Pak. j. life soc. Sci. (2024), 22(2): 8887-8894 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences

www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.2.00671

RESEARCH ARTICLE

Digital transformation of lecturers at universities in Hanoi

Mai Thi Ha*

University of Labour and Social Affairs, Hanoi, Vietnam

ARTICLE INFO

Received: Aug 29, 2024

Accepted: Oct 18, 2024

Keywords

Digital transformation
Instructors
Influencing factors
Intention to use

***Corresponding Author**

hamaiulsa@gmail.com

ABSTRACT

Digital transformation in universities is an indispensable factor for universities to adapt to the new technological data of the times, at that time, the university must automate and digitize all processes in training and management. Economics universities in Hanoi have been actively implementing digital transformation to improve training quality and affirm their brands. In the digital transformation process at universities, applying digital transformation in research and teaching for lecturers is a mandatory factor to increase competitiveness in an environment where universities are gradually moving towards financial autonomy. The article surveys the intention to use digital transformation in the work of 138 economics lecturers at universities in Hanoi. The results show that perceived usefulness of digital transformation and perceived ease of use of digital transformation, and perceived self-efficacy in using digital transformation has a positive influence on the intention to use digital transformation of economics lecturers at Hanoi University.

INTRODUCTION

The fourth industrial revolution, marks a huge change in business operations. These changes incorporate the use of the internet and other disruptive technologies in all walks of life. All sectors are undergoing a comprehensive transformation, leading to digitalized business operations. Digital transformation poses major challenges for organizations, as connected products, services and operations transform business operations, requiring new strategies to implement the necessary changes. Digitalization is forcing organizations to create entirely new strategies and forcing all organizational activities from management to operations to become digital. In universities in Vietnam, the digital transformation process is taking place more slowly than in businesses, because traditional education is still favored in many places. However, after the Covid-19 pandemic, universities in Vietnam realized that the blended learning model combined with online training is necessary, and the application of digital transformation in the research and teaching process of lecturers is a key factor to increase competitiveness in the environment where universities are gradually moving towards financial autonomy.

The Prime Minister signed Decision No. 749/QD-TTg approving the "National Digital Transformation Program to 2025, with a vision to 2030" with the consistent view that "digital transformation is first and foremost a transformation of awareness" and "people are the center of digital transformation" (Prime Minister, 2020). Education is a priority area for digital transformation towards "developing a platform to support remote teaching and learning, thoroughly applying digital technology in management, teaching and learning, digitizing documents and textbooks; building a platform to share teaching and learning resources in both direct and online forms" (Prime Minister, 2020). The process of digital transformation implementation has clearly identified the requirements for digital transformation in university training, including the requirement to develop digital capacity of lecturers at universities in Vietnam. Digital competence of university lecturers in general and of lecturers in the economic sector in particular is a condition for carrying out teaching and research tasks in a digital transformation environment. Digital competence helps lecturers not only use technology in research and teaching, but also forms the basis for forming effective thinking, attitudes and working methods.

Within the framework of this article, the author wants to clarify whether economic lecturers at universities in Hanoi are ready to accept and implement digitalization in research and teaching work, and which factors affect the intention to use digitalization in the work of economic lecturers.

1. Research overview

Digital transformation can be defined as "the most profound and rapid transformation of operations, processes, capabilities, and business models to leverage digital technology changes and their impacts in a prioritized and strategic way" (Hamidi et al., 2018). The main goals of digital transformation can be described as customer-centric processes, increased operational agility, and cost reduction (Junge, 2019). The supporting factors of digital transformation are cloud computing, mobile computing, fog computing, big data, data science, business analytics, social computing, Internet of Things, cyber-physical systems, etc. At universities, there are three factors driving the digital transformation process: the decreasing state budget, the increasing expectations of learners, and the increasingly developing technology. The three basic components of the digital transformation process include: people, strategy, and technology. In the process of implementing digital transformation, universities expect four results: improving training quality, improving research efficiency, emerging new training methods/models, and increasing financial resources. Therefore, lecturers are the key factor in the digital transformation process at universities.

