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Innovation in Vietnamese Higher Education for Society 5.0: Opportunities, Challenges, and Strategies

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Abstract

The inception of Super Smart Society 5.0 marks a pivotal epoch in which technological advancements such as Artificial Intelligence (AI), the Internet of Things (IoT), and blockchain technology stand at the forefront of redefining the educational landscape. This article delves into the implications of this paradigm shift for higher education, particularly within the framework of Vietnam's comprehensive education reform initiative. Through an exhaustive review of the existing literature, the article elucidates the crucial role that innovation in higher education enhances the quality of education, and it further explores the challenges and opportunities that Society 5.0 presents. Moreover, the article proposes actionable strategies for Vietnamese higher education institutions to capitalize on technological advancements and ensure sustainable development in the forthcoming era. By offering an analytical perspective, this article contributes to the ongoing discourse regarding the future trajectory of Vietnam's higher education innovation in Society 5.0.

Introduction

In contemporary times, the directives and strategic orientations promulgated by the Communist Party and the Government of the Socialist Republic of Vietnam have markedly expedited the process of comprehensive and extensive innovation within education and training. Resolution No. 29-NQ/TW is a significant landmark in the Party's strategic contemplations concerning enhancing education. This resolution accentuates the imperative of reforming higher education to improve the quality and effectiveness of the higher education system, thereby facilitating the nation's sustainable development. The endeavor to reform higher education is substantiated in theoretical discourse and through empirical research conducted domestically within Vietnam and internationally. Innovation in higher education is a crucial mechanism for elevating educational quality and meeting the increasing demands of socio-economic development. Furthermore, such innovation creates favorable conditions for the international integration process (Bao et al., 2021; Dang, 2021; Nguyen, 2020; Benavides-Sellan et al., 2024; Lunag et al., 2024). However, the emergence of the prospective Super Smart Society 5.0 is characterized by the widespread dissemination of advanced technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), blockchain, and others that will become deeply entrenched in the societal fabric. That creates a pressing demand for higher education to adapt and evolve, ensuring they adequately prepare students for the complexities of a rapidly changing technological landscape. Recent scholarly research has forecasted that the advent of Society 5.0 will usher in potential challenges and opportunities for higher education. These projections underscore the critical necessity for developing and implementing robust strategies and methodologies to effectively address the multifaceted implications of Society 5.0 on the educational landscape (Hashim et al., 2024; Zuhaida et al., 2023; Carayannis et al., 2023).

Given the opportunities and challenges introduced by Society 5.0, the Vietnamese higher education sector must identify potential risks, seize opportunities, embrace emerging trends, and formulate strategic interventions to adapt proficiently. This approach is essential to ensure the continuity of innovation and sustainable development within the Vietnamese higher education context amidst the complexities of a rapidly evolving global landscape.

Basic Concepts

Concept of Innovation in Higher Education

In the academic discourse surrounding the evolution of higher education, innovation emerges as a critical focal point for enhancing the quality and effectiveness of learning environments. Innovation within higher education is characterized by adopting new methodologies or transformative strategies that significantly improve administrative efficiency or academic achievement (White & Glickman, 2007). This definition lays the groundwork for understanding innovation not merely as introducing novel technologies but as encompassing a broader spectrum of improvements that foster excellence in educational outcomes. Innovation in higher education includes change in all learning, teaching, and assessment aspects and prioritization of end-user needs. This suggests that innovation should be deeply embedded within educational institutions' cultural and strategic fabric (Jisc, 2007). This approach emphasizes the importance of a user-centric framework in driving meaningful advancements within higher education settings. Digital technologies are pivotal in advancing educational innovation, including integrating e-learning platforms, audio-media for distance learning, online education modalities, Massive Open Online Courses (MOOCs), blended learning environments, and the strategic use of information communication technology. Comprehensive training in these technologies will empower educators, enabling them to spearhead and sustain innovative practices within the educational sphere (Kintu et al., 2020). In innovative higher education progress, reforming educational ideologies and philosophies is the initial step toward comprehensive innovation. This entails reevaluating educational objectives and developing standardized outcomes that align with the overarching goals of higher education reform. Such reforms are envisioned to cultivate diverse competencies and soft skills among students, bridging the gap between traditional educational frameworks and the demands of the contemporary global landscape (Tran, 2016).

