DIGITAL TRANSFORMATION OF HIGHER EDUCATION IN THE CONTEXT OF COVID-19: THE CASE OF USING LEARNING MANAGEMENT SYSTEM (LMS) AT VNU-USSH, HANOI

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Abstract: The Covid-19 pandemic outbreak has created global crisis and strongly affected the education sector global worldwide and Vietnam. According to the statistics of the UNESCO Institute of Statistics (UIS), as of April 18, 2020, more than 1.57 billion pupils and students in 191 countries and territories were affected by Covid-19. In Vietnam, 21.2 million children are affected by school closure orders across the country. Facing those severe impacts of the pandemic, educational institutions, universities and businesses, especially in the IT sector, are required to change the way they operate to be able to adapt in a timely manner. And "digital transformation" is one of the most effective and most interested educational support solutions until now. The paper examines some digital transformation trends in the education sector in Vietnam and worldwide. Thereby, the paper delves into the Learning Management System (LMS) which is considered a useful tool to help support the online teaching process, especially in higher education institutions, universities and presents some research results on the current situation of using LMS in online teaching at the University of Social Sciences and Humanities, Vietnam National University, Hanoi.

INTRODUCTION

The Covid-19 pandemic outbreak has created global crisis and strongly affected the education sector in Vietnam and global worldwide. The United Nations Education, Scientific, and Cultural Organization (UNESCO) has been recognized that the coronavirus pandemic outbreak has impacted the education system in the world. According to the statistics of the UNESCO Institute of Statistics (UIS), as of April 18, 2020, more than 1.57 billion pupils and students in 191 countries and territories were affected by Covid-19. In Vietnam, 21.2 million children are affected by school closure orders across the country.

Facing those severe impacts of the pandemic, educational institutions, universities and businesses, especially in the IT sector, are required to change the way they operate to be able to adapt in a timely manner. And "digital transformation" is one of the most effective and most interested educational support solutions until now.

The paper examines some digital transformation trends in the education sector in Vietnam and worldwide. Thereby, the paper delves into the Learning Management System (LMS) which is considered a useful tool to help support the online teaching process, especially in higher education institutions, universities and presents some research results on the current situation of using LMS in online teaching at the VNU-University of Social Sciences and Humanities, Hanoi.

RESEARCH METHODS

The paper examines some digital transformation trends in the education sector in Vietnam and worldwide. Thereby, the paper delves into the Learning Management System (LMS) which is considered a useful tool to help support the online teaching process, especially in higher education institutions, universities and presents some research results on the current situation of using LMS in online teaching at the VNU-University of Social Sciences and Humanities, Hanoi.

RESULTS AND DISCUSSION

1. Trends in Digital Transformation of Education in the Context of Covid-19

Worldwide education sectors closures, alongside other impacts of the COVID-19 pandemic, are projected to have far-reaching implications in the short and the long term for higher education and their communities. Education is a particularly challenging issue in the context of the pandemic. On the one hand, University environments risk high rates of COVID-19 transmission, and closures are seen as necessary measures to protect public health. On the other hand, the linkages between university and student's health, safety, and life prospects are significant. As a result, there are some main trends of change that have occurred during the pandemic period in term of education.

Distance/Online Learning instead of Schooling

During the pandemic, the situation has become very complicated and unpredictable due to the risk of more new dangerous virus variants, and countries must continue working to strengthen their surveillance systems. In the meantime, many organizations and educational institutions were forced to adjust to online teaching and learning. The World Bank approved US$250 million in additional financing for the Education Support Program in Morocco, adding to the initial US$500 million Program approved in 2019. This financing is intended to support the Government of Morocco in delivering on a highly ambitious

education reform agenda that includes expanding quality early childhood education services, supporting primary and secondary education teaching practices, and strengthening management capacity and accountability for better learning outcomes. In Finland, although Finland is heavily committed to a decentralized decision-making process in education, the national government decided to close schools from 18th March until 13th May 2020 and advised schools to make the transition to distance teaching and learning. In Finland, software and tools such as Moodle, Google Classrooms, Ville, Teams, O365, Skype, Zoom have been used to create virtual learning environments and support students in their online learning.

In South Korea, as of June 12, all students, except for those with a positive diagnosis or symptoms of illness, have returned to school after almost four months without stepping foot on campus (the academic year in South Korea typically begins in early March). Although students weren't physically allowed to attend school during the outbreak, classes were able to continue using online education models. Phased online-learning was implemented, beginning with students in their final year of middle and high school on April 9, and was fully expanded to all remaining grades by April 20. One of the key reasons behind the idea of phased online learning was to buy some time for both teachers and the educational ICT infrastructure to make necessary preparations while mitigating unforeseen issues. Korean Government has invested 250 million USD to address the impacts of Covid-19 on the national education system. Much of this investment is on online education platforms and community education websites.

