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Research Article

DIGITAL EDUCATION INNOVATION IN VIETNAM: LEADERSHIP AND CHANGE MANAGEMENT IN HIGHER EDUCATION INSTITUTIONS

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TÓM TẮT

This study investigates the interaction between knowledge transfer, change management, and leadership in promoting innovation within the digital education ecosystem of Vietnamese universities. As rapid technological advancements challenge these institutions to integrate innovations into their educational frameworks, the research explores how these three factors influence the adoption of digital education innovations, thereby shaping the teaching and learning environment. The study reviews related literature on digital education ecosystems, educational leadership, innovation, and change management using Google Scholar. Key concepts examined include knowledge transfer, change management, and innovative educational leadership. The effectiveness of universities' change management strategies is evaluated, with an emphasis on leadership, organizational culture, and stakeholder engagement. Findings underscore the significance of successful knowledge transfer and robust change management for digital innovation while identifying challenges such as resistance to change and limited technological infrastructure. The study concludes with recommendations for supporting knowledge transfer, implementing comprehensive change management strategies, and investing in digital infrastructure and faculty development.

Keywords: change management; educational leadership; innovation; knowledge transfer

1. Introduction

Learning methodologies are changing as a result of the rapid advancement of information technology, the extensive digitization of the educational system, and the paradigm shift in that system. Integrated learning techniques are made possible by the quick changes in educational trends and the ongoing creation of new ICTs. The current educational system needs to change in response to the fourth industrial revolution, which brought cyber-physical systems and artificial intelligence into everyday life. The majority of graduates who enter the workforce will work in jobs that do not yet exist. Under these circumstances, skills become essential and need to be developed in accordance with Industry 4.0.

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The World Economic Forum 2019 Platform launched the Education 4.0 forum, which suggested systemic changes to the creation and application of promising models of high-quality education. The forum aimed to shape the future of the new economy and society following the demands of the fourth industrial revolution. "Global citizenship skills, innovation and creativity skills; technology skills; interpersonal skills; personalized and self-paced learning; accessible and inclusive learning; problem-based and collaborative learning; lifelong and student-driven learning" are the eight key findings that the World Economic Forum 2019 report identified for forming education 4.0 models (World Economic Forum, 2020).

Economic progress in the future is primarily dependent on having skilled engineers, whose education ought to start in secondary school. After that, it ought to carry on in colleges and universities by actively promoting STEM education. It is possible to view STEM education as a universal framework for excellently preparing students and teachers for careers in Industry 4.0. The following tasks are implemented by STEM education (ERIC, 2018).

The importance of the digital transformation of higher education is growing, particularly in the context of Vietnamese institutions, where integrating technology into teaching methods is viewed as a tactical tool for improving administrative processes and learning environments. However, the interaction of leadership in school buildings, information transfer, and change management is critical to the success of such programs. This essay aims to investigate how these components work together to promote innovation in Vietnam's digital education environment (Do et al., 2023).

This study aims to clarify how knowledge transfer, change management, and leadership can act as catalysts for innovative practices in higher education through a thorough review of research and empirical studies, including the work of Tang and Nguyen (2020), which highlights the critical role of leadership in educational reform. This research contributes to a larger knowledge of how institutions can navigate and survive in the era of digital education by emphasizing individual cases and tactics that have produced positive outcomes in Vietnamese universities.

2. Literature Review

2.1. Innovation in the Digital Education Ecosystem

Besides the organizational structure and facilities serving traditional training and research activities, the innovation university ecosystem needs to be much more expanded in both structure and function. First, interdisciplinary research centers need to be established, operating through projects aimed at transferring knowledge and technology to businesses. Additionally, creative spaces and startup support centers must be created for lecturers, students, and the startup community to collaborate, design, build, and develop new products. Alongside the business incubator and startup center, an intellectual property development center is essential for universities committed to adding value to society. The ecological significance of higher education facilities is widely recognized and can be implemented in various models, but the most fundamental and specific aspect is the creation of an open, friendly, and modern university campus.

Within this ecosystem, universities should forge strong connections with incubators, science parks, and other external partners, creating opportunities for the exchange of knowledge, ideas, and design thinking. This integration helps innovation-oriented universities not only gain additional material resources but also foster a free learning environment that promotes creativity for all stakeholders. Finally, the ecological significance of the university is directly linked to its sustainable development goals, as well as those of the broader community. Universities are encouraged to adopt and implement the United Nations' sustainable development goals, further emphasizing their commitment to societal progress and environmental stewardship (Nguyen et al., 2022).

