Digital transformation in the reform of university teaching management in Vietnam

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Abstract: *Digital transformation is becoming an inevitable trend in all fields, especially in higher education. This article focuses on analyzing the roles, challenges, and solutions of digital transformation in reforming teaching management at Vietnamese universities. By applying information and communication technology (ICT), universities can enhance teaching efficiency, improve management, and elevate students' learning experiences.*

Keywords: *Digital transformation, Teaching reform, Management, University.*

1. Introduction

Digital transformation in the reform of teaching management at universities in Vietnam is a significant trend in modernizing the education system. This process not only aims to enhance the quality of teaching and learning but also optimizes management and operational processes within the university environment. Digital transformation is not merely the application of technology but also a comprehensive change in mindset and organizational practices. In the context of higher education in Vietnam facing pressures for reform to improve training quality and meet the demands of international integration, digital transformation in teaching management is a decisive factor.

2. Research Content

2.1. The role of digital transformation in higher education

2.1.1. Enhancing management efficiency

Automating administrative processes: Student Information Systems (SIS) enable the automation of processes such as course registration, grade management, and certificate issuance. Students can independently access and register for courses online without needing to visit the administrative office. This reduces the workload for management staff and minimizes errors in data entry.

Managing learning progress: Digital transformation provides tools such as Learning Management Systems (LMS) that help instructors and students track learning progress. Data related to assignment conpletion, class attendance, and test results are updated in real-time, enabling both students and instructors to adjust learning plans accordingly.

Efficient resource management: Digital platforms for learning resources (such as textbooks and reference materials) facilitate the systematic organization of academic databases. Students and instructors can access materials anytime, anywhere, without spatial or temporal limitations. Tools for managing classrooms, lab equipment, and schedules optimize the utilization of facilities, preventing waste and duplication in resource allocation.

Reducing time and management costs: Digital transformation eliminates most manual operations, cutting down costs associated with paperwork and printing while also reducing wait times for administrative procedures. This not only enhances the user experience but also enables schools to allocate resources more efficiently.

2.1.2. Personalizing the learning experience

Suggesting appropriate learning content: Intelligent learning management systems (Smart LMS) have the ability to recommend materials, lectures, and exercises that match the individual's skill level and learning goals. For example, a student struggling in a specific area will be suggested supplementary materials or practice exercises to improve their knowledge.

Personalized learning pathways: Instead of applying a rigid curriculum, digital learning platforms allow students to choose courses, pathways, and learning methods that suit their time, preferences, and career goals. Fast learners can finish early, while students who need more time can learn at their own pace.

Building a flexible learning environment: Students can learn anytime, anywhere through online learning platforms. Recorded letures , multimedia learning materials, and online tests help students manage their learning process in their own way.

2.1.3. Support for instructors

a. Support in lesson design

Visual content creation tools: Software like Canva, PowerPoint AI, and E-learning platforms help instructors easily create dynamic lessons that engage learners with images, videos, and interactive graphics.

AI suggests relevant content: AI technology can provide the latest data, real-life examples, and relevant information, helping instructors design up-to-date and highly applicable teaching content.

Simulation and Virtual Practice: Tools such as Virtual Reality (VR) or Augmented Reality (AR) support instructors in creating simulated environments for students to experience hands-on practice directly in the classroom.

b. Flexible teaching support

Online and Blended Teaching: Platforms such as Zoom, Microsoft Teams, and Google Classroom allow instructors to organize online or blended learning classes conveniently and efficiently. Personalized Support: AI tools can suggest materials or assignments tailored to specific student groups, helping instructors focus on addressing personalized issues without spending too much time.

2.2. Challenges of digital transformation

2.2.1. Technology Infrastructure

Lack of synchronization in technology infrastructure: Many universities only have local, fragmented technology systems that are unable to connect and synchronize with each other. This creates difficulties in implementing comprehensive digital transformation solutions.

Outdated infrastructure: Many universities still have outdated technology equipment, such as computers, servers, and networking devices, which are insufficient to handle big data processing and implement modern technologies like Artificial Intelligence (AI), Machine Learning (ML), or cloud computing. Internet connectivity in some areas, especially in schools located in remote or rural regions, is still unstable or not strong enough to support online teaching and learning activities.