Gerard (2010) argues that the existence of information technology does not change the way teachers work, but information technology helps teachers transform their teaching methods, thereby positively affecting student achievement.

After the covid-19 pandemic, many universities have switched from traditional teaching to online teaching, at which time the role of lecturers shifted from skills and experience in the conventional teaching environment to responding to the online teaching environment (Achen and Rutledge, 2022), lecturers face many new requirements for the use of digital technology. Achen and Rutledge (2022) believe that positive attitudes towards the application of digital technology in teaching and expectations about self-efficacy are factors that help lecturers approach the new teaching environment well. According to Klassen and Chiu (2010), self-efficacy creates a positive factor in the application of digital technology in teaching of lecturers.

Rodriguez – Abitia et al. (2020) proposed a framework for assessing the level of digital adoption in universities based on the ability to provide information technology infrastructure (network connection, laboratory equipment, classroom equipment systems, etc.), apply technology in the teaching and learning process (open educational resources, interactive lessons, artificial intelligence, archives, virtual simulation programs, etc.), and provide a collaborative platform for process-human integration (workflow systems, educational social networks, learning management systems, etc.). A key challenge in the digital transformation process in universities is the difference in the level of information technology use of lecturers (Balyer et al., 2018). This raises the need to promote awareness and information technology training for lecturers.

Jääskelä et al. (2017) studied the level of use of video in lectures and cloud storage by lecturers, the results showed that the majority of lecturers have not used or are hesitant to use, for those who have used, they have had experiences with poor results. This is consistent with the findings of Margaryan et al. (2011), where the three major problems found in the use of educational technology by university teachers in the UK were lack of digital skills, systemic issues and reluctance to change.

The Technology Acceptance Model (TAM) has been widely used in previous studies to predict digital transformation adoption by employees in various industries. The factors commonly used in studies using the TAM model are ease of use, perceived usefulness, and self-perceived efficacy (perceptions of the ability to use new technology resources effectively). A synthesis of many studies related to digitalization in the workplace has noted the need to train employees on how to use new technologies to adapt to the digital transformation environment in all areas. Employees may be willing to accept change, but find it difficult to change because they lack the knowledge or skills needed to make the change. It is essential to have appropriate training programs for employees that, in addition to practical knowledge, help them gradually assimilate and adapt to new data sources. Researchers use usefulness to determine the extent to which new technology is used to support users in completing their work. Suhaimi (2018) argued that perceived ease of use and usability significantly influence the use of digital technology in the digital transformation process. The main factors influencing the ability to use digital technology are computer self-efficacy, computer usability, and perceived external control over the use of digital technology.

2. Research methods

Inheriting from previous theoretical studies, the proposed hypotheses are:

Hypothesis 1: Perceived usefulness positively affects the intention to use digital transformation of lecturers in the economic sector.

Hypothesis 2: Perceived ease of use positively affects the intention to use digital transformation of lecturers in the economic sector.

Hypothesis 3: Perceived self-efficacy positively affects the intention to use digital transformation of lecturers in the economic sector.

Research scale

Table 1. Table describing the scales of variables

No	Factor	Code	No. Variables
1	**Perceived usefulness**	**HU**	Davis (1993) Suhaimi (2018)
	Using digital transformation makes my work faster	HU1	
	Using digital transformation simplifies my work	HU2	
	Using digital transformation improves my work efficiency	HU3	
2	**Perceived ease of use**	**SD**	Davis (1993) Suhaimi (2018)
	I easily learn how to run digital applications in teaching and research	*SD1*	
	Digital applications in research and teaching are transparent and easy to understand	*SD2*	
	I can easily recall how I performed my work using digital applications in research and teaching	*SD3*	
3	**Self-awareness**	**NL**	Venkatesh (2008) Suhaimi (2018)
	I can do my job in a digital transformation environment if there is an integrated support facility	*NL1*	
	I can do my job in a digital transformation environment if there is a first-time instructor	*NL2*	
	I can do my job in a digital transformation environment if I have used similar applications	*NL3*	
4	**Intended use**	**YD**	Legris (2003) Suhaimi (2018)
	If I had access to digital applications in my university, I would use them	*YD1*	
	In the future, I plan to use digital applications for teaching and research	*YD2*	

