


# Comparative Effectiveness of Approaches to Students' Labour Education in Universities in the New Era With the Use of Information Technologies

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Article abstract

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# Comparative Effectiveness of Approaches to Students' Labour Education in Universities in the New Era With the Use of Information Technologies

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## Abstract

This study aimed to identify and compare the efficiency of different theoretical (competence-oriented) and practical (system-activity) approaches to labour education of college students in China using the Open edX online learning platform. The study was conducted at the Shengda College of Economics and Business Management. It involved 150 first-year college students and two full-time teacher-employees from the Labour Protection Department who had responsibility to ensure the quality of labour education and supervise the process of its introduction. The practical approach was 75% more effective when college students were allowed to choose work according to their preferences. The study showed that the practical approach decreased students' motivation to work by 3%, while the average motivation with a theoretical approach was 45% higher than with a practical one, due to lack of physical work and exhaustion at work.

*Keywords:* approaches to teaching, labour education, labour market, labour skills, physical labour

## Introduction

Currently, the majority of college students in China are not fond of and therefore neglect labour education, which causes poor labour education (Zou et al., 2020). The change in the status of labour education and increasing its role in the education system are associated with the historical burden of training specialists in China's new era (Chen & Xie, 2020). Quality-oriented education is an inevitable outcome of synchronous educational and social development and an important sign of the comprehensive implementation of modern educational ideas (Meng et al., 2020). Several important discussions were held in China on strengthening labour education, where participants stressed that every person's work, creativity, knowledge, and talent should be respected (Xi, 2017). At the National Education Conference, emphasis was placed on the importance of fostering a work ethic among students, teaching them to respect labour and helping them understand the benefits of work (Yang, 2020).

In the modern world, where technological advancements occur rapidly and continuously, proficiency in working with information technologies has emerged as a crucial competency for attaining a successful career (Wen, 2021). Information technologies not only streamline and expedite work processes but also open new avenues for labour creativity, innovation, and collaboration (Lv, 2022). Incorporating information technologies into labour education helps students cultivate digital literacy skills, proficiency with diverse software applications and tools, and knowledge of ethical and secure information usage practices (Lv, 2022; Wen, 2021). Information technologies are also opening up new possibilities for organizing work activities, such as remote work, telecommunications, and global collaboration (Mansurjonovich, 2022).

Labour education is a process that helps shape a person's need for work, describes the benefits of professional specialization, and develops practical, creative, and labour culture skills (Liu, 2019). The labour education of students involves all types of student activities, namely educational and research work, educational activities, industrial practice, and social and domestic work (Damianakis et al., 2020).

Another crucial task of college students' labour education is the psychological preparation for work in their chosen specialty, the education of freedom, patience, perseverance in overcoming difficulties, neatness at a workplace, explanation of the public property value, and so forth (Li, 2019). Some researchers also noted that student labour education's major goal is forming conscious residents by developing labour skills, active citizenship, high moral qualities, and spirituality among the young generation (Du & Gao, 2020). Through the joint efforts of the whole society, labour education is an independent part of most university curriculums, which, however, may result in certain problems (Chen, 2020). Thus, for example, if a school defines a labour course as compulsory and credit-related, some students demonstrate a perfunctory attitude to it. Certain measures may be required to change public attitudes to labour education and convince each worker of the uniqueness of their labour and skill. First, the structure of labour education should be reformed (Zhejin, 2019).

Meantime, each higher education institution requires an adjusted system for collecting and analyzing information about its graduates' activities. This could enable prompt solving of the problems related to improving the labour training of students. It would also be required to provide conditions for the formation of a professional labour culture among future specialists (Antonelli et al., 2020).

Consequently, it is necessary to provide training for teachers, which involves teaching the educational methodology of organizing and stimulating work (Stevens et al., 2019).

Students' labour education is, on the one hand, future-oriented (i.e., the education of a student as a future specialist with inherent positive professional traits and labour skills and abilities), while on the other hand, it is the very process of training specialists within the framework of learning, social work, and so forth (Zhang, 2020). Nowadays, college students urgently need strengthened labour education, integrating labour thinking into the entire education and training process and establishing a comprehensive system for developing talents and labour training (Haijiao, 2018). It is possible to enrich the content of students' practical experience, standardize their behavioural habits and provide for their self-cultivation, train college students' will, and encourage them to form a proactive mindset and respect for others (Zhang et al., 2019). The correct understanding of labour values is of great importance for students' personal development and social progress, including the comprehensive development of useful skills, morality, mind, body, beauty, and labour (Ying & Zheng, 2018).

The relevance of the topic is confirmed by the fact that labour education at universities is critical for the development of not only professional skills but also work values, which are the basis for career success in the modern world. With the rapid development of information technology, the ability to effectively use this technology is becoming essential for successful professional growth. Labour education is an integral part of preparing students for professional life, and modern information technologies can contribute to the effectiveness of labour education. This study aimed to make an original contribution to the literature on open and distributed learning through a unique combination of theoretical and practical approaches using information technology. The specific context of the study in China allows for a better understanding of local characteristics and needs in labour education, and the in-depth comparative analysis of the effectiveness of different approaches to labour education based on strong empirical evidence adds new insights to the field. The findings of this research show that better information on labour market outcomes and the development of more effective approaches to student labour education can serve as a goal for local colleges to improve the prospects of their students in the labour market.

## Literature Review

Labour education constitutes an indispensable component of the education system, as its successful implementation and ongoing advocacy foster the development of appropriate values within students and enhance their comprehension of fundamental socialist ideals (Lianzhao, 2017). In the past, higher education reform deeply focused only on practical values, neglecting upbringing and human nature, inevitably leading to the loss of proper character and cultural integrity (Xu, 2018).