In synthesizing these diverse viewpoints, it becomes evident that innovation in higher education encompasses a wide array of initiatives aimed at reforming not only pedagogical methods and curricula but also the underlying organizational and philosophical structures of educational institutions. The pursuit of innovation, therefore, represents a continuous and holistic process aimed at achieving a balance between local relevance and global excellence in higher education. This comprehensive approach underscores the imperative for educational institutions to embrace change across all dimensions of operation, from infrastructure to instructional design, to cultivate an environment conducive to the dynamic and evolving needs of learners and society at large.

In conclusion, the discourse on higher education innovation reveals a complex landscape of theories and practices, each contributing to a richer understanding of how educational systems can evolve to meet society's challenges 5.0. By embracing a multifaceted approach to innovation, higher education institutions can navigate the intricacies of this transformative journey, ultimately fostering environments that elevate academic performance and administrative efficiency to new heights.

Concept of Super Smart Society 5.0

The concept of a Super Smart Society, also called Society 5.0, marks a pivotal advancement in integrating technology into various facets of human life. This evolution is characterized by the profound embedding of Artificial Intelligence (AI), the Internet of Things (IoT), blockchain, and other cutting-edge technologies into daily living, fostering an environment where technology caters to individual needs but permeates all aspects of societal function. The term "Society 5.0" can be traced back to an announcement by former Japanese Prime Minister Shinzo Abe at the Davos Forum in 2016. Abe's vision highlighted a seamless blend of digital technology within daily life and traditional industries, aiming to enhance the symbiotic relationship between human interaction and technological advancement (Abe, 2016). This concept has since evolved, extensively refined, and expanded upon by scholars worldwide, resulting in many interpretations and perspectives.

Society 5.0 is distinguished by four primary characteristics that set the foundation for a new socio-economic model. These characteristics include the prioritization of human-centric values, the convergence of cyberspace and physical space, the formation of a knowledge-intensive society, and the adoption of a data-driven approach (Deguchi et al., 2020). The role of several technological components at a higher level than Society 4.0, including Artificial Intelligence (AI), cyber-physical systems, autonomous robots, 3D printing, cloud computing, and others, are foundational to Society 5.0 in enhancing living conditions, fostering social development, and ensuring a sustainable welfare level with a societal focus (Calp, 2020).

Despite the optimistic outlook on Society 5.0, it is imperative to acknowledge the challenges accompanying such technological leaps. Society 5.0 will create hurdles in augmenting human competence, fostering a culture of innovation, and leveraging technology to achieve efficient and effective value creation that supports sustainable development (Mihardjo et al., 2019). This society dominated the importance of national character, advocating for a balance between Artificial Intelligence (AI) capabilities and social intelligence to address national challenges comprehensively (Falaq, 2019). Negative implications will also arise from the proliferation of the IoT, particularly in governance, corporate practices, and information utilization (Melnyk et al., 2019).

Within the Vietnamese Context, despite the lack of specific data on local researchers' perspectives towards Society 5.0, there is a growing interest among media and electronic press outlets in exploring this concept. This underscores the nascent yet burgeoning recognition of Society 5.0's implications within the country. Society 5.0 represents a complex, multidimensional paradigm that merges technological innovations with social dynamics. The exploration and discourse surrounding this concept necessitate a multidisciplinary approach encompassing technological, social, and cultural dimensions to comprehend and navigate the challenges and opportunities it

presents fully.

 $\begin{tabular}{ll} A chievements After Ten Years of Implementing Higher Education Innovation according to Resolution No. \\ 29-NQ/TW \end{tabular}$

Over the past decade, the implementation of Resolution No. 29-NQ/TW has significantly transformed Vietnam's higher education landscape, marking a pivotal phase in the sector's development trajectory. This period has been characterized by a comprehensive reform process to enhance the higher education system's quality and operational efficacy. Drawing upon the Ministry of Education and Training's evaluation report (Trung tam Truyen thong Giao duc, 2023), the key achievements of this reform initiative include:

Firstly, the expansion and reinforcement of the higher education infrastructure stand out as a critical development. The number of higher education institutions witnessed a noticeable increase from 214 to 242 over ten years. This expansion has been instrumental in accommodating the burgeoning demand for higher education, thereby contributing to the nation's human resource development. Notably, postgraduate education has experienced exponential growth, with a significant surge in master's and doctoral candidates.

