

Challenges and Pathways of Developing School-Based Textbooks in Primary and Secondary Schools

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Abstract: School-based textbooks are essential tools for implementing school-based curricula, cultivating students' individuality, leveraging teachers' strengths and highlighting school characteristics. This study investigates and analyzes the current state of school-based textbook development in primary and secondary schools, revealing common issues such as inadequate policy frameworks, low-quality textbook writing, and a lack of review and filing systems. These problems significantly hinder the quality of school-based textbooks and the teaching quality of school-based curricula. In response, this study offers the following recommendations: (1) to legally and procedurally regulate school-based textbooks and enhance the planning and management of their development; (2) to optimize topic selection and focus investments to ensure the quality of textbook writing; (3) to establish comprehensive, scientific and highly operable standards for textbook review.

Keywords: Primary and secondary schools; School-based textbooks; Challenges in textbook development; Pathways for textbook development; Empirical research

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1. Introduction

Starting in the 1960s and 1970s, many developed Western countries began implementing widespread curriculum reforms. These reforms involved breaking traditional boundaries and encouraging teachers, students, parents and community representatives to participate in curriculum development. This marked the start of the "school-based curriculum movement," which enhanced schools' autonomy and promoted the large-scale development of school-based textbooks. After 1990, the rapid advancement of information technology highlighted the inadequacy of national curricula, making deepening curriculum reforms a key issue. In 2001, the "Outline of the Basic Education Curriculum Reform (Trial)" encouraged schools to develop or select curricula based on local conditions, traditions and student needs. The Ministry of Education also issued the "Guidelines for School

Curriculum Management.” These documents marked the official start of school-based curriculum and textbook development in China, signaling a shift from centralized to decentralized curriculum management.

Both domestically and internationally, scholars have conducted extensive research on the development of local curricula and school-based textbook construction, discussing specific issues from policy formulation to implementation processes.

- (1) From a governmental perspective, Liu W *et al.* (2018) conducted a comparative analysis of the government’s role in local textbook development, providing references and insights for governments worldwide ^[1].
- (2) Chen L *et al.* (2019) discussed the challenges and coping strategies in the approval process of local textbooks in China, offering norms and guidance for local textbook development ^[2].
- (3) In terms of school leadership, Yang Q *et al.* (2019) and Zhang Y *et al.* (2019) investigated the influence of school leadership on the development of local curriculum and proposed relevant policy recommendations ^[3,4].
- (4) In the aspect of international comparison, Liang C *et al.* (2018) and Guo L *et al.* (2018) compared the quality assurance and stakeholder participation in local textbook development between China and the US and China and the UK respectively, providing valuable experience for local education reform ^[5,6].
- (5) Wang Y *et al.* (2019) and Zhao W *et al.* (2019) studied the impact of local textbook development on student learning outcomes, offering evidence for educational practice ^[7,8].
- (6) Regarding teacher professional development and collaboration, Hu J *et al.* (2020), Liu S *et al.* (2020), Xu H *et al.* (2021), and Wang H *et al.* (2021) respectively investigated the roles and influences of teachers in local curriculum development, providing insights for teacher training and educational management ^[9-12].
- (7) Li X *et al.* (2021) and Wang J *et al.* (2020) explored the challenges and opportunities in local education curriculum development from the perspectives of China and Singapore respectively, offering references for education reform in China and other regions ^[13,14].
- (8) Zhang H *et al.* (2020) analyzed the policies of local curriculum development through international experiences, discussed key issues in local curriculum development at the policy level, and proposed relevant policy recommendations to promote the development of local curriculum ^[15].

Overall, these studies indicate that the construction and development of school-based textbooks is a complex and important field that requires collaborative efforts from the government, schools, teachers and other stakeholders. These studies provide theoretical support and practical experience for addressing challenges in the field of local education, offering valuable insights for local education reform and development. Although there has been some progress in developing school-based educational materials in China’s basic education in recent years, multiple questions rose, such as “What is the overall situation of school-based educational material development?” “What is the quality of school-based educational material writing?” “How is the situation of school-based educational material review?” “What is the situation of school-based educational material selection?” The answers to these questions are of great significance for improving the quality of school-based educational material development.