Implementation process

The implementation stages from data collection, processing to analysis are as follows:

Step 1: Based on the theoretical model, the author built a questionnaire on google forms, sent it to lecturers of economics majors at universities in Hanoi via email using the convenient sampling method to send to friends, relatives, partners... The questionnaire applied a 5-level Likert scale: 1- Strongly disagree; 2 - Disagree, 3 - Neutral, 4 - Agree, 5- Strongly agree.

Step 2: Data collected 150 questionnaires. After coding and cleaning the data, 138 valid questionnaires were collected for analysis.

Step 3: Analyze data on SPSS 22 software using the following tools: (1) Test the reliability of the scale using Cronbach's Alpha; (2) EFA exploratory factor analysis; (3) Correlation analysis; (4) Regression analysis.

4. RESEARCH RESULTS

4.1. Assessing the reliability of the scale

Table 2 presents the results of the reliability assessment of the scale using Cronbach's Alpha coefficient and the composite variable correlation coefficient. Hair et al. (2009) also stated that a scale that ensures unidimensionality and reliability should have a Cronbach's Alpha threshold of 0.6 or higher.

Table 2. Reliability Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cronbach's Alpha = .741				
HU1	7.97	1.138	.666	.540
HU2	7.86	1.322	.491	.739
HU3	7.90	1.128	.553	.676
Cronbach's Alpha =.793				
SD1	7.12	.824	.663	.691
SD2	7.08	.833	.622	.734
SD3	7.06	.814	.623	.733
Cronbach's Alpha =.694				
NL1	7.20	.615	.700	.341
NL2	7.18	.777	.452	.673
NL3	7.24	.796	.402	.735
Cronbach's Alpha =.677				
YD1	3.69	.216	.457	.
YD2	3.63	.235	.457	.

(Source: author analysis)

After testing the reliability of the independent and dependent variable scales, the results showed that 11 observed variables met the requirements: Cronbach's Alpha coefficients were all greater than 0.6 and the total correlation coefficients (Corrected Item - Total Correlation) of the observed variables all met the testing requirements of greater than 0.3. Therefore, the 11 observed variables ensured quality and were eligible for further studies.

4.2. Exploratory Factor Analysis (EFA)

The test results for 9 observed variables (HU1, HU2, HU3, SD1, SD2, SD3, NL1, NL2, NL3) have KMO coefficient = 0.594 satisfying the condition (0.5 < 0.594 < 1), Sig Bartlett's Test value = 0.000 < 0.05, therefore EFA analysis is suitable for the collected data, Bartlett's test is statistically significant, the variables are correlated with each other and meet the conditions for EFA analysis.

Eigenvalues are a commonly used criterion to determine the number of factors in EFA analysis. In this study, Eigenvalues > 1, so the factors were retained in the analysis model. According to the survey results, there were 3 factors extracted with a total extracted variance of 67.346% (>50%). All factor loading coefficients of the factors are >0.5, showing that all observed variables have good statistical significance. All variables satisfy convergent validity and discriminant validity, so the scales have high values to evaluate the corresponding variables. The rotation matrix results show that the 9 observed variables are divided into 3 factors, which are perceived usefulness (HU1, HU2, HU3), perceived ease of use (SD1, SD2, SD3), and perceived self-efficacy (NL1, NL2, NL3).