Secondly, there has been a concerted effort towards enhancing educational and research quality. Higher education institutions have embarked on curricular innovation, pedagogical reforms, and invigoration of scientific research endeavors. Such initiatives have been pivotal in aligning educational outcomes with the populace's evolving socioeconomic demands and aspirations.

Thirdly, pursuing internationalization and integration has emerged as a key strategic direction. Vietnamese universities have forged numerous partnerships with international counterparts, facilitating an exchange of knowledge and pedagogical practices. This has bolstered the global stature of Vietnamese higher education and significantly contributed to enhancing educational quality.

Fourthly, the sector has witnessed a robust digital transformation, with a pronounced emphasis on leveraging information technology to augment educational management, theory, and pedagogy. This digital shift aims to optimize operational efficiency and enhance the learning experience.

In summation, the achievements ensuing from the implementation of Resolution No. 29-NQ/TW underscore the dynamic evolution of Vietnam's higher education sector over the past decade. These developments signify the sector's considerable strides towards improvement and emphasize the critical role of higher education in driving socio-economic advancement and fostering international integration.

Limitations That Need to be Overcome After Ten Years of Implementing Higher Education Innovation according to Resolution No. 29-NQ/TW

Despite the progress achieved, the domain of higher education in Vietnam continues to encounter significant

limitations that impede its development: *Firstly*, the global trend towards multidisciplinary and multi-field higher education institutions that foster human resource development and can navigate the complexities of the modern labor market presents a significant challenge within the Vietnamese Context. Implementing this model in Vietnam faces obstacles, primarily concerning the assurance of educational quality amidst the transition (Nhat Hong, 2022) *Secondly*, there exists a need for more alignment between the output of the higher education sector and the requirements for economic and societal advancement in Vietnam. The inertia in curriculum development, with a preference for traditional programs over those tailored to current societal needs, has led to a mismatch in graduate competencies, exacerbating unemployment among holders of bachelor's, engineering, and master's degrees.

Thirdly, pedagogical methodologies and instructional modalities have yet to embrace a learner-centered paradigm fully. The prevalent educational paradigm continues to place students in passive roles, with insufficient interaction between faculty and students, thereby impeding the cultivation of creativity and independent thought.

Fourthly, integrating higher education in Vietnam within global standards still needs to be completed. DInter-institutional collaboration is limited despite oversight by the Ministry of Education and Training. Furthermore, the international recognition of Vietnamese university qualifications encounters numerous challenges.

Fifthly, the volume of internationally published research from Vietnamese universities could be much higher than that of their regional counterparts. Global integration necessitates the dissemination of research findings in international scholarly journals, serving as a critical indicator of higher education quality.

Sixthly, university management and governance clarification are requisite despite advancements in university autonomy policies. Existing policies are hampered by a lack of a detailed legal framework for implementation, ambiguous roles of school boards, and significant interference from governmental management entities. In short, a holistic plan for innovation is imperative to foster innovation, enhance the quality of higher education in Vietnam to new heights, and prepare it for the emerging challenges of Society 5.0.

The Responsiveness and Adaptability of Vietnamese Higher Education in the Context of Society 5.0

In the evolving paradigm of Society 5.0, higher education in Vietnam is presented with unique potential and resources to effectively respond and adapt to the nuanced transformations characteristic of a Super Smart Society, including:

Firstly, the diversity of human resources: Vietnam's demographic profile, marked by a substantial and dynamic youth population, positions the nation as a reservoir of potential human capital. Higher education institutions are at the forefront of harnessing this demographic dividend to cultivate a generation of leaders and professionals equipped with the agility and creative competencies requisite for thriving in novel working paradigms.

Secondly, the development of technology: The current trajectory of exponential growth in information technology and Artificial Intelligence (AI) within Vietnam offers a strategic advantage. Higher education has the opportunity

to integrate these technological advancements into pedagogical methodologies, thereby enhancing the efficacy and flexibility of the educational experience.

Thirdly, international cooperation: Vietnam's expanding engagement with global educational networks heralds a new era of international cooperation. This strategic orientation facilitates access to cutting-edge resources and knowledge. It fosters the development of high-caliber research and learning programs through partnerships with prestigious universities and research institutions worldwide.

Fourthly, the need for high-quality human resources: The advent of Society 5.0 underscores the imperative for a workforce endowed with a blend of life-long learning capabilities, creativity, and technological fluency. Higher education in Vietnam is pivotal in addressing this demand by providing adaptive and comprehensive training programs, enabling students to acquire soft skills and technological proficiency.

