

Current Status of Online Self-Learning Efficacy Level for High School Students

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Abstract: Self-efficacy in learning is an individual's belief in their ability to effectively achieve learning goals during autonomous learning. Its measurement is typically conducted through self-report questionnaires, aiming to comprehensively assess students' levels of self-efficacy in learning. Factors influencing self-efficacy in learning include personal successful experiences, personality traits, social support, learning environments, task difficulty, among others. Self-efficacy in learning is closely related to online learning, as it not only affects students' attitudes, motivation, and strategies in learning but also predicts their behaviors and outcomes in online learning. Therefore, enhancing students' self-efficacy in learning is crucial for promoting their autonomous learning and academic success in online learning environments.

Keywords: High School Students; Online; Self-efficacy in Learning; Level.

1. Introduction

With the rapid development of information technology, online learning has become an important part of high school students' learning. Online learning not only provides students with rich learning resources but also offers them a more flexible way of learning. However, the effectiveness of online learning is influenced by various factors, among which students' self-efficacy in learning is particularly important (Amponsah, K. D., Gyamfi, K. A., Awoniyi, F. C., & Mintah, P. C. 2024). This study aims to explore in depth the level of high school students' self-efficacy in online learning and its influencing factors, in order to provide theoretical basis and practical guidance for improving the quality of online learning.

In recent years, with the popularity of network technology and the richness of online educational resources, more and more high school students choose online learning as a supplement or alternative to traditional classroom learning. However, the effectiveness of online learning has always been a concern. Self-efficacy in learning, as one of the key factors affecting the quality of online learning, refers to students' beliefs and judgments about their online learning abilities, learning outcomes, and learning processes (Abdulrahman, A. 2024). It not only affects students' learning attitudes, learning strategies, and learning motivation but also predicts students' learning achievements and academic success. Therefore, research on the level of high school students' self-efficacy in online learning is of great theoretical and practical significance.

Researchers generally believe that self-efficacy in learning is an individual's belief in their learning abilities, reflecting students' confidence and judgments in whether they can complete learning tasks and achieve learning goals. In order to measure students' self-efficacy in learning, researchers have developed various scales and questionnaires, such as the "Learning Self-Efficacy Scale" developed by Pintrich, which have good reliability and validity, providing researchers with effective measurement tools (Jia, F., Meng, J., Ma, Y., & Mao, Y. 2024).

Research shows that self-efficacy in learning is influenced

by various factors. Among them, students' personal factors such as gender, age, learning styles, environmental factors such as family background, school atmosphere, online learning resources, and task factors such as task difficulty, task type, etc., will affect students' self-efficacy in learning (Kim, B. J., & Kim, M. J. 2024). In addition, students' self-efficacy in learning is also closely related to their psychological factors such as learning achievements, learning motivation, etc.

Research shows that self-efficacy in learning is closely related to the effectiveness of online learning. Students with high self-efficacy in learning are more likely to adopt active learning strategies, such as active learning, deep learning, etc., thus achieving better learning outcomes (Huang, K. L., Liu, Y. C., & Dong, M. Q. 2024). At the same time, they are also more likely to maintain a positive attitude and confidence when facing learning difficulties, thus adapting better to the online learning environment.

Although domestic and foreign research on high school students' self-efficacy in online learning has made certain achievements, there are still some shortcomings. First, existing research mainly focuses on theoretical exploration and scale development, lacking empirical research support (Reyes, J. M., Gentry, J. E., Atchley, S., & Phillips, J. 2024). Secondly, existing research mostly focuses on the overall level of students' self-efficacy in learning, lacking in-depth exploration of the differences in self-efficacy in learning levels under different subjects and different learning contexts. Finally, existing research lacks in-depth exploration of students' self-efficacy in learning during their online learning processes.

