

Pathways for Enhancing College Students' Holistic Competencies through the "Second Classroom+" Collaborative Education System

Hao Qin*, Lijun He

Hebei University of Technology, Beichen, Tianjin, China

**Corresponding Author*

Abstract: Higher education is changing from scale expansion to connotative development in new era. We should use institutional innovation to enhance students' holistic competencies and this is a pressing issue. Second classroom initiatives often have insufficient coordination and limited educational effectiveness. We examine the construction pathways and practical value of a "Second Classroom+" collaborative education system. Based on policy evolution and institutional practices, we examine the key problems in current second classroom operations where resources are fragmented and coordination is difficult, and then we propose a framework that can address these structural issues from multiple perspectives including collaborative mechanisms, curriculum structuring, and we also consider digital platform development. It is worth noting that results show second classroom initiatives still face constraints. These include conceptual understanding, institutional support, and there are also problems in collaborative implementation. In fact, we can establish multi-stakeholder coordination mechanisms and develop modularized curriculum systems that are flexible enough to meet diverse student needs, and also using data-driven platforms can help the transition from fragmented activities to systematic operation in a way that improves overall educational outcomes. The "Second Classroom+" collaborative education system can provide a feasible approach. It can help optimize talent cultivation models and has good performance in improving the effectiveness of competency-based education in the higher education.

Keywords: Second Classroom; Collaborative Education System; Holistic Competencies; Higher Education

1. Introduction

Building a strong education system is a complex task. We should focus on supporting virtue and cultivating students with full development, and they can have competencies in moral, intellectual, physical, aesthetic and labor domains [1]. Under the background of high-quality development in higher education, improving talent cultivation systems is a key issue. Also, promoting students' holistic development can become central concern in educational reform.

The "Second Classroom Record System" can be seen as a response to these challenges. Since 2014 it was piloted in 35 universities and then expanded in 2016 and promoted in 2018 across whole country, so the system changed from local experimentation to national framework with structure and can support the education work. Through continuous practice, universities improved institutional design and platform construction, also they worked on operational mechanisms, and established a second classroom system with education orientation and data support, and the system is driven by evaluation. It is worth noting that this system can help promote the full development of students.

But some problems still exist. For example, the coordination mechanism is weak and we do not have enough resource integration, and also the evaluation system is not well developed, which makes it hard to fully use the educational potential of second classroom in current practice. It is worth noting that these issues can limit the development. So in existing institutional framework, we should consider new conceptual and methodological improvements because the current system cannot support the full development of second classroom education and we need to change the current situation.

We try to look at practical challenges in second classroom education. In this context, we use the

idea of "Second Classroom+" to examine internal mechanisms and implementation pathways of collaborative education system, which is expected to help us understand how different parts work together when teachers and students collaborate in practice. Also, we discuss optimization of talent cultivation models and it can provide some suggestions for practice. It is worth noting that the results can be used as a reference for improving effectiveness of holistic competency development in higher education.

2. The Practical Challenges in Building a "Second Classroom+" Collaborative Education System

In fact, we can see from current practice that second classroom initiatives continue to face constraints in the conceptual understanding, institutional arrangements, and how to implement the collaboration, because the traditional educational models have path dependence and the emerging collaborative education systems are not mature enough. These challenges can show us the existing problems in current systems. Therefore, development of "Second Classroom+" framework can meet several difficulties.

2.1 Conceptual Misalignment in Understanding the Second Classroom

We find that in current university practice, the second classroom is often misunderstood. It is worth noting that people think it is general student activities. In fact, it should be an important part of whole education system. Because the primary classroom has been emphasized for a long time, the second classroom is regarded as serving cultural functions and extracurricular functions, and its role in value formation and competency development receives little attention.

Also, some institutions treat the second classroom development only as activity organization, and they connect it to cultural or sports events without considering the full talent cultivation goals, so the second classroom cannot support the main educational objectives in a systematic way and the expected outcomes are hard to achieve. So these initiatives can have weak content. The functions are fragmented. It is worth noting that educational goals are not clear, and in fact the coordination with primary classroom can be limited. Also, activity provision is temporary and it lacks long-term

planning the alignment with students' developmental needs is insufficient.

So the status and function of second classroom in overall education system are reduced. This makes it hard to contribute to holistic education and it is worth noting that the advancement of the "Second Classroom+" collaborative framework can be hindered, which can affect the whole system and reduce the education quality.

2.2 Institutional Constraints: Insufficient Coordination and Weak Support Mechanisms

Besides conceptual issues, the institutional support and operational mechanisms can have limitations and this can make it hard to develop second classroom. In fact, full institutionalized framework comparable to the primary classroom has not been established. System design and resource allocation have gaps. Also the organizational management has problems.

The second classroom has no clear positioning and unified standards. So in the institutional resource distribution it can only occupy marginal position. This can be reflected in limited funding and insufficient dedicated administrative capacity, and also the platform support is inadequate [2]. Also, its operation is still temporary and decentralized. In fact, the curriculum-based and systematized development is not sufficient.

