

Research on Educational Policy Reform and Innovative Development Strategies in Southeast Asian Countries from the Perspective of the Belt and Road Initiative

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Abstract: The cross-border connectivity network of the Belt and Road Initiative has changed the external constraints and development paths of the education system in Southeast Asian countries. Based on the system theory, the main reason for the development of regional educational cooperation is a fluctuation in the correspondence between the potential energy of institutions and the demand pull; at the same time, a polycentric structure and institutional heterogeneity in the education system also cause this change. The three levels of educational institutional innovation in this paper are cross-cultural integration and localised calibration of curriculum knowledge production; hierarchical restructuring and effectiveness evaluation of quality assurance systems; and teaching paradigm transformation in the era of digital technology. It can also put forward a plan for the regional educational ecosystem, show the direction of flow and optimal distribution of cross-border educational resources, explain the logic of innovation diffusion under adjustment for cultural distance, and discuss the dynamic construction of educational system resilience. Based on the above research, it has been determined that in order to promote educational reform in Southeast Asia, we need to identify the non-linear interaction of external disturbances and internal structures, pinpoint key nodes in path dependence, and coordinate the three strategic axes.

Keywords: Belt and Road Initiative, Southeast Asian Education System, Educational Institutional Innovation, Development Strategy, Cultural Distance Adjustment, System Resilience

Introduction

Cross-border education in the Belt and Road Initiative is altering the direction of reform for education systems in Southeast Asian countries. The educational systems of all the countries in the region are polycentric and institutionally diverse, so they respond to the same external stimulus in different ways. Curriculum knowledge production is not cross-culturally integrated; the quality assurance system is top-down and has suffered from information loss; and the uneven distribution of digital technology has worsened the problem of multiple teaching models. According to the systems theory, it can be concluded that the driving force for the reform of education originates from abnormal interaction among internal factors and external forces; thus, the following three levels of institutional innovation will be considered: production of curriculum knowledge, construction of quality assurance systems, and penetration of digital technology. Due to the problem of resource scarcity and all kinds of demands, the three strategies put forward to address these problems are cross-border resource sharing, reduction of cultural distance and strengthening of system resilience; they provide a theoretical basis for studying the evolutionary logic of Southeast Asian educational systems in light of the Belt and Road Initiative.

1. Macro Context and Theoretical Basis of Educational Reform in Southeast Asian Countries

1.1 The Logical Starting Point of Regional Educational Interaction from the Perspective of the Belt and Road Initiative

A network of cross-border cooperation under the Belt and Road Initiative has been established to link the education systems of Southeast Asian countries. The first is that these places are close to each

other, and due to the construction of infrastructure, the mobility of people has increased; as a result, there are now more links and exchanges of knowledge. Therefore, the educational system will no longer be regarded as a single national institution but rather as a network of many areas and educational flows. According to the theory of systems, the change in the pattern of resource flow resulting from the Belt and Road Initiative has altered the external constraints on educational development in Southeast Asian countries and created new reform opportunities that were previously scattered and could not be effectively integrated and coordinated.

Therefore, the root cause of regional educational cooperation is an imbalance in the supply of institutional potential energy and demand pull. Due to the different levels of economic development, culture, education, etc., the reform demands of the countries in Southeast Asia are not the same. The external knowledge resources brought in by the Belt and Road Initiative have different degrees of compatibility with the needs of domestic reform, and they will either promote the spread of educational innovation or cause structural friction. Therefore, in order to understand the logical origin of regional educational cooperation, we need to consider not only the will to cooperate but also information asymmetry among educational systems, resource complementarity and heterogeneity in path selection. The above analysis will be used to study the internal structure of the educational system in Southeast Asia.

1.2 The Polycentric Structure and Institutional Heterogeneity of Southeast Asian Educational Systems

There are many centres for educational systems in Southeast Asia, and among these countries, there are various differences in the construction of school systems, quality regulation mechanisms and distribution of curriculum authority. This polycentrism is not a state of disorder but an institutional pattern that has developed as a result of colonial history, ethnic diversity and different stages of economic development. Thailand and Myanmar are relatively more centralised in the regulation of the education system in continental Southeast Asia, and Indonesia and the Philippines in insular Southeast Asia have shown a higher degree of regional autonomy. Due to the structural differences mentioned above, it is possible that the same external educational input will result in very different institutional responses in different countries and thus increase the complexity of regional educational interaction.