Future research can be conducted from the following aspects: firstly, strengthen empirical research, collect data through questionnaire surveys, interviews, etc., to explore in depth the level of high school students' self-efficacy in online learning and its influencing factors; secondly, pay attention to the differences in self-efficacy in learning levels under different subjects and different learning contexts; finally, carry out dynamic research to explore the changes in students' self-efficacy in learning during their online learning processes and the evolutionary laws of its influencing factors. These

studies will help to better understand the current situation and characteristics of high school students' self-efficacy in online learning and provide strong theoretical support and practical guidance for improving the quality of online learning.

2. Research Overview

2.1. Definition and Measurement of Self-Efficacy in Learning

With the rapid development of information technology, online learning has become an indispensable part of the modern education system. For high school students, they not only need to face traditional classroom learning but also need to adapt to and integrate into this new learning mode. In this context, the concept of self-efficacy in learning is particularly important. It relates to students' confidence, motivation, and level of sustained effort in the process of autonomous learning. This paper aims to review the research progress in the definition and measurement of self-efficacy in learning, in order to provide references for subsequent research.

2.1.1. Definition of Self-Efficacy in Learning

Self-efficacy in learning (SESRL) is a relatively new concept that originates from Bandura's theory of self-efficacy. Self-efficacy is an individual's belief in their ability to complete specific tasks or achieve specific goals. Self-efficacy in learning applies this belief specifically to the process of self-regulated learning, i.e., an individual's belief in their ability to effectively utilize learning strategies, control learning behaviors, and achieve learning goals (Li, X., Zhang, J., & Yang, J. 2024).

In the fields of education and psychology, self-efficacy in learning is considered an important factor influencing students' learning outcomes. It not only affects students' learning attitudes, motivation, and strategies but also predicts their learning achievements and academic success. Therefore, for high school students, the level of self-efficacy in learning directly relates to their performance in online learning.

2.1.2. Measurement of Self-Efficacy in Learning

Due to the importance of self-efficacy in learning, researchers have been committed to developing effective measurement tools to assess students' levels of self-efficacy in learning. Currently, commonly used measurement methods include self-report questionnaires, observational assessments, indirect measurement methods, and experimental assessments.

2.1.3. Self-Report Questionnaires

Self-report questionnaires are one of the most commonly used methods for measuring self-efficacy in learning. This method requires subjects to rate a series of statements related to self-learning according to their actual situation. By statistically analyzing these ratings, the level of self-efficacy in learning of the subjects can be determined. For example, the "Learning Self-Efficacy Scale" developed by Pintrich et al. is a commonly used self-report questionnaire. This scale includes multiple dimensions, such as learning strategies, learning control, learning outcomes, etc., which can comprehensively assess students' levels of self-efficacy in learning (Malsakpak, M. H., & Pourteimour, S. 2024).

2.1.4. Observational Assessments

Observational assessment is another method for measuring self-efficacy in learning. Researchers evaluate subjects' levels of self-efficacy in learning by observing their behaviors and performances in specific tasks or situations. For example, in

the process of online learning, researchers can observe students' learning behaviors, learning progress, and learning outcomes, thereby indirectly assessing their levels of self-efficacy in learning (Fan, L., & Cui, F. 2024). However, this method requires a lot of time and effort and is susceptible to the subjective factors of observers.

2.1.5. Indirect Measurement Methods

Indirect measurement methods assess self-efficacy in learning by measuring variables related to self-efficacy in learning. For example, researchers can infer students' levels of self-efficacy in learning by measuring variables such as learning attitudes, learning motivation, and learning strategies. The advantage of this method is that it can collect data through multiple approaches, thus comprehensively assessing students' levels of self-efficacy in learning (Liu, Y., Wang, W., Wei, S., Wang, P., Chen, K., Liu, J., & Chen, J. 2024). However, it also has certain limitations, such as the inability to directly measure students' levels of self-efficacy in learning.

2.1.6. Experimental Assessment Methods

Experimental assessment methods measure and evaluate self-efficacy in learning through experimental control and manipulation. This method usually needs to be conducted in a laboratory environment, where researchers observe changes in subjects' levels of self-efficacy in learning by controlling certain variables. For example, researchers can observe students' levels of self-efficacy in learning under different conditions by setting different learning tasks or situations. However, this method requires strict control of experimental conditions and is difficult to operate.

