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Building a digital culture in schools: The key to successful digital transformation

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Article Info

Abstract
The National Digital Transformation Program to 2025, with orientation to 2030 approved by the Prime Minister, education and training is one of the priority areas for digital transformation. Implementing Decision No. 131/QD-TTg of the Prime Minister, the Ministry of Education and Training has issued many documents guiding and directing educational institutions to perform the tasks of information technology application and digital transformation. Over the past time, the Education and Training sector has always focused on the application of information technology in performing tasks, recognizing positive effects. This has gradually changed the teaching method from traditional to active, helping teachers and learners promote thinking, creativity, initiative and efficiency. Not only improving the quality of education, but also saving time, teachers have more time for expertise, closer attention to students. The application of information technology in education is identified as one of the key tasks to innovate teaching, learning and management methods, contributing to improving the quality of educational activities.

1. Introduction
Digital transformation gradually exists in educational institutions, every teacher and student. Not only creating positive changes in the education industry, digital transformation is also an opportunity for schools in difficult areas to close the gap in access to technology and knowledge for students. In fact, the education sector is "immersing" in the nation's digital transformation. The application of technology can create different effects in education and bring many positive values. This is an irreversible trend when education is increasingly developed and international integration is extensive, digital transformation becomes the right solution to help improve the quality of education in Vietnam. Digital government, digital economy and digital society require workers to have digital capabilities. And digital school is the place to train, foster and develop that essential capacity. Digital transformation, transforming a traditional school into a Digital School is transforming the nature of a school from imparting knowledge to transforming knowledge. Specifically, the transition from passive knowledge acquisition to effective application and construction of knowledge to an environment that requires continuous and simultaneous interaction.

The focus of digital schools is on creating breakthrough innovations through the modularization of educational programs, allowing for the creation of highly adaptive and effective combinations and synergies.

This helps each individual, both to achieve personal interests in harmony with the overall interests through the consensus in a school, and towards cooperation through the sharing process to promote the development of the community. Knowledge. At the same time, it also creates security in achieving the benefits that the educational process in schools brings to both students, teachers and stakeholders. Innovations in science and technology have greatly improved people's lives. The open economy and integration with other countries make new technologies impact the education sector. Digital transformation is the transformation of technology into life and spirit in order to promote the operation of schools faster. Digital culture in society also began to take shape since then. Technological innovations are applied to everyday life. Changes in digital culture have a strong impact on people. Digital culture synchronizes information and environment. Digital technology is applied in culture. Step by step make the culture uniform across the entire organization.

2. Research content and results

2.1. The concept and importance of digital transformation in education

In recent years, the education sector has paid great attention to the application of information technology in teaching activities. The application of information technology to teaching activities has gradually changed the teaching and learning method from traditional to active teaching method, helping teachers and learners promote their thinking, creativity, proactive and effective. From the centralized classroom model, it has gradually shifted to online teaching models, using information and communication technology to support teaching and learning activities. Thereby, learners can access knowledge anywhere, anytime, can be active in learning and apply knowledge in practice. The explosion in educational technology has created and will create non-traditional methods of education, strongly promoting the development of education that is profoundly transformative for people.

On June 3, 2020, the Prime Minister signed Decision No. 749/QD-TTg approving the "National Digital Transformation Program to 2025, with orientation to 2030". Accordingly, Education is the second priority for digital transformation after the Health sector. That shows the importance of education and digital transformation in the education sector plays a very important role, not only for the industry but also for the country.

2.1.1. Digital transformation concept

There are many different definitions of digital transformation, but it can be said in general that it is moving our activities from the real world to the virtual world in the network environment. Accordingly, people have more access to information, shorten the distance, narrow the space, and save time. Digital transformation is an inevitable trend, happening very quickly, especially in the context of the current 4.0 Technology Revolution.

In the world, many countries have been implementing national strategies on digital transformation such as in the UK, Australia, Denmark, Estonia. The content of digital transformation is very wide and diverse, but it has a number of main contents in common, including: digital government (such as online public services, open data), digital economy (such as digital finance, e-commerce), digital society (such as education, health care, culture) and digital transformation in key sectors (such as agriculture, tourism, electricity, transportation).

