# Effect of Learning Outcomes in the Second Class of College Students in China on Core Competencies: Taking Learning Self-efficacy as a Moderator

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## Abstract

*This study used learning self-efficacy as a Mediator to examine the effect of learning outcomes in the second class on core competencies of university students. The researchers developed a structural equation model and a research hypothesis using the second class learning outcomes scale, learning self-efficacy scale and core competencies scale. After analysis, the 3 scales had sufficient reliability, validity, and fit. The researchers distributed electronic questionnaires of the "second class report card" to students in 6 pilot universities in Guangxi Province, China, and participants responded using 5-point Likert-type scales. The researchers collected 2133 valid questionnaires. The results of the analysis showed that university students' learning outcomes in the second class is a positive predictor of their core competencies, and learning self-efficacy partially mediator the influence of learning outcomes in the second class on core competencies. Therefore, improving Chinese university students' learning outcomes in the second class may improve their core competencies, and second class can have a positive effect on core competencies through learning self-efficacy. University administrators and teachers should enhance the learning self-efficacy of university students and promote their core competencies.*

**Keywords:** *Core Competencies, Second Class Learning Outcomes, Learning Self-Efficacy, Moderato.*

## Introduction

China has put forward reform and innovation requirements for colleges and universities, requiring them to optimize the construction of disciplines, adjust the cultivation mode of talents, and focus on cultivating application-oriented talents (State Council of the People's Republic of China, 2010). The Ministry of Education of the People's Republic of China (2014) has proposed a system of core competencies for the development of students at all academic levels, specifying the necessary character and key abilities that students should possess to adapt to lifelong development and social development. With the advent of the era of "core competencies" education, in the in-deepening reform of the new curriculum, how to cultivate students' core competencies in the critical period of students' development in college, so as to better realize the organic connection between the student era and the social stage, it is an issue worth studying.

The General Office of the State Council of China (2019) issued the Opinion on Deepening the Reform and Innovation of Ideological and Political Theory Classes in Schools in the New Era, proposing to "insist on opening the door to run ideological and political classes, promote the combination of practical teaching in ideological and political classes with students' social practice and volunteer service activities, and combine a small class for ideology and politics with a large class for society". In the new era, ideological and political education should be combined with social life and social practice, attention should be paid to the practical education outside the theory, and young students should be guided to participate in the practice of the "second class" in diversified extracurricular forms. The characteristics of participation, diversity and adaptability of the second class can enhance the overall development of university students and better improve their core competencies (Guo Henan, Du Fang, Yao Jingwen, Zeng Huimin, Yang Fan, 2019).

University students are in the most important youthful period of their lives, and the needs of university students are characterized by intermingling, richness and diversity, and rapid changes (Chen Qingqing and Li Zuchao, 2019). When an individual judges of the likelihood that he or she can succeed in doing something, the higher the self-efficacy, the more he or she will make further efforts (Bandura, 1986). Learning self-efficacy is an individual's judgement of his or her confidence in his or her own learning behaviour and learning ability, which has an important impact on the individual's learning process (Hu

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Baohua, Kong Dechen, Wang Shen, Wang Xinhan, 2018). Through second class teaching, students' participation in the process will enhance their confidence and interest in learning, which will lead to a higher level of learning self-efficacy and promote students' mastery of knowledge and skills (Wang Hui, 2019). According to Li Baona (2008), students with high learning self-efficacy also have better core competencies, and learning self-efficacy is also one of the important factors influencing university students' core competencies.

Therefore, the second class is related to learning self-efficacy, and learning self-efficacy, as a psychological motivation, is related to core competencies. However, regression or path analysis alone cannot be used to fully describe the relationship between university students' learning outcomes in the second class and their learning self-efficacy and their core competencies. Structural equation modelling is a multivariate statistical technique that combines factor analysis and path analysis. Its strength lies in the quantitative study of the interaction between multiple variables (Kline, 1998). Therefore, exploring the impact of university students' learning self-efficacy on university students' core competencies of university students and the relationship between university students' learning self-efficacy and university students' core competencies will be explored using structural equation modelling. Using learning self-efficacy as a mediating variable, to explore and discuss whether second class learning outcomes have an indirect effect on university students' core competencies through the mediating effect of learning self-efficacy, and then cultivate the core competencies of university students, and provide reference for future education or related research.

