

Elite Universities, Research Universities, Smart Universities – Progress, Features and Development Trend in Vietnam

Pham Van Thinh

Thu Dau Mot University, Binh Duong, Vietnam

Abstract. Elite universities, prime universities, research universities, and smart universities are concepts to refer to universities that make breakthroughs and stand at the top contributing to the process of university development and social development. In Vietnam, this topic has been receiving attention in academic elites and university administrators. A comprehensive understanding of the process, features and development trend of elite universities, research universities, and smart universities is essential for both researchers and managers. This article presents some key features of the birth context of smart universities, the connection and integration of the concepts of elite universities, prime universities and smart universities, and the features of smart universities on the aspects of its components and characteristics. The article also introduces some movements of Vietnamese higher education in the trend of developing smart education and building smart universities.

Keywords: elite university, research universities, smart universities, Vietnam

Introduction

Smart universities have been an outstanding development trend of international university education for about 10 recent years. The theme of smart universities has attracted international academic community's attention and in-depth researches on concepts, systems and technologies have been carried out (Uskov et al., 2017). Research, design, and development of smart universities, smart education, smart classrooms, smart learning environment, smart pedagogy, smart learning, smart academic analytics and related topics have become the main themes of various pioneering international and national events and projects... (Heinemann & Uskov, 2017). In Vietnam, the topic of smart universities has been also concerned, researched and a number of implementation projects are being developed. With respect to research direction, some researchers put forward smart university model named V-SMARTH, including six basic elements concentrated into three core components: digitalization, learning-teaching models based on digital technology and comprehensive systematic digital transformation progress (Nguyen Huu Duc et al., 2020). A few researchers examine smart universities in the perspective of model, comparative rankings, e-learning assistance, smart universities (Tran Thanh Dien, 2017; Tran Thi Lan Thu, 2019; Vu Thi Thuy Hang, 2018). As regards development direction, some universities have already established the project of application of information technology to teaching, and proposed to approach teaching activities based on exploiting information technology in smart education (Thu Thi Hong Nguyen & Tri Minh Nguyen, 2019). However, up to now, the extent of discoveries over the theme of smart university in the academia and in practice have been quite few. To complement to lack of information and data, this paper presents the international trends related to the practice in Vietnam. The article consists of 4 parts. The first and second part present the concept and connections between elite universities, research universities and smart universities. The third part presents the characteristics and properties of smart universities. The fourth part relates practice with some information about smart university development in Vietnamese universities.

From Elite University to Smart University – Pinnacle of Education 4.0

The model of university on top of education 3.0 is often called “elite university”, “prime university”. Those “elite” ones in every country are top research universities training the source of high-quality, talented, brilliant manpower in research and playing the role of pilot to lead, guide and pioneer for the country’s education system. Such elite universities appeared first in European countries. In France, from the 18th century, the government formed the elite universities as a way of “specially training”. These schools recruited students primarily through selective processes on the basis of national rankings and examinations annually organized by the French Ministry of Education (similar to annual examinations for excellent students in Vietnam). As a result, a significant proportion of graduates could achieve roles and exert influence on French businesses, academia, civil service and civil society (Bourdieu, 1998). In the UK, the government also advocated for the development of the universities training professional personnel in order to enhance the state’s ability of control and mastery, and to consolidate the ruling power. In a survey of BBC news agency, alumni and alumnae from the elite group of Oxbridge have made up an overwhelming proportion of political, military, media and business leaders in the UK. Out of 56 British former prime ministers until now, up to 42 graduated from two outstanding universities, Oxford and Cambridge. Moreover, many heads of other countries and royal members of other kingdoms around the world graduated from these two British elite schools (Oxford, 2007).

In Asia, China is the country which early pursued the policy of developing elite universities through investment programs of the state in the second half of the 20th century. The achievement of this policy are the two leading universities: Beijing and Tsinghua. These Chinese universities have exerted large influences on the international academia. Beijing and Tsinghua universities have taken part in heightening China’s international position as well as developing China’s doctrines. These two universities are considered to have acquired the highest level of international standards for world-class universities right on Chinese soil. Every year, China’s top leader usually makes speeches at these universities.