2.1.2. The importance of digital transformation to education

In the past time, when the global Covid-19 epidemic has affected all areas of life, education and training is no exception. In Vietnam, many educational institutions and schools apply The use of online teaching during the Covid-19 epidemic and beyond, but the online method still faces challenges in terms of technology, how to assess learners' ability...

In addition to some schools that have applied technology to online teaching 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 are not guaranteed to carry out this training. Currently teaching online effectively, and promoting the capacity of learners. However, with the current trend of technology development, accessing technology into teaching and learning becomes easier and more convenient. The development of applications on mobile platforms, social networks to help users easily interact anytime, anywhere, has created conditions for online education to develop to a higher level.

The basic foundation of digital transformation in education is based on physical facilities, information infrastructure, specialized digital databases, guidelines, policies, and a team of leaders, officials, and lecturers staff, teachers, learners…

The 4.0 technology revolution is characterized by 4 core technology groups: (i) Digital technology: AI, Big data, IoT, Blockchain, Cloud, Autonomous Robot, Simulation, Quantum Computing; (ii) New Physics and Materials: Nano, 3D Printing, Photovoltaics, Self-Driving Vehicles, Electric Vehicles, Flying Devices; (iii) Biology: Stem cells, Biochips, Biosensors, Neurotechnology, Individual medicine, Biomedical imaging and (iv) Energy and environment: Small satellites, Wind turbine technology, Smart grid, Battery technology, Ocean energy.

The combination of Industry 4.0 with digital data and different technologies is considered to be a breakthrough development of digital transformation, contributing to profound changes in economic, cultural, social, educational, and social life medical.

Digital transformation in the education industry, that is, the application of technology, is also based on the purpose and organizational structure of the educational institution and is applied in three main forms: Application of technology in the classroom: Facility classroom facilities, teaching tools. Applying technology in teaching methods: Applying technology education trends such as smart classrooms, gamification, and programming into teaching.

Technology application in management: Digital transformation management and operation tools in education and training focus on two main contents: digital transformation in educational management and digital transformation in teaching, learning and controlling investigation, evaluation, scientific research. Education management includes digitizing management information, creating interconnected large database systems, deploying online public services, applying 4.0 Technologies (AI, blockchain, data analysis, etc.) data, to manage, operate, forecast, support decision making in the education industry quickly and accurately. In teaching, learning, testing and evaluation, including digital chemistry materials (e-textbooks, electronic lectures, e-learning lecture warehouses, multiple - choice question banks), digital libraries, virtual laboratories, deploying online training system, building virtual universities (cyber universities).

Today, technological achievements such as IoT (Internet Of Things - Internet of Things) help strengthen management and supervision in educational institutions, monitoring learners' behavior; Big data technology (big data) helps analyze learners' learning behavior for appropriate support and advice; or Blockchain helps build a system to manage information and educational records of learners, allowing to consolidate, manage and share data from many schools, record learning history, transcripts of learners to ensure data information is consistent and transparent.

Increase interactivity, practicality - application: Application of virtual reality (Virtual Reality - VR), augmented reality (AR) in education to create virtual laboratories, realistic models Virtual reality has the ability to interact with users, or AR books, Blippar software that teaches space science, etc.

to help learners have multi-sensory experiences, easy to understand, easy to remember and cause curiosity and excitement for learners, while increasing interaction, practice and application of knowledge right in the classroom.

Create flexible learning space and time, promote open - equal - individualized education: Recently, Massive Open Online Course (MOOC) has exploded with big names in the world such as: Udacity, Coursera, edX, Udemy, FutureLearn, facilitate learners to acquire knowledge flexibly and conveniently anytime, anywhere. This promotes an open education, helps people access multi-dimensional information, narrows all spaces, saves optimally in time, thereby developing quickly in knowledge, perception and thinking.

Accompanying open education are open learning resources, helping learners and teachers to connect with knowledge effectively wherever they are and at any time. Open learning resources are an inevitable development trend of modern education.

