Vietnam's Digital Transformation Strategy to Achieve "Dual Goal" in Education: Daunting Effort to Ensure Quality Education and Effectively Prevent COVID – 19 Pandemic

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Abstract

Covid-19 pandemic raging across the globe has changed the world in all aspects, including education. Together with other countries, Vietnam has switched to new technologies, and focused on digital transformation to achieve *"dual goals"*: both fighting the pandemic and completing the school year's tasks. With the motto "*Stop going to school but don't stop learning*", the whole education industry of Vietnam has actively joined the prevention and control of Covid-19 by teaching, testing and assessment entirely on an online platform at all levels, from elementary school to university. This article will investigate Vietnam's policy responses in education through qualitative research. It found that this could not be an easy target for a country that still has many limitations in terms of potential like Vietnam. However, over the past time, Vietnam has performed very well the goals set by the Government for socio-economic development in general and education in particular. The current context will be both opportunities and challenges for Vietnam in the near future, especially when the Covid-19 epidemic situation is taking its toll in this Indochinese country. In addition to the need to pay attention and have solutions to stabilize the psychology and thoughts of students, teachers, lecturers, and staff in educational institutions affected by the pandemic situation, in the long run, the Government and the Ministry of Education and Training of Vietnam need a sustainable long-term strategy to develop digital technology so that we are stronger in crisis and can control the effects of social disorder.

Keywords: digital transformation, education, Vietnam, dual goals, online teaching, Covid 19.

Introduction

The COVID-19 pandemic with its new variants has been seriously affecting people's health, the economic sustainability with many unpredictable developments. With this type of epidemic, the virus can enter anyone's body regardless of age, gender, composition, occupation... Its spread in Vietnam in particular and globally in general is very worrisome, even countries and organizations recognize to change their perception and approach for development in a new context (Doan, 2021).

Revolution 4.0 is having a strong impact on all fields of the economy - society and is objective. Its impact is like a continuous flow. Without the COVID-19 pandemic, countries would only have to take care of their development strategies in the context of Revolution 4.0 and international relations that need to be resolved. For two recent years, the epidemic have changed the world and those changes are reshaping the future of every country, every organization and every person because traditional development methods may no longer be suitable, especially in the field of education and training (Doan, 2021).

The 2020-2021 school year takes place in the context of the complicated development of the COVID-19 pandemic in provinces and cities across Vietnam. To implement the new school year according to the plan of the Ministry of Education and Training, the Education and Training industry in all provinces and cities has made constant efforts to realize the dual goals of "both teaching and learning and prevention and control of the COVID-19 pandemic" (Van, 2021).

Recorded at most schools across the country, the prevention and control of COVID-19 is taken very seriously. At the beginning of the morning every day, teachers, lecturers and medical staff of schools regularly remind students at all levels to take measures to prevent and control the COVID-19 epidemic. All students and parents bringing their children to school are required to wear masks (Thu, 2021).

With the motto "*Stop going to school but don't stop learning*", the whole education industry of Vietnam has actively joined the prevention and control of Covid-19 by teaching, testing and assessment entirely on an online platform at all levels, from elementary school to university. When students return to school, along with epidemic prevention work, schools have directed officials, teachers, and lecturers to increase compensatory teaching and reinforce knowledge for students; innovate teaching methods and improve professional quality (Thu, 2021).

However, achieving the "dual goals" in the context of the epidemic is not easy for Vietnam - a country that still has many limitations in terms of potential. The article aims to identify and explore Vietnam's policy responses in education, with a particular focus on the Vietnamese government's efforts in applying digital transformation in education at all levels of education nationwide.

Guidelines and policies of the Vietnamese government on the application of digital technology in education

Digital transformation is first and foremost a cognitive transformation. An agency or organization can carry out digital transformation immediately through the use of available resources and technical systems to digitize all its information assets, restructure business processes, structure organization and transform relationships from the traditional environment to the digital environment. Digital transformation in education is the application of technology, based on the purpose, to structure of an educational enterprise. In Vietnam, digital transformation in education is applied in three main forms:

Firstly, applying technology in teaching methods: Smart classrooms, programming... to teaching.
Secondly, applying technology in management: Operation and management tools.
Thirdly, applying technology in the classroom: Teaching tools, facilities.