The common point of elite universities is their training products associated with elite community or elite class, essentially political elites. This minority group consists of individuals holding top positions of power in a country, organization or corporation. According to Higley and Burton (1988), the elite community in every country includes the people having ability to greatly influence on the state affairs with the use of their formal positions in the organizations of power. Academically, the elite community is called by such terms as “ruling class”, “upper-class”, “political elite”, “power elite”. Although these concepts have relative meaning, but the elites can be understood as a social group greatly influencing on politics, riches, wealth, even power and roles to settle state issues with the use of their intellectual capacity. Consequently, the universities where such elites study some time naturally become honorable places.

Following the concept of elite university, the academic world is also quite acquainted with the concept of prime university. Such term refers to world-class universities, usually the most prestigious research universities playing an important role in developing a country’s competitiveness, creating and disseminating knowledge, training highly skilled work force to lead in technology and intellect, as well as to serve social demands. The development of prime universities is a major concern in the agenda of policy of many countries (Debroux, 2011).

Like elite universities, prime universities have selective processes of admission as they only enroll the students considered to be the most adequate for their universities. The characteristics of elite include operating environment (multinational, world-class, globally competitive), research culture (attracting students to do research, providing active learning environment, promoting research culture, forming competence and experience in postgraduate education), infrastructure and facilities (investment in forefront infrastructure facilities such as incubator, innovation center, accordant advanced equipment to support key research areas ,

financial resources (strong financial capacity), pledge of quality (excellence and discipline to focus on some key areas), notable talent (nurturing talent).

In general, the concepts of elite university and prime university are for world-class universities with high rankings in higher education system. Elite university and prime university are products of industry 3.0 with some common features: tenured (full-time) lecturers, flexible curriculum (collective learning), making research of assistance and with the use of modern technology, cost from state investment and tuition, mainly investing in infrastructure facilities, initial approach to digitalization and automation, basic model remaining 'teacher lecturing, students listening' (Ernst & Young, 2019).

The concept of smart university has appeared over the recent 10 years, associated with the transition from education 3.0 to education 4.0. Although there have been a wide range of researches, no unified definition of smart universities has been widely adopted. A number of researches have tried to define smart university consistent with its nature and features. In general, the concept of smart universities is attached to the revolution in higher education, manifesting a shift of higher education in the application of the achievements of the 4.0 industrial revolution. Much earlier, Roth-Berghofer (2013) described smart university as a platform to receive and provide basic data to promote analysis and to improve teaching-learning environment based on sensor data retrieval and employment. The author presented a model of smart university with the characteristics such as support from smart technology, use of smart tools and smart devices, software applications. Some other researchers defined smart universities as "a platform for diversity – providing personalized services to university students, within and across the universities around the world. In a research about smart university on the level of concept, system and technology, Uskov et al. (2017) identified smart universities as a concept related to all-round modernization of the process of training of a university, in which the element of smart technology (Internet, hardware, software, artificial intelligence) play an essential role. Uskov et al. (2017) developed a concept of smart university in the direction of identifying and classifying smart characteristics, components and relationships (links) among components of smart universities. Such concept bears a very clear resemblance to a university operating on the platform of modern technology.

Alongside the concept of smart university associated with smart technology, another suggestion is smart university model based on the simulation of a miniature smart city. In this direction, smart university is determined as a university with such elements as smart campus, smart people, smart research, smart management, smart influence. The trend approaching smart universities attached to miniature smart city model is also based on technology as the foundation. Consequently, smart university applies advanced technology to promote the process of organization and training in accordance with social requirements, implementing a revolution in higher education.

Regardless of any approach, a smart university is characterized as a university using advanced technology to organize activities and fulfill its mission. Smart university provides innovative ways of working, learning and teaching by means of integrating advanced hardware and software platforms, of using big data, sensors, social media, and machine learning (Mbombo & Cavus, 2021). It can be said that smart universities have both the characteristics of elite universities and prime universities and the distinctive property of a new era, which is the mark of using the most advanced technologies. On account of technological development, new information and data are continuously furnished, organized to employ in activities for high efficiency.

