

TRANSFORMATION OF EDUCATION IN DIGITAL ENVIRONMENT

Трансформация образования в цифровой среде

With the accelerated digital transformation of education, the professional competence training of chemistry teacher trainees in colleges and universities must meet new requirements. This paper takes the professional Standards for Middle School Teacher and the Chemistry Curriculum Standards for General High Schools as policy anchors [1], integrates the TPACK framework with chemistry discipline characteristics [2], and constructs a professional competence system consisting of four core dimensions, providing theoretical and practical support for optimizing teacher training programs.

The digitalization of education has promoted the transformation of middle school chemistry teaching into online-offline integration and virtual-real combination. Traditional training models fail to meet the demand for integrating «technology, discipline, and teaching» in digital classrooms. Existing research focuses more on general teachers' digital capabilities, with insufficient attention to chemistry-specific skills. This paper combines the TPACK theory with relevant policy standards [1] to build a competency system adapted to China's digital education context.

Based on the «professional ability» dimension of the Professional Standards for Secondary School Teachers [1], the TPACK framework is refined into a three-dimensional interactive structure of «chemistry subject knowledge (CK) – digital teaching method knowledge (TMK) – chemistry digital teaching content knowledge (TCK)» [2]. It is integrated with the core competency requirement of «scientific inquiry and practice» in chemistry, referring to research results on university teachers' TPACK levels [3].

Digital Chemistry Teaching Design means to Use animation and virtual scenarios to address teaching difficulties, design integrated «knowledge-exploration-literacy» solutions based on the TPACK framework [2]. Chemical Virtual Experiment Operation and Guidance is to Master virtual experiment system operation for high-risk and microscopic experiments, guide students in data analysis, drawing on experimental teaching technology application experience in college teachers' TPACK development strategies [3]. Data-Driven Chemistry Academic Evaluation is to Collect student data via online platforms, identify learning gaps, design personalized tutoring, and learn from TPACK improvement paths proposed by scholars like Xu Chunhua [3]. Digital Chemistry Classroom Interaction is to Use bullet screens and online collaboration tools to organize discussions and answer questions, complying with relevant requirements of the professional Standards for Middle School Teachers[1].

The professional competence of chemistry teacher trainees in the digital environment must be closely integrated with discipline essence, digital technology, and teaching practice. The four-dimensional system can serve as the core basis for revising training programs, setting up courses, and conducting competence assessments. Future research will conduct empirical investigations to verify the system's scientificity, combine it with TPACK development strategies proposed by Xu Chunhua et al. [3], and explore specific cultivation paths to improve the practical system of chemistry teacher education.

References

1. Ministry of Education of the People's Republic of China. Professional Standards for Secondary School Teachers (Trial Implementation) [S]. Teachers [2012]. – 2012. – № 1.
2. *Mishra, P.* Technological pedagogical content knowledge: A framework for teacher knowledge / P. Mishra, M. J. Koehler // Teachers College Record. – 2006. – № 108(6). – P. 1017–1054.
3. *Xu, Chunhua.* TPACK level and development strategy of teachers in Chinese universities / Xu Chunhua, Fu Gangshan, Hou Xiaoju // Modern Educational Technology. – 2018. – № 28 (1). – P. 59–65.

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USE OF BIG DATA IN ENTERPRISE MANAGEMENT

Использование больших данных в управлении предприятием

This study examines the application of Big Data technologies in enterprise management, focusing on their impact on operational efficiency, decision-making quality, and competitive performance. The objective of the research is to analyze how large-scale data collection and analytics can optimize business processes, enhance customer understanding, and provide measurable economic benefits for organizations across different sectors.

Effective use of this information allows businesses to more accurately adjust strategies in accordance with market requirements and strengthen competitiveness.

Big data analytics enable you to process millions of records in real time, enabling rapid response times and informed decision-making.

Integral Solutions offers solutions that allow you to unleash the full potential of the collected data.