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Research Article

Structural Modelling of Information Communication Technology (ICT) Facilities and Blended Learning Mediate Lecturers' Digital Literacy Competence on Students' Digital Skills

[1]Masrukhin, [2]Moh. Inami, [3]Supaat, [4]Muhammad Purnomo
[1] *Doctor, Faculty of Tarbiyah Sunan Kudus State Islamic University, Kudus, Indonesia*
[2] *Doctor, Faculty of Tarbiyah Sunan Kudus State Islamic University, Kudus, Indonesia*
[3] *Professor, Postgraduate Sunan Kudus State Islamic University, Kudus Indonesia*
[4] *Doctor, Faculty of Science and Technology, Universitas Muhammadiyah Kudus, Indonesia*
**Corresponding Author: masrukhin@iainkudus.ac.id*
https://orcid.org/0000-0003-4651-1714[1] ,
https://orcid.org/0000-0002-6250-1375[2],
https://orcid.org/0009-0002-0752-9620[3],
https://orcid.org/0000-0003-0740-2232[4]

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ABSTRACT

The success of blanded learning method in higher education is very important to overcome various kinds of competency problems that must be given to all students with diverse talents and interests they have in facing the digital era. The blended learning method by utilising ICT facilities and supported by lecturers' digital literacy competencies by integrating technology into the college curriculum will be able to provide reproducible student digital skills competencies to acquire competencies and face the 21st century. The purpose of the study was to test the structural model to reveal the direct and indirect effects of ICT facilities and blended learning mediating lecturers' digital literacy competencies on student digital skills. This research is based on a quantitative approach with the type of survey research on IAIN Kudus students as many as 80 students from S1 and S2 programmes with the research sampling technique, namely cluster sampling, data collected through questionnaire data using google form. Data testing techniques used in this study using SEM-SmartPLS 4 analysis include research causal relationship tests with two calculations, namely: 1). PLS Algorithm, and 2). Bootstrapping. The main causal relationship of variables that can be seen from the existing fit model is: direct effect and indirect effect. The results showed that the structural model was declared fit with SRMR of 0.085 below 0.100; found that: (1). There is a positive and significant direct effect between Lecturer Digital Literacy Competence and Blended Learning with a figure of 0.722, (2). There is no positive and significant direct influence between Lecturers' Digital Literacy Competence and students' Digital Skills with a figure of -0.276, (3). There is a positive and significant direct influence between Lecturers' Digital Literacy Competence and ICT Facilities with a figure of 0.479, (4). There is a direct positive and significant influence between Blended Learning and Digital Skills of students with a figure of 0.472, (5). There is a direct positive and significant influence between Blended Learning and ICT Facilities with a figure of 0.480, (6). There is a positive and significant direct influence between ICT Facilities and Digital Skills of students with a figure of 0.433, (7). There is a positive and significant indirect effect between the Digital Literacy Competence of Lecturers mediated by ICT Facilities on student Digital Skills with a figure of 0.207, (8). There is a positive and significant indirect influence between Blended Learning mediated by ICT Facilities on Student Digital Skills with a figure of 0.208, (9). There is an indirect effect of Digital Literacy Competence of Lecturers mediated by Blended Learning on ICT Facilities with a figure of 0.347, (10). There is an indirect effect of Digital Literacy Competence of Lecturers mediated by Blended Learning on Digital Skills of students with a figure of 0.341, (11). There is no indirect effect of Digital Literacy Competence of Lecturers mediated together between Blended Learning and ICT

Facilities on student Digital Skills with a figure of 0.150. The eleven findings show that student digital skills in higher education really need the support of lecturers as human resources who have digital literacy competencies, blended learning and excellent ICT facility support according to the needs in teaching and learning activities.

Keywords: Digital Literacy Competence, Blanded Learning, and Information Communication and Technology (ICT)

INTRODUCTION

Digital skills for students or learners at this time are very important. The digital literacy competence is useful to face the era of industrial revolution 4.0 and society 5.0. This era requires the ability to access ICT in all activities of daily life, including in learning activities at school. The ability to access ICT well will make it easier for students to receive and understand the material taught by teachers wherever they are. As Pozo et al. (2021:1) the results of his research show that *these results show that Information and Communication Technologies (ICT) uses are reproductive rather than constructive, which impedes effective digital technologies integration into the curriculum so that students gain 21st-century competencies*. These competencies are what students need to face the digital era.