Researchers note that labour education forms the correct labour ideas and consciousness in students in special labour courses to master certain labour skills (Xinhua, 2018). However, labour as the main means of human survival has not disappeared or declined but has been constantly transformed (Meng et al., 2020). It is crucial to bear in mind that information technologies do not replace other aspects of labour education, such as the development of professional skills, leadership qualities, and communication abilities (Wen, 2021).

The concept of quality education is not isolated. It is the inheritance and development of ancient and modern Chinese and foreign educational ideas. This particularly entails the systematic consolidation of the favourable and unfavourable outcomes of educational reform and the findings derived from theoretical sublimation (Xu, 2018). Nowadays, college students face numerous temptations, namely the Internet, entertaining star talent shows, and all types of bad habits, which affect their thinking and distort values (Xia & Liu, 2019). General Secretary Xi Jinping at the National Education Conference emphasized that education's main aim is to encourage the self-cultivation of college students and to teach socialist core values. This implies implementing labour education on college campuses, paying attention to the labour process, and introducing innovative labour methods. These measures promote the spirit of work and cherish labour achievements that can convey the values of diligence, simplicity, solidarity, and friendship (Xi, 2017).

Each person from a certain age begins independent labour activity, which requires a developed habit of working, the desire to realize potential, and the proper moral and psychological readiness. The development of such attitudes is one of the main duties of the family, the school, and higher educational institutions (Kirkeboen et al., 2016). In addition, the sooner these characteristics begin to develop, the faster and more productive the result (Nabiullina et al., 2020).

One core aspect of young people's psychological preparation for work is the formation of a sense of responsibility and the ability to take care of themselves (Scott-Clayton, 2015). In turn, the feeling of self-responsibility contributes to the development of such vital personality traits as initiative, enterprise, and creativity (Phillippe & González Sullivan, 2017). Labour education effectiveness suggests that a student needs work and feels joy from the labour process through the realization of their knowledge and skills since these factors are inherent in the human essence (Baker, 2018).

Regarding labour education, Xi Jinping explained it as education that enables people to form correct labour attitudes and relations to develop labour habits (Xi, 2017). It is emphasized that labour education facilitates the formation of correct labour views, attitudes, and work habits among students, which allows them to acquire various knowledge and skills. Guangya Wang noted that life is an education that creates hardworking citizens able to work with nature's forces and build a highly harmonious society. In turn, Tao Xingzhi proved that "hands and brains work together" and considered labour education as a kind of "creative education" (Wang, 2017). Wang and Wang (2020) deeply understood labour education's universality and uniqueness based on the inheritance and development of its excellent traditions among college students, while actively exploring effective approaches to strengthen such education in the new era. Both students and schools need to be aware of and respond to expected economic outcomes, and it is thus that community colleges will be able to successfully fulfil their mission to improve students' labour market performance (Krupskaya, 2015).

### **Labour Education and Information Technologies**

Several information technologies can be applied in the field of labour education (Lv, 2022; Mansurjonovich, 2022; Wen, 2021):

1. Virtual reality (VR): VR technologies enable the creation of immersive simulations of work environments and situations, allowing students to practice and develop their skills in a safe virtual setting.

2. Augmented reality (AR): AR technologies permit the incorporation of virtual elements into the real environment, offering new opportunities for learning and training.
3. Simulations and virtual laboratories: The use of simulations and virtual laboratories empowers students to engage in practice and skill development within specific work domains.
4. Cloud technologies and online platforms: Cloud technologies and online platforms enable students to access educational resources and materials anytime and anywhere. This may encompass online courses, digital libraries, webinars, and other forms of online learning that support the enhancement of professional skills and knowledge.
5. Mobile applications and devices: Mobile applications and devices allow students to access educational materials and complete tasks at any time and place.

These are merely a few examples of information technologies that can be used in labour education. The specific selection of technologies depends on particular objectives and the student's needs within a field or profession.

## Problem Statement

The analysis of scientific works has shown that the issue of labour education for college students is an urgent problem in the new era.

This study aimed to identify and compare the efficiency of different theoretical (competence-oriented) and practical (system-activity) approaches to labour education of university students, using the Open edX online learning platform.

We had two research objectives:

- Study the level of influence on students' motivation to work comparing theoretical and practical approaches.
- Determine whether there was a significant difference between competence-oriented or system-activity approaches on the efficiency of teaching students to work.

## Methods and Materials

### Participants

The study was carried out at the Shengda College of Economics and Business Management in China. Appendix A describes the theoretical and practical approaches to labour education used at the college. In total, 150 first-year students participated in the research, which also involved two full-time teacher-employees from the Department of Labour Protection who were tasked with providing for the quality of labour education and supervision of the program. The number of females and males was equal since the research was not aiming to study the influence of gender on attitudes to labour education. Initially, there were more than 150 first-year students interested in taking part in the experiment, however, some

later refused for unknown reasons. According to statistics, first-year students are more attentive to each step of learning than senior students are; thus, this sample was chosen in order to collect as many opinions as possible to identify areas for development in labour education.

## Procedure

The participants were evenly distributed into two distinct groups: experimental and control, each comprising 75 students. In the experimental group, the training involved the competence-oriented method using the Open edX platform, while in the control group, the system-activity method using the Open edX platform was applied. The advantages of using the online learning platform Open edX included the opportunities it allowed students to: personally create an individual study schedule; record and view video tutorials; upload course assignments; and do homework within selected time limits.

Labour education training took one academic semester with distance classes. The Labour Protection Department proposed the theoretical (competence-oriented) and practical (system-activity) labour education approaches.