In summary, the measurement of self-efficacy in learning is a complex and important process. Researchers need to choose appropriate measurement methods according to their research purposes and actual situations, and combine multiple methods to comprehensively assess students' levels of self-efficacy in learning. At the same time, future research needs to further explore and improve the measurement tools and methods of self-efficacy in learning, in order to better serve educational practice and student development.

2.2. Factors Influencing Self-Efficacy for Self-Regulated Learning

With the rapid development of information technology, online learning has become an essential part of modern education systems, especially for high school students, where this mode of learning is increasingly popular (Ye, S., Jenatabadi, H. S., Ye, M., Chen, M., Lin, X., & Zaida, M. 2024). In this context, the concept of self-efficacy for self-regulated learning has received widespread attention. Self-efficacy for self-regulated learning refers to an individual's belief and judgment in their ability to complete learning tasks and achieve learning goals in the context of autonomous learning. It has profound effects on students' attitudes, motivation, and learning outcomes. This paper aims to review the factors influencing self-efficacy for self-regulated learning, providing valuable insights for related research and practices.

2.2.1. Personal Factors

Personal factors are crucial aspects influencing self-efficacy for self-regulated learning. Firstly, personal success experiences are foundational factors affecting self-efficacy for self-regulated learning (Ahn, J., & Bowers, A. J. 2024). When individuals succeed in a task, they gain confidence in their abilities and skills, thereby enhancing their self-efficacy

for self-regulated learning. Conversely, failure experiences may decrease their self-efficacy. Additionally, personality traits also influence self-efficacy for self-regulated learning. For example, optimistic and persevering students often exhibit higher self-efficacy for self-regulated learning, showing more persistence in the face of difficulties.

2.2.2. Social Factors

Social factors also have significant impacts on self-efficacy for self-regulated learning. Firstly, social support is one of the important factors influencing self-efficacy for self-regulated learning. When individuals feel supported and encouraged by family, friends, or teachers during the learning process, their self-efficacy for self-regulated learning increases (Ngoc, D. M., & Hoai, L. P. 2024). This support can be in the form of verbal encouragement, behavioral assistance, or emotional support. Moreover, social comparison also affects self-efficacy for self-regulated learning. When individuals compare themselves with others, they adjust their self-efficacy for self-regulated learning based on the comparison results. If they perceive themselves as superior or more capable than others, their self-efficacy for self-regulated learning increases; otherwise, it decreases.

2.2.3. Environmental Factors

Environmental factors play a significant role in influencing self-efficacy for self-regulated learning. Firstly, the richness and quality of learning resources directly affect students' self-efficacy for self-regulated learning. When learning resources are abundant and of high quality, students are more likely to gain confidence in their learning abilities, as they can easily access the necessary knowledge and information (Hasan, A. Q., Samia, M., Nadia, S., & Azzedine, B. 2024). Additionally, the safety, comfort, and convenience of the learning environment also affect students' self-efficacy for self-regulated learning. In a safe, comfortable, and convenient learning environment, students are more likely to focus on learning, reduce external distractions, and thus enhance their self-efficacy for self-regulated learning.

2.2.4. Task Factors

Task factors are also important influences on self-efficacy for self-regulated learning. Firstly, the difficulty and complexity of tasks affect students' self-efficacy for self-regulated learning. When tasks are too difficult or complex, students may feel helpless and discouraged, leading to a decrease in self-efficacy for self-regulated learning (Milliner, B., & Dimoski, B. 2024). Conversely, when tasks are moderate, students are more likely to succeed, thereby enhancing their self-efficacy for self-regulated learning. Additionally, the interest and value of tasks also affect students' self-efficacy for self-regulated learning. When students are interested in tasks and perceive them as valuable, they are more likely to invest more time and effort in learning, thereby increasing their self-efficacy for self-regulated learning.