Institutional heterogeneity refers to the uneven distribution of power and responsibility at all levels in the education system. Some top research universities around the world have achieved a high degree of autonomy in higher education, and the curriculum standards for basic education are strictly regulated at the national level. The two are in conflict but also regulate each other in the educational system of Southeast Asia. At the same time, many countries have also had informal educational institutions and community learning centres take on some of the responsibilities of formal schooling and created parallel channels for knowledge inheritance. Based on the above reasons, it can be concluded that the same external educational innovation will be adopted and adapted in different ways across the countries of Southeast Asia, and this study will also offer a reference for understanding how the driving forces of educational reform operate in practice.

1.3 A Systems-Theoretic Explanation of the Driving Forces for Educational Reform and the Breakthrough of Path Dependence

According to the system theory, the reform of education in Southeast Asian countries can be viewed as the result of many interactions among external disturbances and internal structures. External factors in the evaluation of the cross-border education system include changes in the mobility of regional talents and the impact of digital technology on traditional education. There is a long history of educational institutions and patterns of vested interests within, and the mode of knowledge production is inherently inertial. According to the system theory, the reform of education will not be carried out all at once but will change gradually in stages. If the amount of external disturbances is too large, or if some necessary internal factors change suddenly, the education system will be unable to maintain its original state of equilibrium and will enter a new structural state.

One of the reasons for the slow progress of educational reform in Southeast Asia is path dependence. With the long-term development of these educational institutions, some rules have been issued to address problems in resource allocation, curriculum knowledge screening, teacher professional development, etc.; once these rules are in force, they tend to become self-perpetuating. To break the path dependency, it is necessary to identify the important links in the institutional system, such as the

flexibility of the length of the school system, the modular design authority of curriculum standards, and the adjustability of weights for educational quality assessment indicators. Given that the Belt and Road Initiative has promoted cross-border educational comparison and knowledge sharing in Southeast Asia, all the countries have obtained an external reference system for analysing their own institutional inertia. All kinds of educational models can be taken as cases for comparison to question the legitimacy of the traditional model and thus provide a cognitive basis for institutional innovation. It is not due to a single reason, and it can also be used to explain why there have been no institutional reforms^[1].

2. Core Dimensions and Change Mechanisms of Educational Institutional Innovation

2.1 The Paradigm of Cross-cultural Integration and Localised Calibration for Curriculum Knowledge Production

The first problem of curriculum knowledge production is cross-cultural integration in the educational systems of Southeast Asia. Through the flow of knowledge under the Belt and Road Initiative, educational materials from all over the world have been brought to our area, and as a result, a rich system of knowledge inheritance has been established. The old model of distribution needs to be replaced by an all-encompassing model of knowledge that can handle all kinds of knowledge and determine how to use it together. Most of the Southeast Asian countries are in line with the internationally recognised knowledge systems for mathematics and science; however, in language, social studies and the humanities, it is necessary to keep the explanatory power of local knowledge traditions. The first purpose of cross-cultural integration is to establish a norm for screening knowledge that can determine whether a particular unit of knowledge is suitable for addition to the local cognitive system and why.

Localisation is a way to promote cross-cultural communication in daily life. Knowledge from all over the place needs to be adjusted in terms of content and structure upon entering the school system to meet the cognitive habits and cultural references of local students. The three levels of revision are: Curriculum Goals, Contextual Revision of Textbook Content and Regional Substitution of Teaching Cases. Given the multi-ethnic and multi-lingual environment of Southeast Asia, local adaptation should also be based on the different levels of acceptance for the same body of knowledge among various ethnic groups. Calibration is not the collapse of the original knowledge system; rather, it is the optimisation of presentation tools and explanation paths for knowledge, and the basic ideas and principles of the discipline remain unchanged. The two kinds of integration and adaptation in the production of curriculum knowledge can achieve a dynamic balance of globalisation and localisation, providing a basis for innovation at the content level of educational institutions in Southeast Asia.

2.2 Hierarchical Restructuring of the Educational Quality Assurance System and the Effectiveness Evaluation Model

The educational quality assurance systems in Southeast Asian countries have some hierarchical features. Most countries have set up a single-system for student assessment and school accreditation at the national level. Some universities and colleges have set up their own internal quality supervision offices at the institutional level. Teacher evaluations and measures of student achievement in the classroom are not the same thing. Although the multiple-level coexisting structure can help protect the foundation stage of education, there are also problems in the form of inconsistent evaluation indicators at different levels and loss of information transmission. The first reason for hierarchical organisation is to establish a division of labour among the assessment modules at all levels and data link mechanisms; thus, quality requirements at the macro level can be transformed into practical indicators at the meso and micro levels, and teaching improvement information from the grassroots can be communicated upwards to affect the revision of standards.