On September 27, 2019, the Political Bureau of the Socialist Republic of Vietnam promulgated Resolution No. 52-NQ/TW on *a number of guidelines and policies to actively participate in the Fourth Industrial Revolution* with the overall goal of is to effectively take advantage of the opportunities brought by the Fourth Industrial Revolution to promote the process of renewing the growth model, restructure the economy in association with the implementation of strategic breakthroughs and modernization of the country; strongly develop the digital economy, develop it rapidly and sustainably based on science - technology, make creativity and innovation with high-quality human resources; improve the quality of life and welfare of the people; firmly ensure national defense and security and protect the ecological environment.

On January 25, 2017, the Prime Minister promulgated Decision No. *117/QĐ-TTg, approving the Project of "Strengthening the application of IT in management and supporting teaching-learning activities and scientific research, contributing to improving the quality of education and training in the period 2016-2020, with a vision to 2025".* The overall goal of the project is to strengthen the application of information technology to promote the implementation of e-government and provide online public services in the management and administration of the state management agencies in charge of education and training at central and local levels; to renovate the contents and methods of teaching - learning, testing, assessment and scientific research and management at education and training institutions in the national education system, contributing to modernization and improvement of quantity of education and training. On that basis, the project also sets an orientation that by 2025, Vietnam will strive to reach an advanced level in the ASEAN region in terms of the level of information technology application in management and support for teaching - learning activities and scientific research.

On May 4, 2017, the Prime Minister promulgated Directive No. 16 *on strengthening access to the Fourth Industrial Revolution.* The Directive set out a series of tasks and solutions that ministries and departments from the central to local levels need to do such as: Focusing on promoting development, creating a real breakthrough in information and communications technology infrastructure, applications and human resources; developing digital connection infrastructure and ensuring network safety and security, creating conditions for people and enterprises to easily and equally access opportunities to develop digital content. In addition, the Ministry of Education and Training also needs to drastically change the policies, contents and methods of education and vocational training in order to create human resources capable of receiving new production technology trends, in which it is necessary to focus on promoting training in science, technology, engineering and mathematics, foreign languages, and informatics in the general education curriculum; promote autonomy in university education and vocational training; pilot regulations on vocational training and university training for a number of specific industries.

On June 3, 2020, the Prime Minister approved the "*National Digital Transformation Program to 2025, with an orientation to 2030*"; in which education and training is one of the top 8 priority areas in implementation. Specifically, 100% of educational institutions must implement online learning and teaching solutions, in which pilot an online training program at least 20% of the program's content. In addition, teachers and lecturers need to apply digital technology to assign homework and check students' preparation before coming to class. Platforms to support online teaching and learning also need to be developed, especially to digitize documents and curricula for teaching, learning and research.

In the spirit of implementing the guidelines and policies of the government, on September 10, 2021, the Ministry of Education and Training launched a program to donate and support "*Computer for students*" to mobilize all resources in the industry to support funding, online learning equipment for students who do not have and cannot afford to equip themselves with learning machines, not to let any student lose an opportunity to study because of the pandemic (Quyet, 2021).

On September 12, 2021, the Ministry of Information and Communications cooperated with the Ministry of Education and Training to continue launching the program "*Internet and Computers for students*" with the purpose of supporting students, especially students in Covid-19 pandemic areas for effective online learning. The program consists of three components: first one, signal and Internet access to all households; second one, computers for students from poor households; three one, the reasonable costs for the computers (Hung, 2021). The program has profound social and human significance because in addition to supporting disadvantaged students in epidemic areas epidemic areas with online learning equipment, it also contributes to Vietnam towards Internet coverage in areas where there is still no signal, and improves the quality of the signal in order to apply scientific development in education, raising people's intellectual level, and expanding social knowledge and especially development of digital society, digital transformation (Ministry of Education and Training, 2021).