Research Universities and their Relationship with Smart Universities

Research universities have been regarded as one of the types of central organization of global knowledge economy in the 21st century (Altbach & Salmi, 2011). Research universities

are seen as the key source of both new knowledge and graduates with advanced skills, which improves economic growth, as important assets to lay down foundations (through research and doctoral training), to develop a number of competitive advantages for human high living standards, to build a country like the US with great technologies (USA, 2012); the success of research universities becomes more important than the policy of state development in the low-income and middle-income countries (Cloete, Bunting, & van Schalkwyk, 2018). However, research universities make up a relatively small proportion in education; 5% in the US (220 research universities in a system of more than 4,000 educational institutions); 25% in the UK (25 research universities out of 100 universities); 3% in China (100 research universities out of more than 3,000 institutions nationwide); many smaller developing countries often have only a research university and many other countries have no research university (Cloete, Bunting, & van Schalkwyk, 2018). In developing countries, research universities are also the driving force for national knowledge development and the leadership role of the state academic system, for example, 'National University is a public university which implements national strategic tasks over higher-education' as defined in Vietnamese Higher-Education Law. To perform their mission, research universities often form domestic links (e.g., Association of Czech 14 Research Universities, Organization of National Universities and Academic Institute in Vietnam), internationally (e.g., International Alliance of Research Universities, Forum of Four East Asian Universities and eight African Universities - Cape Town, Ghana, Makerere, Nairobi, Dar Salaam, Mauritius, Botswana, Eduardo Mondlane) (Cloete, Bunting, & van Schalkwyk, 2018).

In today's trend of academic ranking of global universities, research universities also help broadcast the image of the state higher-education. The leading research universities in industrialized countries (usually known as Super RU) often dominate global academic rankings (Cloete, Bunting, & van Schalkwyk, 2018). Responding to the initiative of UNESCO's Declaration of Open Educational Resources, some research universities on top of the world have provided the rich and diverse repositories of digital learning content to communities around the world. MIT's open learning material system provides about 2,400 open courses "following the idea of publishing and providing all of MIT's learning materials online for everyone": such system has attracted millions of hits every year from all over the world, more than half of which come from outside North American area. The electronically lecturing system of Coursera¹⁸ initiated by Andrew Ng with the collaboration of over 190 research universities and technology companies on top (University of Illinois at Urbana-Champaign: UIUC, Duke University, University of Michigan, Imperial College London, Stanford University, University of Pennsylvania, Yale University, Google, IBM,...) in order to supply "everyone everywhere with world-class learning". Statistics show that over 45 million people have studied on Coursera. Therefore, scholars in the world's leading research universities, with universities' support, have been actively participating in the provision of open learning resources, a type of learning resources in smart universities.

Thus, higher education in the world witnesses certain meeting points between research university and smart university. From our research, the connection between the concepts of research university and smart university is not fully understood. All the most typical publications over smart university do not mention research university (Uskov, Robert, Lakhmi, 2016). Moreover, we have not found scholars in the world's leading research universities publishing researches at the SEEL conference series. On the other hand, in some quite in-depth publications over research university (USA, 2012), the concept of smart university or smart universities does not appear either. Furthermore, there is no Springer publication with the title "research university" or "research universities" containing the exact term "smart university" (through the corresponding search results) (Cloete, Bunting, & van Schalkwyk, 2018). The research question about the relationship between the two concepts of research university and

smart university should be of interest, especially for research-oriented universities with the desire for deploying a model of smart university. In our mind, the world's leading research universities are confident of institution and of culture, in the belief that their university model is sustainable in defiance of external circumstances (Shattock, 2017), and that means the components of smart university regarded as the facilities to perform the missions (not purposes) of a leading research university. Concurrently, with the responsibility for society and community, a great number of lecturers at these universities actively participate in the initiative of “open learning resources”.

An assumption raised on the relationship between the two concepts is the concept of smart university itself. The current smart university model focuses on the first role (mission) of university which is to provide highly qualified human resources for society with a few reasons from this reality. Firstly, the issue of 'smart' is very complex and teaching-learning operations account for a very significant proportion of the total services in such university, so the approach which concentrates “smart” on the first role is a suitable one. Secondly, not every university performs all four roles (many universities focus on the first role) and “smart” needs applying for other educational levels (primary school, secondary school, high school, college,...). Therefore, concentrating “smart” on teaching-learning operations expands practical application. This is also consistent with Declaration of Open Educational Resources of Open Educational Resource Community under UNESCO. Expanding the definition of smart university to cover the four main roles of today's university in particularly, creating some relationship between the two concepts of smart university and research university should be also concerned and examined.