About coordination, the collaboration between administrative units and academic departments is still not sufficient. Also the multi-stakeholder framework is underdeveloped. Therefore, the efficiency of resource integration is limited and the synergy of educational efforts can be low [3]. These institutional and operational shortcomings can hinder the stable and sustainable development of the second classroom. Also the role in collaborative education system is limited.

2.3 Limited Depth of Industry–Education Integration

Industry-education integration can help improve practice-oriented learning. In fact, implementation is still superficial. Current collaborations between university and enterprise are limited to activities such as corporate presentations and seminars, and also establishment of practice bases [4]. These forms of cooperation can be short-term and symbolic. It is worth noting that they lack sustained engagement throughout the entire talent development process.

Enterprises have low participation in key stages such as curriculum design and project development, and evaluation process is also done without enterprise involvement so in fact they are not integrated into second classroom system in practice and the cooperation should be strengthened. So some programs are not connected to real industrial needs. It is worth noting that practice scenarios can lack authenticity and complexity at the same time, which makes it hard to provide real engineering experience for students and this can reduce the training effect in developing students' problem-solving abilities.

Also, universities dominate industry–education integration process and they can lack systematic approaches when incorporating external resources from companies and social organizations, which makes it hard to build a full collaboration system with enough support from different stakeholders. Therefore, the institutionalization can be inadequate. In fact, under these conditions, second classroom has not realized its function as a bridge between education and industry. We should promote multi-stakeholder participation and establishing stable collaborative mechanisms is important challenge that should be addressed.

3. Practical Pathways for Building a “Second Classroom+” Collaborative Education System

Based on the analysis of existing challenges, we can see that the development of "Second Classroom+" collaborative education system requires systematic advancement through structural optimization and pathway integration, which can help change the current situation and improve the coordination between different parts of the system. This process can avoid fragmented operations and achieve coordinated development with holistic features. It is worth noting that several key aspects exist. We should focus on collaborative integration and curriculum restructuring, and also digital empowerment can provide necessary technical support which is expected to improve the overall performance of the education system and help students achieve better learning outcomes in second classroom activities.

3.1 Establishing a Collaborative and Integrated Education System

The Second Classroom+ approach can break through traditional education boundaries. It is

worth noting that we should achieve systematic integration across different stakeholders, various processes, and also resources in the whole system, and this can in principle help improve the education quality which is the main goal of our university and also the requirement from society. At institutional level, we should strengthen connection between primary and second classrooms by incorporating the latter into overall talent cultivation framework. Also, its functional role can be defined within training programs, and we can achieve integration into credit systems and graduation requirements with gradual steps.

Through mechanisms such as credit recognition and outcome transformation, classroom learning and practical activities can be mutually reinforcing, thereby enhancing the coherence and continuity of talent development.

In resource integration, coordination mechanisms should be built. We can develop these both within the university and also outside. Inside the university, teaching resources and research platforms can be aligned with student organizations to form collaborative network between departments. Beyond the campus, partnerships with government agencies and enterprises should be expanded, and we can include social organizations. This can help improve practical learning environment. It is worth noting that project-based approaches and task-driven methods can embed theoretical knowledge into real-world contexts, and students can develop applied competencies through problem-solving processes [5].

Industry-education integration is now deeper. This can help strengthen collaborative education. In fact, universities and enterprises should engage in the joint curriculum development and co-supervision, and they can also share evaluation processes so that external stakeholders participate in educational cycle and it is expected that the participation can be meaningful. It is worth noting that institutional arrangements clarifying responsibilities and collaboration mechanisms can be essential for establishing stable partnerships that can last long.

3.2 Developing a Modular Curriculum System and Enhancing Educational Provision

It is worth noting that as collaborative mechanisms improve, the second classroom should shift from model focusing on activities to

framework focusing on curriculum and this change can avoid some problems in current practice. Developing modular curriculum system is key to improving standardization and coherence and it can help build full structure.

According to goal of holistic student development, we can organize educational content into several modules covering ideals and values, academic and technological innovation, social practice, cultural and artistic engagement, physical development, and student leadership or service [6]. These modules can be implemented through project-based learning and organizational participation. Also outcome-oriented activities can be used and in fact it forms structured curriculum system with hierarchy.

Also, reforms can help promote integration of second classroom activities into formal curricular structures, and we should try to transform fragmented activities into course-based projects with clear learning objectives because this can help students know what they should learn in the program. It is worth noting that assessment criteria should also be established. These activities can be incorporated into unified credit system. This is expected to help ensure traceability of learning processes and the evaluability of outcomes can be improved.

We should consider the differences between disciplines and academic stages, and curriculum offerings with different levels should be established. Also, we should strengthen quality assurance mechanisms. This includes entry evaluation and continuous process monitoring. It is worth noting that the review after implementation should combine expert assessment and student feedback. Through such a cyclical process, curriculum system can be refined. So educational quality can be improved.

