward new requirements for oneself, achieve further refinement, and continuously continue

the process of self-directed learning.The process of self-learning is a virtuous cycle of PDCA, characterized by continuous improvement and feedback. Based on the above analysis, the process of autonomous learning for college students can be represented in Figure 1.
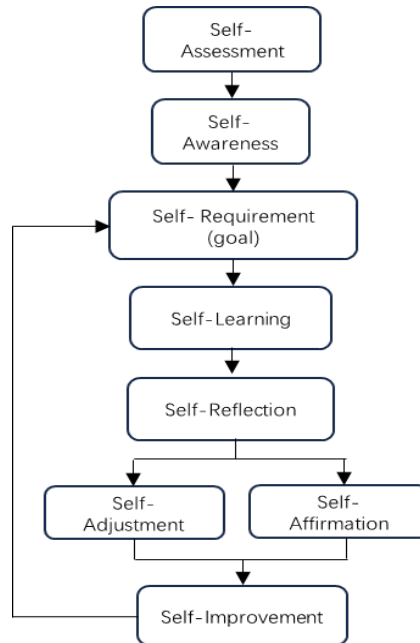


**Figure 1** Flow Chart of Autonomous Learning for College Students

## 4 The Specific Methods of Guiding Students to Learn Independently in the Course of Engineering Economics

According to the characteristics of the course of Engineering Economics, teachers need to use various methods and means to promote students to engage in self-directed learning during the teaching process. Through these methods, teachers can fully mobilize students' learning enthusiasm and classroom participation, increase opportunities for classroom interaction between students and teachers, and thus achieve teaching objectives in terms of knowledge, abilities, and qualities of the course. The corresponding relationship between the specific methods adopted in this course and the autonomous learning process of college students is shown in Figure 2:
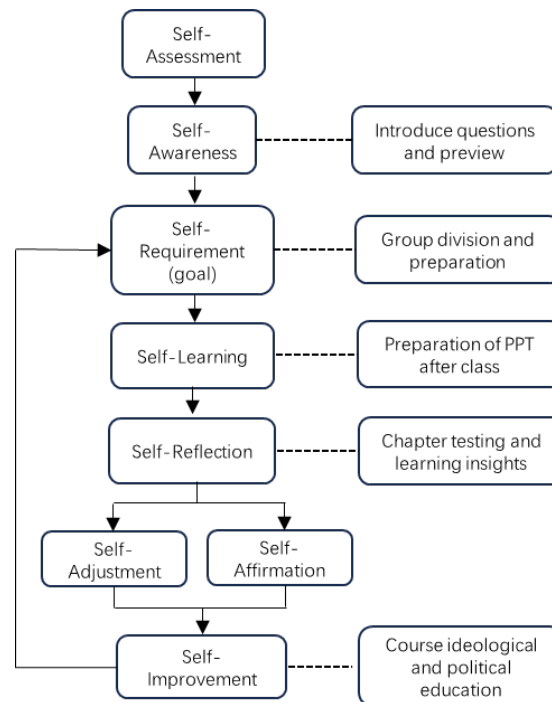
**Figure 2** Correspondence between Guiding Methods of Engineering Economics Course and Autonomous Learning Process of College Students

## 4.1 Stimulate students' awareness of self-directed learning through previewing and setting questions

Before explaining each section, assign preview tasks based on the content to be explained. When assigning preview tasks, pay more attention to constantly polishing the teaching details and try to stimulate students' learning and thinking enthusiasm in the form of questions. For example, in the calculation of fund equivalence, the difference between the current value of funds and the value of funds twenty years ago is introduced. When studying project investment, raise the question of how to analyze the different resources invested in different projects. These issues will attract students' attention and reflection.At the same time, guide students to use internet course resources for preview, encourage students to use online resources such as Rain Classroom and online courses to learn and practice and inspire students' awareness of self-directed learning.