2. Research design

2.1. Selection of survey respondents

The subjects of this study were primary and secondary school teachers. To collect broad and comprehensive data, the survey followed the principle of random sampling across three regions of China: the east, central and

west. A total of 7,933 questionnaires were distributed and 7,811 valid responses were received, yielding an effective response rate of 98.46%. The basic information of the survey subjects is shown in **Table 1**.

Table 1. Basic information of survey respondents

	Object class	Number of individuals
Sexes	Male	1651
	Daughter	6052
Teaching experience	Less than 1 year	650
	1–5 years	1685
	6–10 years	1561
	More than 10 years	3451
Segments	Secondary school	3529
	Junior high school	2582
	Passed exams	1574
Shore	East	2107
	Central	4165
	West	1321

Note: There are some missing values in the basic information of survey respondents

2.2. Research methodology

2.2.1. Questionnaire method

This study primarily used a questionnaire survey, combining multiple-choice and single-choice questions. The aim was to assess the overall situation of school-based textbook development by evaluating existing textbooks and teachers' past experiences with them. Single-choice questions gathered basic information about the teachers, while multiple-choice questions explored their views on the writing, review and selection of school-based textbooks.

2.2.2. Interview method

This study employed interviews in addition to the questionnaire survey. The interviewees were frontline primary and secondary school teachers. The goal was to gain insights from teachers' perspectives on the basic situation of school-based textbook development. The interviews focused on the main issues reflected in the questionnaires regarding the writing, review and selection of textbooks, as well as the underlying causes of these problems.

3. Analysis of results

3.1. Forms of school-based textbooks

An analysis of the survey data on the forms of school-based textbooks in China reveals several common formats, as shown in **Figure 1a**. Most schools opt for published paper textbooks, followed by internally printed paper textbooks. This indicates a preference for the perceived authority of officially published textbooks while recognizing that self-developed textbooks are better suited to the specific needs and circumstances of the school. Fewer schools use self-developed electronic textbooks and even fewer opt for published electronic textbooks due to cost considerations and the need to meet local cultural and student-specific requirements. A

very small proportion of schools choose other forms of textbooks.

3.2. Status of school-based textbook writing

The analysis shows that 44% of school-based textbooks are written by the school's teachers, making them the primary contributors. About 28% of these textbooks involve school administrators in the writing process and 9% involve educational researchers. Participation from other groups, especially minority language workers, is minimal. This indicates a relatively homogeneous group of contributors, with teachers bearing the majority of the workload. Further analysis of the background information of the textbook writers (as shown in **Figure 1b**) reveals that priority is given to teaching experience, followed by subject background and educational qualifications. Political conditions, job titles, and familiarity with minority language textbooks are not major considerations.