Current status of digital transformation in education in Vietnam

The explosion of technology is creating many new, smarter, more effective, more cost-effective ways of education. Up to now, the trend of digital transformation in education has had a profound impact on people. In the field of education and training, digital transformation will support innovation in education and training in the direction of reducing lectures and knowledge transmission to developing learners' capacity, increasing self-study ability, creating learning opportunities anytime, anywhere, personalizing the learning, contributing to creating a lifelong learning society. The explosion of technology platforms IoT, Big Data, AI, SMAC (Social Media networking, Mobile devices, Big Data Analytics, and Cloud computing) is forming the digital education infrastructure. Accordingly, many intelligent educational models are being developed on the basis of information technology application; effectively supporting the personalization of learning; making the access to the huge knowledge storage on the network fast and easy; making the interaction between families, schools, teachers and students almost instantaneous (Nam. 2020).

Digital transformation in education and training focuses on two main contents: digital transformation in educational management and in teaching, learning, testing, assessment, and scientific research. Digital transformation in education management creates interconnected large database systems, deploying online public services, applying 4.0 Technologies (AI, blockchain, data analysis, etc.) to manage, operate, forecast, support decision making in the education and training industry quickly and accurately. Digital transformation in teaching, learning, testing and assessment, include digitizing educational resources (e-textbooks, electronic lectures, e-learning lecture storages, multiple-choice question banks), digital libraries, virtual laboratories, deploying an online training system, building cyber universities (Nam, 2020).

With a scale of more than 53,000 education and training institutions, 24 million students and 1.4 million teachers, the Education industry determines that a good implementation of digital transformation will contribute to the successful implementation of the National Digital Transformation Program, contributing to the digital economy, digital society and the formation of a digital nation (Ministry of Education and Training, 2020). The Education industry is very interested in training Vietnamese citizens with digital transformation knowledge and skills to become global citizens. Therefore, digital transformation is identified by the industry as a

breakthrough, an important task to focus on implementing in the coming years. Being successful in digital transformation not only improves the quality of education, but also, more importantly contributes to improving labor productivity, creating great opportunities for international integration. (Nha, 2020).

In 2007, in Vietnam, only a few schools implemented credit training, allowing learners to register for study, view learning results, and pay tuition fees online. To date, most universities have implemented this type of training. The registration for high school exams and online admission, school administration operations are also digitized and implemented on the basis of information technology application (Son, 2020).

In 2018, the Education industry put into use a nationwide database on education with 53,000 schools, 710 education and training departments, nearly 24 million students and more than 1.4 million teachers with identifiers. Information of 393 universities and colleges with 2.5 million students and 120,000 lecturers is also updated on the industry database system. About 82% of high schools use school management software, electronic grade books, electronic school records, and most higher education institutions use school management software. The electronic administrative management system connecting 63 departments of education and training and more than 300 universities and colleges across the country with the Ministry of Education and Training with smooth and stable operation, promoting positive effects. The development of digital educational resources is also focused on by the Ministry of Education and Training. Up to now, there have been 5,000 e-learning lectures; 2,000 television lectures, 200 general education textbooks, 7000 doctoral theses, 200 virtual experiments and more than 35,000 multiple choice questions (Ministry of Education and Training, 2020).

Regarding digital human resources, at the high school level, implementing the new general education program, the Informatics is included in compulsory teaching right from grade 3; STEM education is integrated in subjects, linking students' learning through technology application activities to solve problems and phenomena in life. In higher education, universities deploy specific mechanisms to train information technology human resources, thereby helping training institutions increase opportunities to cooperate with international enterprise and organizations to mobilize resources of the society to participate in the process of training information technology human resources, linking training with the needs of using human resources in enterprises and the needs of society (Nam, 2020).