## Literature Review

This section first presents the theoretical foundation of this study and then discusses in turn the literature and measurement tools related to the second class, core competencies, and learning self-efficacy in turn. Finally, the relationship between the second class, core competencies, and learning self-efficacy is discussed.The following is an introduction to the theoretical basis of this research. Secondly, the literature and measurement tool related to the second class, core competencies, and learning self-efficacy are discussed in sequence. Finally, the relationship between the second class, core competencies, and learning self-efficacy is discussed.

*Research Theories*

The study is theoretically based on the social cognitive theory developed by Bandura (1986), a renowned American psychologist. When students are faced with learning problems, the different responses generated in choice behaviour, effort and persistence thinking, and morphological and emotional reactions can be affected. That is, when an individual faces difficulties or setbacks in the process of achieving a task goal, the individual's belief in self-efficacy will determine the degree of effort he or she is willing to make in and the degree of tolerance he or she has in overcoming the difficulties. In the process of participating in the activities of the second class, students can develop their self-education awareness and gain self-efficacy through their personal experience, thus enhancing their core competencies. Based on the research objectives and relevant theories, this study proposed a feasible research framework.

*Core Competencies*

The United States has articulated "21st century literacy" as a standard for the skills students will need in the 21st century, which considers core competencies as transferable, multifunctional competencies. It is necessary for students to learn the knowledge, skills, and attitudes they need for self-development and integration into society (The Partnership for 21st Century Skills, 2009). It is proposed that core competencies is the foundation of skills that individuals use to achieve their goals through the proficient use of language, mathematics, and information and communication technology. Taiwanese scholar Cai Qingtiqn (2019) also found in his study that students' core competencies is not static, but is continuously sublimated at different stages of learning through teachers' pedagogical guidance and self-acquired learning. In this study, "core competencies" defined as: the core competencies of students' development, which mainly refers to the necessary character and key abilities that students should have and can adapt to lifelong development and social development (Lin Chongde, 2017).

*Second Class Learning Outcomes*

Bryant (1999) defined "second class" as clubs and social practice activities carried out by students outside the classroom curriculum, which can enhance students' practical and creative skills. Cai Keyong and Feng Xiangdong (1988) believed that the learning outcomes of the second class are the learning outcomes of guiding students to carry out extracurricular teaching activities in an organized and planned way by school outside the classroom teaching. Peng Qiaoyin and Xie Xiangxun (2011) believed that the learning outcomes of the second class are the learning outcomes of extracurricular teaching activities carried out in order to enrich students' extracurricular life and improved students' overall development. Compared with the first class, the second class is more flexible in its teaching. The second class is an indispensable part of the talent cultivation programme in higher education, which organically integrates with the first class and builds a higher education system for the human cultivation. Wenjuan Huai (2022) thought that the second class is an extra-curricular practical activity with educational significance in which students voluntarily participate under the guidance of teachers, in addition to the teaching plan of the first class. This paper defines the "second class learning outcomes" as the scientific, systematic, institutionalised and standardised design of the college youth league's work content, project supply, evaluation mechanism and operation mode of operation of the Communist Youth League in colleges and universities based on the teaching and education mechanism and working system of the first class. Participate in the learning outcomes of various activities such as ideological and political guidance, quality expansion and improvement, social practice exercise, voluntary public welfare services and self-management services. (Central Committee of the Communist Youth League of China, 2018).

*Learning Self-Efficacy*

Bandura (1977), a famous American psychologist, proposed the theory of self-efficacy. He believed that self-efficacy refers to an individual's belief and ability to successfully complete a certain task by himself, and it is a kind of self-assessment and ability judgement of one's own whether to complete a certain task and activity at a certain level. Pintrich and Schunk (2002) put forward the sense of learning self-efficacy by applying self-efficacy sensing to students' learning context, which means to that when students are faced with class or extracurricular learning tasks that need to be completed in the learning process, they evaluate their own academic performance ability in completing these tasks.Artioin (2012) believes that learning self-efficacy is the expression of self-efficacy in the field of learning. It refers to students' belief in their academic ability and is a subjective judgment of students to control their learning behaviour and ability. This paper believes that learning self-efficacy refers to students' judgment and confidence about their ability weather to complete the task and be competent for the task in the face of learning ability or learning behaviour (Liang Yusong, 2000).