The competence-oriented approach to teaching involves various theoretical knowledge and skills that may be applied in specific practical situations to solve life problems. The primary objectives of this approach are to provide a clear understanding of the history and meaning of college-specific labour education and to underscore its importance and necessity. In the theoretical part of the training, students are taught about the concept of labour, its significance in modern times, labour ideology, and related topics. Labour department employees engage in labour propaganda before each labour practice, encourage active participation in the education practice, and teach safety.

The system-activity approach to teaching involves a result-oriented activity that provides feedback. This approach takes into account the psychological aspects, age-related factors, and individual characteristics influencing the development of a student's personality. The process requires a student's active, versatile, independent, and cognitive presence. A compulsory course for first-year students, this approach involves an hour of work a day for each student during one academic semester. A quantitative evaluation of the working conditions for every student was conducted and published regularly as a basis for evaluating a particular student's performance in the semester. Moreover, labour courses were incorporated into the college curriculum during internships.

The study was performed in stages:

1. Development of a student survey tool to study the effectiveness of approaches to labour education.
2. Administration of the questionnaires.
3. Checking the validity of the content, design, and reliability of the tool.
4. Data analysis.

The efficiency of approaches to college students' labour education was determined using the work motivation indicator, as it influences the duration and result of work. To measure work motivation, the McClelland test, which asks the central question "What drives you?" (Nabiullina et al., 2020), was used. The test identified the leading need of each student to find an incentive and made it possible to choose

an effective way to increase motivation. Dedicated employees are the ones whose motivation coincides with their needs. Through motivation, it is possible to explore each student's attitude to professional activity and evaluate the internal and external factors of labour motivation (including students' personal needs), incentives to work, and peculiarities of working conditions.

### **Study Design**

This study used a quantitative descriptive approach with a questionnaire that required written responses and a scoring method for those responses.

### **Data Collection**

The experiment involved the survey method to collect data. Two questionnaires were provided to students: one following the theoretical course and one following the practical course. The questionnaires are shown in Appendix B. The questionnaires aimed to ascertain the following indicators: the concentration of students on labour education theory; students' understanding of educational materials (both practical and theoretical); the motivation of students to practice labour education; and, students' learning results. For each completed practical lesson, the student responses were scored, receiving a predetermined number of points, which were totaled at the end of the academic semester.

We also tested the content validity, design validity, and reliability of the questionnaires. These indicators were estimated using the inter-rating method by two experts. The content validity test resulted in a score of 1, meaning that the study questionnaire had high content validity. In the validity assessment, all questionnaire items achieved an estimated *R*-value surpassing 0.444, using an *r* table with *N* = 20 at a 5% significance level. Cronbach's alpha was 0.897, and thus the factor was > 0.8, indicating excellent reliability.

### **Data Analysis**

To describe the data, the questionnaire and its content were preliminarily analyzed, and the reliability of the selected information was checked using IBM SPSS Statistics (Version 26). In addition, *t*-tests were used to compare the differences between the two labour education approaches.

### **Ethical Principles**

All ethical principles were discussed before conducting the study. Consequently, the head of the college approved the research, and all participating students and teachers signed an agreement to participate in the experiment. The principles of reliability and competence in collecting information were observed.

### **Limitations**

Since the subject of the research is extensive, the results of the study could have been affected by the student sample size. Additionally, the limited study duration posed a challenge, as the span of one semester proved inadequate for thoroughly evaluating the long-term efficacy of various approaches to student labour education. Furthermore, the age of students may have influenced the result since young people are more active in work than those in the older generation; the younger generation needs to earn a living, while the older one retires. We did not examine the effect of gender.



## Results

Table 1 presents the results of the analysis of covariance (ANCOVA) of the student's motivation levels. The adjusted mean and standard error were 6.7 and 0.11 for the control group, and 8.4 and 0.12 for the experimental group. According to the results, there was a significant difference in scores between the two groups after testing ( $F = 9.84, p < .05$ ).

**Table 1**

*Results of Analysis of Covariance of Student Motivation*

Group	<i>n</i>	Value	<i>SD</i>	<i>M</i> (adjusted)	<i>SE</i>	<i>F</i>	$\eta^2$
Experimental	75	6.6	0.74	6.7	0.11		
Control	75	8.5	0.71	8.4	0.12	9.84*	0.15