In general, in all cases, universities need to concordantly conduct researches related to smart university model in the direction of finding and exploiting aspects of smart university to form concrete and obvious advantages for universities and specially, to apply advanced pedagogical methods, to improve and perform educational programs considered to be the most appropriate to the conditions of corresponding hardware, software, technology and resources of university.

Some Characteristics of Smart Universities

According to Uskov et al. (2017), smart university is a matrix of “components and smartness levels” which clearly shows smartness levels of smart university. For example, smart software systems are deployed to help universities adapt to the provision of all necessary needs for students in smart classrooms, to different teaching methods, in order to manage data about students' learning operations, to deploy new teaching-learning strategies, to supervise as many areas or as many buildings as possible in smart learning environment, to predict and prevent any potentially occurring negative events, even to restrain to a minimum degree of consumption power /thermal power in classrooms and in laboratories across smart learning environment during nights and weekends. From this research, smart universities are described as having the following smart features:

- Smart faculty already trained to lecture smart courses in smart classrooms and to actively use smart boards, smart systems, smart technologies;
- Smart programs of study and smart courses, those which can change (or optimize) its structure or mode of learning content delivery in accordance with given or identified requirements of smart university (owing to various types of students or learners);
- New pedagogical styles (or strategies) used at smart university;
- Smart classrooms, smart labs, smart departments and smart offices at smart university;
- Easily identifiable university-wide smart software systems [as distinctive elements of smart university] (installed) at smart university (i.e. software that go well beyond systems used at a traditional university);

- Set of university-wide smart hardware systems, smart devices, smart equipment and smart technologies at smart university (i.e. hardware that go well beyond systems currently used at a traditional university);
- Set of university-wide smart technologies to facilitate main functions and features of smart university;
- Set of various resources of smart university (finance, technology, human ...)

Some examples to identify smart university in comparison with traditional university as follows:

Concerning software systems, smart university has a series of systems such as: pre-class learning content development systems, in-class activities recording systems, post-class activities supporting systems, smart camera controlling system to automatically film and create synch for various in-class activities; audio/visual organizing systems for online global network conferences to create smooth communication/collaboration/interaction for one-on-one and many-to-many among on-site/in-class and remote/online students/learners; group discussions mastering, connecting, forming and evaluating systems; repositories of digital learning content and online resources (worldwide web); learning portals; appropriate learning slot (module)-based digital libraries; facial recognition systems, energy lights, heat, ventilation and air conditioning usage monitoring systems.

Concerning technological system, smart university uses Internet of Things technology, cloud computing technology, Web-lecturing technology, global network communication and collaboration technology, smart connection technology, smart management technology, smart data displaying technology, augmented and virtual reality technology, electronic game creating technology (educational game creating), remote labs (virtual), 3D visualization technology, wireless sensor network technology, RFID radio frequency identification technology, location-situation awareness technology (indoor and outdoor)...

Concerning equipment system: smart university uses popular devices such as: smart board, ceiling-mounted projector (in some cases, 3D projector), smart panoramic video cameraman software (to web-tape of all in-class activities), big-screen displays (at least 84 inches) or interconnected TVs (to create the effect of a “cave” of smart learning), interconnected laptop or desktop computer, smart voice controller (central system integrating and controlling various smart in-class devices), smart controlled and self-activated microphone, smart loudspeaker, smart security video camera, smart classroom lock, smart reading device, biometric access control device (including face recognition device), smart robot, smart thermostat system...A smart classroom in 2017 in Bradley University was equipped with: (1) a smart board in new style – SMART 84 board – actually operates as a very big tablet computer with 84-inch induction screen; (2) 21 DELL 7459 AIO computer set having 3D video cameras and built-in microphones (market price is about 1,100 USD per set), each computer serves as a desktop computer and a 24-inch flat tablet computer with touch screen for control; (3) ceiling-mounted projectors (market price is about 1,000 USD); (4) as of March 2017, at least three 55-inch large screen TVs (market price is about 750 USD) for virtual classroom presence and communication/collaboration with remote/online students; (5) multiple video cameras; (6) multiple loudspeakers; (7) 3-student collaboration areas (large tables with reclining chairs placed near large-screen TVs, and many other electronic devices) (Uskov et al., 2017).