## 4.2 Using group discussions to inspire students to set self-learning goals and enhance their overall abilities

According to the relevant content of the course chapters, group discussions will be adopted for teaching, and students in the class will freely combine and adjust according to the actual situation for grouping. Set different group discussion topics for different types of learning content. In course assessment, emphasis should be placed on process oriented assessment, with group discussions accounting for a significant proportion of regular grades, motivating students

to participate more. The student union sets roles in group discussions based on their own situation, actively participates, sets their own learning goals, and utilizes them to enhance their self-learning abilities.

## 4.3 Guide students to reflect after class

After completing the teaching of each chapter of the course, students will receive a chapter test based on the content to help them self-evaluate their mastery of this section. At the same time, based on the results of the self-test and their learning situation, students will be required to write their reflections on the stage of course learning, guiding them to reflect on themselves. Students can solve existing problems by consulting materials, discussing with classmates, and seeking advice from teachers. Ensure learning objectives while improving learning efficiency.

## 4.4 Integrating ideological and political education with course content and student self-directed learning to enhance students' overall quality

This course is closely related to engineering project construction. Furthermore, relevant theories and principles can be applied to daily life. In the course teaching process, through storytelling, engineering cases, life examples, and other methods, the ideological and political elements of the course are integrated into various chapters, stimulating students' awareness of self-directed learning and interest in the course. At the same time, it guides students in personality qualities, comprehensive qualities, and other aspects.

The corresponding relationship between the content of each chapter, ideological and political elements as well as the cultivation of quality, is shown in Table 1.

**Table 1** Corresponding Diagram between Course Content and Student Quality Cultivation

| Serial Number | Chapter Content | Course Ideological and Political Elements | Quality Cultivation |
|---|---|---|---|
| 1 | Overview | Introducing engineering examples to explain the process of engineering economic analysis | cultivating students' habit of seeking truth from facts, valuing learning, and applying economic knowledge to solve life and learning problems |
| 2 | Cash flow | introducing PPP mode | cultivate students' self-learning ability and awareness of win-win situation |
| 3 | Time value of funds | understanding the scarcity of resources and the limitations of time | cultivate the ability of students to analyze engineering and life problems with economic thinking, and cultivate the quality of cherishing time in students |
| 4 | Engineering economic factors | The Basic Work Procedure of Economic Evaluation of Engineering Projects | Cultivate students' goal thinking and equip them with basic ideas for handling complex problems. |
| 5 | Economic evaluation indicators | Explaining evaluation indicators through engineering examples | Cultivate students' dynamic analysis ability and establish a growth oriented mindset. |
| 6 | Comparison and selection of schemes | Introduce the concept of opportunity cost and compare and select engineering project plans based on case studies | Deepen understanding of resource scarcity and establish a mindset of conservation and sustainable |

| | | | development. Cultivate students' ability to make choices. |
|---|---|---|---|
| 7 | Risk and uncertainty analysis | During the course presentation, introduce uncertainty and risk factors in society. | Enable students to establish risk awareness and attach importance to the cultivation of self-learning ability. |
| 8 | Feasibility study | Explain the comprehensive analysis method of the project in conjunction with specific projects | Cultivate students' global thinking when dealing with problems, and equip them with lifelong learning abilities. |
| 9 | Value engineering | Explain the methods of object selection and functional evaluation in conjunction with engineering projects. | Establish awareness of scheme optimization and the concept of empathy. |

## 5 Empirical Study

Fully value the initiative of students and adopt different methods for different contents. When teaching the calculation of equivalent, teachers use the technique of unbalanced quotation as an example to guide students to analyze the specific application of equivalent calculation in engineering. After class, students collect real-life examples and analyze them using the principle of time value of funds to enhance their learning autonomy and interest. For the feasibility study section, it has strong comprehensive applicability. Students are divided into groups to collect relevant cases, discuss, and showcase their gains in class. While mastering the course content, students also improve their overall quality. Through these methods, the enthusiasm of students to participate in classroom learning and pre reading outside of class has greatly increased. Students share more and more in class, and from the results of classroom assessments, their ability to solve practical engineering problems has also been improved.