\* $p < .01$

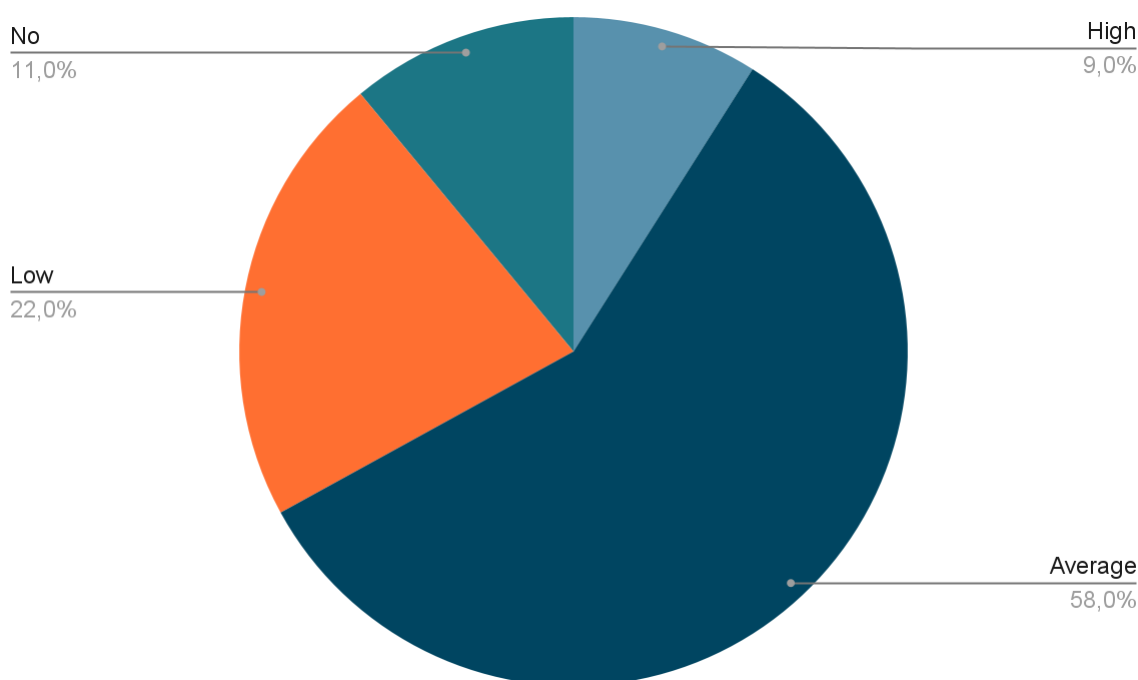
The data obtained indicate that when using the Open edX online platform to teach labour education, the system-activity method is more effective in increasing students' academic motivation. There was a significant difference in the motivation level of the experimental and control groups, with the second showing higher results. This suggests much more clearly that the system-activity approach is more effective when compared to the competence-oriented approach.

### The Effectiveness of the Theoretical, Competence-Based Approach

The influence of the theoretical approach on students' motivation to work was determined after lectures were delivered to first-year college students. The lectures conveyed information about what work is, why it is so important in modern times, and the expanded ideology of work. According to the results of the questionnaire and the motivation test, college students expressed their readiness to participate in work: 9% were extremely motivated, 58% showed a desire to work actively, 22% experienced negative emotions during physical labour with low motivation, and 11% were generally not motivated to work. Figure 1 shows that the majority of college students were positive about physical work and wanted to acquire more life skills.

**Figure 1**

*Experimental Group's Attitude to Work (Theoretical Approach)*



### **The Effectiveness of the Practical, System-Activity Approach**

Based on the analysis of results from students who were part of the group that received their labour education through the system-activity approach, i.e., practical work (practical classes), it emerged that if college students can choose their favourite type of activity, their motivation increases to 75%. If students are assigned a task that does not interest them, their motivation drops to 35%. However, 15% of students simply do the work assigned.

When students are allowed to choose tasks that interest them, their motivation increases, emphasizing the importance of integrating personal interests into the learning process to increase motivation and productivity. Restriction in the choice of tasks can negatively affect performance, so this aspect should be taken into account when planning learning tasks. A neutral attitude to the choice of physical work for some students may mean that the physical aspect of tasks is not a determining factor for their effectiveness. These results are shown in Table 2.

**Table 2**

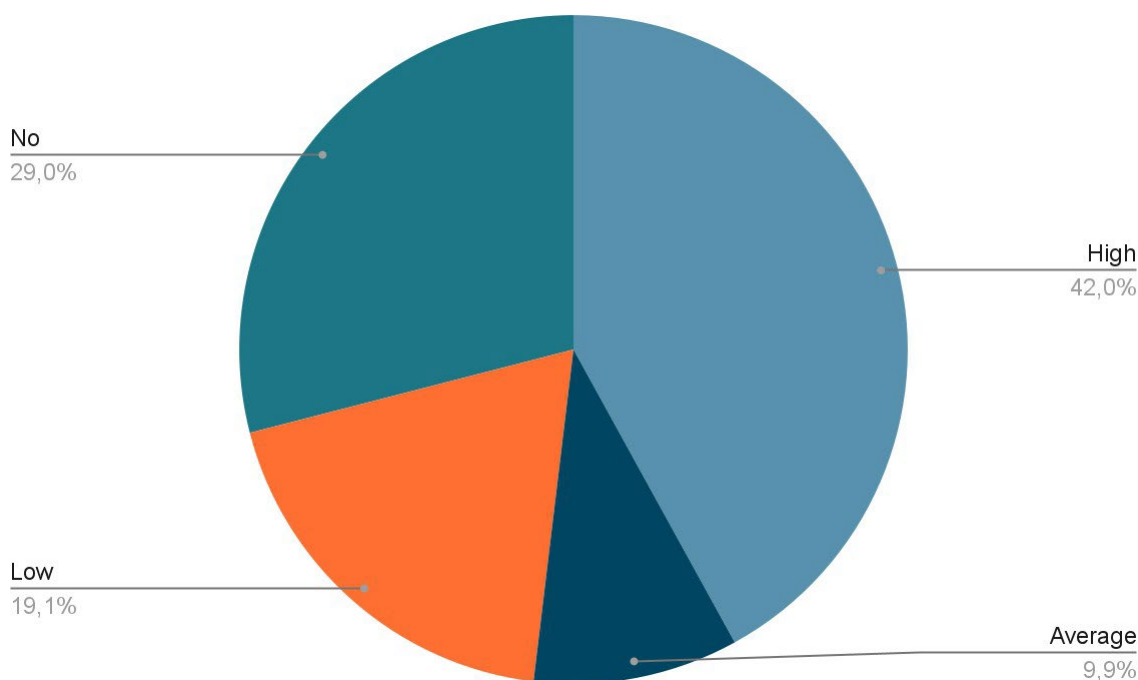
*Influence of Different Indicators on Students' Motivation*

Indicator	Efficiency, %
Students choose an interesting job for themselves.	75
Students are unable to choose work according to their preference.	35
Neutral attitude towards the choice of physical work.	15

Students' motivation to work under the system-activity approach, i.e., practical, is presented in Figure 2. Analysis revealed that 55% of students were motivated to work, 25% showed low motivation for physical labour, 13% demonstrated average motivation, and 7% were not motivated and refused to be engaged in practice.

