

Research on Strategies to Improve College Students Independent Learning Ability

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Abstract

The independent learning ability of college students is essential to their academic success and future growth. This paper examines the current state of college students' independent learning skills, identifies key challenges, and proposes strategies for enhancing these skills across four domains: school, teachers, students, and society. Survey data and chart analysis reveal that students face challenges in areas such as study planning, time management, learning interest, and sustained motivation. To address these, the paper suggests improvements in curriculum design, strengthened learning guidance, and enhanced access to diverse learning resources. These strategies aim to provide practical insights for fostering independent learning skills among college students.

Keywords

Independent Learning Ability, College Students, Status Quo Analysis, Improvement Strategy.

1. Introduction

As society advances and the knowledge economy flourishes, the importance of college students' independent learning ability has become increasingly prominent. Classroom-based learning alone can no longer satisfy the diverse demands of societal development, and the concept of lifelong learning has emerged as a central theme in today's world [1]. Fostering an awareness of lifelong learning and cultivating habits aligned with this mindset rely heavily on the development of strong independent learning skills. Therefore, in addition to imparting knowledge, higher education institutions must place greater emphasis on nurturing students' self-directed learning capabilities, ensuring they are well-equipped to adapt to the fast-evolving information age [2]. However, challenges persist in fostering these abilities among college students. Common issues include poor study planning, limited time management skills, and a lack of self-discipline. This paper aims to analyze the current state of college students' independent learning abilities, identify key issues, and propose targeted strategies for improvement. By integrating empirical data, this study seeks to provide a scientifically grounded framework for optimizing the development of independent learning skills among college students[3].

2. The Far-Reaching Importance of Developing College Students' Independent Learning Ability

In today's rapidly evolving world, the speed of knowledge renewal is unprecedented, and traditional lecture-based teaching struggles to meet the demand for high-quality, adaptable

talent. Consequently, developing college students' independent learning abilities has become a vital focus in higher education.

Independent learning ability refers to an individual's capacity to drive, plan, monitor, and reflect on their learning process without direct supervision [4-5]. It signifies not merely a shift in learning style but a fundamental transformation in learning philosophy, as learners move from passively receiving knowledge to actively exploring the unknown.

The concept of independent learning is multifaceted, encompassing elements such as setting clear learning goals, crafting reasonable study plans, selecting effective learning resources, employing strategic learning methods, tracking progress and adjusting strategies as needed, and reflecting on outcomes [6].

In a fast-changing social landscape, independent learning enables college students to quickly adapt to new environments and challenges, fostering a lifelong learning mindset [7-8]. Through self-planning and self-monitoring, students can study more efficiently and purposefully, reducing wasted effort and improving learning outcomes. Additionally, independent learning encourages critical thinking and exploration of new fields, helping students cultivate innovative thinking and problem-solving skills [9]. Positive experiences in self-directed learning can boost students' confidence and sense of accomplishment, further fueling their motivation to learn and grow.

3. Practical Survey of College Students' Independent Learning Ability

3.1. Purpose of the Investigation

This study surveyed 104 university students in Hebei Province through an open-ended questionnaire. By examining students' responses, the survey aims to identify current deficiencies in college students' independent learning abilities and the specific challenges they face. The findings will provide a basis for recommending strategies to support and enhance independent learning among college students.

3.2. Content of the Investigation

The questionnaire analyzed students' responses in four key areas: learning motivation, self-management ability, collaborative learning, and information literacy. By calculating the percentage of responses for each option, the survey offers insights into students' attitudes toward independent learning and their actual levels of self-directed learning skills.

3.3. Selection of Participants

Hebei Province, known for its rigorous college entrance examination system, encourages high school students to develop strong autonomous learning skills. However, upon entering university, some students experience a decline in independent learning abilities due to the less structured learning environment. This study addresses this phenomenon by proposing specific, evidence-based learning strategies designed to strengthen independent learning skills, ultimately enhancing the comprehensive quality of higher education institutions. Participants in this survey were drawn from a comprehensive university in Hebei Province, resulting in 104 valid responses.

3.4. Development of Survey Tools

The questionnaire was designed primarily with objective, closed-ended questions, using an established instrument for assessing college students' autonomous learning abilities. It measures four primary dimensions: learning motivation, self-management ability, collaborative learning, and information literacy. Each primary dimension is further divided into secondary dimensions:

Learning Motivation: Includes subcategories of learning goals, self-efficacy, and learning interest.

Self-Management Ability: Includes learning planning, learning monitoring, and learning evaluation.

Collaborative Learning: Includes communication and help-seeking behaviors.