*Study On the Relationship Between the Second Class and Core Competencies*

Cai Shengnan and Huo Hongtian (2019) found that students' imagination can be stimulated and their "key abilities" improved by participating in the second class learning with rich content and various forms, which can shape students' sense of independence and autonomous personality. Song Dan and Zeng Jianxiong (2018) studied the impact of the second class on college students' core competencies, and found that when college students participated in the second class with higher enthusiasm, they were more satisfied with the improvement of their core competencies in the second class. The second class lead college students to combine professional knowledge, disciplinary ideas and social practice, so that college students can come to actively explore in-depth learning in real social situations, so that tangible knowledge and practical learning are integrated, and intangible core competencies is acquired in practical learning (Wang Yan, 2020). Fang Shuojin (2017) believed that the second class is the continuation and extension of class teaching activities, the new mode of innovative talent cultivation in colleges and universities, which helped to improve college students' core competencies by strengthening students' second class learning. Therefore, most scholars agreed that second class learning played a very important role in the cultivation of college students'core competencies and had a certain relationship with the cultivation.

Therefore, the following hypothesis was proposed in this study. Hypothesis **H1:** Chinese college students' second class learning outcomes have a significant positive effect on core competencies.

*A Study of The Relationship Between Second Class Learning Outcomes and Learning Self-Efficacy*

Schunk (1995) found that learning self-efficacy not only stimulates the motivational dimension of students, but also develops students' interest in learning. While the transformation of learning from passive to active, and the improvement of learning interest in turn helps to promote the development of students' learning self-efficacy. The second class, as the external environment of students, also has a certain influence on college students' learning self-efficacy (Guo Yungui, 2016). Students' self-perception will also be relatively improved in participating in the second class, because the higher the degree of students' participation, the more significant the improvement of their corresponding comprehensive quality, ability, and self-confidence (Wei Peizheng, Ma Huaxiang, Ma Liping, 2011). Yao Xiuying (2019) found that the learning self-efficacy of college students' was affected of social practice learning outcomes in the second class. The learning self-efficacy of college students who had participated in social practice activities in the second class was significantly higher than that of students who had not participated in social practice activities in the second class. It was concluded that practical education in the second class had a positive predictive effect on college students' learning self-efficacy (Zhang Weiwei, 2017). By improving students' initiative and motivation to participate in second class activities will make them more confident in the process of participating in the activities and their learning self-efficacy, they will be higher (Lu Zhenlei, Jiang Ning, Wang Leiming, Pan Xiao, 2013).

Therefore, hypothesis **H2** is proposed: Chinese college students' second class learning outcomes have a significant positive effect on learning self-efficacy.

*Study On the Relationship Between Learning Self-Efficacy and Core Competencies*

Bandura (1993) believed that an individual's self-efficacy is the motivation of individual behaviour and a key component of individual initiative. An individual's self-efficacy in the learning process will enrich the intrinsic motivation of core competencies education, and exploring the enhancement of core competencies can start from strengthening college students' self-efficacy(He Bailue, 2018). Through self-efficacy, college students' individual initiative and self-awareness can be developed, and college students can be motivated to actively construct the goal pursuit of core competencies(Jiang Xin and Zhao Xiuwen, 2013). Wang Panpan, Wang Chenchen and Deng Zifa (2020) found that cultivating students' learning self-efficacy is one of the important ways to improve students' core competencies, and cultivating students' learning self-efficacy can improve students' individual core competencies. Qiu Yuanyu (2018) found that the higher the level of self-efficacy, the stronger the core competencies of students. And some studies have found that the level of learning self-efficacy directly affects the core competencies of individual students, the higher the learning self-efficacy of individual students, the stronger their core competencies. On the contrary, the lower the learning self-efficacy of individual students, the weaker their core competencies(Enel E , Ad Iloullar L & Ulucan H , 2014; Hao Lianming, Qi Chunxia, Li Liying, 2018).

Therefore, hypothesis **H3** is proposed: Chinese college students' learning self-efficacy has a significant positive effect on core competencies.

*A Study of The Relationship Between Second Class Learning Outcomes, Learning Self-Efficacy and Core Competencies*

According to the estrangement of related literature, learning self-efficacy has been found to be used as a mediating variable in a number of studies (Wu Lingyun, Dong Kaisa, and Yang Yan, 2022), and it plays a mediating effect in studies on the positive effects of improving and strengthening the process of learning ability (such as creativity) (Li Zixin and Liu Jian, 2022).

In the study of the relationship between the second class and learning self-efficacy, some studies have found that the effectiveness of individual students' second class learning significantly and positively affects individual learning self-efficacy, and in the study of the impact of learning self-efficacy on students' core

competencies, it has also been found that learning self-efficacy significantly and positively affects students' core competencies(Cui Ying, Xia Yongjun, Sun Rongshang, 2013); Rahmati, 2015). In the study of Ren Xianghua(2022), it was found that the psychological constructs and the establishment of learning self-efficacy of college students at the university level are closely related to the second class of the university. College students experience the need to be respected and the experience of success in the process of participating in the second class, which enhances learning self-efficacy, and thus will help students' self-knowledge and self-management, which will lead to the development of autonomy and the improvement of core competencies.