2.2.2. Digital Competence of Faculty and Staff

Limited access to advanced technologies: Some instructors have not been trained in the use of advanced technologies such as Artificial Intelligence (AI), Machine Learning, Big Data analytics, or Virtual Reality (VR), making it difficult for them to integrate these technologies into their teaching. The lack of understanding of the potential of these technologies reduces creativity and innovation in teaching and management methods.

Reluctance and lack of confidence: Some instructors and staff, particularly those accustomed to traditional methods, feel hesitant or unwilling to transition to technology-based work. The lack of confidence in adopting new technologies reduces motivation to learn and apply technology in their daily tasks.

2.2.3. Financial Issues

High initial investment costs: Implementing digital transformation requires significant investments in technology infrastructure such as servers, data storage systems, networking equipment, and specialized software. Schools need to purchase or upgrade modern equipment like computers, online learning devices, and other supporting tools, leading to very high initial costs.

Operational and maintenance costs: In addition to the initial investment costs, schools also face ongoing expenses for maintaining, upgrading systems, and ensuring continuous operation. This includes electricity costs, maintenance, and technical support services. Technology systems need to be updated regularly to keep pace with the rapid development of technology, adding further financial burden.

Limited ability to raise financial resources: Public schools, especially small ones or those located in disadvantaged areas, often rely on government budgets, which are insufficient to meet the needs of comprehensive digital transformation. For private schools, raising funds through tuition fees or external sponsorships is also challenging if revenue is limited or there is no support from businesses and partner organizations.

2.3. Solutions to promote digital transformation

2.3.1. Investment in infrastructure and technology

a. Building Modern Technology Infrastructure.

Implementing high-speed and stable network systems: Ensuring reliable internet connectivity at universities, especially in remote areas, to support online learning and teaching.

Establishing data centers: Building large data centers with strong storage and processing

capabilities to support learning, research, and administrative management activities.

b. Investment in digital learning and management systems

Learning Management System (LMS): Providing online learning management platforms such as Moodle, Canvas, or Blackboard, which help instructors organize and manage courses, as well as support students in learning effectively.

Online Learning Platforms: Building online platforms capable of organizing virtual classrooms, managing learning materials, and conducting online assessments. Examples include Zoom, Microsoft Teams, or custom-developed systems.

Student Information System (SIS): Integrating student information management systems to automate processes such as course registration, tracking academic progress, and issuing transcripts.

c. Government support

Public budget investment: The government should prioritize allocating funds to universities, especially those in disadvantaged areas, to improve technology infrastructure.

Encouraging digital transformation projects: Providing preferential loans or tax exemptions for universities involved in digital transformation projects. Developing national policies:Creating policies that encourage digital transformation in education, ensuring synchronization and effectiveness across universities.

2.3.2. Enhancing Digital Competence

a. Building a comprehensive training program

Training basic skills: Offering courses on using Learning Management Systems (LMS), online office applications (Google Workspace, Microsoft 365), and online classroom management tools (Zoom, Microsoft Teams).

Enhancing advanced technology skills: Providing training in Artificial Intelligence (AI), Big Data analytics, Machine Learning, or Virtual Reality (VR) technologies to integrate them into teaching and management.

Practical scenario-based training: Providing real-life exercises and simulated scenarios for instructors and staff to apply the knowledge they have learned to their daily tasks.

b. Encouraging the use of technology in work

Supporting small-scale projects: Creating opportunities for instructors and staff to experiment with digital tools in their daily tasks, such as using

AI to automate processes or applying data analytics to improve work efficiency.

Sharing successes: Organizing workshops or group discussions to share experiences in applying technology and the benefits it brings.

2.3.3. International collaboration

Technology transfer and learning from international experiences: Collaborating with international organizations and universities abroad to learn from and transfer modern technologies, ensuring the implementation of solutions that align with global trends.

Accessing international funding and support: Universities can collaborate with international organizations such as UNESCO, UNDP, or educational funds to receive grants for digital transformation projects. They can also register for international research programs, especially in the field of educational technology, to gain additional financial resources and opportunities for knowledge sharing.

3. Conclusion

Digital transformation is not just a trend but a necessity for reforming teaching management at Vietnamese universities. Successfully implementing digital transformation requires commitment and close collaboration among stakeholders, including the government, universities, businesses, and society. This will lay a solid foundation for the sustainable development of higher education in Vietnam in the future.

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