Information Literacy: Covers information acquisition, analysis, and application.

The questionnaire comprised 38 closed questions that capture various aspects of students' independent learning abilities. The language was intentionally simplified to be accessible, ensuring students would understand and willingly engage with the questions, thereby improving response quality and the validity of the survey results.

Table 1. Survey dimension of college students independent learning ability

Level 1 dimension	academic motivation	Self-management ability	Study cooperation	Information quality
Secondary dimension	learning target	Study plan arrangement	communication	information acquisition
	efficacy	Learning monitoring	Demand help	Information analysis and utilization
	learning interest	evaluation of learning		

3.5. Data Processing Methods

The questionnaire used a Likert five-point scale, with each question offering five response options: "completely disagree," "mostly disagree," "neutral," "mostly agree," and "completely agree." Based on students' selected responses, the percentage for each option was calculated to accurately capture students' attitudes toward independent learning and their actual levels of self-directed learning ability. This approach provides a clear and quantitative view of students' independent learning skills.

4. Investigation and Analysis of College Students' Independent Learning Ability

The current study utilized the "Independent Learning Questionnaire for College Students" to examine the status of independent learning abilities among college students. Using random sampling, data was collected from 108 undergraduates at North China University of Science and Technology, of which 104 responses were valid, yielding a recovery rate of 96.3%. Reliability and validity were analyzed through content validity and internal consistency. Using SPSS software, the independent learning abilities of students were examined across multiple dimensions, including the impact of demographic variables such as grade level, gender, and leadership experience.

4.1. Data Analysis Results

Background Analysis of the Subjects

Gender Analysis

A higher proportion of female students participated in the survey. Research often suggests that female students may exhibit stronger organizational and planning skills but may also experience higher anxiety levels. Recognizing gender differences in self-directed learning could help tailor support strategies for students more effectively.

Grade Distribution

Juniors comprised the largest group in the sample at 54.81%, followed by sophomores (25.00%) and seniors (18.27%). The lower participation of freshmen might be due to their recent transition to university, during which they are still forming self-study habits. For juniors and seniors, who are often under more academic and career pressure, targeted support in time management and career planning may prove especially beneficial.

Subject Category

Engineering students represented the majority (81.73%), with fewer participants from science, pharmacy, and management. The practical focus of engineering studies typically requires a high level of self-directed learning. However, the demanding nature of these courses may also challenge students' time management and planning abilities. Providing tailored resources for students in various disciplines could enhance their learning efficiency.

Post-Graduation Plans

Over half of the students indicated plans to pursue postgraduate studies, suggesting clear academic goals. Offering academic planning support to these students can further strengthen their self-study habits. Meanwhile, 24.04% of students expressed uncertainty about their future plans, which may lead to lower academic motivation and hinder their independent learning progress. Enhanced career guidance could help these students clarify their goals and increase their motivation.

Academic Performance

Among respondents, 48.08% rated their performance as above average, with 36.54% considering it excellent. Higher academic achievement is often linked to effective self-directed learning skills, including strategic planning and sustained motivation. Conversely, students with average or lower performance may benefit from targeted interventions to improve their study methods and time management.

Leadership Experience

A total of 55.77% of students had experience as class or community leaders, suggesting they may possess strong time management and planning skills, enabling them to balance academic and extracurricular activities effectively. Students without leadership experience might require additional support in self-management and organizational skills. Offering leadership training and time management courses could further enhance these skills.

Class Size

Most students (90.38%) reported being in classes with fewer than 30 students, which may provide more opportunities for personalized guidance and active engagement. However, students in larger classes might face reduced interaction and feedback, potentially requiring stronger self-directed learning skills to manage their studies independently.

Only Child Status

The survey included 28.85% only children and 71.15% non-only children. Only children may develop independence earlier due to family dynamics but may also feel higher academic pressure, leading to increased anxiety. Non-only children might be more reliant on family support. Tailoring support strategies for these groups can help address their unique challenges effectively.

4.2. Analysis of Learning Motivation and Self-Efficacy

The questionnaire included specific items related to learning objectives, self-efficacy, and learning interest to explore the motivations behind students' independent learning, as shown in Figure 1.

Self-Efficacy

The data reveal a strong sense of self-efficacy among the participants. Less than 1% of students selected the "not confident" option for items related to self-efficacy, indicating that nearly all students believe in their ability to tackle academic challenges. This finding underscores a prevailing confidence among students in their problem-solving capabilities and their readiness to actively seek solutions when faced with difficulties.