Therefore, this study suggests that learning self-efficacy may have the existence of a mediating relationship between second class learning outcomes and college students' core competencies. Therefore, hypothesis **H4** is proposed: Chinese college students' learning self-efficacy mediates the effect of second class learning outcomes on core competencies.

## Research Method

This section is a description of the research framework, research object, research instruments (second class learning outcomes scale, learning self-efficacy scale, core competencies scale), and statistical analysis method.

*Research Framework*

A research framework was constructed according to the aforementioned hypotheses (Figure 1).
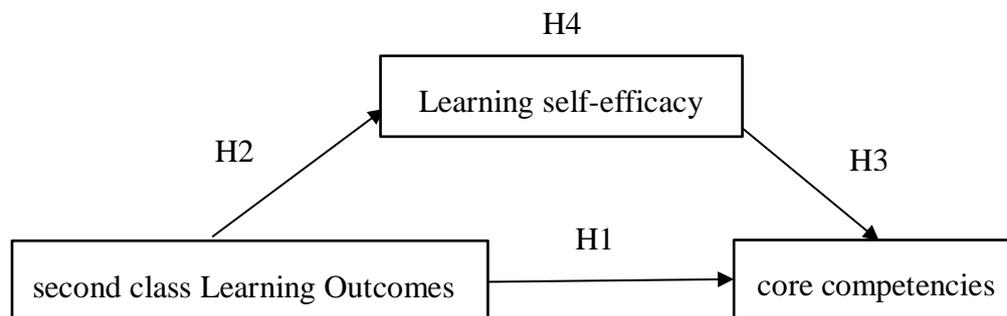


**Figure 1.** Research Framework

*Research Participants*

Participants were selected from six pilot institutions of "second class report card" in Guangxi Zhuang Autonomous Region, and the sample was collected in October 2022. Guangxi is a large development area in western China that focuses on education development and reform, and the Guangxi Regional Committee of the Communist Youth League (2017) "Implementation Plan for the Reform of Guangxi Colleges and Universities' Communist Youth League" proposes to incorporate the construction of the "second class report card" into the core competencies talent cultivation system of colleges and universities, and implement the system of "second class report card" for colleges and universities' Communist Youth League in Guangxi colleges and universities. From 2018, colleges and universities across Guangxi will be selected to carry out the pilot work of the "second class report card" system, and the system will be extended to colleges and universities in the whole region. In recent years, the number of colleges and universities that have implemented the "second class report card" system has gradually increased to more than 30, which has attracted more and more attention from the society. Therefore, it is representative for this study to take university students in Guangxi Zhuang Autonomous Region as the research object.

*Research Instruments*

he second class learning outcomes scale, learning self-efficacy scale and core competencies scale employed by this study are detailed as follows.

*Second Class Learning Outcomes Scale*

The second class learning outcomes scale was developed by Xie Faguo (2022) based on the "second class report card system". The scale consists of six dimensions: general education, campus culture, club activities, social practice, academic research, and innovation and entrepreneurship. The scale consists of six dimensions and 18 items and adopts a 5-point scale (1 = strongly disagree; 5 = strongly agree). With a Cronbach's α of 0.888 and a cumulative total variance explained of 75.906%, this scale showed satisfactory reliability and validity.

*Core Competencies Scale*

The core competencies scale is a scale designed by Lin Chongde (2017) based on a core literacy framework of three domains, six competencies, and eighteen points adapted to the developmental needs of Chinese students. It includes three dimensions: cultural foundation, autonomous development and social participation. The scale consists of three dimensions and 18 items and uses a 5-point scale (1 = strongly disagree; 5 = strongly agree). With a Cronbach's α of 0.931 and cumulative total explained variance of 74.731%, this scale showed satisfactory reliability and validity.

*Learning Self-Efficacy Scale*

The General Self-Efficacy Scale (GSES), developed by Schwarzer Mueller and Greenglass (1999), measures an individual's self-evaluation of their ability to cope with a variety of different environmental conditions or to face something new in the course of completing a task. The learning self-efficacy scale consists of one dimension and 10 items and uses a 5-point scale (1 = strongly disagree; 5 = strongly agree). With a Cronbach's α of 0.946 and a cumulative total variance explained of 67.350%, this scale showed satisfactory reliability and validity.

