Issues and Pathway Optimization for Online Teaching in Elementary Schools

Haihong Li, Ailan Peng
School of Foreign Languages, Lingnan Normal University, Zhanjiang, Guangdong, China

Abstract: With the deep integration of digital tools, platforms, and resources into education, online teaching represented by MOOCs and SPOCs has broken the temporal and spatial limitations of traditional education, becoming an integral part of modern education. This paper focuses on the challenges and optimization paths of online teaching in primary education, adopting an analytical framework of "advantages-shortcomings-improvement strategies". It first clarifies the flexibility and resource accessibility of online teaching, then deeply analyzes its prominent problems: difficulty in ensuring concise and effective teaching, inadequate use of internet tools due to teachers' technical competence gaps and interactive tool adaptation issues, challenges in tracking students' learning progress and outcomes caused by lack of face-to-face interaction, and inadequate supervision. To address these issues, the paper proposes targeted optimization strategies: integrating teaching resources through precise screening, systematic classification, platform linkage, and dynamic updates; prioritizing students' emotional well-being; enhancing learning engagement via contextualized teaching; improving assessment and feedback mechanisms; and strengthening home-school collaboration. The research aims to promote the transformation of primary school online teaching from passive reception to active participation, optimize teaching effectiveness, and provide practical references for the high-quality development of online education in primary schools.

Keywords: Online Teaching; Teaching Challenges; Path Optimization; Resource Integration

1. Introduction

In recent years, the deep integration of digital learning tools, platforms, and resources into the educational landscape has brought about transformative modes of learning. Innovations such as Massive Open Online Courses (MOOCs), and their evolution in the so-called "post-MOOC era" into Small Private Online Courses (SPOCs), have transcended the temporal and spatial constraints of traditional education [1]. These developments not only facilitate broader access to high-quality educational resources but also enhance the flexibility and autonomy of the learning process. Against this backdrop, digital learning—characterised by its online delivery, self-directed nature, and openness—has become an integral component of modern educational systems.

This paper addresses the central issue of the challenges facing online teaching in primary education and explores pathways to its optimisation. Adopting a threefold analytical framework—examining the advantages of online instruction, its existing shortcomings, and potential strategies for improvement—the discussion aims to encourage critical reflection and practical inquiry among primary school teachers. By doing so, it seeks to enhance pedagogical outcomes, stimulate students' interest in learning, and strengthen teacher-student interaction. Ultimately, the goal is to foster a shift from passive reception to active engagement, creating a "virtual classroom" atmosphere that is both engaging and effective, and where learning unfolds in a relaxed and stimulating environment.

2. Advantages of Online Instruction

Within China's current educational landscape, traditional offline teaching remains the predominant mode of instruction. This approach requires students to gather in physical classrooms for face-to-face interaction within a predominantly one-to-many teaching framework. Such a structure enables educators to monitor learning progress in real time while maintaining constructive classroom discipline. Decades of educational practice have confirmed the

effectiveness of this model in cultivating student development. The continued integration of "Internet + Education" frameworks, however, has positioned online teaching as a transformative alternative. By utilizing digital platforms, this emerging pedagogical approach delivers education through more flexible, accessible, and inclusive formats, reaching broader learning populations while driving educational innovation [2].

Online teaching's distinctive flexibility creates unique value for both educators and learners. Teachers benefit from the automatic documentation of teaching processes, enabling systematic development of reusable digital resources [3]. Students gain the ability to revisit lesson content repeatedly and utilize fragmented time effectively, seamlessly connecting preparation, learning, and review phases. During specific circumstances like the COVID-19 pandemic, online teaching further demonstrated its indispensable role as a vital mechanism for ensuring educational continuity.

3. Issues with Online Teaching

While online teaching offers clear benefits compared with traditional classroom instruction, it also comes with its own set of challenges. It demands a higher degree of self-discipline from students and is constrained by more limited instructional content. At the same time, students and teachers are likely to encounter certain difficulties that are hard to avoid in an online learning environment.

3.1 Hard to Keep Online Teaching Short and Effective

Young students often struggle to maintain attention for long periods. Generally, children between 7 and 10 years old can stay focused for about 20 minutes, while those aged 10 to 12 can manage roughly 25 minutes. In addition, the elementary school phase is a critical period for children's vision development, which makes extended use of electronic devices undesirable. Therefore, online teaching must be both time-efficient and impactful. A single micro-lesson should not run longer than 20 minutes. This poses a clear challenge: how can we condense what is typically taught in a 40-minute classroom session into a 20-minute online lesson without losing educational value?