Learning Interest

Similarly, the results indicate a high level of interest in learning. Most students reported a keen enthusiasm for learning and expressed a willingness to engage in in-depth study during their spare time. This trend highlights a widespread dedication and passion for learning, showing that many students are motivated by intrinsic interest in their studies.

Scholarships as Motivational Factors

When asked about the role of scholarships as a motivator, the majority of students responded positively, viewing scholarship opportunities as a significant incentive to enhance their academic efforts. This extrinsic motivation reflects students' ambition and competitive spirit, demonstrating how scholarship potential can serve as a powerful driver for academic engagement and achievement.

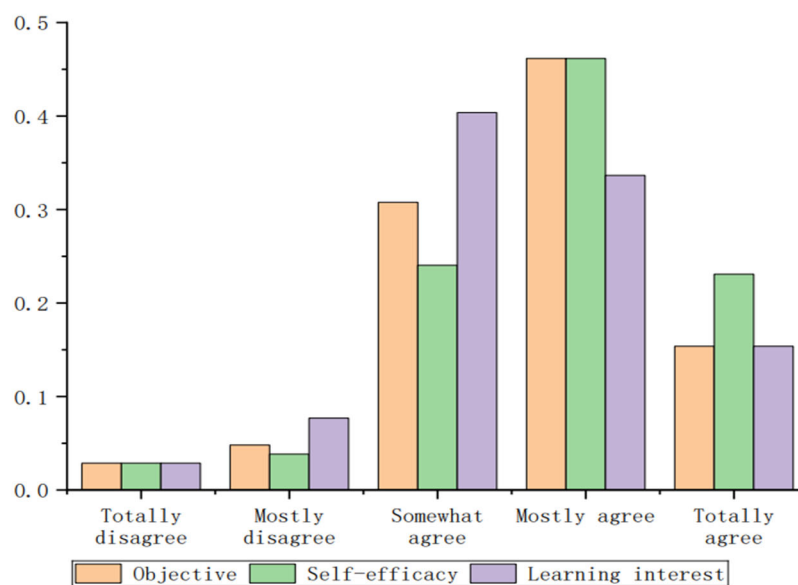


Figure 1. Learning motivation of college students

4.3. Learning Evaluation and Self-Management Abilities

In assessing self-management ability, the questionnaire focused on three core aspects: study plan development, monitoring of the learning process, and evaluation of learning outcomes, as shown in Figure 2.

Study Plan Development

About 10% of students reported that they do not yet have a habit of creating study plans before beginning tasks, which may stem from individual differences in personality and learning styles. To address this, we encourage students to develop personalized study plans that align with their unique strengths and preferences. Additionally, teachers are advised to provide guidance to support students in building effective planning habits.

Monitoring the Learning Process

Most students demonstrated proactive self-management, reporting that they choose study environments conducive to focus, thus effectively minimizing external distractions. This

indicates strong self-discipline and awareness of effective study conditions, which is commendable.

Self-Evaluation

On the self-evaluation front, the majority of students indicated they could identify and use learning methods that work best for them, showcasing a solid sense of self-awareness and adaptability. However, a small subset of students showed challenges in evaluating their learning effectiveness, suggesting a need for additional support in developing self-reflective skills.

A noteworthy finding emerged regarding study-related anxiety: 28% of students reported experiencing anxiety during their studies. While moderate levels of anxiety can be normal and even beneficial in motivating students, excessive anxiety can negatively impact their learning and well-being. Consequently, we recommend that teachers remain attentive to students' psychological well-being, providing timely counseling and resources to help them cultivate a positive and balanced approach to their studies.

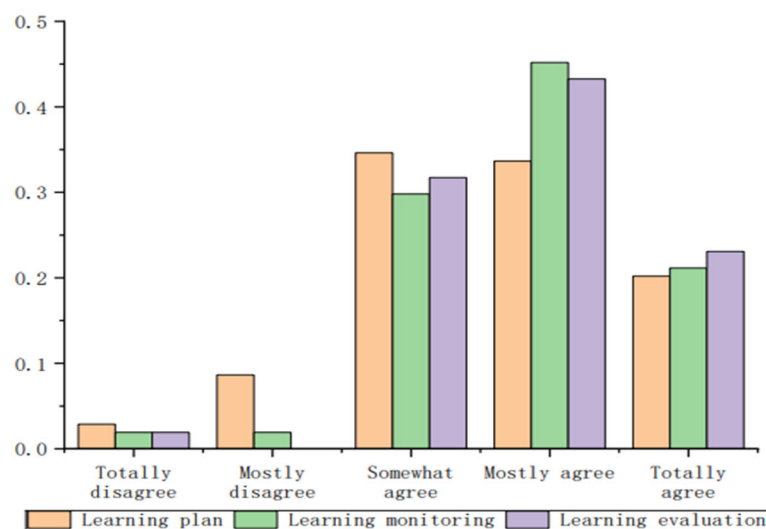


Figure 2. Self-management ability of college students

4.4. Strong Communication Skills with Limited Initiative in Seeking Help

In evaluating collaborative learning abilities, the focus was placed on two dimensions: communication and seeking assistance.