Interest in science and technology is growing, knowledge is applied in real-world situations, critical thinking skills are developed, interdisciplinary connections are strengthened through integrated learning, self-confidence is cultivated, cooperation skills are developed, and innovation is introduced. Within the cutting-edge educational ecosystem, new learning formats rely on digital technology that leverages artificial intelligence techniques. The authors suggest utilizing appropriate information and communication technology to modify the curriculum to the skills and abilities of the students. Artificial intelligence, for instance, will be included in intelligent, interactive textbooks. Students can measure their skills in real-time and receive recommendations for the direction of their growth by using business games and business scenarios. To increase their drive to learn and work creatively, students should make use of intelligent technologies built on knowledge bases (Kovaliuk & Kobets, 2021).

2.2. Knowledge transfer

According to Albino et al. (2001), knowledge transfer is "the process through which one unit (department, group, or division) is affected by the experience of another." It is obvious that information is transferred from the holder(s) individual, group, team, or organization to the recipient(s) individual, group, team, or organization. "The process whereby invention or intellectual property from academic research is licensed or conveyed through use rights to a for-profit entity and eventually commercialized" is what Friedman and Silberman (2003) described as the knowledge transfer process. When experience in one area of an organization influences another, either directly or indirectly, knowledge transfer occurs.

Over the past 25 years, there has been a significant growth in research on knowledge transfer in organizations (Argote et al., 2022). Concerns about theory and practice have contributed to the rise of this research focus (Argote, 2013). Practically speaking, advances in information and communication technology made mass knowledge transfer possible. Certain organizational structures, such as multinational corporations and multi-unit businesses like chains or franchises, which have grown more common in recent years, depend on knowledge transfer to be successful. To minimize any potential negative consequences of the baby boom generation retiring, knowledge transfer becomes an issue.

2.3. Change management

Any continuous innovation endeavor must include change management (Rosenbaum et al., 2018). All of the tasks required to accomplish change can be coordinated, approved, monitored, and organized with the use of change management tools and processes (Cameron & Green, 2015). Through constant creation, reuse, and dissemination, this iterative process increases the value of information within the organization. The reasons behind the development of this relationship between university and industry are varied (Thomas & Paul, 2019).

2.4. Educational Leadership in Universities

In the current context, defining an adequate concept of education leadership for universities is among the first issues. The selected ontological and epistemological stance on education, learning, and teaching contributes to part of the solution. The stance taken in this research expands upon widely recognized theories regarding the degree of mental and physical connectivity. This debate can be summed up as follows: does learning primarily involve the mind and body as distinct entities, or does it also entail awareness of the individual in context and their perception, emotions, and haptic connections?

The leadership of education in a university setting will necessitate the concurrent coordination of important components of the education ecosystem, including the university's education strategy, associated governance, and policy management of teaching, learning, curriculum, and investment. Studies have indicated that a university's ability to attain its goals for student learning is correlated with how closely these components are connected (Bygstad et al., 2022). Therefore, rather than holding one person accountable for dictating how the components behave, leadership is bringing many system components together to cooperate toward a common goal. According to this idea, education leadership is more like leading a multidisciplinary research lab, conducting an orchestra, or organizing creative and inventive societies.

3. Method

A review of related literature on digital education ecosystems, education leadership, innovation, knowledge transfer, and change management was employed in this paper (Newson et al., 2018). The Internet and Google Scholar are the primary sources of secondary documents. The search terms utilized include "knowledge transfer," "change management," "educational leadership," and "innovation." For digital education ecosystems, other terms used are "overview" and "review." All websites surveyed are official university websites, ensuring the reliability of the information collected. Numerous publications meeting the aforementioned criteria were found by searching on Google Scholar using the terms "knowledge transfer," "change management," "education leadership innovation," and "digital education." The search yielded several thousand documents, which were then filtered for relevance to the university education environment, focusing specifically on innovation in learning ecosystems, educational leadership, and management, as well as the integration of digital education and technology. The selected studies, encompassing mechanisms of knowledge transfer, strategies for managing change, innovative leadership

practices, and digital education methods, serve as the foundation for comparing and investigating a creative learning ecosystem model suitable for Vietnam, considering cultural and institutional differences, and policy implications.

After applying the filtering criteria, the search results were narrowed down to a manageable subset of high-quality publications. The final selection included studies on knowledge transfer, focusing on mechanisms, strategies, and case studies in higher education, emphasizing academia-industry collaboration and innovation. Change management research highlighted how universities adopt new technologies and innovative practices, addressing resistance to change, leadership strategies, and organizational culture. Publications on education leadership innovation explored innovative leadership practices through case studies, theoretical frameworks, and models promoting innovation. Additionally, digital education studies covered the integration of digital tools and platforms, online learning, digital pedagogy, and the effectiveness of these methods.