*Statistical Analysis Method*

In this study, SPSS 26 and AMOS 24 were used to verify the reliability and validity of the collected scale data, and structural equation models were used to assess measurement models . SPSS software was used to evaluate the normal distribution of the sample data and descriptive statistics. AMOS maximum likelihood estimation software was used to analyse the measurement and structural models for the sample data(Bollen, 1989; Schumacker & Lomax, 2004).

## Results

The following is an analysis of the descriptive statistics of the participants, variable descriptive statistics and correlation analysis, the predictive ability of second class learning outcomes to core competencies, and the mediating role of learning self-efficacy between second class learning outcomes and core competencies.

*Descriptive Statistics of the Participants*

A total of 2150 questionnaires were distributed and returned; 2133 were valid, giving a valid response rate of 99.21%. Of the participants, 864 were male (40.5%) and 1269 were female (59.5%); 662 were first-year university students (29.2%), 616 were second-year students (28.9%), 487 were third-year students (22.8%), and 408 were fourth-year students (19.1%); 1009 were humanities majors (47.3%) and 1124 were science and engineering majors(52.7%)。

*Variable Descriptive Statistics and Correlation Analysis*

As shown in Table1, the mean (M) and standard deviation (SD) of each variable are as follows: second class learning outcomes (M = 3.591 and SD = 0.503), learning self-efficacy (M = 3.627 and SD = 0.675), and core competencies (M = 3.899 and SD = 0.525). As all three scales were scored on 5-point scales, they all had moderate to high mean scores. Significant and positive correlations were found between all variables, the second class was positively and significantly low correlated with learning self-efficacy(r=0.352, p<0.01), the second class was positively and significantly moderately correlated with core competencies （r=0.495, p<0.01）, and learning self-efficacy was positively and significantly moderately correlated with core competencies （r=0.650, p<0.01）. The correlation coefficient of each pair was 0.352–0.650, indicating no collinearity.

**Table1.** Variable Descriptive Statistics and Correlation Analysis

| Variable | M | SD | Second Class Learning Outcomes | Learning Self-efficacy | core competencies |
|---|---|---|---|---|---|
| Second Class Learning Outcomes | 3.591 | 0.503 | 1 | | |
| Learning Self-efficacy | 3.627 | 0.675 | 0.352** | 1 | |
| core competencies | 3.899 | 0.523 | 0.495** | 0.650** | 1 |

Note.*p＜0.05, **p＜0.01, ***p＜0.001

*Direct Effect and Mediating Effect Tests*

According to the results of the data normality test and the violation estimation test, the data from the three scales met to the standard for normal distribution, and no violation estimation was observed. The researchers used AMOS26 to apply the maximum likelihood estimation method in order to test the fitness of the structural equations (Schumacker & Lomax, 2004).

*Main Effect*

In this study, AMOS version 26.0 was used to validate the pathway impact model of the second class learning outcomes on the core competencies. The standardised regression coefficient of the main effect ranged from 0.556 to 0.900. The error variance also reached a significant level, and no large SE was observed, indicating that the sample data fit the equation model reasonably well (Schumacker & Lomax,



2004). The overall model fit indices for main effect were as follows: χ2 degree of freedom ratio was 3.374, GFI was 0.935, AGFI was 0.891, RMR was 0.013; RMSEA was 0.093, NFI was 0.949, NNFI was 0.932, RFI was 0.929, CFI was 0.951, IFI was 0.951, PNFI was 0.706, PGFI was 0.539. The overall model is good fit. (Wu, 2010). The second class learning outcomes explained 30.9% of the variance in core competencies(γ =0.556, p <.001). Therefore, hypothesis 1 of this study is established, which indicates that the second class learning outcomes of university students have a significant positive effect on core competencies. The detailed data are showed in Figure 2.