During the COVID-19 pandemic, with the motto "Stop going to school but don't stop learning", 80% of high schools and 240 training institutions organized online teaching and learning; in which 79 institutions organized the entirely online teaching and learning. With the flexibility of applying information technology, the education industry has completed the tasks of the 2019-2020 school year, ensuring the health of students and teachers (Ministry of Education and Training, 2020).

The results of online teaching and learning of schools at all educational levels in Vietnam during the Covid-19 epidemic are basically evaluated well. However, Vietnam still needs to reorganize digital transformation activities in a more methodical way to improve efficiency. Besides a few schools that have applied technology to online teaching and learning many years ago, there are still quite a few schools that are not familiar with this form of training, or the facilities and information infrastructure is not guaranteed to effectively conduct online teaching and learning and promote learners' capacity.

Online teaching and learning for primary school seems to have many shortcomings. The age of students in grades 1 and 2 is too young to be able to study alone at home without help from their parents and relatives. This greatly affects the ability to arrange and manage time of families

with their children of school age in primary school. Every day, parents have to go to work and sometime no one at home to support their children in using technology for online learning. There have been unfortunate deaths occurred when students were alone at home to study, they could be electrocuted or affected by the explosion of technology devices when learning online.

Oppotunities and challenges

Digital transformation is an inevitable trend, happening very quickly, especially in the context of the current Industry 4.0 revolution. Around the world, many countries have been implementing national strategies on digital transformation such as the UK, Australia, Denmark, Estonia… The content of digital transformation is very wide and diverse, but shares some key elements including digital government (online public services, open data), digital economy (digital finance, e-commerce), digital society (education, health care, culture) and digital transformation in key industries (agriculture, tourism, electricity, transport). In the context of global integration, Vietnam in general and the education and training industry in particular cannot be out of the general trend of the world and and must be very urgent if we do not want to miss the opportunity that the Fourth Industrial Revolution brings. As we can see, the Covid-19 has put pressure on educational activities, but at the same time created a driving force for digital transformation to become stronger; creating opportunities and motivation for teachers and students to adapt and apply online teaching and learning methods. With the support of information technology, modern software, many traditional educational activities have gradually been replaced by software, simulation technology... Education connection is expanded not only in country but globally (Tuan, 2020).

However, digital transformation in the education and training industry currently faces many difficulties and problems that need to be further overcome. If Vietnam wants to go far and firmly on the development path in the 4.0 technology era, it must be well equipped with fundamental digital transformation skills for each level of education. Infrastructure, network infrastructure, equipment (such as computers, cameras, printers...), transmission lines, Internet services of Vietnam... are lacking, outdated, not synchronized, many places have not yet met the requirements for digital transformation. This is also a cause leading to inequality in learning opportunities and access to knowledge among students in different regions and schools.

In addition, specialized digitized databases (student data, teacher/lecturer data, educational resources...) require a large investment in human resources (including management and deployment human resources) as well as finance to ensure digitization. The construction of a digital data storage (e-books, electronic libraries, electronic multiple choice question banks, electronic lectures, e-learning software, simulation application software) requires a specific and synchronized plan, avoiding spontaneous development leading to waste, loss of time, effort and finance.

In addition, collecting, sharing and exploiting educational management data and digital educational resources needs a common legal corridor in accordance with regulations on copyright, intellectual property, information security, e-transactions and the law on information sharing and provision, specifically: regulations on the list of information subject to mandatory declaration and data entry - distinguishing it from private personal information belonging to individuals; regulations on copyright for electronic lectures (under what circumstances are used, under what conditions, in whole or in part); regulations on the exploitation of databases and digital data storage (who is entitled to exploit, what to exploit, to what extent, what conditions, who appraises, who allows); regulations on the legality of electronic records in general and grade books and electronic school records in particular (especially in the case of national level transfer or school transfer). Only when these bottlenecks are removed, the development of a digital data and digital educational resource system can be large enough (including open data), to meet the requirements of national

digital transformation in general and education and training in particular. The local phenomenon of data still exists in many localities and schools.