In conclusion, self-efficacy for self-regulated learning is influenced by multiple factors, including personal, social, environmental, and task factors. These factors are intertwined and interact with each other, collectively forming a complex system influencing self-efficacy for self-regulated learning (Zhang, L. 2024). Future research should delve deeper into the mechanisms of interaction between these factors and how they collectively influence students' self-efficacy for self-regulated learning. Additionally, attention should be paid to how educational interventions and practical strategies can be

used to enhance students' self-efficacy for self-regulated learning, thereby promoting their autonomous learning and comprehensive development.

2.3. The Relationship Between Self-Learning Efficacy and Online Learning

With the rapid development of information technology, online learning has become an important part of the modern educational system. Compared to traditional classroom teaching, online learning provides students with a broader learning space due to its characteristics of flexibility, autonomy, and rich resources (Zhang, J., & Zhang, L. J. 2024). However, the successful implementation of online learning is not easy, and one key factor is students' self-learning efficacy. This paper aims to review the relationship between self-learning efficacy and online learning, providing useful references for related research and practice.

2.3.1. The Influence of Self-Learning Efficacy on Online Learning

Self-learning efficacy refers to individuals' beliefs and judgments in their ability to complete learning tasks and achieve learning goals during autonomous learning. In online learning, this efficacy significantly affects students' learning outcomes. Firstly, self-learning efficacy can influence students' learning attitudes and motivation (Zimu, Y. 2024). When students are confident in their learning abilities, they are more likely to actively engage in online learning, overcome difficulties, and maintain continuous learning motivation. Conversely, if students lack confidence in their learning abilities, they may develop a negative learning attitude, even giving up on online learning.

Self-learning efficacy also affects students' learning strategies and methods. Students with higher self-learning efficacy tend to adopt positive learning strategies and methods, such as setting clear learning goals, making reasonable study plans, and using effective learning tools. These strategies and methods help them better understand and master knowledge, thus improving learning outcomes (Mee, T. L., & Peng, L. 2024). In contrast, students with lower self-learning efficacy may adopt negative learning strategies and methods, leading to poor learning outcomes.

Self-learning efficacy also influences students' online learning behaviors and results. Research shows that students with higher self-learning efficacy are more likely to actively participate in online discussions, ask questions, and share experiences, which helps them deepen their understanding and application of knowledge. At the same time, they are also more likely to achieve excellent results and performance in online learning (Tao, Y., & Yu, J. 2024). In contrast, students with lower self-learning efficacy may participate less in these interactive activities, leading to poor learning outcomes.

2.3.2. The Influence of Online Learning on Self-Learning Efficacy

As a new learning method, online learning also affects students' self-learning efficacy. Online learning provides students with more opportunities and resources for autonomous learning (Zhang, J. 2020). In online learning, students can choose learning content and methods according to their learning progress and interests, which helps them better exert their abilities and potentials, thereby improving their self-learning efficacy.

The interactivity and collaboration in online learning also support students' self-learning efficacy. In online learning,

students can communicate and collaborate with teachers and classmates through online platforms, which helps them better understand and master knowledge. It also helps them gain support and encouragement from others, thereby enhancing their self-learning efficacy (Sun, G., Zuo, H., & Pan, M. 2015).

It is worth noting that online learning also has some challenges and difficulties, such as the sense of loneliness in the learning environment, the dispersion of learning resources, and the uncontrollability of learning progress. These challenges and difficulties may have a negative impact on students' self-learning efficacy (Shao, R. 2010). Therefore, in online learning, teachers need to adopt effective teaching strategies and methods to help students overcome these difficulties and improve their self-learning efficacy.

In summary, there is a close relationship between self-learning efficacy and online learning. Self-learning efficacy can affect students' online learning outcomes, and online learning also affects students' self-learning efficacy. Therefore, in online learning, teachers should pay attention to students' self-learning efficacy and adopt effective teaching strategies and methods to help students improve their self-learning efficacy, thereby promoting their autonomous learning and comprehensive development. Future research can further explore the interaction mechanism between self-learning efficacy and online learning, as well as how to improve students' self-learning efficacy through educational interventions and practical strategies.

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