Facing this severe pandemic, Vietnamese government's pandemic-related policies, including closing borders, relief packages, a zero-tolerance policy aimed at controlling virus spread, and educational policies focusing on the Circular No. 08/2021/TT-BGDĐT promulgating the Regulation on University Education and Resolution No. 30/2021/QH15 on urgent solutions for covid-19 prevention and control to implement Resolution No. 30/2021/QH15. In Vietnam up to 80% of high schools and 240 training facilities organized online teaching and learning. Among them, there are 79 institutions that organize teaching management entirely distance/online education.

Public and Private Education Partnerships Develop

Facing the crisis called Covid-19, "educational alliances/partnerships" have been formed, with the participation of the Government, Publishers, Educational Centers/Institutions, Technology Providers and Telecommunications agencies. The parties came together to use the digital platform as an interim solution for education.

Businesses/Companies Pay More Attention and Invest More in Digitalization and Educational Innovation Technology

After 2 years of the epidemic outbreak, digital transformation has gradually changed the face of the education sector and brought technologies and means closer to teaching activities. A trend that can be easily seen is that more and more private businesses are focusing on investing in educational innovation technology. Recently, Microsoft Vietnam launched an online learning platform to help Vietnamese people acquire necessary digital skills. Meanwhile, Google also launched Google for Education application packages such as: G Suite for Education (including Google Meet, Google Classroom, Gmail...) to serve educational management agencies and schools.

IT's Application to Digitalize in Education Sectors

Not only "digitizing documents" or "open-access materials", but the explosion of technology is also creating many newer, smarter, more effective and more attractive educational solutions in facing with Covid-19 crisis. SMART Education system has become a solution that uses an IT application platform to create a flexible and effective learning environment through an internet connection. As a leading unit in the field of digital transformation for the education industry in Vietnam, VNU-USSH applied the SMART Education model (LMS tool) to help bring about an effective, convenient and smart teaching process. A full SMART Education system often includes: smart classroom (SmCl), smart environment (SmE), smart teacher (SmT), smart campus (SmC) and smart school (SmS). Besides SMART Education, the world also applies many other advanced technologies into the teaching process to improve learning performance and quality, for example: IOT - Internet of Things - connected things, AI - Artificial intelligence, Big data - large database, 3D, Robot ....On the other hand, to increase the attraction of teaching activities, many schools also apply "gamification" technology, increasing immersive opportunities and bringing learners into virtual reality environments to solve problems. resolve and resolve problems. 3D simulations, animations, holograms, videos, interactive eBooks... are also being used more and more to help bring a sense of excitement and increase ability. interaction for students. At present, the Government of Vietnam has issued a series of policies to promote digital transformation of education, gradually completing the legal corridor such as: regulations on IT application in management, organization of online training, and regulations. distance learning at university level, regulations on management, operation and

use of industry-wide database systems, IT application models for high schools, connection data standards, etc.

2. Comprehensive IT System Supports Digitalization of Education

To successfully implement digital transformation, educational and training institutions need to be fully equipped with IT systems with the following two fundamental elements:

- Software systems, educational applications: School management software (management of resources, people, facilities and resources...); Digital resource management software for managing teaching resources LMS - Library Management System /LCMS - Learning Content Management System...; Smart classroom management software; Digital/interactive courseware software...

- IT infrastructure and equipment: In addition to software, educational institutions also need to fully prepare hardware equipment such as: LAN, wifi network, lab, printer, webcam/camera, presentation equipment (projection screen, screen), computer, etc.

In particular, computers/laptops are the most important equipment, directly affecting the quality of teaching - learning and management of schools. Therefore, when choosing a supplier, training facilities need to find a unit that is highly reliable, affordable, applies new technology and is specifically designed for education.

3. Learning Management System (LMS) in VNU-USSH

Recently, LMS (https://lms.vnu.edu.vn/trang-chu) has become a useful tool to help support the online teaching process, especially at USSH, Hanoi. With LMS, lecturers and students focus on the goal of increasing interaction between students and lecturers through learning forums, online classrooms (chat rooms). According the Decision No.: 4391/QD-DHQGHN, dated December 29, 2021, of VNU on Regulations on organization and management of online training "*Organize virtual classrooms in real time (Real Time Conference): Encourage teachers to record teaching and learning activities in real time in the form of videos so that students can re-study and facilitate supervision and management to ensure the quality*".

Structure of the LMS system:

- *Course information:* Convey the information of the course, at least clarifying the specific objectives of the course, the teacher's regulations and encouragement to

students during the learning process, and the regulations on testing and assessment as well as assignment or test formats, instructions so students can study the module well.