Reduce training costs: With the development of the Internet, online teaching models (e-learning) help reduce training costs. Accordingly, the course cost will be reduced to a significant extent. Training institutions save costs for equipment and facilities, and expenses for lecturers and experts; learners save on tuition fees, living expenses and study materials.

Better operation of training facilities: The application of technology into operation helps to manage teachers and students more thoroughly, reduce wasteful loads, increase efficiency and working quality of office and training blocks. Assessment (student knowledge and documentation and measure progress): Using student assessments combined with data analysis, teachers can apply the information they have to make adjustments to instructional plans. Students can answer the lecturer's questions through the software, from which the lecturer can accurately assess the knowledge of each student.

2.2. Some issues about digital transformation in education
With the continuous development of technology, digital transformation is a new trend, especially in the education industry. Digital transformation plays an extremely important role in improving the quality of teaching, especially for schools in remote areas, helping students to access knowledge more effectively. In addition, in the face of the complicated situation of the epidemic, the education industry needs to further promote the application of online teaching platforms to ensure that the teaching process also improves competitiveness of the country.

Digital transformation is the process of using technology to change business models to create new value and increase revenue. When applied to the field of education, digital transformation is now defined as "the development of online teaching software that makes full use of technology in the management, digitization of lectures and building resources different for the classroom". Based on the main circular of the Ministry of Education and Training, we can affirm that digital transformation in education focuses on two main contents, namely digital transformation in management and digital transformation in teaching learn. Digital transformation in management is the digitization of information and management of all data by interconnected systems and links between parents and schools. In addition, digital transformation in teaching is the digitization of elearning lectures, digital libraries, virtual laboratories, and

teaching methods to create a virtual space to increase interactivity in the teaching process.

Equal digital access to learning means that all students at all levels, regardless of region, have equal access to databases and learning resources. In addition, with the support of technology, students can fully access learning content regardless of distance or geographical space through an internet connection. The learning process now doesn't just stop at the lecture hall or the library anymore. In addition, equal access to technology will close the learning gap between regions, creating more opportunities for students. In addition, digitizing lectures and pushing them on the same system will help the Ministry of Education save a lot of printing costs, students do not need to hesitate in choosing resources. Is it appropriate to add knowledge?

Passing arguments has a great impact on quickly and easily forming modules in learning. Educational units across the country can reuse the learning modules of previous educational institutions that have applied them or improve them to better suit the learning path of students. Thanks to these modules, educational content developers can create effective teaching materials. In particular, the application results also help the school manage and measure the learning quality of students and students. Regardless of the learning methods used or creating innovations in education, the sole purpose of the developers is to improve the quality of teaching, put students at the center. Therefore, the process of promoting digital transformation not only allows teachers and staff working in the Ministry of Education to participate in customizing and building curriculum, but also students access to learn, comment on the materials used or the roadmap for the subjects.

One of the positive effects of digital transformation on the education sector is providing a more practical way to track student learning and achievements. By keeping track of student performance, technology plays an important role in allowing teachers and parents to monitor their children's progress. For example, teachers and parents can compare the difference in learning and actual work results of students over time with the data recorded by the digital system, from there, have a more detailed view of which students and students have achieved success and who need more attention and attention from teachers and parents.

Improve student learning outcomes through data analysis. Schools can use statistical tools to track and improve student learning outcomes. Through the information gathered using technology tools, schools can clearly understand the needs of each student and student. For example, the more clearly the school understands why a certain student is missing a semester, the better the school can come up with appropriate solutions to support them. Technology will help us "diagnose" the causes of problems more effectively, easily and reliably than a teacher who has to manage an entire class of over 30 students.