**Figure 2**

*Control Group's Attitude to Work (Practical Approach)*



Further analysis of the practical approach showed that the work of college students extended beyond mechanical labour, such as sweeping floors and washing tables, to complex work requiring the interaction of mental and physical force. Hence, the guidance offered by educators served the dual purpose of enhancing college students' learning efficiency and promoting active involvement in practical work experiences.

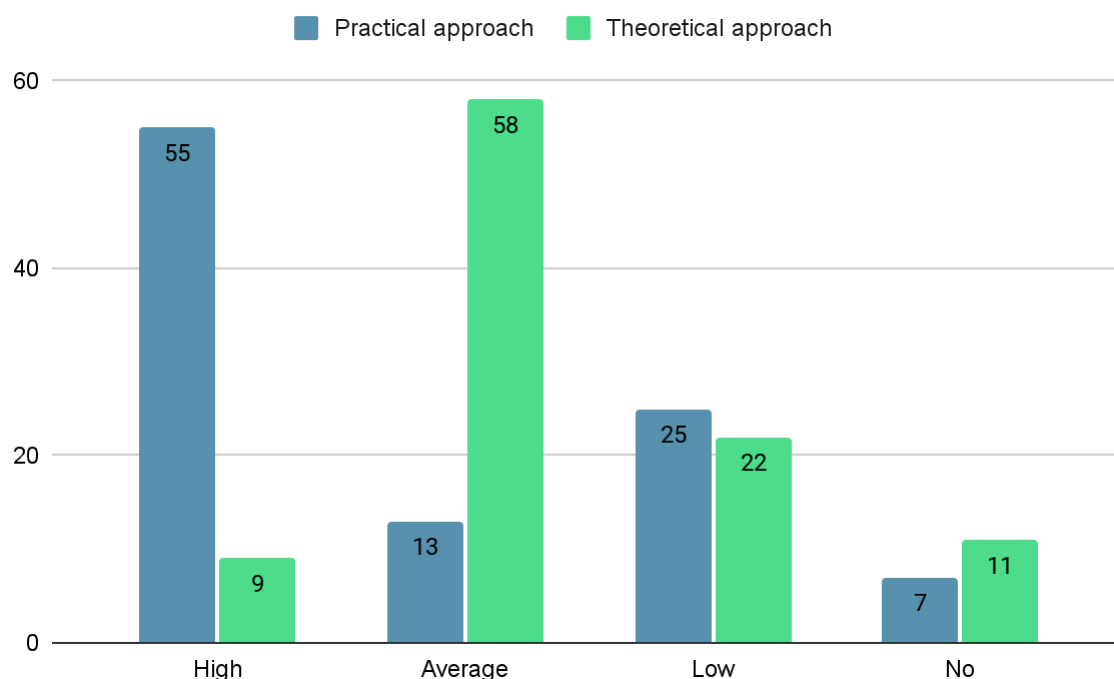
### **Comparative Effectiveness of the Two Approaches to Labour Education**

The curriculum and the theoretical approach to training are the basic forms of labour education in China. However, our results suggest that improving the structure of the labour education curriculum in terms of adding practice is a measure that could enhance student motivation.

Figure 3 presents the comparative effectiveness of approaches to labour education for college students.

**Figure 3**

*Comparative Effectiveness of Labour Education Approaches*



The practical approach increased motivation to work by 3%. Meanwhile, when assessing the students with average motivation, the theoretical approach was 45% higher than the practical one. This may be due to the fact that those students had not had an experience of physical work; they had not felt tired or suffered pain while working. Furthermore, 55% of students taught under the practical approach were highly motivated to work, but only 9% with the theoretical approach. One reason may be that students in practice communicate, gain new knowledge, and receive advice, feedback, and help from others. Hence, the student's interest in work significantly increases. The percentage of students without motivation was 4% higher with a theoretical approach since the theory fails to reveal all the advantages of work in the same way that the practical activity would.

Table 3 presents the differences in the effectiveness of approaches to the labour education of college students in this study.

**Table 3**

*Results of the t-Test of College Students' Motivation Comparing Two Approaches to Labour Education*

Teaching approach	Students, <i>n</i>	Value	<i>SD</i>	<i>t</i>
Theoretical	75	1.365	0.392	0.820
Practical	75	1.452	0.216	

The data did not show a level of significance ( $t = 0.820, p > .05$ ). Thus, the comparative effectiveness of the two approaches was more or less equal. This suggests that labour education is comprised of both practice and theory.

## Discussion

Labour education has always been substantive content and a method of education and training in China. Labour training allows college students to realize the core socialist values in the new era, improve the quality of life in college, and develop the ability to innovate and be creative (Krupskaya, 2015). Colleges' key aim is to prepare students for the labour market. In light of this, work culture and the adoption of innovative teaching methods represent a crucial source for the cultivation of labour values.

Research has shown that less than 40% of a sample of community college students in California accurately ranked broad categories of specialties in terms of labour market outcomes (Baker et al., 2018). Students believed that average salaries were 13% higher than they were. They also underestimated the possibility of their employment by almost 25%. The article found that the main efficiency determinants of student labour education approaches were beliefs about course enjoyment and grades.