3.3 Building an Integrated Digital Platform and Data System

Information technology develops fast. In fact, support can be given to collaborative education in second classroom by it. To build the "Second Classroom+" system, we need to establish an integrated digital platform that can support the entire educational process from beginning to end and also it can make the management become systematic and transparent [7].

This platform can integrate several functions. It is worth noting that it includes course delivery,

activity participation, process documentation and outcome evaluation, and this integration can in principle help improve the operational efficiency and management transparency of the whole education system when it is used in the practice for daily work. Also, developing a full data system is important. In fact, in university, data sharing among academic affairs, student management, administrative departments and other offices can be promoted through unified governance frameworks, and externally we can strengthen data connectivity with practice bases and social platforms so that multi-source data integration is enabled.

Based on these foundations, big data analytics and intelligent technologies can be used to analyze students' participation patterns and competency structures and we can also study the developmental trajectories in whole learning process we discussed. In fact, this can help dynamic assessment and personalized profiling. Also it can support curriculum optimization and resource allocation.

As a result, second classroom education can gradually shift from experience-driven to data-driven approaches, enhancing precision and scientific rigor in talent cultivation.

4. The Value Implications of the "Second Classroom+" Collaborative Education System

The "Second Classroom+" collaborative education system is not just an optimization of traditional extracurricular activities. In fact, it should be seen as a full transformation of educational philosophy and operational mechanisms, and it also includes changes to practical models in context of higher education governance that is evolving. This system has two main significances. We can expand the functional scope of the second classroom. Also, the integrated development of talent cultivation systems is expected to be promoted.

4.1 Conceptual Transformation: From Unidirectional Supply to Multi-Stakeholder Co-Creation

In concept, Second Classroom+ framework is expected to change education from school-centered, one-way model to a open system where many stakeholders can work together. In fact, traditional models confine knowledge transmission in classroom settings. Students are positioned as passive recipients and practical components are fragmented.

However, collaborative education brings more participants into the process. Students can be active in the learning, and institutions, enterprises, and organizations from society can contribute to the outcomes [8]. Knowledge acquisition and competency development can go beyond the classroom. In fact, they can be reinforced through practice in the real world and interaction with others.

This transformation enhances both the openness and the practical orientation of talent cultivation.

4.2 Mechanism Innovation: Establishing a Closed-Loop Collaborative System

From operational mechanism view, the “Second Classroom+” system can strengthen institutional support. We establish a closed-loop framework covering the entire educational process and it is different from traditional fragmented activities. In fact, this system can integrate goal setting and implementation with evaluation into unified structure and coherence between theoretical learning and practical engagement can be ensured [9].

Through mechanisms such as competency indicators and credit recognition, the second classroom becomes embedded within the formal talent cultivation system, improving both standardization and stability.

It is worth noting that feedback mechanisms can help adjust educational processes based on real-time data and actual requirements from participants, which makes the system more flexible than static models. We can track and evaluate learning and practice outcomes and educational pathways can be refined in the framework. This can avoid limitations of one-directional models. [10]. This closed-loop system can help transition from experience-based practices to a governance model that combines institutional and data-driven approaches, and we expect this can improve management efficiency and help decision-making processes in educational institutions through better resource allocation.

4.3 Model Innovation: Toward an Integrated Ecosystem of Industry–Education Collaboration and Digital Empowerment

At practical level, the system can support industry-education collaboration and digital technologies. It is worth noting that by extending learning into industrial and social contexts, the second classroom works as a

bridge between academic knowledge and real-world application and it can help students connect theory with practice while improving their understanding of actual industrial requirements [11].

University–enterprise relationships evolve from loosely structured cooperation to deeper collaboration, with enterprises increasingly involved in project design, supervision, and evaluation. This strengthens alignment between talent cultivation and societal needs.

At the same time, digital technologies can track and analyze students' learning processes, which helps visualize the educational practices and we can refine these practices based on the data collected from classroom activities in real time. It is worth noting that this approach can improve the management efficiency. Also, personalized learning becomes possible and evaluation can be more precise.

Together, these developments contribute to the emergence of an integrated educational ecosystem, transforming the second classroom into a core component of a more open, collaborative, and adaptive higher education system.

5. Conclusion

In fact, the “Second Classroom+” collaborative education system can be seen as a new way for innovation in higher education talent cultivation, and we use digital technologies to integrate multi-stakeholder resources and optimize curriculum structure so that the second classroom can move from fragmented activities to a coordinated framework with systematic design. It is worth noting that this can help. Then it expands role in supporting students' holistic competencies and the effect is expected to be good.

In practice, this system can improve educational process. It connects different educational elements together, so the coherence and effectiveness can be better and the whole system can work well when different parts are linked with each other in the good way that supports the teaching activities. But there are still some problems. In fact, the collaborative mechanisms should be deeper and we need to strengthen institutional support at the same time, and the evaluation system also needs refinement to make the whole system work better with full support from the institution and good evaluation methods.

In the future, we expect that universities can continue developing new concepts and reform system based on principle of holistic education. Also, sustainable development of Second Classroom+ collaborative education system can be supported. In fact, it can help achieve goals of talent cultivation.

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