- *Class contents section:* lecturers have to organize the contents of the course/module according to weekly topics, closely following the objectives and teaching-learning process of the module. Lecturers publicize regulations about the tasks students must perform when participating in class.
- *Notification:* Provide instructions to students about learning tasks throughout the semester and each week to meet the criteria of promoting students' proactive learning and at the same time serve as a basis for assessing learning attitudes and levels. student's diligence.
- *Course-readings:* Introduce full information about the course materials and provide lectures (files). Encourage teachers to provide available digital learning materials to students (files) and pre-made video lectures.
- *Exercises/Forums:* Organize discussion topics or assign assignments with assessments throughout the semester. There are professional measures for students to fully participate in discussion and homework.

The Situation of Online Teaching Using LMS (period 2016 - 2019)

The University of Social Sciences and Humanities has organized online training since 2010 and has gone through 3 stages of development:

- *Phase 1:* from 2010-2019 only applies teaching innovation according to the blended learning model through learning management system (LMS);
- *Phase 2:* from 2020 to September 2022, using a professional online teaching system. In particular, online teaching activities thrive (100% online) in the context of the Covid 19 pandemic;
- *Phase 3:* from September 2022, maintain innovative teaching classes according to a model combining online - face-to-face and online teaching classes. The online teaching system has been deployed including: Learning management system (LMS) built by the University of Social Sciences and Humanities; Online teaching system (UPM, Vtvlive built); Online training system built by VNU.

In order to ensure quality in online training, classes using online teaching software need to ensure the requirements (such as full course information; organize the lecture content by week (7 weeks, 10 weeks, 15 weeks); Notification to provide study instructions for students throughout the semester; provide complete information about learning materials and lectures

(files); required to have at least 6 discussion forums (with content to exchange with students) and assign assignments (with grading) throughout the semester. The Applied Informatics module alone requires 10 exercises (graded) for the whole semester. Classes module will be regularly inspected and evaluated by the technical staffs to ensure teaching quality.

No	Semesters	Number of classes	Number of Completed classes	Number of students	Software tools
1	161	33	33	1856	LMS (VNU)
2	162	29	29	1200	LMS (VNU)
3	171	18	18	1232	LMS (VNU)
4	172	19	16	1235	LMS (VNU)
5	181	18	11	1208	LMS (VNU)
6	182	31	11	1337	LMS (VNU)
7	191	70	49	2018	LMS (VNU)
8	192	49	45	1632	VTVLIVE(USSH)
9	201	96	58	3014	VTVLIVE(USSH)
10	202	51	40	3032	VTVLIVE(USSH)
11	211	150	100	5762	LMS2(VNU), VTVLIVE(USSH)
12	212	63	44	3961	VTVLIVE(USSH)
13	221	67	38	2773	LMS2 (VNU)
14	222	36	24	1516	LMS2(VNU)
15	231	70	-	3508	LMS(VNU)

Table 1. Lecturers/students use the LMS tool from 2016 to present

The scale of subject classes registered to use LMS from semester 191 onwards increased compared to before, the peak number of classes registered to use the Website in 211 was 150 after the covid epidemic broke out, the number of classes registered stable registration after the pandemic. The explanation for this change is that most of the University's lecturers are afraid of being exposed to a new form of teaching. After Covid broke out, the lecturers had to change the form of online teaching, their ability to adapt. with the technology of better instructors. There are a number of teachers who have registered to participate, but then due to not being able to motivate students to participate or being busy with too much work and not having time to monitor the website, they automatically withdraw

their registration. Some lecturers who have used the Website and seen the effectiveness of teaching using the Website still register regularly and maintain a stable number.

Participating in teaching with LMS helps lecturers learn, experience and improve skills in using computers and communication skills through this information channel. Some lecturers have used the subject website during their studies abroad, so they have experience in using it. They find that learning using LMS is very convenient in assigning assignments and group discussions for student learning and lecturer teaching. Number of lecturers participating in teaching semesters from 2016 to present:

No	Semester	Number of lectures	Former lecturers	New lectures
1	161	22	15	7
2	162	18	12	6
3	171	14	9	5
4	172	11	9	2
5	181	9	9	0
6	182	17	12	5
7	191	51	24	27
8	192	34	24	7
9	201	62	32	30
10	202	27	23	4
11	211	80	53	27
12	212	31	27	4
13	221	37	28	9
14	222	24	18	6
15	231	42	34	8

Table 2. Number of lecturers participating in LMS from 2016 to present

The number of lecturers from 1919 onwards has increased significantly and remained stable. The reason is that after the Covid epidemic, lecturers and students saw the urgency of using LMS to improve the quality of teaching and students' learning process. LMS is also an effective support tool for lecturers during the online teaching process.