A similar survey was conducted within the framework of Yang's research (2020), regarding practical content and practical significance. Students of vocational educational institutions answered the question: What do you think is the main importance of participating in practical activities in college? The students surveyed believed they could accumulate work experience (74.51%), enrich extracurricular life (68.14%), and gain additional life experience (62.75%).

While the results of other studies are diverse, there are some similarities with this research. For instance, 74.51% of the students surveyed believed that labour education in college facilitates the accumulation of work experience (Yang, 2020). In turn, in our study, 55% of Shengda College students were motivated to work through in-depth communication with people and society since it was easier for them to obtain more knowledge and help from others in a practical way. Moreover, college students realized the organizers' regularity and professionalism and believed that labour activity was appropriate for their development (Li, 2021). On the other hand, some studies showed that social skills and performance indicators tend to increase after occupational therapy training. Moreover, it was found that two groups of data did not reach the level of significance ( $t = 0.820$ ,  $p > .05$ ). Thus, the two approaches to college students' labour education did not have a significant difference in terms of effectiveness.

## Conclusions

This study of the approaches to labour education demonstrated that the practical approach increased motivation to work by 3%. At the same time, among those with average motivation, the theoretical approach was 45% more motivating compared to the practical one due to the lack of exhausting physical work. Besides, 55% of students taught with the practical approach showed a high motivation to work while only 9% of those taught with a theoretical approach reported the same level of motivation. When engaged in practical work, students communicate, receive advice and feedback, and obtain new knowledge. The share of students with a lack of motivation was 4% higher with the theoretical approach. The  $t$ -test data in this study showed that the two sets of descriptive test data did not reach the level of significance ( $t = 0.820$ ,  $p > .05$ ), and thus, the two approaches to students' labour education in terms of efficiency do not differ considerably.

In terms of the practical application of this research, the findings promote the idea of improving the effectiveness of approaches to students' labour education as a goal for colleges to advance the prospects of their students in the labour market. The improvement of labour education and upgrading its form and content have an important practical value for modern students and personnel training. Further development will require expanding research on labour education efficiency and investigating new approaches to educate professionals, which will be beneficial for both employees and the state.

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## References

- Antonelli, J., Jones, S. J., Burridge, A. B., & Hawkins, J. (2020). Understanding the self-regulated learning characteristics of first-generation college students. *Journal of College Student Development*, 61(1), 67–83. <https://doi.org/10.1353/csd.2020.0004>
- Baker, R. (2018). Understanding college students' major choices using social network analysis. *Research in Higher Education*, 59(2), 198–225. <https://doi.org/10.1007/s11162-017-9463-1>
- Baker, R., Bettinger, E., Jacob, B., & Marinescu, I. (2018). The effect of labor market information on community college students' major choice. *Economics of Education Review*, 65, 18–30. <https://doi.org/10.1016/j.econedurev.2018.05.005>
- Chen, J. (2020). On the normalization of college students' labor education in the new era. *Frontiers*, 1(12), 97–101. [https://doi.org/10.6981/FEM.202012\\_1\(12\).0015](https://doi.org/10.6981/FEM.202012_1(12).0015)
- Chen, R., & Xie, F. (2020). Research on the influencing factors of college students' labor education. *Open Access Library Journal*, 7(12), Article e7073. <https://doi.org/10.4236/oalib.1107073>
- Damianakis, T., Barrett, B., Archer-Kuhn, B., Samson, P. L., Matin, S., & Ahern, C. (2020). Transformative learning in graduate education: Masters of social work students' experiences of personal and professional learning. *Studies in Higher Education*, 45(9), 2011–2029. <https://doi.org/10.1080/03075079.2019.1650735>
- Du, R. J., & Gao, T. (2020). Research on current situation and cultivating path of college students' labor consciousness. *Journal of Shenyang Jianzhu University (Social Science)*, 22, 82–86. <https://www.scirp.org/reference/referencespapers?referenceid=2893460>
- Haijiao, X. (2018). Value crisis of labor education and its solution. *Journal of the National Institute of Education Administration*, 1, 1–6. <http://epc.swu.edu.cn/info/1127/3196.htm>
- Kirkeboen, L. J., Leuven, E., & Mogstad, M. (2016). Field of study, earnings, and self-selection. *The Quarterly Journal of Economics*, 131(3), 1057–1111. <https://doi.org/10.1093/qje/qjw019>
- Krupskaya, N. K. (2015). *Labor education and polytechnic education*. Directmedia. <https://www.rulit.me/books/trudovoe-vozpitanie-i-politehnicheskoe-obrazovanie-download-198214.html>
- Li, D. (2021). Investigation and analysis on the effect of labor education in Wenzhou Higher Vocational Colleges in the new era. *International Journal of Social Science and Education Research*, 4(3), 92–101. [https://doi.org/10.6918/IJOSSER.202103\\_4\(3\).0015](https://doi.org/10.6918/IJOSSER.202103_4(3).0015)
- Li, K. (2019). *Evolution and review: Historical logic and realistic reconstruction of labor education*. People's Press.
- Lianzhao, W. (2017). Characteristics and implementation of labor education. *Chinese Journal of Education*, 1, 1–7. <http://epc.swu.edu.cn/info/1097/2202.htm>