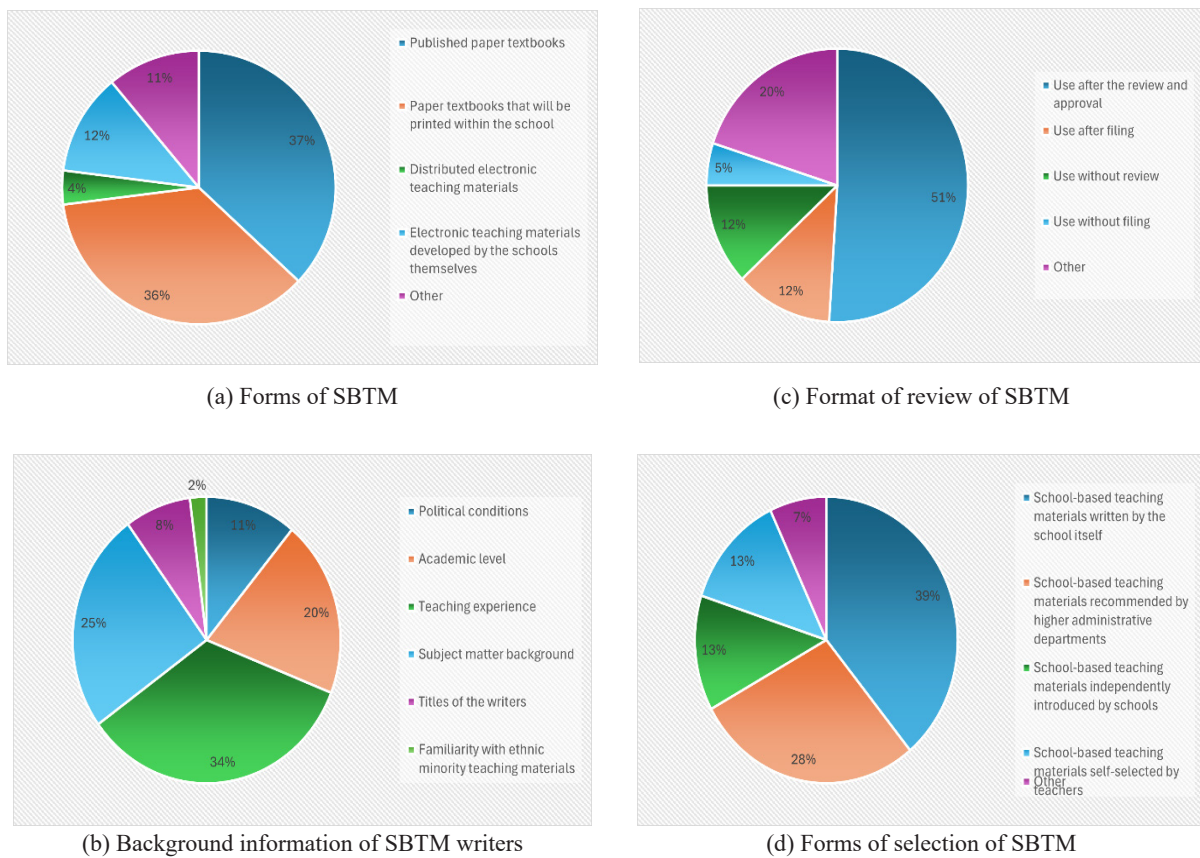


Figure 1. Analysis of the survey data on the forms of school-based textbooks.

3.3. Status of school-based textbook review

The review process analysis for school-based textbooks shows that about 56% of textbook writers are involved in the review process, 27% are not involved, and 17% are uncertain. As shown in **Figure 1c**, there are still textbooks in use that have not undergone review or filing, raising concerns about their content's scientific validity, novelty and practicality. Interviews revealed that schools often have unclear arrangements for the review process, with undefined responsibilities and no clear review regulations or procedures. Consequently, any completed school-based textbook is likely to be used, regardless of whether it has been reviewed.

3.4. Status of school-based textbook selection

The analysis of the selection process for school-based textbooks indicates that most schools develop their

selection methods based on provincial and municipal guidelines, tailoring them to meet their specific needs. The selection primarily includes textbooks written by the school itself, those recommended by higher administrative authorities, textbooks independently introduced by the school, and those chosen by individual teachers, as shown in **Figure 1d**. The data suggests that self-written textbooks have the highest adoption rate, followed by higher authorities' recommendations. Independently introduced and teacher-selected textbooks have comparable proportions, indicating that many schools prefer to organize their teachers and relevant members to develop their textbooks based on actual teaching needs, while others rely on recommendations from higher authorities. Other selection methods are relatively less common.

4. Conclusions of the study and recommendations for countermeasures

4.1. Conclusions of the study

4.1.1. Incomplete policy framework for school-based textbook development

The development of school-based textbooks is a crucial component of school curricula, supplementing and reinforcing national and local curricula. However, current efforts in school-based textbook development tend to be superficial, with some schools lacking school-based textbooks for several reasons.

(1) There is no explicit requirement from higher authorities for every school to possess school-based textbooks. While some provinces and municipalities have issued relevant documents regarding school-based textbooks, monitoring compliance remains a challenge.

(2) School-based textbooks are often fragmented, lacking periodic updates and revisions, leading to a fragmented curriculum design in some regions.

(3) School-based textbooks are rarely mentioned in policy regulations, and there are no specific provisions for their development. The lack of a clear management system to regulate school-based textbook development results in a chaotic and uncoordinated process.