The selected studies were then analyzed for their applicability to the Vietnamese educational context, considering how findings could be adapted to Vietnam's cultural and institutional landscape. This included comparing global innovation ecosystem models with the current state of Vietnamese education to identify potential areas for adaptation and implementation. Additionally, the analysis provided insights on how policy-makers in Vietnam can support the development of a creative learning ecosystem through strategic interventions.

The refined set of publications provides a robust foundation for investigating a creative learning ecosystem model suitable for Vietnam. By comparing and synthesizing insights from these studies, the research aims to propose a model that addresses local needs while incorporating global best practices in educational innovation. It is also covered on the websites of numerous educational research organizations, including The Organisation for Economic Co-operation and Development (OECD) and the Association for Supervision and Curriculum Development (ASCD). The Education Ecosystem Innovations website, in particular, serves as a platform for exchanging knowledge on educational innovation that has been acknowledged as well as innovative successes from the global educational community.

3.1. Innovation in the Digital Education Ecosystem at Vietnam Universities

Currently, there are 237 universities and institutes in the Vietnamese higher education system (including 172 public schools, 60 private and people-founded schools, and five schools with 100% foreign capital), 37 scientific research institutes that are tasked with training doctoral students, 31 pedagogical colleges, and two pedagogical intermediate schools (Ministry of Education and Training, 2019). Vietnam's HE enrolment rate is 28.64% (World Bank, 2020).

The World Bank (2020) compared various nations across major international university rankings to evaluate the quality of Vietnam's Higher Education Institutes (HEIs) and found that Vietnam was at the bottom of the benchmarking list, slightly behind the Philippines and Indonesia, and far below other countries in the region (World Bank, 2023).

The British Council's data from 2022 is compared with earlier figures provided by the World Bank in 2020, highlighting changes in the number of universities from Vietnam, Singapore, the Philippines, and the UK that rank in the top 1,000 globally, as indicated by different academic ranking systems such as Webometrics and QS Rankings (British Council, 2022).

Table 1. *Comparing the number of top 1,000 universities per nation published by the World Bank (2020) with the present (2022) data*

	Webometrics (WBR)	**Webometrics 2022[5]**	**QS Rankings (WBR)**	**QS Rankings 20226**	**THE (WBR)**	**THE 2022[7]**
Philippines	0	0	4	4	2	1
Singapore	3	4	3	7	2	2
UK	80	78	76	74	92	93
Viet Nam	0	1	2	2	2	2

(World Bank, 2020)

The World Bank (2023) shows an overall movement as demonstrated by this comparison. According to several university ranking systems, Vietnamese universities have either added more or maintained the same amount of institutions (and in some rankings, the same institutions) in the top 1,000 listings. Vietnam HEIs have been included in the Webometrics 2022 ranking. Viet Nam National University is ranked 944 out of 1,000.

A variety of concerns that could affect digital transformation are noted in the report by the World Bank (2023) about higher education in Vietnam. The report also emphasizes the vital role that the Ministry of Education and Training (MOET) plays.

Innovation in teaching and learning as well as educational management are currently the main foci of Vietnam's Digital Education Ecosystem. Education management involves the digitization of management data, the development of expansive, networked database systems, the implementation of online public services, and the application of emerging technologies (such as blockchain, artificial intelligence, and data analysis) to swiftly and accurately manage, operate, forecast, and support decision-making in the education and training sector (Dinh, 2021).

Online Learning Platforms and Tools: Universities across Vietnam have adopted or developed online learning platforms. These platforms facilitate virtual classrooms, online assignments, and interactive learning experiences. Examples include VNU-HCM's system and the Hanoi University of Science and Technology's online courses.

Digital Literacy and Curriculum Integration: There's a significant push to integrate digital literacy into curriculums across all disciplines. This ensures that students not only use digital tools but also understand and innovate with them.

Collaborative Tools and Methods: Tools that support collaboration among students and between institutions are increasingly prevalent. This includes the use of software like Microsoft Teams, Google Classroom, and specialized academic collaboration platforms.

AI and Learning Analytics: Some institutions are beginning to utilize artificial intelligence to personalize learning experiences and improve outcomes. Learning analytics are used to track student progress and adapt teaching methods.

MOOCs and Open Educational Resources (OER): Massive Open Online Courses (MOOCs) and other open educational resources have been adopted to widen access to education and supplement traditional learning methods.

