

Education

The Role of Information Technology-assisted Instruction and its Implementation Strategies

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As a result of the rapid advancement of information technology (IT), the integration of IT into classroom learning has become a major topic of discussion in the education community. It is widely acknowledged as an effective method for optimizing teaching effectiveness and student learning efficiency. This paper's objective is to assess the current situation of IT-assisted classroom instruction in China and to offer practical suggestions.

Keywords: Educational Technology; Digital Classroom; Integration of Information Technology; IT-assisted Instruction

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STEVEN M. Brown, an American scholar, argues in his study of information technology (IT)-supported teaching that effective digitized instruction must meet several criteria, including individualized teaching training, IT support, technology application guarantee, sufficient information-based teaching training, and adequate digital equipment supply (1). Hayes observes that information technology is widely integrated in ways that complement and enhance established teaching methods. He believes that for schools to properly integrate ICT, their essential functions must undergo a fundamental revolution (2). According to Martinez-Caro's research, the key to successful online learning is interaction between students and technology, as well as students' understanding of online learning operations (3). In the realm of educational technology, the training of teachers' computer abilities, the transformations of education brought about by new technologies, and the integration of IT with classroom instruction have been popular themes of discussion.

IT-assisted classroom instruction is not merely the addition of electronic devices to traditional teaching methods. Rather,

it is a teaching technique in which information-based resources, tools, equipment, technologies, methodologies, physical environment, software environment, and other aspects are merged to support the classroom teaching and learning process (4). It combines traditional educational aspects with IT-driven forces to create an environment that improves the quality and effectiveness of classroom learning for students.

The Status Quo of IT-enhanced Education in China

Absence of Comprehensive Information Technology Integration

From the projector to the electronic whiteboard, tablet, and touch screen integrated machine, the equipment and technology in digital classrooms have undergone constant improvement over the past two decades. The six years between 2013 and 2018 were the pinnacle of tablet-assisted instruction and digital classroom investigation. After the rush of electronic whiteboards and smart tablets subsided, however, digital classroom progress halted. Due to the lack of in-depth IT integration, when the

touch screen integrated machine replaces the electronic whiteboard and is universalized, it will continue to work at the instrumental level, preventing the intelligent classroom from advancing to a higher level (5).

A Simplified Understanding of Educational Technology

Currently, IT is almost exclusively employed as a teaching tool in the classroom, despite the fact that technology alone will not necessarily improve teaching outcomes. Effective IT integration is driven by pedagogical techniques. Attempting to plan teaching, manage classroom education, or build intelligent classroom models solely through technological means is not favorable to the development of classroom teaching. No matter how the terminal medium evolves, we must always adhere to the principle of a student-centered and learning-focused classroom and utilize the sustainable growth of digital classrooms to improve student learning efficiency and teachers' instructional quality.

Stagnation in the Development of IT-assisted Classroom Instruction

The educational authorities' push for digital learning appears to have stalled, and tablet-assisted instruction appears to be losing popularity (6). Tablets are employed more as a technical device in intelligent classrooms than as a true curriculum resource to help students study. A questionnaire study on its classroom use reveals that a substantial number of teachers who have used the tablet in class claim that it is difficult to operate, impedes classroom flow, and cannot guarantee efficiency and effectiveness. How to further alter classrooms assisted by technology and how to encourage the sustainable and innovative building of digital classrooms are crucial challenges with which stakeholders must contend.

Suggestions for Implementing IT-assisted Instruction

Enhancing Teachers' Awareness of Integrating IT into Classroom Instruction

Proper implementation of supplementary educational technology can improve the quality of teacher instruction and boost the efficiency of student learning. How to implement supplemental instructional technologies has been a topic of investigation. Integration of supportive educational technology involves not just curriculum resources but also teachers' pedagogical approaches and, most crucially, student learning (3). The integration of information technology with curriculum, classroom instruction, teaching methods, and student learning must be carried out in three dimensions: classroom design requirements, classroom content standards, and classroom assessment criteria. IT-assisted

classroom design should prioritize student classroom effectiveness and efficiency, academic burden relief for students, and classroom instruction innovation; IT-assisted classroom content should emphasize individualization of standard curriculum and applicability to personal learning situations; and IT-assisted evaluation standards can more effectively combine formative and summative assessments.

Promoting IT Literacy in Teachers

The information-based classroom education revolution demands teachers have extensive IT skills. Teachers should be abreast of the most recent hardware and software advancements and conduct research on information-based instructional technology (5). In addition, teachers must be able to select appropriate software and technical approaches, as well as the appropriate time, forms, and degree of technological application, based on the existing hardware equipment.

Encouragement and assistance from the school's administration are also crucial in helping instructors increase their IT literacy. The Internet and computer training should be incorporated into the professional development of teachers. Before improving the learning chances of children through technology-assisted education, schools must first improve the learning opportunities of instructors. The investigation of IT integration by teachers is a component of teacher education research. In addition, external sources of support, such as external courses from training institutes, should be employed to enhance the IT knowledge of teachers. Local advisors and specialists might be enlisted to lead the technology plan of educators.

Constantly Upgrading Teacher's Skills in Educational Technology

Using IT tools, equipment, resources, and system platforms, IT-assisted classroom education aids students in optimizing their learning methods and enhancing classroom learning efficiency. Currently, universalized information hardware devices in intelligent classrooms include touch screen integrated computers, video booths, mobile terminals, etc.; commonly used basic IT software includes electronic textbooks, presentation software (PPT, WPS, Prize, Focusy), Easinote 5 (whiteboard), mind-map, geometric sketchpad, digital laboratory, touch screen integrated computers or electronic Whiteboard related software, micro-videos, micro-lectures, digital demonstration, etc. (7); basic digital teaching techniques encompass search engines, statistical comparison, time-limited rush response, simultaneous screen projection, split-screen comparison, photo uploading, first-level VR technology, etc. (8). Intelligent classroom instruction necessitates the utilization of all of these technologies and methodologies with practical application value. ■

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