3.2 Hard to Make the Most of the Internet in Online Teaching

The popularization of online teaching has made technical competence an essential quality for primary school teachers, while also bringing about many practical challenges. These challenges are not only related to equipment operation, but also test teachers' ability to integrate technology with the learning characteristics of young students. First of all, there are difficulties in basic equipment operation and debugging. Most primary school teachers are not professionally trained in technology, so they often feel overwhelmed when facing the complex functions of live-streaming software. Problems such as choppy audio and blurry images frequently occur during pre-class debugging of cameras and microphones. Given that primary school students have a short attention span, even a few minutes of technical failures can disrupt the teaching rhythm. Some teachers also need to handle screen sharing, courseware page turning and bullet comment interactions simultaneously, and the multi-tasking often makes them flustered, affecting the fluency of teaching.

Secondly, there is the adaptation issue in the use of interactive tools. Online teaching lacks the intimacy of face-to-face communication, so teachers need to rely on interactive tools to maintain students' attention [4]. However, functions such as hand-raising for video calls and online answering often encounter problems like students failing to connect due to operational errors, or unsynchronized Q&A caused by system delays [5]. For younger students who are not proficient in using these tools, teachers have to spend extra time guiding them, which takes up valuable teaching time and makes it difficult to ensure the teaching progress.

Emergency handling of technical failures is even more exhausting for teachers. Sudden incidents such as unexpected network disconnections and software crashes often occur in class. Teachers need to switch to backup equipment or restart the system within a very short time, while also comforting students with words [6]. In addition, some students experience blurry images due to outdated home equipment, and teachers have to provide remote guidance to troubleshoot problems. This is undoubtedly a great challenge for teachers who are not familiar with various equipment models.

3.3 Hard to Track Students' Learning Progress

Online teaching is fundamentally different from the regular classroom. Without in-person interaction, it is hard for teachers to monitor whether students are paying attention, how much they've understood, or which concepts they are struggling with. These concerns must be taken into account when designing and delivering online lessons. According to the relevant content of the self-learning task list, students use the relevant resources on the online learning platform to carry out self-learning, complete the tasks set by the teacher, and submit the relevant confusion and suggestions encountered during the self-learning process to the learning platform, forming pre- class self-learning feedback. Teachers use online communication tools such as discussion areas provided by the platform to engage in synchronous/asynchronous communication and feedback with students, providing targeted personalized guidance.

In the exploration stage of typical tasks in class, students can adopt independent exploration or cooperative learning methods to carry out research-based learning activities based on different exploration questions [7]. Afterwards, students will enter the stage of achievement display and communication in class. During this process, students can showcase their research-based learning achievements, share learning experiences and insights through works exhibitions, limited time speeches, debates, and other forms. Teachers should provide timely guidance and answer questions.

3.4 Hard to Track Learning Outcomes

In the mode of online teaching, primary school teachers are confronted with far more difficulties than in traditional classrooms. One of them is to track the students' learning outcomes. Primary school students have a short attention span, and online classes lack face-to-face eye contact and physical guidance, making it hard for teachers to grasp students' learning status in real time. When being asked questions, either no one responds or only a few students participate. The originally lively group discussions turn into a "mute mode", and teachers cannot adjust the teaching rhythm in a timely manner, which greatly reduces the efficiency of knowledge transmission. During home-based learning, students lack effective supervision around them. Some children secretly play games, browse short videos, or even leave their seats at will. Teachers can only see part of the students through the screen and cannot stop bad behaviors in time. There are more cases of delayed homework submission and plagiarism, making it difficult for teachers to judge students' real mastery during marking. Students often fail to actively and timely feedback their doubts about knowledge points, and when teachers find the problems, knowledge gaps have already been formed. In addition, unstable network connections and old equipment in some families lead to frequent disconnections for students, affecting the continuity of learning. Teachers need to spend extra energy to coordinate and solve these objective problems.

