

Reducing Academic Burdens While Enhancing Student Outcomes: The Role of Homework Management in the Era of Digital Education

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“Things change and unless you’re open to other ideas, you’re going to be totally irrelevant.”

-Tom Whitby

THROUGHOUT THE HISTORY of education, educationists have conceptualized “homework” in various ways. It was described as an intellectual activity for knowledge consolidation by Comenius, a method for shaping students by Herbart, a range of specialized play activities for children by Froebel, an intermediary connecting freedom and discipline by Montessori, and an essential component of teaching by Kairov. The significance of homework also varied in different times. Pestalozzi emphasized the role of assignments that suited students’ mental characteristics in developing their intellectual skills; Kerschensteiner and Dewey underscored the social value of homework and advocated diversity of assignments (Zhang et al., 2025).

The literature shows that homework can be in many forms, including written exercises, games, social practice, scientific exploration, and more, with the potential to consolidate learning, promote cognitive development, cultivate practical skills, forge character, and boost mental health in students. Well-designed homework is key to the achievement of educational and teaching objectives (Luo et al., 2022), serving as an effective device for assessing student learning outcomes, piquing students’ interest in extending their knowledge scope, and fostering essential competences in them (Wu & Huang, 2022). On the other hand, poorly designed homework can have negative effects, including posing inordinately heavy academic burdens on students and fueling academic burnout.

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Currently, the digital transformation of education has come to the fore in the global educational community. The development of digital education can bring about a brand-new educational environment, which integrates educational resources, promotes emerging educational applications, and makes tailored “on-demand educational services” possible (Zhu & Hu, 2022). In China, digital technology, in recent years, has become a core driver for accelerating endeavors to realize the overarching goal of “reducing academic burdens while enhancing student outcomes” of the Double Reduction policy. Leveraging cutting-edge technologies, such as artificial intelligence and big data, can revolutionize homework management, making the most of existing homework resources, utilizing homework data to optimize instructional decision making, and providing personalized learning pathways (Zhu & Hu, 2022). Particularly, digitally enabled homework design can stratify assignments by difficulty, tailoring them to the individual needs of students, and thereby being effective in supporting their learning (Li et al., 2023).

A Framework for High-Quality Management of Homework in the Context of Digital Education in this issue advances a theoretical framework of digitally enabled homework management (DEHM) against the backdrops of deepened understanding of the Double Reduction policy and the accelerated digital transformation of education in China. Based on the analyses of current issues with homework management in Chinese basic education and the practicability of DEHM in the context of ongoing development of digital education, the article proposes the DEHM framework, highlighting homework design and assignment, homework completion tracking and recording, and homework feedback and remedies as the three basic steps of the DEHM process; expounding on the five categories of data involved, namely, initial homework data, homework completion data, homework results data, homework intervention data, and homework progress data; and underscoring the roles of teachers, students, parents, and school administrators as DEHM actors (Yu, 2025). The study has significant theoretical and practical implications for the development of high-quality homework management systems for Chinese basic education.

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