Concerning teaching programs: smart university has: appropriate educational programs – main and secondary programs, centralized program and degree program – with various structures suitable for learners/students having various academic foundations, with various components of smart teaching methods which comprise learning content delivering/transmitting modes...; courses, lessons, learning modules appropriate for

changeable components in accordance with various lecturing styles - face-to-face, blended, online, various types of students/learners, smart teaching methods...

According to Nguyen Huu Duc et al. (2019), a smart university has six important characteristics such as: adaptation, sensing, inference, self-learning, anticipation, optimization. The adaptation level has the manifestation of easy adaptation to new style of learning and/or teaching, of easy adaptation to needs of students with disabilities, of easy network adaptation to new technical platforms. The sensing level of smart university is its ability to automatically use various sensors, to identify and recognize. The inference level of smart university is its ability to automatically make logical conclusion on the basis of raw data, treated information, observations, evidence, assumptions, rules and logic reasoning. The self-learning level manifests smart university's ability to actively use innovative software/hardware systems – Web-lecturing systems, class recording systems, flipped class systems, learning from anonymous Opinion Mining System. The anticipation level manifests smart university's ability to automatically think or deduce to predict what event is going to happen, how to solve that event or what to do next. The optimization level manifests smart university's ability to automatically change internal structure (components), self-regenerate and self-sustain in accordance with instructor's intention.

The above identified characteristics demonstrate that smart university is a turning point of radical reform from smart university's organization to smart teaching and learning systems. The technological development, especially advances in the field of artificial intelligence (IOT, AR, AI, ChatGPT) would reshape education system, of which universities took, are taking and will take advantage to organize and operate to best accord with practical conditions of each university for the best effects.

Trend of Developing Smart Universities in Vietnam

In making integration effort, Vietnamese higher school acquires the trend of developing smart university model at a number of levels. In 2017, Vietnamese Prime Minister issued a decision approving the project of "Developing digital Vietnamese knowledge system," paving the way to apply advanced technologies in development of higher education. The objective of the project is to build a digital Vietnamese knowledge system through synthesizing, systematizing, Vietnamese transition, digitizing, knowledge storing and disseminating in all the areas, firstly to support innovation of education system in the fields directly related to people's life, such as law, medicine, technique, production...; to create favourable environment to attract people and businesses to participate with the role of exploiting and contributing to enrich digitalized Vietnamese knowledge resources; to arouse and spread the passion for science and technology, the desire for creativity and dedication of everyone and every business, especially the young generation, intellectuals and information technology businesses in pursuing creation, enriching and disseminating knowledge; to contribute step by step to the development of Vietnam's digital content industry, orienting the use of knowledge in global network environment (Vietnamese Prime Minister, 2017).

The project of "Digitalized Vietnamese Knowledge System" paves the way for higher education to develop in accordance with the characteristics and features of smart university. Hanoi National University is the pioneering facility implementing the project of modern university administration, associated with building smart university model. Hanoi National University's project of investment in digital university is deployed with the core of data centre and virtualized software platforms. The application of information technology contributes to simplification and publicization of administrative procedures, such as: software of international student enrolment to help motivate image promotion, online activities of training programs by international standards. Online application software of scientific, technological, financial and training management has been initially put into use. The results of applying information

technology to formal university enrolment initially show positive effects with the premise of developing digital university. Hanoi National University is currently focusing on investing in building modern information technology infrastructure and a pathway to digitize lectures in the direction of approaching 20% of online teaching modules in the period of 2020-2025 (VNU, 2020).