Although the construction of the effectiveness evaluation model should be based on academic research, it should also consider how education quality assurance activities have actually changed teachers' teaching behaviour and students' learning results. The previous evaluation model was based on the idea that the input factors directly determine the output, and it did not consider the role of moderators and mediators in the operation of the assurance mechanism. The three dimensions of the assessment for the new explanatory model should be considered: standard appropriateness, that is to say, whether the evaluation indicators accurately reflect the competency requirements stipulated in the educational objectives; process consistency, that is to say, whether the assurance activities at all levels

are carried out in accordance with the designed logic; and improvement responsiveness, that is to say, whether the evaluation results have led to actual changes in the teaching organisation and teaching methods. Given the situation in Southeast Asia, relatively good progress margins can be added as extra evaluation indicators to the model to assess the impact of education, and at the same time, the uneven distribution of educational resources among countries should be taken into account to avoid suppressing diversity through absolute ranking^[2].

2.3 Adaptive Transformation Pathways of Teaching Paradigms in the Era of Digital Technology

The spread of digital technology in the education system of Southeast Asia is uneven and varied. On the one hand, mobile terminals and network facilities are gradually becoming popular in the major urban schools, and online learning platforms and digital teaching materials have begun to be used regularly in class. At the same time, schools in the countryside also lack equipment and do not have a good network. Therefore, all kinds of teaching are being carried out across the country at the same time, such as traditional face-to-face classes, blended learning, and fully online classes with experiments. The restructuring of teaching paradigms with digital technology is not only the use of tools; it has changed the spatiotemporal structure of knowledge dissemination, altered the interaction model between teachers and students, and changed the frequency and form of learning assessment.

Adaptive transformation paths aim to align the application of technology with pedagogical logic and do not advance technology for the sake of technology. Given that the teaching environments in Southeast Asia are all different, the choice of transformation paths should consider the features of the teaching content, the digital literacy of students and the types of available technological resources. Students who have mastered the good procedural knowledge can be helped to practise more efficiently with the help of simulation software and adaptive learning systems; for conceptual knowledge, asynchronous discussion forums and collaborative documents are more suitable ways to deepen understanding. The role of teachers will also change; they will no longer be the main source of knowledge but will design learning activities and guide students instead. Teachers should be able to design online courses and analyse data; they will not just be using them. Given the budget, offline teaching aids that can be used in areas with poor network coverage and SMS-based interactive platforms are more practical choices for development than expensive learning management systems. By finding suitable combinations of technology and organising teaching in various ways, we can change the teaching model under the influence of digital technology without being led by technology, thus achieving an organic integration with the actual teaching situation in Southeast Asia.

3. A Strategic Spectrum of the Regional Educational Ecosystem

3.1 The Flow Order and Principles of Optimal Allocation of Transnational Educational Resources

The flow of transnational educational resources under the Belt and Road Initiative has many levels and many subjects, such as curriculum systems, teaching staff, academic results, educational technology tools, quality assurance, etc. The flow paths are complex networks of exchanges among Southeast Asian countries and external education systems, and their order depends on how well the supply capacity of the exporting side meets the demand conditions of the importing side. If the attributes of the resources are in line with the cultural customs, language environment and institutional rules of the receiving area, then the flow process will be smooth; otherwise, there will be a bottleneck or deviation. At the same time, the educational system in Southeast Asia also needs to receive, filter, distribute and add new value to resources according to its own circumstances.

The reasons for the good division should consider the lack of educational resources and many other demands of education. Given the lack of funds, we need to determine which parts of the educational development in each country are most deficient. Based on the rule of hierarchical priority, the first is to meet the basic educational needs of all people, and then we can improve the quality of higher education and vocational education. Spatial equity should not be granted to the best urban schools, but rather more attention should be paid to the circumstances of schools in the countryside. In line with the principle of complementarity, resources that are difficult to produce in Southeast Asia locally but have good positive external effects should be imported, such as specific subject instructional design templates or teacher professional development modules. Based on the ideas of flow order and allocation, educational resources from all over the world can be organised into an organised system of institutional support to provide material resources for improving the regional educational ecosystem.