**Figure 2.** Structural Modelling of The Impact of Second Class Learning Outcomes On Core Competencies

*Mediation Model with Learning Self-Efficacy as A Mediating Variable*

The structural equation model for the difference in path coefficients for second class learning outcomes, learning self-efficacy and core competenciesis shown in Figure 3. The standardised regression coefficient of the structural equation was in the range of 0.339–.0917, and the fit indices of the structural equation model were as follows: $\chi^2$ degree of freedom ratio was 4.314, GFI was 0.938, AGFI was 0.897, RMR was 0.013, RMSEA was 0.095, NFI was 0.949, NNFI was 0.934, RFI was 0.931, CFI was 0.952, IFI was 0.952, PNFI was 0.696, PGFI was 0.563 (Bollen, 1989; Schumacker & Lomax, 2004); therefore the structural equation model is a good fit. In addition, second class learning outcomes explained13.4% of the variance in learning self-efficacy ($\gamma = 0.367$, $p < .001$), and second class learning outcomes ($\gamma = 0.339$, $p < .001$) and learning self-efficacy ($\gamma = 0.557$, $p < .001$) together explained 58.9% of the variance in core competencies. Therefore, hypotheses H2 and H3 of this study are valid, Chinese university students' second class learning outcomes have a significant positive effect on learning self-efficacy, and Chinese university students' learning self-efficacy has a significant positive effect on core competencies.

**Figure 3.** Structural Model Of Second Class Learning Outcomes, Core Competencies, And Learning Self-Efficacy

*Mediating Role of Learning Self-Efficacy*
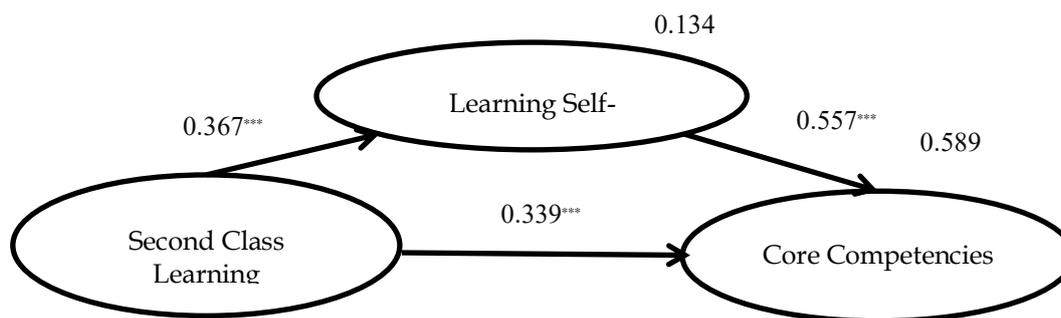


As shown in Figure 2 and Figure 3, according to the regression coefficient of the direct effect of the second class learning outcomes on core competencies in the mediation model ($\beta = 0.339$, $P < 0.05$) is smaller than that of the second class learning outcomes on core competencies in the main effect ($\beta = 0.556$, $P < 0.05$) and is also at a significant level, so learning self-efficacy partially mediator between second class learning outcomes and core competencies. Therefore, the hypothesis H4 of this study, that learning self-efficacy of Chinese university students mediator the influence of second class learning outcomes on core competencies, is valid.

The researchers adopted the bootstrapping approach recommended by Hayes (2009) to test the mediation effect using 5,000 replicated samples within a 95% confidence interval. The results of this test are presented in Table 2. The confidence interval estimates for the overall effect, the indirect effect, and the individual indirect effect of second class learning outcomes on core competencies do not include 0, indicating that the parameters are all statistically significant. The total effect of second class learning outcomes on core competencies was 0.617; the direct effect was 0.365, and the indirect effect was 0.380. The direct effect of professional recognition on core competencies was reduced to 0.237 and was significant at the 95% confidence interval. The overall, direct, and indirect effects of second class learning outcomes on core competencies suggest that learning self-efficacy partially mediator the relationship between second class learning outcomes and academic achievement. Therefore, the second research hypothesis was supported (see Table 2).

**Table 2.** Bootstrap Method Estimates 95% Confidence Interval

| Total, Direct, and Indirect Effect | Point estimate | Product of coefficients | | Bootstrapping 5000 time 95%CI | | | |
|---|---|---|---|---|---|---|---|
| | | SE | Z | Bias-Corrected | | Porcentile | |
| | | | | Lower | Upper | Lower | Upper |
| second class learning outcomes→core competencies（Total effect） | 0.617*** | 0.035 | 17.629** | 0.554 | 0.690 | 0.552 | 0.688 |
| second class learning outcomes→core competencies（Direct effect） | 0.380*** | 0.029 | 13.103** | 0.327 | 0.439 | 0.325 | 0.437 |
| second class learning outcomes→core competencies（Indirect effect） | 0.237*** | 0.019 | 12.474** | 0.202 | 0.276 | 0.201 | 0.275 |

Note.*p＜0.05, **p＜0.01, ***p＜0.001

## Discussion

The following will discuss and conclude respectively according to the analysis results of this study.