Communication

Most students demonstrated high engagement in team communication, actively sharing personal insights, learning experiences, and challenges with their peers. This openness and enthusiasm for collaboration highlight a positive and supportive learning environment, as illustrated in Figure 3.

Seeking Help

However, a small subset of students (9.61%) showed a reluctance to seek help from others when needed. This hesitation to ask for assistance may hinder their ability to fully benefit from collaborative learning. To address this, teachers could implement strategies to encourage students to seek help more freely, such as creating structured opportunities for questions or fostering a classroom culture where consulting peers and instructors is actively promoted. These measures could enhance the cooperative learning environment, helping students leverage collective knowledge more effectively.

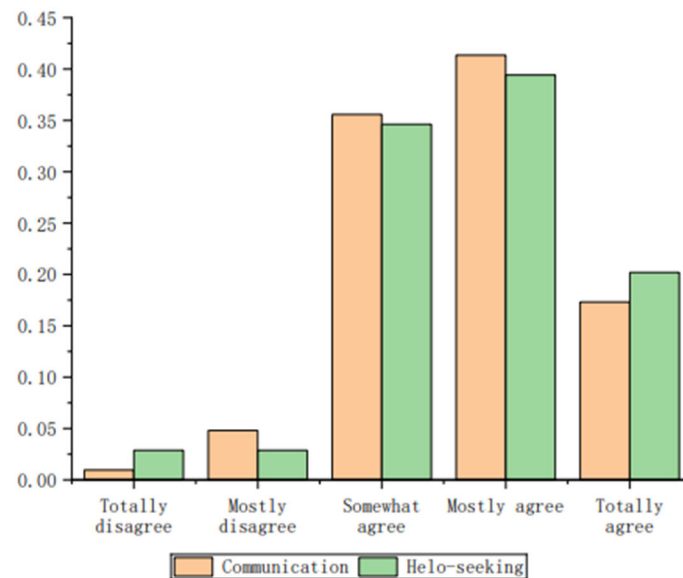


Figure 3. College students study and cooperation

4.5. Good Information Access but Room for Improvement in Analysis and Utilization

In evaluating information quality, the investigation focused on two key dimensions: information acquisition and information analysis and utilization.

Information Acquisition

Most students displayed a positive attitude towards learning, actively seeking a variety of materials to enrich their knowledge. However, approximately 10.58% of students have not yet developed the habit of regularly accessing academic journals, which suggests an area for improvement in information acquisition habits.

Information Analysis and Utilization

The majority of students were able to effectively identify and organize core ideas from the information they gathered, demonstrating strong skills in synthesizing and summarizing key concepts. However, there is still room for improvement in their ability to analyze and process more complex information. Enhancing students' information analysis skills will allow them to engage with and utilize more intricate and multifaceted data more efficiently and accurately.

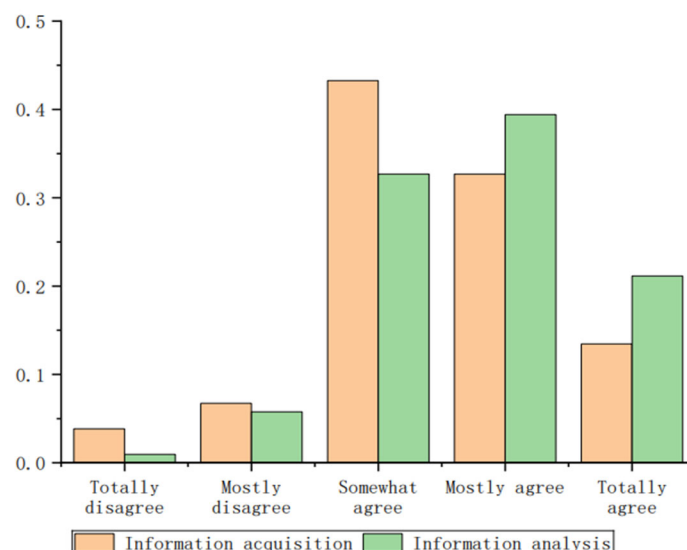


Figure 4. Information quality of college students

5. Strategy for Improving College Students' Independent Learning Ability

Self-directed learning is the ability to independently acquire knowledge, skills, and information, without external guidance or supervision. This ability encompasses not just mastering existing knowledge, but also innovating and exploring new areas of learning. Individuals with strong independent learning skills can effectively plan their learning, choose appropriate resources, evaluate their progress, and actively seek solutions when facing difficulties. In today's rapidly changing world, this ability is critical as it helps individuals adapt to new challenges and continuously improve their competencies.