Finally, the construction of online learning programs, duration of study, online testing and assessment, accreditation of online learning quality, and recognition of online learning results are very different from traditional learning. This requires staff working in the education and training industry to have professional capacity to meet new needs to complete the above regulations and put them into operation.

Recommendations

Firstly, disseminating, propagating, raising awareness and responsibility, being transparent about ideology and determined to implement digital transformation throughout the education industry, to each locality, school, lecturer, and teacher, managers; building a digital culture in the education industry.

Secondly, continuing to promote the implementation of e-Government, focusing on perfecting the database system of the whole education industry to share data from central to local levels; thoroughly digitizing, using electronic documents, school records, and grade books instead of paper documents; directing, operating, trading, meeting and training are carried out mainly online.

Thirdly, strengthening the combination of technologies such as Big data, AI, Blockchain... with specialized digital databases to build information collection systems to make forecasts, predictions and create applications, services suitable for each target learner.

Fourthly, perfecting synchronous network infrastructure, practical information technology equipment for teaching and learning, creating equal learning opportunities among regions with different socio-economic conditions, prioritizing the form of service hiring and mobilizing socialization resources to participate in implementation.

Fifthly, promoting the development of digital educational resources (for teaching - learning, testing, assessment, reference, scientific research); forming a storage of digital educational resources, open educational resources for the whole industry, linking with the world, meeting the needs of self-study, lifelong learning, and narrowing the gap among regions; continuing to innovate teaching and learning methods based on the application of digital technology, encouraging and supporting the application of new educational and training models based on digital platforms.

Sixthly, deploying an educational social network with unified control and orientation, creating a digital environment for connection and sharing among education authorities, schools, families, teachers, lecturers, and students; developing open online courses; deploying a shared online learning system for the entire industry to serve the training of teachers and support teaching for disadvantaged areas.

Seventhly, training and fostering a team of managers and teachers with the necessary information technology and information safety knowledge and skills to operate in the digital environment and meet the requirements of digital transformation.

Finally, the Education and Training industry plays an important role in promoting the process of national digital transformation in general. Accordingly, the Education and Training industry needs to focus on implementing a number of specific solutions, including:

(1) Implementing solutions to improve Vietnam's Human Capital Index (HCI) according to the United Nations e-government assessment method.
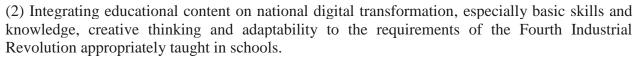
(2) Integrating educational content on national digital transformation, especially basic skills and knowledge, creative thinking and adaptability to the requirements of the Fourth Industrial Revolution appropriately taught in schools.

(3) implementing informatics universalization (such as universalization and eradication of illiteracy), teaching basic informatics, familiarizing students with informatics at all levels, right from the start of school, supplementing knowledge for people, the whole society, especially through community education centers and continuing education centers.

(4) Strengthening the training of professional information technology human resources in the direction of application, serving the requirements of digital transformation in different industries, taking the assessment of enterprises as a measure for the training quality of universities in the field of information technology (Nam. 2020).

Conclusion and discussion

Digital transformation in education is when the school renews its teaching and management organization model, teachers innovate content and teaching methods based on e-lessons, students learn more actively with more experiences through interaction in the digital environment, thereby capturing knowledge more easily and improving the quality of education. Thanks to digital educational resources and digital learning environment, teaching models and methods are innovated in a more effective way.

From the time the "National Digital Transformation Program" was approved by the Prime Minister (June 2020) until now, this database has helped the education industry to manage and issue very effective macro policies.

However, the difficulty in the coming period will not only be investing in technology and infrastructure but also solving the problem of human resources. The most difficult thing in the digital transformation in education is the human problem. Changing the mindset of administrators and teaching methods of teachers and lecturers is not easy. People must change to adapt for successful digital transformation. Because, now students have too many channels of information and documents. Teachers need to change from transmitting knowledge to selecting and gathering knowledge to build programs and lesson plans; especially how to personalize for each student (Ha An, 2021).

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