In summation, in the future landscape of Society 5.0, higher education in Vietnam will emerge as a critical pillar for the nation's sustainable development. The sector's capacity to leverage its inherent potential and resources is instrumental in surmounting challenges and capitalizing on the opportunities engendered by Society 5.0.

Opportunity to Innovate Higher Education from the Super Smart Society 5.0

In Society 5.0, the landscape of higher education in Vietnam stands on the precipice of transformative change. The proliferation of technology alongside evolving societal trends heralds unprecedented opportunities for the innovation of higher education systems, including:

Firstly, interactive learning through Virtual Reality (VR) and Augmented Reality (AR): The advent of Virtual Reality (VR) and Augmented Reality (AR) technologies offers a revolutionary approach to learning in higher education. Educational institutions can craft immersive and interactive learning environments by integrating these technologies into the curriculum. Such environments enable students to engage directly with complex concepts through hands-on sessions, experiments, and interaction with three-dimensional models that closely simulate real-world scenarios. For instance, VR can facilitate virtual surgeries in medical education, allowing students to hone their practical skills risk-free before engaging in real-life surgeries. This paradigm shift enhances the depth of understanding and significantly improves the application of knowledge in practical settings on a global scale.

Secondly, Data-driven learning and Artificial Intelligence (AI): In the era of Society 5.0, data emerges as a critical asset across all professions, including education. The application of Artificial Intelligence (AI) in analyzing student learning behaviors presents an opportunity to develop personalized educational strategies. By leveraging AI, higher education institutions can create tailored learning experiences that adapt to the unique needs of each student. This approach fosters a more dynamic and effective learning environment, promoting individual progress and accommodating diverse learning styles and paces.

Thirdly, synergy between industry and education: The demands of Society 5.0 for highly skilled individuals adept

at navigating new technologies and evolving work environments underscore the importance of a strong alliance between the educational sector and industry. Higher education institutions can ensure curricula align with real-world labor market demands by fostering collaboration with businesses and organizations. This collaboration equips students with the necessary skills and knowledge to thrive in the workplace and facilitates internship and job opportunities, bridging the gap between education and industry. Such partnerships are instrumental in cultivating a workforce that resonates with the needs and expectations of Society 5.0.

Society 5.0 presents many opportunities for advancing higher education in Vietnam. By embracing VR and AI technologies and fostering a symbiotic relationship with the industry, higher education can provide students with a holistic learning experience that perfectly balances theoretical knowledge with practical application. This strategic alignment with societal and market demands is pivotal in preparing students for future challenges, contributing significantly to the nation's prosperity and development.

Challenges to Higher Education Innovation from Super Smart Society 5.0

Society 5.0 represents a significant evolution that promises numerous opportunities while simultaneously introducing many challenges necessitating adaptability and innovative problem-solving approaches. It is paramount for the higher education sector to promptly address these challenges to align with the expectations of an increasingly intricate and demanding societal landscape.

Firstly, the advent of Society 5.0, characterized by the proliferation of information technology and Artificial Intelligence (AI), has fundamentally altered human interaction, cognition, and learning modalities. Contemporary students are inclined to leverage technology and the Internet for information retrieval and problem-solving. This paradigm shift necessitates a strategic overhaul in pedagogical approaches, whereby higher education institutions must seamlessly integrate technology into the curriculum while fostering an environment conducive to cultivating critical thinking, creativity, and problem-solving competencies. Implementing online learning platforms and interactive pedagogical tools emerges as a viable strategy to invigorate student engagement and nurture a dynamic and stimulating learning ecosystem.

Secondly, the technological disparities within Society 5.0 exacerbate the divide between individuals possessing advanced technological proficiency and those with limited technological access and skills. This digital divide poses a formidable challenge for higher education institutions to ensure equitable access to technological resources among their student populace. Addressing this issue is critical to mitigating educational disparities, particularly for students from economically disadvantaged backgrounds who may encounter barriers to accessing digital devices and Internet connectivity, impeding their ability to participate in online learning and access digital resources.

Thirdly, the rapid technological evolution and information dissemination characteristic of Society 5.0 catalyze shifts in societal values and ethical norms, engendering a complex and multifaceted ethical landscape. Higher education institutions face the challenge of integrating these evolving ethical considerations into their curricula,

ensuring that educators and students are aligned with contemporary moral standards. This endeavor is vital for fostering personal and social development attuned to today's ethical difficulties.