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin of Sampling Adequacy		.594
(Bartlett's Test of Sphericity)	Approx. Chi-Square	385.197
	Df	36
	Sig.	.000

Total variance extracted

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.399	26.656	26.656	2.399	26.656	26.656	2.148	23.864	23.864
2	2.114	23.491	50.148	2.114	23.491	50.148	2.097	23.298	47.162
3	1.638	18.198	68.346	1.638	18.198	68.346	1.907	21.184	68.346
4	.824	9.161	77.507						
5	.679	7.545	85.051						
6	.421	4.676	89.728						
7	.345	3.835	93.563						
8	.333	3.699	97.261						
9	.246	2.739	100.000						

Rotated Component Matrix[a]

	Component		
	1	2	3
SD1	.847		
SD3	.840		
SD2	.818		
HU1		.854	
HU3		.797	
HU2		.759	
NL1			.901
NL2			.728
NL3			.718

((Source: author analysis)

4.3. Regression analysis

Correlation analysis

According to Gayen (1951), in statistics, researchers use the Pearson correlation coefficient to quantify the strength of the linear relationship between two quantitative variables. If Sig.<0.05, the variables are correlated with each other and vice versa. The results of the Pearson correlation test between the independent variables (HU, SD, NL) and the dependent variable (YD) are shown in Table 4. The sig results of the Pearson correlation test between the three independent variables HU, SD, NL with the dependent variable YD are all less than 0.05. Thus, there is a linear relationship between these independent variables and the dependent variable YD.

Table 4. Correlations

		YD	HU	SD	NL
YD	Pearson Correlation	1	.275**	.460**	.470**
	Sig. (2-tailed)		.001	.000	.000
	N	138	138	138	138
HU	Pearson Correlation	.275**	1	.022	-.030
	Sig. (2-tailed)	.001		.800	.727
	N	138	138	138	138
SD	Pearson Correlation	.460**	.022	1	.181*
	Sig. (2-tailed)	.000	.800		.033
	N	138	138	138	138

NL	Pearson Correlation	.470**	-.030	.181*	1
	Sig. (2-tailed)	.000	.727	.033	
	N	138	138	138	138

(Source: author analysis)

Regression analysis

The results of multiple linear regression analysis to evaluate the impact of independent variables (HU, SD, NL) on dependent variable (YD) are shown in Table 5. The ANOVA analysis table gives the F test results to evaluate the hypothesis of the appropriateness of the regression model. The F test sig value is 0.000 < 0.05, therefore, the regression model is appropriate.

The results of Table 5 also show the Durbin–Watson value to evaluate the phenomenon of first-order serial autocorrelation. The value of DW = 1.532, is in the range of 1.5 to 2.5, so the result does not violate the assumption of first-order serial autocorrelation. The Coefficients table shows that the VIF coefficient < 2, so there is no phenomenon of multicollinearity. Thus, it can be concluded that the model fits the actual data. The adjusted coefficient of determination R square = 0.432 shows that the independent variables explain 43.2% of the variation of the dependent variable.

The relationship between the dependent variable and the independent variable is represented in the form of a regression equation as follows:

YD = 0.279 HU +0.380 SD + 0.410 NL

Table 5. Regression results analysis table

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.666a	.444	.432	.30545	1.532

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.990	3	3.330	35.693	.000b
	Residual	12.502	134	.093		
	Total	22.493	137			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.025	.358		.069	.945		
	HU	.219	.051	.279	4.322	.000	.998	1.002
	SD	.357	.061	.380	5.803	.000	.966	1.035
	NL	.417	.067	.410	6.251	.000	.966	1.035

Source: author analysis)

The observed variables HU, SD, NL all have t-test sig less than 0.05, so these variables are all statistically significant and have an impact on the dependent variable YD. The regression coefficients of these independent variables are all positive, so the independent variables have a positive impact on the dependent variable. Specifically, as follows: Perceived usefulness of digital transformation has a positive impact on the intention to use digital transformation of economics lecturers at Hanoi University, perceived ease of use of digital transformation has a positive impact on the intention to use digital transformation of economics lecturers at Hanoi University, and perceived self-efficacy in using digital transformation has a positive impact on the intention to use digital transformation of economics lecturers at Hanoi University.

5. CONCLUSION

In this study, the results of Pearson correlation test and linear regression analysis accepted three hypotheses.

The results of the study support the view that university economics lecturers in Hanoi are willing to use digital transformation when they perceive digital transformation as a useful tool in their work.

This result is similar to many studies in the world in different fields, all of which show that a person believes that using a particular system will improve their work results.