## 6 Several Suggestions for Promoting Self-directed Learning

### 6.1 Adhere to people-oriented principles, respect, understand, and care for students

Teachers should consider issues from students' perspectives so that students can feel the teacher's acceptance, understanding, and respect, which tends to guide them to accept themselves. Everything has its two sides, no matter what happens, one should be good at seeing the good side of things and understanding students' motivation to do good things. From this perspective, teachers can encourage and recognize students' advantages, while giving them higher-quality guidance.

### 6.2 Strengthen teachers' self-learning and focus on communication and interaction with students

In the process of self-directed learning for college students, guidance and assistance from teachers are essential.[6] Teachers should pay attention to their learnings, change the traditional thinking of "teaching determines learning", improve their abilities and qualities, while imparting

knowledge, pay more attention to the enlightenment of wisdom and the guidance of various abilities, and guide students to do well in self-directed learning. Teachers should increase opportunities for communication with students, listen carefully, understand their feelings, provide spiritual support and encouragement, grasp student dynamics, and facilitate personalized teaching.

### 6.3 Guide students to improve their ability to discern the internet

The internet has a dual nature and is not only a resource for learning but also contains some negative information. Therefore, attention should be paid to guiding students to discern anything useful online. Provide students with good learning resources, and at the same time, pay attention to guiding them in various interests to avoid excessive addiction to the internet and block their studies.

### 6.4 Improve parents' learning ability

Today's college students are greatly affected by their parents, and the quality of their parents and their guidance on the values of college students still play a critical role. Parents' quality and learning ability greatly promote the autonomous learning ability of college students. At present, China attaches increasing importance to family education, and offering a good atmosphere for students to learn independently.

### 6.5 Optimizing the Campus Environment for College Students

The learning environment is a key external factor that affects the self-directed learning of college students.[7] A good learning environment is conducive to promoting the awareness of self-directed learning among college students, improving their self-control ability, and effectively ensuring the effectiveness and goals of self-directed learning. Therefore, it is crucial to create a good atmosphere for self-directed learning, such as the current teaching reform that allows students to step onto the podium and participate more in the classroom, greatly improving their learning initiative and guiding them to learn independently.

## 7 Conclusion

Autonomous learning for college students is not only a vital way to improve learning efficiency and ensure learning results, but also an essential ability to cope with various uncertain factors in today's social environment. Through course learning, guiding students to engage in self-directed learning can achieve comprehensive and comprehensive cultivation of their knowledge, abilities, and qualities.

# References

[1]    Zhang Siyu, Research on the Management of College Students under the Theory of "Putting People First" [J]. Journal of Hubei Open Vocational College, 2023,36 (22): 44-46

[2]     Xin Zhongyi, Gao Lu, Liu Yanling. Sense of belonging and self-directed learning among college students: the role of achievement goals [J]. Heilongjiang Higher Education Research, 2020,38 (11): 132-136

[3]    Renée S. Jansen, Anouschka van Leeuwen, Jeroen Janssen, Rianne Conijn, Liesbeth Kester. Supporting learners' self-regulated learning in Massive Open Online Courses[J]. Computers & Education,2020,146(C).

[4]    Xia Jinyuan, Building a three-dimensional network of self-education and setting sail for post-2000 college students on a long journey-Take the School of Foreign Languages at Hanjiang Normal University as an example [J]. Journal of Hanjiang Normal University, 2023,43 (1): 135-138

[5]    Lingling Lou. Cultivation of Students' Autonomous Learning Ability in Application-oriented Universities [J]. Theory and Practice in Language Studies, 2021,11(4).

[6]    Li Yiting, Liu Xiaohang, Zhao Yuting Evaluation of the effectiveness of cultivating autonomous learning ability among college students [J] Heilongjiang Science, 2023,14 (19): 94-96

[7]    LEE S,  KIM D H,  CHAE S M. Self-directed learning and professional values of nursing students[J].Nurse Educ Pract, 2020(42):102647-102649.