3.2 The Logic of Educational Innovation Diffusion in the Context of Cultural Distance Adjustment

Cultural distance affects the spread of educational innovation in all the countries of Southeast Asia. The causes of cultural distance include different languages, different educational aims, various norms for classroom conduct and uneven assessment cultures. When the cultural distance between the country of origin and the target country is small, the elements of innovation can be easily understood and accepted; when the cultural distance is large, even innovations with good effectiveness may be met with cognitive barriers and implicit resistance. The cultural differences among the countries in Southeast Asia are relatively small; thus, there is little resistance to diffusion in neighbouring countries or those in the same cultural area, but diffusion across cultural areas needs to be achieved in a more complicated way through translation^[3].

Adjustment is a way to reduce the effect of cultural distance in this paper. To spread educational innovation in different cultures, there needs to be terminological substitution at the symbolic level, process reorganisation at the structural level, and goal reinterpretation at the value level. The adjustment activities will not reduce the innovation prototype; rather, they are necessary modifications to integrate it with the actual teaching conditions of the school. In Southeast Asia, the changes are often led by local educational institutions, and based on the feedback they receive from the pilot operation period, they will adjust the plan for operation accordingly. Diffusion Logic can be employed to spread the network structure of adopter communities, and informal peer-to-peer communication can be used to reduce the sense of cultural distance in this way. Identify the sensitive dimensions of cultural distance and design special adjustment paths to change the cross-cultural diffusion of educational innovation from passive imitation to active reconstruction; thus strengthen its ability to be deeply integrated into the educational system of Southeast Asia.

3.3 Dynamic Construction of Educational System Resilience and Sustainable Evolution Strategies

The capacity of the education system to operate normally and to recover from or adapt to an external shock is called resilience. The reasons for the disruption in Southeast Asia are cross-border labour migration volatility, breakdowns in the digital economy and changes in the knowledge economy. All three levels in the construction of system resilience need to be addressed at the same time: How far the existing resources can be used to absorb the impact is called absorptive capacity; the ability to change teaching organisation modes and resource allocation structures is called adaptive capacity; and the possibility of reorganising operating logic after serious disturbances is called transformative capacity. The different levels of resilience in the education systems of Southeast Asian countries are due to differences in the redundancy of the institutional structure, the amount of resource reserves and the speed of information feedback.

Dynamic Construction believes that resilience is not a fixed state to be achieved once, but rather something that needs to be constantly observed and improved upon with the help of feedback. The three parts of the sustainable development plan are Modular Design, Multi-skilled Staff and Decentralisation of Decision-making. Modular Design divides the various functions of the education system into a few independent modules, so if one part is disturbed, the others can still work normally. Teachers and administrators have all sorts of skills, so they can build cross-domain competency portfolios and take on different roles according to the circumstances. Decentralised Decision-Making will hand over some of the power for resource allocation and adjustment of teaching at the school level to improve the speed of response. Equitable development should be in line with sustainable development, and too much emphasis on resilience will harm the normal operation of the enterprise. Given the lack of resources, the first is to ensure that the basic resilience threshold of key educational functions is met, and only then will other areas be added gradually to promote the long-term healthy development of the educational ecosystem.

Conclusion

In light of the Belt and Road Initiative, this paper will examine the general situation, institutional innovation factors and strategic scope of educational reform in Southeast Asia. The first reason for regional educational cooperation at the macro level is that the balance between the institutional potential energy and the demand pull has shifted, and there are structural deficiencies in the polycentric structure and institutional heterogeneity. The reasons for the reform are an irregular combination of external disturbances and internal factors, so to avoid the problem of path dependence, one should

identify the crucial links and introduce an external norm. For the scale of institutional innovation, the curriculum knowledge production should achieve a dynamic balance of cross-cultural integration and local adaptation; the hierarchical restructuring of quality assurance systems should be based on functional division and data linkage; and the change in teaching paradigms under the spread of digital technology should be chosen according to the characteristics of the subject and resource conditions. The development plan will distribute cross-border resources in a hierarchical and complementary way, reduce cultural distance through symbolic substitution and process reinterpretation, increase the resilience of the system by way of modular organisation of operations, build multi-skilled reserves, decentralise decision-making, etc. In the future, we will study the threshold of innovation diffusion under all kinds of institutional heterogeneity, build a system of resilience assessment indicators, analyze the cost-effectiveness boundary of digital technology, and extend the trajectories of micro-cognitive adjustment in cultural distance.

Fund Projects

This paper is the result of the 2024 annual project of the Southeast Asian Studies Center, a country and regional research center under the National Ethnic Affairs Commission's "Belt and Road" initiative. The project is entitled "Research on Educational Policy Reform and Innovative Development Strategies of Southeast Asian Countries from the Perspective of the Belt and Road Initiative" (Project No. 2024DNYZC014).

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