4. Optimizing the Pathways of Online Teaching

In order to make online teaching better serve students and gain wider acceptance, teachers must refine its methodology and demonstrate unique value-driven qualities. Enhancements can be made in the following aspects:

4.1 Integrating Teaching Resources

Integrating online teaching resources is crucial for enhancing teaching efficiency and enriching teaching scenarios. It needs to be carried out around the core logic of "precision screening, systematic classification, convenient access, and dynamic update" to form a resource system that adapts to teaching needs.

Firstly, accurately locate needs and screen resources based on teaching objectives. Teachers should clarify the resource direction by combining curriculum standards and students' learning characteristics, and prioritize content from authoritative platforms, such as the course materials of the National Smart Education Platform for Primary and Secondary Schools. A corresponding table of "teaching objectives-resource types -application scenarios" can be established to ensure that resources are highly consistent with classroom links.

Secondly, conduct systematic classification and filing to build a clear resource framework. Teachers can classify resources according to the hierarchy of "subject-unit-knowledge point", and mark resource forms simultaneously, such as courseware, micro-lecture videos, exercise sets, and interactive tools. Cloud documents or resource management platforms can be used to set up hierarchical permissions, facilitating teachers and students to access resources on demand.

Thirdly, build an integrated platform to realize

efficient resource linkage [8]. Teachers integrate resources relying on online teaching tools, such as embedding selected resource links in Xuexitong and DingTalk Classroom, or using mind maps to sort out resource connections, forming a learning chain of "knowledge points-extended resources-practical tasks".

Finally, establish an update mechanism to maintain the vitality of resources. Regularly collect feedback from teachers and students, eliminate outdated content, and supplement cutting-edge materials, such as industry cases and academic achievements, so that online resources can truly serve the improvement of teaching quality.

4.2 Supporting Emotional Well-being

Learning at home differs significantly from classroom-based education. With parents assuming the role of primary supervisors, changes in environment and responsibilities may lead to emotional fluctuations among students. Therefore, to ensure the smooth delivery of online instruction, teachers should prioritize students' psychological well-being. This includes incorporating mental health education into ethics courses and reinforcing character development through humanistic themes in various subjects—thereby realizing the goal of fostering moral integrity.

Teachers can start each day with a 5-minute "online morning sharing" session, where students present interesting home life stories, using virtual hand-raising and emoji stickers to enhance interactive rituals. Activities like "virtual high-fives" and "cloud teams" can be designed, with collective nicknames and personalized comments to shorten psychological distances. Parents should avoid transferring anxiety to children; instead, they can accompany learning through gamified "study partner" methods, such as simulating classroom hand-raising scenarios to reduce loneliness when children face screens alone.

Teachers can create a visual "online study schedule" with cartoon stickers marking class, break, and exercise times, helping children develop a sense of routine, and set up a dedicated study corner with familiar textbooks and toys to replicate a "mini classroom" atmosphere. Teachers should pre-test equipment to prevent frustration from technical failures, offering patient guidance to students with poor internet connections and using inclusive language like "It's okay, we'll wait for you."

Then, teachers can insert micro-interactions like "finger exercises" or "story chaining" every 20 minutes to make students concentrate on the online learning. Teachers also can implement an "online growth tree" point system, where behaviors such as attending class on time and active participation are converted into virtual fruits, redeemable for offline rewards once accumulated. Parents can document small progress to reinforce a sense of achievement through positive feedback.

4.3 Enhancing Student's Engagement

In the online environment, teachers should strive to create an engaging atmosphere and design contextualized learning experiences that make students feel "present". The physical separation inherent in remote instruction can easily create emotional distance between teachers and students. Psychologists point out that context plays a distinct role in eliciting emotional responses. As educator Ye Shengtao observed, the value of education lies in its ability to create environments that stimulate students' needs and motivate them to learn. When students develop an emotional connection to the content, their motivation follows naturally. Thus, online teaching should incorporate scenarios relevant to students' daily lives—stimulating their interest and helping them perceive themselves as active agents in the learning process. In other words, the goal is to recreate the immediacy of in-person learning and strengthen students' sense of participation [9].

4.4 Improving Assessment and Feedback

Strengthening assessment and feedback for primary school students' online learning is a key link in improving the quality of online teaching. It is necessary to construct a multi-dimensional, dynamic, and interesting system based on the characteristics of primary school students, such as short attention spans and weak autonomous learning abilities. Teachers should assign clear pre-class preparatory tasks to ensure students are well-prepared for online sessions. Additionally, they ought to design purposeful post-class assignments that are targeted, practical, and open-ended—serving both to consolidate new knowledge and expand critical thinking [10].