"There are three main obstacles facing university research funding: a small total budget, extremely dispersed management across multiple ministries and agencies, and little incentives for high-quality, cooperative research" (World Bank, 2020, p. 46).

3.2. Knowledge transfer at Vietnamese universities

In Vietnam, many universities are not interested in and aware of the importance and effectiveness of linking and cooperating with businesses in enhancing research, promoting technology transfer, and commercializing research results to create output for research products. Currently, there have been some cooperative relationships, such as between Hanoi University of Pharmacy and Traphaco Joint Stock Company and between the University of Technology, Hanoi National University and HiPT Group. However, the effectiveness is still limited because university research is often one step behind compared to market needs. At the same time, universities have not thoroughly researched the needs of the market, and are not even capable of pursuing and responding to the needs and proposals of businesses (Dinh, 2021).

The ecosystem of technology and knowledge transfer helps to foster collaboration between academic institutions and businesses. Cooperation between academic institutions and business sectors is critical for fostering innovation and technology transfer, entrepreneurship (start-ups and spin-offs), and skill development (education and training).

Collaboration between academic institutions and industry fosters the commercialization of research findings, labor exchanges between the public and private sectors, and the development of new goods for the general public.

The Program to support the development of science and technology enterprises and public scientific and technological organizations based on autonomous mechanism operations and self-responsibility (Decision No. 592/QD-TTg dated May 22, 2014) (Government of Vietnam, 2012); the Program to support national entrepreneurship, innovation, and creation ecosystems until 2025 (Project 844); and the Program to develop the science and technology market until 2020 (Decision No. 2075/QD-TTg dated November 8, 2013) are just a few of the current national opportunities to seek investment for knowledge transfer, incubation, innovation, and product commercialization (Government of Vietnam, 2013).

Nevertheless, in the Central region, there are not many large businesses or investment funds willing to finance startup initiatives and help commercialize goods. While there are two large colleges with the science and technology capability to produce commercial products Hue University and Da Nang University, it is more difficult to find funding for investment in incubation and technology transfer than it is in Hanoi and Ho Chi Minh City.

3.3. Change management at Vietnam universities

Change management at universities in Vietnam is vital for creating an adaptive and innovative digital education ecosystem. A comprehensive approach includes establishing a shared vision and setting clear goals for transformation, which requires involving a diverse range

of stakeholders. Effective communication, data-driven decision-making, and strategic planning are essential to align resources, infrastructure, and human capital for success (Vu et al., 2023).

In Vietnam, the higher education sector can benefit from these frameworks by recognizing opportunities for leveraging new technologies and improving teaching practices to better prepare students. Institutions can also draw from global best practices to align their change management strategies with international standards (Vu et al., 2023).

3.4. Educational Leadership in Vietnamese Universities

Vietnam is forced to adapt its higher education system to the needs of a globalized world to increase the productivity and competitiveness of Vietnamese higher education on the international stage. To improve the effectiveness and diversity of Vietnamese education, the Vietnamese government has thus promoted decentralization and marketization (Tran & Marginson, 2018).

Under this new arrangement, HEIs will have autonomy in providing education in accordance with societal demands and state regulations, but the state will still ultimately be in charge of overall planning and macro-management. Lee and Pang (2011) went on to explain this change by introducing a novel idea he called decentralized centralism, which can account for the dynamic relationship that exists between the state and HEIs.

Teachers' roles are changing and evolving due to the forces of information technology, globalization, and the knowledge economies (Adams et al., 2017). These changes are particularly noticeable in the areas of curricula, professional development, blended learning, and community partnerships. Recent research by Militello and Berger (2010) has shown that to build connections, staff performance, and educational leadership, Chinese higher education must employ both Vietnamese principles in management and organization and Western values. Due to imbalances in the highly power-distributed, policy-driven, hierarchical, and collectivist Chinese setting, there are very few opportunities to use educational leadership in empirical research in this area.

3.5. Discussion

In light of the current evolution in educational strategies, particularly in Vietnam, universities are navigating significant transformations due to the shifting digital landscape. As highlighted in the literature review section, three fundamental aspects – knowledge transfer, change management, and educational leadership are crucial for cultivating an innovative digital education ecosystem (McCarthy et al., 2023).

The collaboration between universities, industries, and research institutions is vital for innovation. By aligning academic programs with the practical demands of the industry, universities can ensure that students are equipped with relevant skills that meet real-world needs (Chen et al., 2019).