- Liu, X. (2019). *The outline of labor education in colleges and universities in the new era*. People's Press. <https://marxism.ssap.com.cn/book/1875945>
- Lv, S. (2022). Effective combination of intelligent information technology and labor education data analysis algorithms. In Z. Xu, S. Alrabaee, O. Loyola-González, X. Zhang, N. D. W. Cahyani, & N. H. Ab Rahman (Eds.), *Cyber Security Intelligence and Analytics. CSIA 2022*. (pp. 61–69). Springer International. [https://doi.org/10.1007/978-3-030-96908-0\\_8](https://doi.org/10.1007/978-3-030-96908-0_8)
- Mansurjonovich, J. M. (2022). Current status of the science of informatics and information technologies in the professional education system, existing problems and solutions, principles and content of the science organization. *Galaxy International Interdisciplinary Research Journal*, 10(12), 327–331. <https://internationaljournals.co.in/index.php/giirj/article/view/3039>
- Meng, S., Tao, F., & Han, L. (2020). The joint development of college labor education and quality education based on the new era. In S. Bhattacharyya & X. Yan (Chairs), *Proceedings: 2020 International Conference on Computers, Information Processing and Advanced Education (CIPAE)* (pp. 53–56). IEEE. <https://doi.org/10.1109/CIPAE51077.2020.00021>
- Nabiullina, L. Y., Abdullina, D. A., & Kuzyashev, A. N. (2020). David McClelland and his contribution to the development of management theory. *Scientific Electronic Journal Meridian*, 4, 87–89. <https://meridian-journal.ru/site/article6a50/>
- Phillippe, K. A., & González Sullivan, L. (2017). *National profile of community colleges: Trends & statistics*. American Association of Community Colleges. <https://files.eric.ed.gov/fulltext/ED494034.pdf>
- Scott-Clayton, J. (2015). The shapeless river. Does a lack of structure inhibit students' progress at community colleges? In B. L. Castleman, S. Schwartz, & S. Baum (Eds.), *Decision making for student success: Behavioral insights to improve college access and persistence* (pp. 102–123). Taylor & Francis. <https://doi.org/10.4324/9781315767932>
- Stevens, A. H., Kurlaender, M., & Grosz, M. (2019). Career technical education and labor market outcomes evidence from California community colleges. *Journal of Human Resources*, 54(4), 986–1036. <https://doi.org/10.3368/jhr.54.4.1015.7449R2>
- Volchek, D., Romanov, A., & Mouromtsev, D. (2017). Towards the semantic MOOC: Extracting, enriching and interlinking e-learning data in Open edX platform. In P. Rózewski & C. Lange (Eds.), *Knowledge Engineering and the Semantic Web. KESW 2017*. (pp. 295–305). Springer. [https://doi.org/10.1007/978-3-319-69548-8\\_20](https://doi.org/10.1007/978-3-319-69548-8_20)
- Wang, G. (2017). *Wang Guangya corpus*. Henan People's Press.
- Wang, Y., & Wang, T. (2020). Research on the optimization of the path of labor education for college students. *China Higher Education Research*, 8, 67–70. <https://www.whc.edu.cn/info/1027/1121.htm>



- Wen, L. (2021). Labor education in primary and secondary schools in the new era based on modern information technology. *Journal of Contemporary Educational Research*, 5(11), 89–94. <https://doi.org/10.26689/jcer.v5i11.2753>
- Wiswall, M., & Zafar, B. (2015). Determinants of college major choice: Identification using an information experiment. *The Review of Economic Studies*, 82(2), 791–824. <https://doi.org/10.1093/restud/rdu044>
- Xi, J. (2017, October 18). Secure a decisive victory in building a moderately prosperous society in all respects and strive for the great success of socialism with Chinese characteristics for a new era. 19th CPC National Congress, Beijing, China. [http://www.xinhuanet.com/english/download/Xi Jinping's report at 19th CPC National Congress.pdf](http://www.xinhuanet.com/english/download/Xi_Jinping's_report_at_19th_CPC_National_Congress.pdf)
- Xia, Q., & Liu, X. (2019). Connotation analysis and system construction of labor education in colleges and universities in the new era. *China Higher Education Research*, 1, 1–9.
- Xinhua. (2018, September 9). President Xi attends National Education Conference and delivers keynote speech. [http://en.moe.gov.cn/News/Top\\_News/201809/t20180910\\_348093.html](http://en.moe.gov.cn/News/Top_News/201809/t20180910_348093.html)
- Xu, C. (2018). The logic of the redevelopment of labor education in the new era. *Educational Research*, 11, 12–17. [https://deyu.usst.edu.cn/\\_upload/article/files/f8/d4/8c26ca3e4a19802b23a1a93bad6f/1034e050-11b2-4ac5-834e-46393d193c7b.pdf](https://deyu.usst.edu.cn/_upload/article/files/f8/d4/8c26ca3e4a19802b23a1a93bad6f/1034e050-11b2-4ac5-834e-46393d193c7b.pdf)
- Yang, Z. (2020). Reflections on the difficulties and solutions of current labor education. *Journal of Heilongjiang Teacher Development Institute*, 6, 1–6.
- Ying, X., & Zheng, Y. (2018). Approaches and methods of college students' labor education. *Journal of Mudanjiang University*, 1, 1–5. <https://doi.org/10.3969/j.issn.1008-8717.2018.06.043>
- Zhang, G. (2020). How to carry out college students' labor education with the help of the internet during the holidays: A case study of Yiban's Column "Taste of Eating Light". *Science and Technology Perspective*, 317, 65–67. <https://www.scirp.org/reference/referencespapers?referenceid=2893458>
- Zhang, J., Yang, C., & Hu, Q. (2019). The practice and thinking of college students' labor education in the new era. In M. F. Ahmad, J. Lin, & W. Liu (Eds.), *2019 4th International Conference on Humanities Science and Society Development (ICHSSD 2019)* (pp. 414–419). Atlantis Press. <https://doi.org/10.2991/ichssd-19.2019.84>
- Zhejin, Y. (2019). The characteristics and realization of labor education in colleges and universities in the new era. *Jiangsu Higher Education*, 1, 1–5. [https://deyu.usst.edu.cn/\\_upload/article/files/01/2d/869713e64d24b74438d077f9095d/f2702cd7-9106-4512-b327-78844e760182.pdf](https://deyu.usst.edu.cn/_upload/article/files/01/2d/869713e64d24b74438d077f9095d/f2702cd7-9106-4512-b327-78844e760182.pdf)