Learning on digital platforms forces teachers and learners to collaborate. Teachers can create and manage student groups on online learning platforms. Collaborative research, writing scientific articles or presentations becomes easier with the help of creative and online collaboration platforms such as Google Docs, Twiddla, Edmodo, etc. This interactive tool has now been applied and used in many schools. Schools need to include in the curriculum content that has potential or is the development trend of world technology. Robots, artificial intelligence, automation… these fields are no longer just

stories of sci-fi movies. There is a lot of evidence that the workforce is changing and will continue to expand rapidly in the future, but many schools are not quite ready to educate students about the issue. This. It doesn't take several years to create a new curriculum or upgrade existing ones. We need to create opportunities for students to have access to appropriate and regularly updated learning content. Studies have shown that children perform better in school and have better overall health when their parents are directly involved in and contributing to their child's academic success. Automated software provides information about student learning progress and transmits this information to parents, and sends notices asking parents to pay fees on time. Digitization technology saves a lot of time for everyone in the world, in an era where time is money. Digital training is the "salvation" of students living in the most remote areas of the country. Currently, there are platforms that allow students to simply log in to a website to start their lessons, without having to spend hours on the road to get to their study location.

2.3. Some solutions to improve the quality of digital transformation in education

Firstly, raising awareness about digital transformation of education. To successfully implement digital transformation in the education industry, the human factor plays a very important role. Specifically, it is necessary to raise awareness and popularize ideas for each teacher, lecturer, and school administrator to understand the importance of digital transformation and jointly build a digital culture in education. At the same time, it is necessary to foster and improve the skills and professionalism in the application of technology of all teachers, lecturers and school administrators to achieve the goal of successfully promoting digital transformation in education.

Second, perfecting the database in education, in order to successfully implement digital transformation, it is necessary to have a solution to quickly complete the database of the education sector. It is necessary to focus on implementing a synchronous data sharing system throughout the education sector, including general education and higher education. At the same time, gradually convert paper documents to electronic documents for convenience and consistency in management.

Third, the construction of network infrastructure, technological equipment, network infrastructure, and technological equipment needs to be renewed and improved, especially in areas with poor connectivity to narrow the regional gap. With this digital transformation solution in education, it is possible to prioritize the form of hiring services or mobilizing resources for socialization.

Fourth, applying new technology to training, digital transformation in education by applying management software is the solution applied by many institutions today. For example, Virtual Tour Virtual Reality Technology. Virtual reality technology virtual tour is the optimal support tool for schools in building an image in the eyes of parents, students, etc. to help schools promote and communicate remotely. Virtual provides users with realistic information and projections of space outside and inside the school, showing the outstanding features of the facilities and bringing strong effects to the students. Parents and students do not need to go directly to the school to find out information, but just sit at home and interact 24/7 with just one touch via smartphone or computer applications.

Fifth, perfecting the database in education: it is necessary to focus on implementing a system to share data synchronously in education, gradually converting paper documents into electronic documents to make it more convenient. in management. Completing synchronous network infrastructure, practical information technology equipment for teaching and learning, creating equal learning opportunities among regions with different socio-economic conditions, prioritizing rental form. services and mobilize resources for socialization to participate in implementation. Promote the development of digital learning materials (for teaching - learning, testing, assessment, reference, scientific research); forming a repository of digital and open learning materials for the whole industry, linking with the world, meeting the needs of self-study, lifelong learning, and narrowing the gap between regions; continue to innovate teaching and learning methods based on the application of digital technology, encourage and support the application of new education and training models based on digital platforms. Deploying an educational social network with unified control and orientation, creating a digital environment for connection and sharing among educational authorities, schools, families, teachers, lecturers, students, develop open online courses; deploying a shared online learning system for the whole industry to serve the training of teachers and support teaching for disadvantaged areas.

3. Conclusion

Digital transformation applications will create a smart educational model, thereby making learning and absorbing knowledge simpler and easier for learners. The explosion of technology platforms has created favorable conditions to impart knowledge and develop learners' self-learning ability without being limited in time and space. Currently, digital transformation in education is applied in three main forms: applying technology in teaching methods: smart classrooms, programming... in teaching; technology application in management: tools for operation and management; technology application in the classroom: teaching tools, facilities. With the continuous development of science and technology, digital transformation is the trend of society in general and the field of education in particular. The application of technology in education plays a huge role, creating many turning points in development, opening up many new educational methods that are smarter, more effective and at the same time cost-effective for learners.

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