As universities undergo digital transformations, managing resistance to change is essential. This involves fostering a culture that not only accepts but also embraces technological advancements. By doing so, institutions can mitigate the inertia that often accompanies shifts in traditional educational paradigms (Khan et al., 2022).

Leadership within educational institutions must be visionary, particularly in integrating digital tools. This involves crafting strategies that prioritize student engagement, optimize learning outcomes, and promote faculty development in digital competencies (Nguyen & Nguyen, 2024). Universities must be proactive in managing resistance to change by promoting a culture that embraces digital transformation.

Providing faculty with training on new technologies ensures they are equipped to incorporate digital tools into their teaching practices.

Leaders must craft a clear vision for the adoption of digital tools, focusing on student engagement, learning outcomes, and faculty development.

Prioritizing investments in infrastructure, software, and professional development ensures a robust and sustainable digital education ecosystem.

By effectively integrating these components, Vietnamese universities are poised to develop a resilient, adaptive, and forward-thinking educational ecosystem, preparing students for the challenges of a technology-driven global economy. This strategic approach not only reflects the current data on university rankings but also aligns with global trends in higher education.

4. Conclusion

Policy development and governance are critical tools for university administration in managing the integration of innovation into educational strategies. Given that diverse expectations and perspectives can potentially undermine or dominate an institution's approach, it is essential to help the university community understand the institution's objective stance on innovations. Establishing robust governance structures, particularly within the academic committee framework, can ensure sufficient knowledge and understanding of the university's orientation in this domain. This approach contributes to and informs relevant discussions and strategic initiatives. A nuanced, well-informed approach is crucial, as the uncertainty surrounding potential outcomes and the varied perspectives on benefits and risks are unlikely to lead to consensus. Therefore, these governance structures play a vital role in navigating the complex landscape of educational innovation.

In conclusion, the interplay between knowledge transfer, change management, and educational leadership is crucial for fostering innovation in the digital education ecosystem at universities in Vietnam. Knowledge transfer encourages collaboration and global integration, enriching the educational landscape with diverse insights. Change management helps institutions adapt smoothly to digital transformation by cultivating a supportive culture and providing essential training. Educational leadership, through clear vision, strategic planning, and resource allocation, ensures that innovation remains aligned with broader educational goals.

Together, these components create a dynamic, adaptive, and innovative digital environment that prepares Vietnamese universities to meet global standards and equips students with the skills needed in a technology-driven world. By prioritizing these factors, universities can lead the way in creating a resilient and future-oriented education system.

❖ ***Conflict of Interest:*** *Author have no conflict of interest to declare.*

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ĐỔI MỚI GIÁO DỤC KĨ THUẬT SỐ Ở VIỆT NAM: LÃNH ĐẠO VÀ QUẢN LÍ THAY ĐỔI TRONG CÁC TRƯỜNG HỌC

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TÓM TẮT

Bài viết này xem xét sự tương tác giữa chuyển giao kiến thức, quản lí thay đổi và lãnh đạo trong việc xây dựng trường học và thúc đẩy đổi mới sáng tạo trong hệ sinh thái giáo dục số tại các trường đại học ở Việt Nam. Sự phát triển nhanh chóng của công nghệ số đặt ra thách thức lớn cho các trường đại học Việt Nam trong việc tích hợp những tiến bộ này vào chương trình đào tạo. Nghiên cứu khám phá tác động của chuyển giao kiến thức, quản lí thay đổi và lãnh đạo trường học đối với việc áp dụng đổi mới giáo dục kĩ thuật số, tạo ra bối cảnh mới cho giảng dạy và học tập. Bài viết sử dụng phương pháp đánh giá tài liệu tập trung vào hệ sinh thái giáo dục kĩ thuật số, lãnh đạo giáo dục, đổi mới, chuyển giao kiến thức và quản lí thay đổi, với nguồn tài liệu chủ yếu từ Google Scholar. Kết quả nghiên cứu cho thấy chuyển giao kiến thức hiệu quả và quản lí thay đổi mạnh mẽ là yếu tố then chốt cho đổi mới giáo dục số, nhưng vẫn còn thách thức về kháng cự thay đổi và hạn chế cơ sở hạ tầng công nghệ. Từ kết quả này, bài viết đề xuất các biện pháp cụ thể để cải thiện hệ sinh thái giáo dục số tại Việt Nam, bao gồm hỗ trợ chuyển giao kiến thức, quản lí thay đổi toàn diện và đầu tư vào cơ sở hạ tầng số cũng như phát triển nguồn nhân lực giảng viên.

Từ khóa: quản lí thay đổi; lãnh đạo giáo dục; đổi mới; chuyển giao kiến thức