Zou, D., Zhang, S., & Zhao, K. (2020). Analysis of the significance and countermeasures of developing students' labor education in higher vocational colleges. *Journal of Liaoning Higher Vocational*, 22, 72–75. [http://yhbo65.anli.zbwj.com/?list\\_9/2303.html](http://yhbo65.anli.zbwj.com/?list_9/2303.html)

## Appendix A

### Shengda College Work Education Program

A person can benefit from developing good life habits. Shengda College labour education is an educational and realization method of forming positive daily habits. The single-semester program is designed for first-year students. On a compulsory basis, each student is required to work an hour a day for the academic semester.

#### Theoretical Approach

The theoretical program on labour education teaches the following topics in the form of lectures:

1. The concept and ideology of labour
2. Fostering a positive attitude towards work and desire to assist students
3. Formation of work skills and their continuous improvement
4. Cultivating the habit of labour efforts with readiness to take an active part in work
5. Creating a positive interaction in the labour process and the education of collectivism, mutual assistance, and the ability to bring the work started to an end
6. Safety precautions

The lectures are given face-to-face with the use of presentations by teachers of labour education. Additionally, a board, computer, and projector were used to conduct lectures.

#### Practical Approach

Labour education is provided by a reliable organization, mechanism, and system. This involves the establishment of a special managing organization, namely the Labour Protection Department. There are regular classes on the following issues: measures for the implementation of labour education; measures for the competition of cleanliness among students; self-service; household work; collective labour; manual labour; labour in nature; and regulations on the management of labour protection. The classes are aimed at standardization of labour education management, improvement of various mechanisms, and quantitative assessments of labour education, which are mainly reflected in the secondary colleges' daily work.

These are the components of the practical training program:

1. Labour in Nature and Manual Work. In particular, this refers to one-minute environmental protection, the activities that encourage all students to use the time between lessons to set up desks and chairs, collect garbage, and develop the habit of cleaning up and caring for the environment. The Clean and Tidy Dining Environment activities teach students to take responsibility for cleaning up leftovers on tables after meals, consciously returning dishes, classifying and recycling waste, and forming good dining and living habits. The activities also include cleaning college areas and the garden, planting flowers, and watering trees.

2. Measures for the Competition of Cleanliness Among Students and Self-Service. This component means integration of labour education into campus culture. Shengda College's motto is "The realization of self-reliance mainly depends on the development of labour education and the implementation of work and study programs." In the school environment, students are required to participate and achieve cleanliness through work practice. In addition, the spirit of work and labour requirements are reflected in Shengda's motto, which includes guidance such as "get up early in the morning and sweep the yard," "dress and be neat," "work harder, strengthen muscles and bones," and so forth. Shengda College cultivates students' work awareness and improves their labour abilities via campus cultural slogans and specific study and life requirements. Work diversity provides more opportunities than burdens. At the same time, an individual should use labour to move from self-help to helping others.
3. "Household Work" and "Collective Labour" imply the combination of main labour and collective work with study. The main labour refers to the educational method of the daily half-hour compulsory labour training course at Shengda College. Collective work mainly indicates various group works in college (for instance, cleaning the dining room and toilets). To accept an idea of glorious work, a change of thinking is required to associate work with positive emotions, such as praise and encouragement, and understand that physical labour aims to adjust to the changing times.

Practical classes are conducted by teachers of labour education. They also use the college garden, dining room, toilets, and other facilities. During the training period, students were required to choose cleaning the campus, caring for plants, or another task once a week. For each completed practical lesson, students received a certain score (ranging from 1 to 5), depending on performance (1 = poor, 5 = excellent).

## Appendix B

### Questionnaire 1

1. What is labour? What is it for?
2. Give the definition of labour ideology.
3. What is your attitude towards physical labour?
4. List the rules of collectivist education.
5. How do you bring the work started to an end?
6. What skills have you been able to learn through physical labour (work skills, health promotion, respect for comrades, the ability to overcome difficulties, etc.)?
7. What are the internal and external reasons for labour motivation?
8. After completing the theoretical course, did your motivation for work increase? Why?
9. What emotions do you experience when you think about work or physical labour?
10. Identify 5 basic safety rules for physical labour.

### Questionnaire 2

1. Where would you like to work most (in the field, at an enterprise, in the service sector, etc.)?
2. Which kind of work is preferable for you: permanent or seasonal?
3. Do you do housework?
4. What aspects of physical labour are you most interested in (physical training, results of labour, the opportunity to gain skills in a particular profession, etc.)?
5. Do you have the opportunity to expand and deepen your knowledge of various subjects (physics, mathematics, chemistry, biology, history, etc.) during physical labour?
6. What motives induce you to work?
7. What do you dislike about physical labour (bad organization, low pay, the unfriendly attitude of production workers, etc.)?
8. What tasks did you carry out for your team? Why? What exactly did you like and dislike about that work?
9. What have you done for your team and individual comrades on your own initiative?

10. What keeps you from doing good public errands? How do you overcome these difficulties?
11. What qualities have you been able to form, develop or strengthen through physical labour (work skills, health promotion, respect for comrades, the ability to overcome difficulties, etc.)?
12. Is mutual assistance important in practice?