*Second Class Learning Outcomes Positively Predicted Core Competencies*

The research results showed that second class learning outcomes positively predicted core competencies, which means that university students with higher second class learning outcomes have core competencies, which is consistent with the findings of Cai Shengnan and Huo Hongtian (2019) . According to Wang Yan (2020), students' participation in the second class learning, subject to students' exposure to more diversified learning, but also creates more opportunities for students to learn and practice, so in the process of participating in the second class diversified learning will also be quite high university students' core competencies.

*Learning Self-Efficacy Mediator The Impact Of Second Class Learning Outcomes On Core Competencies*

The results of the study showed that learning self-efficacy partially mediated the relationship between second class learning outcomes and core competencies, which is partially similar to the results of Wei Peiqiang et al. (2011). The present study suggests that university students' participation in the second class should be improved so that they understand the role of the second class for them, which makes students enter the learning state with appropriate learning goals and full of spirit. In the process of learning, self-suggestion and encouragement can enhance self-confidence and self-efficacy, so that students can devote themselves to learning in a better state of mind and energy to improve their all-round development, thus improving their core competencies(Xie Faguo, 2022). Learning self-efficacy plays an intermediary role between the second class learning outcomes and core competencies, mainly because university students will invest more time and energy in learning professional knowledge and improving core competencies in order to enhance their quality ability, and secondly, students with high learning self-efficacy will also show independent learning professional knowledge in their behaviour, so as to make themselves more competitive in the society. This is consistent with the findings of Zeng Jianxiong (2018).

*Suggestions*

*Multi-Pronged Measures to Promote The "Second Class Report Card"*

Explore the implementation of the "second class report card" system, strengthen the effective combination of the second class and the traditional class, and build a comprehensive education system that cultivates morality, intelligence, physicality, aesthetics and work. Strengthen the implementation mechanism of the "second class" and the "first class" to coordinate and promote, and establish a perfect incentive, evaluation and guarantee mechanism to ensure the promotion of the second class report card. Focus is on opening up research and construction funds at all levels for disciplines, scientific research, majors, platforms, experimental teaching, and student training to support the educational and teaching activities of the second class. Promote the campus of the performance system on campus, scientifically determine the workload and evaluation standards for teachers of the second class, and incorporate them into the teacher evaluation system, so as to motivate teachers to pay attention to the construction of the second class.

*Scientific and Innovative Educational Activities in The Second Class for University Students*

Based on the requirements of the new era of innovation and entrepreneurship education, it will be integrated into innovation and entrepreneurship courses, practices and students' participation in all levels and types of disciplinary competitions and professional qualification examinations, cultural and academic activities, social practices and volunteer services, and other quality educational programmes and practices. To motivate and encourage young students to participate in high-quality and high-level second class project activities. Combined with the needs of applied talents, to create innovation and entrepreneurship practice education activities; Centered on the goal of sports, to enjoy fun, enhance physical fitness, improve personality, temper will as the fundamental, to create a series of public sports practice education activities; Centered on the goal of aesthetic education and taking the construction of campus culture as the carrier, to create practical education activities of humanistic quality. Focusing on the goal of labour education, combining labor teaching with labour practice, and building labour practice cultivation education activities.

*Enhancing Students' Self-Efficacy in Learning*

Curriculum reform is being out to improve students' understanding of professional courses and second class practice courses, and alumni and experts should be regularly invited to the university to give professional education lectures, so as to enhance students' confidence in their studies.

At the same time, we use the after-school time to organise students to participate in various kinds of colourful activities, such as professional skills competitions or innovation and entrepreneurship activities in line with the students' majors. university students are more aggressive when facing tasks or challenges, which stimulates students' desire and pursuit of success, exercises students' interpersonal skills and practical skills, thus cultivating students' self-confidence, improving students' sense of self-efficacy in learning, and thus enhancing university students' core competencies.

*Research Limitations and Future Directions*

Due to limitations of location and time, this study only covers six public universities that offer undergraduate courses in Guangxi, China. This means that the study's sample size is small. For future research, it is recommended that researchers expand the sample size to ensure that the findings are more applicable. This research only used questionnaires to gather data. In the future, we can also include interviews and observations to provide a more in-depth understanding. Additionally, we can add more relevant variables to further discuss and refine the research findings.