However, LMS requires lecturers to spend a lot of time and effort preparing content on the website, reading and answering students' questions on forums, and some new lecturers unfamiliar with computer operations leads to lectures that are not really attractive and do not attract the participation of students. After one semester of using LMS, this new

group of lecturers tends not to participate in the following semesters. As for the group of lecturers who have participated in using LMS for many semesters, they have also seen the benefits of using the website. Some lecturers also reflect that the funding to support the use of LMS for this group is insufficient (one million dong per class), the workload is too much so they only participate when they really have time. Only a few dynamic and technology-savvy lecturers use LMS effectively and also receive good feedback from students.

Results

With LMS in online teaching, USSH has achieved the following results:

- Creating a diversity of teaching forms at higher education, making a major contribution to innovating teaching methods (especially for the modules implementing teaching innovation using the online training system or LMS).
- Ensuring a training schedule especially during the Covid-19 epidemic. USSH was awarded with a Certificate of Merit by the Ministry of Education and Training, Vietnam for online teaching in the context of the Covid 19 pandemic
- The teaching staffs has quick adaptation. Lecturers have experience in online teaching.
- Students adapt and are trained with online learning methods.
- Reducing pressure on the University's facilities

For school year of 2022-2023, the proportion of classes participating in online teaching is 9% (including 3% online classes, 6% of classes innovated by using LMS).

Besides the results achieved, online training still reveals some limitations as follows:

No	Teaching methods	Limitations
1	100% online	- The telecommunications infrastructure of students is not guaranteed to be continuously stable during the online learning process. - The online teaching platform does not ensure stability at times when the number of users is very crowed. - Students and lecturers lose concentration when online learning time lasts continuously.
2	Combines teaching (50/50)	- The telecommunications infrastructure of students is not guaranteed to be continuously stable during the online learning process. - The online teaching platform basically ensures a stable level during the online teaching process.

No	Teaching methods	Limitations
		- Difficulty in arranging students' study activity when there are online classes (students who study in the next shift will have difficulty moving to class, while studying online at the University is very difficult to do).
3	Use LMS to innovate teaching methods	Lecturers must still be responsible for 100% classroom teaching combined with an online teaching system to provide lectures, learning materials, organize discussions, and test and evaluate students.

Table 3. The Limitation of Teaching Methods

Moreover, the proportion of lecturers teaching online is still limited (only for semester 231 is 10% (36 online classes, 70 innovative classes), the proportion of classes not completed according to annual requirements is still high. USSH's online teaching software has some limitations, especially in supporting the handling of account problems for learners. The USSH has not yet built a synchronous electronic lecture system; Digital learning resources are still limited in online teaching organizations.

CONCLUSIONS AND RECOMMENDATIONS

During and after the Covid-19 pandemic, LMS has proved its effectiveness in teaching and learning for lecturers and students. The interaction and exchange between students and students and between students and lecturers during the learning process is significantly improved. There are also some limitations in communication and using LMS due to problems with software, network transmission, and some other objective issues... Thus, LMS is a useful tool and an innovative form of online learning that should be widely developed in the future.

REFERENCES

IADB.ORG (2020) Responding to COVID-19 in South Korea: Discovering Online Education as a Key for Future Education < https://blogs.iadb.org/educacion/en/covid19southkorea/ > accessed 20 October 2023.

Katariina Salmela-Aro and Jari Lavonen (2023). The Switch to Distance Teaching and Learning in Finland During the COVID-19 Pandemic (2020–2022) Went Technically Well but Was Emotionally Challenging <

https://link.springer.com/chapter/10.1007/978-3-031-42671-1_4>. accessed 20 October 2023

The World Bank (2023). The World Bank Strengthens its Support to the Education Sector in Morocco < https://www.worldbank.org/en/news/press-release/2023/03/17/the-world-bank-strengthens-its-support-to-the-education-sector-in-morocco> accessed 20 October 2023

UNESCO (2020). UNESCO Rallies International Organizations, Civil Society and Private Sector Partners in a Broad Coalition to Ensure #LearningNeverStops. UNESCO. https://en.unesco.org/news/unesco-rallies-international-organizations-civil-society-and-private-sector-partners-broad

USSH- Report (2020). Báo cáo tình hình triển khai dạy - học trực tuyến kể từ ngày 09/3/2020 và một số đề xuất với Đại học Quốc gia Hà Nội *(Report on the implementation of online teaching and learning since March 9, 2020 and some recommendations to Hanoi National University*). Office of Academic Affairs, USSH, Hanoi.

USSH-Report (2018). Thực trạng công tác giảng dạy các môn học có sử dụng website môn học (giai đoạn 2016 – 2019) *Current status of Online Teaching using LMS (period 2016 - 2019)*. Office of Academic Affairs, USSH, Hano