5.1. Colleges and Universities Should Focus on Enhancing the Curriculum System

Improve Course Design

Survey results indicate that more than half of the students are planning for postgraduate studies, signifying clear academic goals. However, 24.04% remain uncertain about their future. To assist these students, universities should introduce career planning courses to help them clarify goals and future paths. Additionally, more flexible course choices and interdisciplinary projects should be offered, especially for engineering students, to foster opportunities for self-directed learning and problem-solving through practical applications.

Provide Rich Learning Resources

With 81.73% of students enrolled in engineering fields, there is a clear demand for technical and practical learning resources. Universities should expand access to both online and offline resources, such as virtual laboratories, technical seminars, and academic databases. Engaging students in research projects can deepen their independent learning and critical thinking skills, enhancing their ability to solve real-world problems.

5.2. Teachers Should Strengthen Guidance and Provide Timely Feedback to Promote Learning Effectiveness

Strengthen Learning Guidance

Many students face challenges with time management and learning anxiety. Teachers should focus on nurturing time management skills, especially among those with lower academic performance, and help students improve their self-management. By posing open-ended questions and fostering classroom discussions, teachers can stimulate students' independent thinking and curiosity, particularly in fields like engineering and management.

Provide Personalized Feedback

Teachers should offer personalized guidance to students with lower academic performance or high anxiety levels. For students with leadership experience, such as class or community leaders (55.77% of students), challenging learning tasks can enhance their motivation and self-efficacy. For others, teachers should help set achievable learning goals to gradually build their confidence and academic abilities.

5.3. Students Should Develop Detailed Study Plans to Cultivate Self-Discipline and Perseverance

Specify a Study Plan

According to the survey, only 20.19% of students consistently create study plans. This suggests that most students need improvement in planning and executing their studies. Students should be encouraged to create personalized study plans based on their interests, future goals, and academic requirements. Those preparing for postgraduate exams should set both long-term and periodic goals, while students uncertain about their career paths can explore their interests through career development courses.

Cultivate Self-Discipline and Persistence

With 27.88% of students experiencing study-related anxiety, cultivating perseverance is crucial. Students should develop self-management strategies to maintain a positive attitude, particularly under stress. Regularly assessing learning goals, adjusting plans when necessary, and practicing emotional management techniques (e.g., exercise or meditation) will help reduce anxiety and maintain motivation.

5.4. Society Should Collaborate to Build a Positive Learning Environment and Offer Practical Opportunities

Create a Positive Learning Atmosphere

Families and communities play an important role in fostering a supportive learning environment by offering emotional support and guidance. Since 71.15% of students are non-only children, they may face additional family responsibilities, which can impact their academic performance. Encouraging a healthy balance between family and academic responsibilities is crucial. Additionally, promoting lifelong learning through social media and public institutions can further stimulate students' enthusiasm for learning and enhance their sense of self-efficacy.

Provide Practical Opportunities

Many engineering students express a need for practical experience. Society should facilitate more internship and social practice opportunities, particularly in fields like engineering, management, and pharmacy, to help students apply their theoretical knowledge in real-world settings. Moreover, students planning to pursue postgraduate studies can benefit from participating in research projects that foster independent thinking and problem-solving skills.

6. Conclusion

This paper explores the current state of college students' independent learning abilities, focusing on the challenges they face in making learning plans, managing time, cultivating learning interest, and coping with anxiety. To improve students' independent learning capabilities, several strategies are proposed at various levels:

1. School-Level Strategies: Establish a supportive learning system and provide abundant resources to promote self-directed learning.
2. Teacher-Level Strategies: Encourage independent thinking and offer personalized feedback to help students overcome challenges.
3. Student-Level Strategies: Cultivate good study habits, self-discipline, and perseverance to enhance the effectiveness of independent learning.
4. Social-Level Strategies: Provide more internship opportunities and promote a culture of lifelong learning to support students' development.

Implementing these strategies can help improve students' independent learning abilities and academic performance. Future studies should evaluate the effectiveness of these strategies in diverse settings and explore their long-term impact on students' academic and professional success.

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