In terms of assessment design, teachers should break through the limitations of traditional paper-and-pencil tests and adopt a combination of "process-oriented assessment and summative

assessment". Process-oriented assessment can rely on online platforms to record students' participation trajectories, such as the duration of watching micro-lectures, the accuracy rate of interactive answers, and the number of speeches in group discussions, presenting learning status through data visualization. For example, teachers can use the "learning behavior analysis" function of Xuexitong to generate a "online learning heat map" for each student to intuitively reflect their investment in different knowledge points. At the same time, teachers can design hierarchical task assessments, assigning basic consolidation exercises, extended inquiry questions, and practical creation tasks for students at different levels. For instance, teachers can let students record short videos explaining knowledge points, and complete thematic research reports, balancing the pertinence and interest of assessment.

4.5 Strengthening Home-School Collaboration

If formal schooling represents the external channel for knowledge acquisition, then family education constitutes the internal foundation for developing core competencies. With online teaching transferring the primary learning environment to the home, the development and exploration of home-school partnership programs at the elementary level take on particular significance. Such initiatives help align educational perspectives between teachers and parents, enhance the effectiveness of education, and carry substantial practical importance.

Online teaching has brought renewed vitality to innovation in elementary education. By addressing challenges directly, continually exploring new approaches, and adapting to evolving circumstances, we can better integrate the life experiences and educational aims of young learners—making online teaching more robust, multidimensional, and effective.

5.Conclusion

In essence, the optimization of primary school online teaching is a systematic project that requires the joint efforts of educators, students, and families. By fully leveraging its inherent advantages, proactively addressing existing challenges, and continuously refining practical strategies, online teaching can realize the transformation from passive adaptation to active engagement. Ultimately, it will better integrate with the developmental characteristics and educational needs of primary school students, injecting sustained vitality into elementary education and fostering the all-round development of young learners. The advancement of online teaching requires collaborative participation from all stakeholders. Through the joint dedication of educators, learners, and families, we can continue to enhance and optimize this educational approach. online teaching will thus inject sustained vitality into the educational landscape, creating more promising prospects for learning while nurturing each student's growth and development-scultivating them into capable individuals who will become pillars of our society and nation.

References

[1] Zhong, X. L., Song, S. Q., & Jiao, L. Z. (2015). From MOOC to SPOC: Construction of a deep learning model. China Educational Technology, 36(11): 28-34, 53.

[2] Alexander, S., & Golja, T. (2007). Using students' experiences to derive quality in an e-Learning system: An institution's perspective. Educational Technology & Society, 10(2): 17-33.

[3] Li, H., & Yang, S. (2023). A questionnaire survey on the current situation of online and offline hybrid teaching for undergraduate students in Guangdong. Adult and Higher Education, 5(6): 100-107.

[4] Ramdhani, S., Nirmala, S. D., Cahyono, N. A. N. (2025). Challenges in online mathematics education for elementary schools: A teacher's perspective from Indonesia. Indonesian Journal of Educational Development, 6(1): 109 - 123.

[5] Siz, M. A., Dinçer, S. (2025).The analysis of classroom management challenges faced by teachers in online classrooms. Tech Trends: Linking Research and Practice to Improve Learning, 69(2): 345 - 361.

[6] Wang, C& Li, L. (2023). Research on the construction of core competence model for primary and secondary school teachers' online teaching. China Education Informatization, 2023 (12): 45 - 52.

[7] Li, H. H. Design of online and offline blended teaching mode for the course of accounting in English. Advances in Educational Technology and Psychology, 7(17): 85-90.

[8] Zhang, Q. (2021). Research on the linkage

development and sharing of smart education resources. Educational Science Forum, (5): 26-29.

[9] Li, L. J. (2020). Reflections on the current state of "online teaching" among primary and secondary school teachers [in Chinese]. Teacher Innovation, (3): 10.

[10] Li, L. J., & Huai, P. P. (2020). Thoughts on "online teaching" for primary and secondary school teachers [in Chinese]. Gansu Education, (4): 190.