4.1.2. Low quality of school-based textbook writing

Designing, writing and finalizing school-based textbooks require highly specialized skills and considerable time and effort from professional textbook writers. However, some schools hastily develop school-based textbooks to meet regulatory requirements or showcase their school's unique characteristics. They organize teachers to write textbooks collectively within a short period without any requirements for the writers' qualifications, credentials or subject backgrounds. All teachers may become textbook writers, sometimes even at the expense of regular teaching time. In reality, these school-based textbooks often serve merely as promotional materials for the school, without guaranteeing their scientific accuracy, logical rigor, or compliance with writing standards.

4.1.3. Lack of review and filing system for school-based textbooks

At the national level, there is no clear regulation or precise management method regarding reviewing and filing school-based textbooks. This results in a relatively chaotic situation for most school-based textbooks' post-writing review and filing. Provincial and municipal education authorities also tend to neglect the management of school-based textbooks, with many schools putting their textbooks into use immediately after writing them. Data analysis indicates that over 50% of school-based textbook writers are involved in related review work, indicating a lack of separation between writing and reviewing processes. Moreover, there are often no additional review stages or submissions to relevant departments for review and filing. In some schools, school-based textbooks are only reviewed by school leaders or heads of teaching research groups, resulting in a lack of scientific quality assurance for the textbooks.

4.2. Recommendations for countermeasures

4.2.1. Strengthening policy framework for school-based textbook development

Based on the survey findings, the nation must establish clear guidelines for school-based textbook development, delineating the responsibilities of the national, local and school levels to ensure rigor and scientific accuracy. Local education authorities should formulate specific methods for selecting school-based textbooks, detailing the selection process and corresponding evaluation feedback mechanisms. Schools should develop reasonable plans for school-based textbook development based on their specific characteristics and needs while adhering to local education department regulations for textbook selection. Schools should rigorously assess the quality of selected textbooks, provide timely feedback to education authorities, and update school-based textbooks regularly. For schools capable of developing their textbooks, ensuring the quality of school-based textbooks should be a top priority. As society evolves, outdated content in original textbooks should be revised to adapt to the times. Continuous innovation and optimization of textbook content should be pursued to facilitate personalized student development through school-based textbooks.

4.2.2. Optimizing topic selection and ensuring quality writing of school-based textbooks

In the context of the new curriculum, textbooks no longer serve as the sole teaching materials but play a guiding and exemplary role while integrating scientific content and personalization. Therefore, the writing of school-based textbooks has become crucial, with topic selection a key step. A good school-based textbook is an important teaching resource and a collection of personalized teaching methods. Hence, schools should optimize topic selection, choosing themes that suit their students' development and learning characteristics. Suggestions from school leaders, subject teachers, parents, community members, and even students should be collected and carefully considered through multiple rounds of screening. Since most of the work in school-based textbook writing is carried out by schools and is constrained by various factors such as manpower, resources, and finances, efforts should be made to strengthen the quality of the writing team. Collaboration between schools in the same region should be encouraged in cases where individual schools lack the resources to complete the task independently.

4.2.3. Establishing comprehensive, scientific, and operational school-based textbook review standards

Continuous enhancement of the accuracy of textbook review processes is essential. The clearer and more precise the review and filing procedures, the more significant the results. Data analysis indicates that nearly 70% of textbook reviews primarily focus on editing and textual proofreading, neglecting factors such as topic selection and content rationality. It is essential to promptly improve the review standards for school-based textbooks and establish specific, comprehensive, and scientific review procedures to minimize external influences and enhance the quality of school-based textbook development.

- (1) Establishing databases for school-based textbook management and information repositories for review committees is necessary to facilitate smooth review processes.
- (2) Systematic training should be provided to relevant personnel to ensure a thorough understanding of the review procedures and feedback, thereby refining the review process and ensuring the quality of school-based textbooks.
- (3) Dedicated websites should be created to promptly publish approved school-based textbooks online, aiding textbook selectors in making informed choices.
- (4) Refining the procedures for managing and filing textbooks at the school level is crucial and school-based textbooks should only be used after review and filing with local education authorities.

Disclosure statement

The authors declare no conflict of interest.

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