Perceived ease of use of digital transformation has a positive impact on the intention to use digital transformation of lecturers in the economics department at Hanoi University: Many studies in the world have demonstrated the positive impact of perceived ease of use on the decision to use. This result once again confirms the technology acceptance model (Davis 1986) and the study of Sahaimi (2018). The standardized regression coefficient Beta = 0.380, showing that the factor of perceived ease of use has the second strongest impact on the intention to use digital transformation of university lecturers.

Self-perception of digital transformation usage has a positive impact on the intention to use digital transformation of economics lecturers at Hanoi University: Employee's ability to use digital transformation has a positive impact with Beta = 0.410, this is the factor with the greatest impact.

In fact, in recent years, universities in Vietnam have implemented digital transformation in learning, teaching, and research. Especially after the Covid-19 period, universities have been applying digital tools to respond to the new environment, and to enhance competitiveness in the context of financial autonomy. University lecturers themselves have also been changing the way they work in the digital transformation environment. The survey results confirmed that perceived usefulness, perceived ease of use, and perceived self-efficacy regarding digital transformation have a positive impact on the intention to use digital transformation of economics lecturers at a university in Hanoi to serve their work. Universities need to train, raise awareness and skills to serve the operation of digital transformation activities for officials and civil servants. Focus resources on programs and projects related to the field of information technology serving digital transformation. Increase the organization of seminars and conferences on digital transformation to exchange experiences and raise awareness of digital transformation; at the same time, cooperate with domestic and foreign research organizations to improve the effectiveness of digital transformation. At that time, each lecturer working in a digital transformation environment will realize the usefulness of digital transformation, the use of digital techniques is not difficult, then lecturers will increase their intention to use digital transformation in teaching and research.

REFERENCES

[1]. Achen, K., & Rutledge, D. (2023). The Transition from Emergency Remote Teaching to Quality Online Course Design: Instructor Perspectives of Surprise, Awakening, Closing Loops, and Changing Engagement. *Community College Journal of Research and Practice*, *47*(6), 428-442.

[2]. Balyer, A., & Öz, Ö. (2018). Academicians' Views on Digital Transformation in Education. *International Online Journal of Education and Teaching*, *5*(4), 809-830.

[3]. Davis, F.D. *User acceptance of information technology: System characteristics, user perceptions and behavioral impacts*. Int. J. Man-Mach. Stud. 1993, 38, 475–487.

[4]. Jääskelä, P., Häkkinen, P., & Rasku-Puttonen, H. (2017). Teacher beliefs regarding learning, pedagogy, and the use of technology in higher education. *Journal of Research on Technology in Education*, *49*(3-4), 198-211.

[5]. Gayen, A. K. (1951). The frequency distribution of the product-moment correlation coefficient in random samples of any size drawn from non-normal universes. *Biometrika*, *38*(1/2), 219-247.

[6]. Hair, J. F. (2009). Multivariate data analysis.

[7]. Hamidi, H., & Chavoshi, A. (2018). Analysis of the essential factors for the adoption of mobile learning in higher education: A case study of students of the University of Technology. *Telematics and Informatics*, *35*(4), 1053-1070.

[8]. Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of educational Psychology*, *102*(3), 741.

[9]. Legris, P.; Ingham, J.; Collerette, P. *Why do people use information technology? A critical review of the technology acceptance model*. Inf. Manag. 2003, 40, 191–204.

[10]. Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & education*, *56*(2), 429-440.

[11]. Rodríguez-Abitia, G., & Bribiesca-Correa, G. (2021). Assessing digital transformation in universities. *Future Internet*, *13*(2), 52.

[12]. Suhaimi, A.I.H.; Bin Abu Hassan, M.S. *Determinants of Branchless Digital Banking Acceptance Among Generation Y in Malaysi*a. In Proceedings of the 2018 IEEE Conference on E-Learning, e-Management and e-Services (IC3e), Langkawi, Malaysia, 21–22 November 2018.

[13]. Venkatesh, V.; Bala, H. *Technology acceptance model 3 and a research agenda on interventions.* Decis. Sci. 2008, 39, 273–315.