Along with the trend of investment in building smart technology application, Hanoi Law University implements the project of smart classroom teaching culture to third-year students majoring in English. Students take a course to promote intercultural communication competence during 12 weeks in the second semester of their third year. The objective of the project is to apply information technology to teaching culture, improving capacity for intercultural communication (ICC) of Vietnamese university students in English as well as awareness of students and teachers of the use of modern technology in teaching culture. The project of technology-supported teaching was applied to 40 students major in English. In addition, a set of questionnaires was distributed to the participants, along with 13 teachers of culture-related subjects from three universities. The results show that, in spite of certain challenges, the use of information technology in teaching culture has had a positive impact on students' intercultural competence, on their skills of problem solving, of evaluating and motivating to explore new languages in new cultures and appropriate pedagogical strategies are proposed.

According to Thu Hong Nguyen and Minh Tri Nguyen (2019), implementing smart classrooms creates opportunities for students to improve learning and to develop skills. In smart classroom, besides knowledge, students can also adopt experience, practice and collaboration with the help of information technology. The benefits which students and lecturers receive through applying information technology in teaching culture include:

- Integrating intercultural education in the process of language learning in Smart Education.
- Providing a number of culture learning methods rather than traditional methods.
- Expanding multi-dimensional reality perspective on other cultures thanks to media, social networks and breaking stereotypes.
- Promoting excitement of cultural experiments with new languages in new fields.
- Stimulating intrinsic motivation to explore new languages and cultures.
- Providing unlimited communication among cultures around the world.
- Promoting students' critical thinking and problem-solving skills in cultural situations.
- Creating clips and recordings to enhance experiences (behaviours, emotions and cultural characteristics).
- Using technological media as a form of assessment of cultural understanding.
- Recording is an effective way of students' self-assessing their progress in learning and their process of self-study.
- Participating in authentic learning diverse cultures around the world through films and real-life clips.
- Combining individual activities and group work.
- Using social networks such as blogs, Facebook, Twitter, etc. to build online multicultural community platform.
- Connecting learners from different areas to share information and lectures.
- Using software and websites containing games to increase students' excitement of learning.

Approaching smart university model as a miniature smart city, some universities have directed to be developed into smart universities and green universities. Typical is the project of smart university of Thu Dau Mot University. In 2019, Thu Dau Mot University issued the

project of smart university development with 6 components: smart campus, smart people, smart research, smart technology, smart administration and smart influence. Each component has the following specific characteristics:

Smart Campus: That is investment in complete university environment toward comprehensive learning (both online and face-to-face), social networking and communications for work collaboration, information and communication technologies, clean and green sustainability with smart sensor management systems, protective and preventative health care, smart building management with automated security control and monitor systems, along with clearly visible campus governance and notifications. Smart campus is the result of integrating of cloud computing and Internet of Things. The application framework of smart campus is a combination of cloud computing and Internet of Things based on the high achievement of computing and the Internet. The buildings have space and harmonious architecture, creating smart friendly and attractive learning environment.

Smart People: Focusing on building the strategies related to people, a growing teaching staff as well as the effective use of technologies... Developing a smart learning community with the features of responsiveness and connection— devices of social communication networks carry sensory information to the accessible computing network – information is posted on the computing network and all users can access ubiquitous information through computing network, but more important, that is its mobility - at any time and in any place, users' friendliness – a user can publish information via social network and share it - not only the data, but the object itself must also be accessible and processable. Faculty team is qualified, above standards and has capacity to meet with requirements for higher school innovation and international integration. Graduates have sufficient competence to work domestically and abroad. Graduates' professional capacity includes: foreign language skills, IT levels for application, social working and integration skills, professional capacity.

Smart Research: Applying scientific activities with more advanced technologies than traditional universities; providing both students and teaching staff with opportunities to regularly access technological advances as well as the active use of those technologies in teaching and learning. Promulgating flexible and unique policy mechanism: building research institutes, research groups and strong research groups; diversifying research products and product packages; diversifying forms of ordering, assigning tasks, and purchasing products; Recognizing graduation theses and master's degree theses as scientific research topics... The policy for international publication is attractive to full-time lecturers, attracting many scientists with deep expertise in Vietnamese universities. Ensuring mastery of specialized and interdisciplinary research directions combined with pioneering new trends such as multidisciplinary, and especially transdisciplinary trends; not only conducting research in accordance with quota and job positions, but also spreading the spirit of committing to academia, practicing scientific ethics, doing true research, truly publishing, truly used products

Smart Technology: Motivating digital conversion, creating a flexible educational environment, increasing interactivity and practical experience, improving educational quality by reducing costs, creating more choices for learners as E-learning courses at low cost; learners can also choose suitable courses and subjects they are really interested in. This makes learning more effective and high quality. Providing learners with practical experience in advanced technology - smart technology, smart systems, smart devices, smart classrooms....; providing students with comprehensive and adaptable education according to their needs, personalizing and mastery over unique teaching-learning styles.