In conclusion, the higher education sector in Vietnam faces a multifaceted array of challenges in the Context of Society 5.0, encompassing the imperative to adapt pedagogical methodologies, bridge technological divides, and navigate shifting ethical paradigms. Addressing these challenges necessitates a collaborative effort among various stakeholders, including educational institutions, governmental bodies, the private sector, and the broader community. Only through such synergistic collaborations can the higher education system in Vietnam transcend these challenges and actualize its potential in nurturing a generation equipped to navigate and thrive in the complexities of Society 5.0.

Solutions for Developing Innovative Higher Education in the Context of Super Smart Society 5.0

In Society 5.0, tertiary educational landscapes undergo a revolutionary shift in behaviors, thought processes, and value systems. This pivotal transformation necessitates that the educational infrastructure innovates and adapts not solely to satisfy the increasingly intricate demands of society but also to navigate students through the challenges and capitalize on the opportunities presented by the New Age.

Regarding Alterations in Student Behavior and Cognition, Higher Education Institutions Can Implement the Following Strategies

Firstly, technology can be integrated into the pedagogical process: Educators can leverage online learning platforms such as Moodle, Google Classroom, or Khan Academy to disseminate learning materials, video lectures, and exercises digitally. This approach will facilitate students' access to information flexibly and conveniently. Secondly, foster creative and critical thinking: Beyond the mere transmission of knowledge, educators can stimulate curiosity and innovation by presenting complex challenges and designing practical activities that allow students to apply theoretical knowledge in real-world contexts. Thirdly, cultivate a favorable educational milieu: Through establishing study groups, creative contests, and thematic discussions, universities can stimulate interpersonal interactions and peer learning, thereby fostering personal and professional growth.

In Addressing the Disparity in Technological Proficiency, Higher Education Institutions Can Adopt the Following Measures

Firstly, provision of technological and internet apparatus for students: Institutions can offer low-cost laptops or mobile devices to economically disadvantaged students, ensuring access to online learning resources and the internet. Secondly, the development of a foundational technology skills training program: Institutions can organize instructional courses on computer and internet usage for students, aiming to diminish the technological proficiency gap among the student body. Thirdly, financial assistance for students: Institutions can implement scholarship schemes or financial support policies to assist students in economically challenging conditions to procure the necessary technological equipment.

About the Evolution in Values and Ethical Perspectives, Vietnamese Higher Education Institutions Can Implement the Following Strategies

Firstly, create an affirmative educational environment: Universities can develop programs focused on ethical education, promoting diverse thought, and fostering respect and a diversity of perspectives. Secondly, offer courses on technology ethics: Institutions can provide seminars and classes on the ethical usage of technology, aiding students in understanding issues related to information security and the ethical application of technology. Thirdly, it facilitates opportunities for discourse and the challenge of viewpoints: By organizing forums and study groups on ethical dilemmas, universities can encourage students to reflect profoundly and cultivate independent thought. In the era of Society 5.0, the role of higher education transcends the mere impartation of knowledge; it encompasses the nurturing of creative thought, interactive abilities, and ethical standards. A robust collaboration between the educational sector and the broader society is instrumental in confronting and surmounting these challenges, thereby sculpting a novel future for higher education.

Conclusion

In the imminent future, Society 5.0, characterized by its profound integration of advanced technology and Artificial Intelligence (AI), promises to usher in unprecedented opportunities for the evolution and enhancement of higher education. This paradigm shift towards a Super Smart Society necessitates critically examining the resultant opportunities juxtaposed with multifaceted challenges. These challenges span from alterations in student cognitive processes and behaviors to technological access disparities, evolving value systems, and ethical considerations. Higher education institutions must undertake innovative reforms and adaptive strategies to navigate the complexities and harness the potential presented by Society 5.0. This endeavor demands a holistic collaboration across diverse sectors, encompassing educational bodies, the business sector, and civil society. Central to this collaborative effort is the imperative to integrate technology seamlessly into pedagogical methodologies, invest in the professional development of educators, and democratize access to technological resources for all students. Such initiatives are pivotal in fostering a forward-thinking and engaging educational milieu. Higher education's success trajectory in the Context of Society 5.0 will hinge on our collective capacity for adaptation and developmental ingenuity. Through concerted efforts and collaborative engagement, we can envisage and actualize a future wherein higher education not only meets but exceeds the difficulties of this new epoch.

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