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*Appendix 1*

| Dimension | Items |
|---|---|
| Liberal Studies | 1. What is the current learning situation of humanities activities (e.g. on-campus lectures, Boya Lecture Hall, Red Education, etc.)? <br> 2. What is the current learning situation of natural science activities (e.g. science education, green and low-carbon nature education, etc.)? <br> 3. What is the current learning situation of social science activities (e.g. famous alumni lectures, enterprise preaching, etc.)? |
| Campus Culture | 4. What is the current learning situation of spiritual culture activities (e.g. education on school spirit and school motto, education on family spirit and family motto, etc.)? <br> 5. What is the current learning situation of behavioral culture activities (e.g. civilized etiquette education, etc.)? <br> 6. What is the current learning situation of institutional culture activities (e.g. education on school rules and discipline, etc.)? |
| Club Activities | 7. What is the current learning situation of academic and technological activities (e.g. mathematics, science, academic skills)? <br> 8. What is the current learning situation of sports and athletic activities (e.g. sports meetings, ball games, etc.)? <br> 9. What is the current learning situation of literary and artistic activities (e.g. dance, music, painting and calligraphy, etc.)? |
| Social Practice | 10. What is the current learning situation of community and voluntary activities (e.g. voluntary work, environmental protection, etc.)? <br> 11. What is the current learning situation of social practice activities (e.g. summer and winter holiday social practice, community practice, etc.)? |

|  |  |
|---|---|
|  | 12. What is the current status of international practice activities (e.g. lectures by international scholars, international student exchanges, etc.)? |
| Academic Research | 13. What is the current learning situation of research competition activities (e.g. Challenge Cup, Internet+, etc.)? <br> 14. What is the current learning situation of scientific research and innovation activities (e.g. academic research, Da Chuang project, etc.)? <br> 15. What is the current learning situation of academic practice activities (e.g. lectures or training on applications related to academic majors)? |
| Innovation and Entrepreneurship | 16. What is the current learning situation of activities such as career concept cultivation (e.g. lectures on knowledge related to entrepreneurship and employment of students)? <br> 17. What is the current learning situation regarding activities such as incubation of entrepreneurial practices (e.g. entrepreneurial bases for students)? <br> 18. What is the current learning situation regarding activities such as career development guidance (e.g. career planning guidance for students)? |

List of dimensions and items in the second class questionnaire

Dimensions and items of the Core competencies Questionnaire

| Dimension | Items |
|---|---|
| Cultural Foundation | 1. I can read the thoughts of the sages of the past in order to accumulate humanistic knowledge and make good use of humanistic cultivation methods. <br> 2. I can care about the survival, development and happiness of human beings. <br> 3. I like art, discover and appreciate beauty, and am good at expressing and creating beauty. <br> 4. I value true knowledge and respect facts and evidence. <br> 5. I can think independently, question carefully, critically, analyse and judge from multiple perspectives. <br> 6. I can use curiosity imagination relentless exploration, bold experimentation, effective evidence. |
| Independent Development | 7. I can learn to think and learn independently interested in learning, with lifelong learning ability. <br> 8. I can study diligently, reflect well, summarize experience, with efficient learning methods. <br> 9. I can make good use of information technology digital survival ability, Internet adaptability. <br> 10. I can value life, fitness and sport to maintain physical and mental safety, healthy behaviour. <br> 11. I have a positive psychological quality. <br> 12. I can self-assessment moderate and appropriate development of effective time management, to achieve the goal of sustainable. |

| | |
|---|---|
| Social Participation | I can do my duty, honesty, friendship, filial piety and respect for parents, love nature and green living.<br>14. I can achieve national identity and work for national rejuvenation.<br>15. I can have a global outlook and an open mind, tolerate multiculturalism, and care about the destiny of humanity.<br>16. I like to work and practice actively, with strong hands, and create a better life through work.<br>17. I have the ability to analyse and solve problems.<br>18. I love creativity in what I am interested in, and I like the application of technology transformation. |

List of dimensions and items of the learning self-efficacy questionnaire

| Dimension | Items |
|---|---|
| Learning Self-Efficacy Scale | In learning, I can always solve problems if I try my best.<br>2. In learning, even if others disagree with me, I have a way of convincing them.<br>3. It is easy for me to stick to my ideals and achieve my learning goals.<br>4. I am confident that I can cope effectively with any learning difficulties I have not encountered before.<br>5. My talents will enable me to cope with unexpected learning problems.<br>6. I can solve most learning problems if I make the necessary effort.<br>7. I can cope with learning difficulties because I have confidence in my ability to deal with them.<br>8. I can usually find more than one solution to a learning problem.<br>9. I can usually think of ways to deal with a learning problem when it arises.<br>10. I think I can find a solution to any learning problem. |