Smart Management: Agile management personnel allow teachers related to remote education to use real classroom with graded teaching method to instruct remote students. Smart classrooms integrate voice recognition, computer vision, and other technologies, collectively referred to as smart management, to provide an event experienced as remote education, similar

to some experience in a traditional classroom. Thu Dau Mot University has established a university model that operates as a special enterprise to ensure investment efficiency, adapt to the market economy but avoid commercialization. With the goal of sharing the school's capacity with business and society, Thu Dau Mot University aims to firmly integrate experts from different fields of business and society in the ownership structure, establishing a School Council, Supervisory Committee, Management Committee, Digital Learning Resources Development Department, full-time and part-time Staff, Admission Department, Quality Assurance and many other activities (Nguyen Van Hiep, Vo Van On, 2022).

Smart Influence: Taking advantage of good opportunity of the times to make an outstanding breakthrough, joining the list of good universities in Asia and in the world. Establishing a strategic footprint with impressive innovation, breaking away from old paths, focusing on creating sustainable strategies, implementing long-term vision in domestic and foreign activities, and collaborating with businesses, promoting good results of smart education, attracting learners and social resources. Solving social problems, building open education system, developing open scientific research and training system for local communities to become stakeholders; building interactive relationships among universities and businesses and society into an ecosystem that spreads ideas, knowledge, and needs of each partnership.

A review of several typical projects presented above demonstrate that Vietnamese higher education is quite sensitive in approaching the world trend of developing smart universities. Vietnamese universities approach the state-of-the-art trend of Smart Education manifests quite diversely, in accordance with each university's current conditions and towards an integrative perspective.

Conclusion

The paper provides a relatively comprehensive survey of a smart university model in the world and some related studies in Vietnam are introduced. Concurrently, the paper presents the discussions related to the relation between the two concepts of smart university and research university, lecturers' role in smart university and position of culture in smart education. The paper introduces a number of issues over open research. Firstly, it is possible to integrate the concepts of elite universities and research universities into the concept of smart university. Second, in the context of digital conversion, the relationship between smart universities and digital universities needs to be clarified. Third, how has Vietnamese education approached the trend and promoted smart university model?

Becoming a prominent trend of world higher education development for more than a decade, smart universities rely on technical advances to promote the way of organizing operations and education, overcoming problems of traditional education, contributing to restructure higher education. Smart universities can be defined more succinctly as a university using technological innovation to perform its missions. In Vietnam's practical conditions, a smart university can be defined as a university using development and management strategies consistent with reality to achieve outstanding quality and development objectives. Through concepts, characteristics and development trends, it is possible to integrate elite universities, prime universities, research universities and green universities into smart universities. With the current development of smart educational technology, smart universities have the potential to strive to lead smart education system and strongly spread around the world. In Vietnam, universities regularly and promptly update equipment with advanced technology, implementing smart university step by step and part by part will be the main trend of Vietnamese education system in the future.

