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Interactive Learning Environments:
A Systematic Review of Mobile Instant Messaging's Impact, Challenges, and Future Trajectories

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ABSTRACT

With the rapid development of information technologies, Mobile Instant Messaging (MIM) has been widely applied to education, exerting a far-reaching influence on interactive learning environments. This study, employing a systematic review according to PRISMA protocol, aims to comprehensively and rigidly analyze the effect of MIM on interactive learning environments, including the advantages, challenges, and future trends. Reviewing previous research, this study finds that MIM can not only promote synchronous interactions between teachers and students but also enhance the flexibility and autonomy of learners, coupled with rich teaching strategies and plentiful learning resources. However, there are also challenges in using MIM, e.g. information overloads, technological over-reliance, cybersecurity, etc. This study provides constructive suggestions for educators, researchers, and practitioners to improve interactive learning environments.

KEYWORDS

Mobile Instant Messaging, Interactive, Learning, Environments

INTRODUCTION

With the rapid development of information technologies, MIM has become an indispensable part of daily life (Andujar-Vaca & Cruz-Martinez, 2017). The conveniences, quickness, timeliness, and interaction have revolutionized human communicative styles. In the educational field, great changes have also taken place due to the rapid development of information technologies. The introduction of MIM has brought about new benefits and challenges in interactive learning environments (Cremades et al., 2021). This study, through a systematic review method based on the PRISMA protocol, aims to comprehensively discuss the effect of MIM on interactive learning environments, providing constructive suggestions for educators, developers, and policymakers to cultivate beneficial learning environments.

Recently, MIM applications such as WeChat, QQ, and WhatsApp have received hot popularity across the world. Their users come from all walks of life, e.g. students, educators, businesspersons,

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builders, IT workers, or entrepreneurs. The MIM devices provide texts, videos, audio, and pictures for communication (Rambe & Nel, 2013). They can also support file transfer, group discussion, and online collaboration, and greatly diversify the communicative styles and contents. Against this background, a growing number of educational institutes have begun to integrate MIM technologies into the teaching and learning process, improving teaching effectiveness and learning experiences by employing the MIM devices (Chung & Choi, 2023).

However, MIM has been confronted with challenges in interactive learning environments (Wu et al., 2022). On one hand, MIM can enhance the interactions between students and teachers (C. M. Tang & Bradshaw, 2020), promoting the sharing of learning resources and brainstorming of different users. Students can conveniently share their opinions and teachers can quickly transfer their teaching guidance to all the students. The interactive learning environments can undoubtedly improve learning and teaching effectiveness and efficiency (C. Wang, 2018). On the other hand, the application of MIM can bring about problems such as information overload, distraction, privacy revelation, or technological over-reliance. It is thus important to comprehensively and systematically evaluate the effect of MIM devices on interactive learning environments (Fuad et al., 2018).

This study aims to comprehensively explore the application of MIM technologies in interactive learning environments, evaluation of their use, and future trends of their use in education. Through exploration of different aspects of the use of MIM technologies, this study is expected to provide a comprehensive and insightful understanding for educators, developers, and researchers to optimize interactive learning environments. This study will thus sharpen the insights into the application of MIM technologies in education and provide practical guidance for educators to improve the sustainability and optimization of interactive learning environments.

LITERATURE REVIEW

The Definition and Development of MIM Technologies

MIM technologies are defined as instant communication technologies that employ mobile devices such as smartphones and laptops to realize instant communication of texts, audio, videos, and pictures through a wireless network (Pooley et al., 2019). MIM technologies have boomed up recently due to the popularity and dramatic updates on intelligent terminal devices. MIM technologies have been playing an indispensable role in human life (Kartal, 2024). In the field of education, MIM technologies have been widely applied to online learning, distance tutoring, learning community construction, and online interactions, providing flexible and versified learning styles and mobile platforms for learners and teachers.

Features of Interactive Learning Environments

Interactive learning environments refer to the student-centered teaching and learning model (Bergin & Fors, 2003). They realize the close interactions by connecting teachers and students to learning resources, cultivating an active and dynamic learning atmosphere (Qudrat-Ullah, 2010). In this atmosphere, students are greatly activated and motivated because they are not considered passive knowledge receivers but active creators and explorers of knowledge. Teacher-student and student-student interactions occur frequently, which can not only promote knowledge distribution and sharing but also stimulate students' insightful consideration and creation. Meanwhile, the interactive learning environments underscore the importance of diversity and individualization of learning resources and styles, meeting the diverse needs of students and improving learning outcomes (Sarshartehrani et al., 2024).