References

- Ahmed, H. O. K. (2015). Strategic Approach for Developing World-Class Universities in Egypt. *Journal of Education and Practice*, 6(5).
- Altbach, P. G. & Salmi, S. (2011). *The Road to Academic Excellence - The Making of World-Class Research Universities*. World Bank, 64668.
- Bourdieu, P. (1998). *The State Nobility: Elite Schools in the Field of Power*. Stanford UP. ISBN 9780804733465.
- Cloete, N., Bunting, B., & van Schalkwyk, F. (2018). *Research Universities in Africa*. African Minds.
- Committee on Research Universities (USA, 2012). *Research universities and the future of America: Ten breakthrough actions vital to our nation's prosperity and security*. The National Academies Press.
- Debroux, P. (2011). World class worldwide: transforming research universities in Asia and Latin America. *Asia Pacific Business Review*, 17(3).
- Ernst & Young Global Limited (2019). *Can the universities of today lead learning for tomorrow? The university of future*. Ernst & Young.
- Giddens, A. (1972). Elites in the British Class Structure. *Sociological Review*, 20(3). Doi: 10.1111/j.1467-954X.1972.tb00214.x.
- Heinemann, Colleen & Uskov, V. (2017). Smart University: Literature Review and Creative Analysis. In *Smart Innovation, Systems and Technologies book series* (SIST, Vol. 70). Springer.
- Jan, P. (2012). The Weberian Foundations of Modern Elite Theory and Democratic Elitism. *Historical Social Research / Historische Sozialforschung*, 1(139), 38.
- Mbombo, A.B. & Cavus, N. (2021). Smart University: A University in the Technological Age. *TEM Journal*, 10(1).
- Nguyễn Hữu Đức et al. (2019). *Smart University: World context and its practicabilities in Vietnam Universities*. Vietnam National University, Hanoi.
- Nguyễn Hữu Đức et al. (2020). Conceptual model and V-SMARTH smart university benchmarking [Mô hình khái niệm và xếp hạng đối sánh đại học thông minh V-SMARTH]. *VNU Journal of Science: Education Research*, 36.
- Nguyễn Văn Hiệp, Võ Văn Ổn (2022). *University autonomy and building a smart university model in the context of technological revolution 4.0*. [Tự chủ đại học và xây dựng mô hình đại học thông minh trong bối cảnh 4.0]. Vietnam National University Press, Hanoi.
- Prime Minister (2017). Decision on approving the project "developing a digital Vietnamese knowledge system" [Quyết định về việc phê duyệt đề án "phát triển hệ tri thức Việt số hóa"]. N^o 677/QĐ-TTg. Date 18/5/2017.
- Shattock, M. (2017). University governance in flux. The impact of external and internal pressures on the distribution of authority within British universities: A synoptic view. *Higher Education Quarterly*, 71(4), 384–395.
- Thu Thi Hong Nguyen & Tri Minh Nguyen (2019). Information Technology and Teaching Culture: Application in Classroom. In *Smart Innovation, Systems and Technologies book series* (SIST, Vol. 144).
- Trần Thanh Điện và Nguyễn Thái Nghe (2017). E-learning models support teaching and learning. [Các mô hình e-learning hỗ trợ dạy và học]. *CTU Journal of Science (CTUJoS), Special Issue 2017*.
- Trần Thị Lan Thu (2019). *Managing online training at Vietnamese universities* [Quản lý đào tạo trực tuyến tại các trường đại học Việt Nam hiện nay]. Doctoral thesis. Graduate Academy Of Social Sciences.
- University of Oxford (2007). Famous Oxonians. University of Oxford. <https://www.ox.ac.uk/about/oxford-people/famous-oxonians>

- Uskov, V. L., Bakken, J. P., Howlett, R. J., & Jain, L. C. (2018). *Smart Universities – Concepts, Systems and Technologies*. Springer.
- Uskov, V. L., Howlett, R. J., & Jain, L. C. (2016). *Smart Education and e-Learning 2016*. Springer.
- Van Zanten, A., & Maxwell, C. (2015). Elite education and the State in France: durable ties and new challenges. *British Journal of Sociology of Education*, 36(1). Doi: 10.1080/01425692.2014.968245.
- VNU (2020). *Quản trị đại học thông minh theo hướng đại học số*. Vietnam National University, Hanoi. <https://vnu.edu.vn/upload/2020/12/27397/VNU>.
- Vũ Thị Thúy Hằng (2018). Smart university management towards digital university [Trường học thông minh nguồn gốc, định nghĩa và bài học kinh nghiệm cho Việt Nam]. *Journal of Education*, 432 (2).
- Yang, R. (2017). The cultural mission of China's elite universities: examples from Peking and Tsinghua. *Studies in Higher Education*, 42(10). Doi: 10.1080/03075079.2017.1376873.