Information Communication and Technology (ICT) in the world of education today has a very important role in supporting all the activities of educational programmes. As OECD (2019:3) said that: "Information and communication technology (ICT) plays an increasingly important role in almost all aspects of our daily lives. Not only does technology profoundly alter one's work and professional life, it also changes the way people interact, communicate, retrieve and share information, and even the way governments deliver public services to citizens. ICT also significantly affects various aspects of education. ICT can provide new opportunities for students to learn outside of school, and can change teachers' pedagogical approaches and students' learning experiences at school. In addition, education systems are increasingly embedding digital competencies in their curricula". There are at least 3 ways of integrating ICT in schools and learning, namely: (1). Students' engagement with ICT (both in and out of school) can influence their cognitive processes and well-being, and ultimately what they learn, (2). Teachers are increasingly using ICT for instruction, and administrative and communication purposes, with various implications for classroom management, instructional practices, (3). Competence in using ICT and digital literacy are recognised as essential skills that students must have if they are to thrive in the digital age.

Indonesia is among the countries that have utilised technology in education due to government support in the communication and informatics sector. As Ramírez-Montoya et al. (2021:3) in its research on the topic of Education 4.0 as it relates to the teaching process. It has been found that Malaysia, Mexico, Indonesia and Germany stand out as the countries with the most active authors on the theme. Similarly, survey results from the Central Bureau of Statistics from the 2021 Susenas Survey results 62.1 per cent of the population in Indonesia have accessed the internet in 2021. The high data collection results of the 2021 National Socio-Economic Survey reflect the climate of information openness and public acceptance of technological developments and changes towards an information society. The high number of internet users in Indonesia is inseparable from the rapid development of mobile phones. In 2021, it was recorded that 90.54 per cent of households in Indonesia owned / controlled a cellular telephone. This figure increased when compared to the condition in 2018 which reached 88.46 per cent. (Direktorat Statistik Keuangan, Teknologi Informasi 2021:3–4).

Although the government has provided excellent support for access to technology and information. However, in reality, the digital skills competence of Indonesian people nationally is in the medium category and information and data literacy is the lowest score. This is based on a survey from the Ministry of Information and Communication has found a digital literacy index divided into 4 sub-indices which include: 1). Information and Data Literacy obtained a score of 3.17, 2). Communication and Collaboration obtained 3.38, 3). Security scored 3.66, and 4). Technology Capability obtained a score of 3.66. Information and data literacy had the lowest score. Meanwhile, technological capability and security were the highest. Meanwhile, the average index score for Central Indonesia has a higher index score than the average index score for Western and Eastern Indonesia (Setu, 2020).

However, in reality, it is found that the ability of lecturers and students to access information and communication technology (ICT) in everyday life is low. This is based on research in a university found low ability in Universitas Airlangga students in three aspects as follows: the digital information fluency category level based on the aspect of locating information efficiently is low with a total average score of 3.62, the digital information fluency category level based on the aspect of evaluating information effectively is medium with a total average score of 4.85, and the

digital information fluency category level based on the aspect of using information ethically is medium with a total average score of 4.92 (Maretina 2016:1).

Based on these data, it is necessary to make changes in the teaching and learning process in higher education so that students have adequate digital skills in the 21st century, focusing on three main changes, namely: (1). equipping the ability of lecturers as the spearhead of learning activities to be free from technological illiteracy through several Digital Literacy trainings, (2). support for ICT facilities, (3). Implementing blended learning.
Blanded learning is a 21st century learning model. The 21st century is a technological era with the characteristics of science, research, and technology that accelerate very rapidly. The creation of various advanced technological devices in the field of information and communication, especially wireless network systems, has further streamlined community interaction and movement, and facilitated human affairs (Puspitarini 2022:2). The rapid development of information and communication technology has changed the perception, way and pattern of human life. Humans are highly dependent on information and communication devices, such as laptops and smartphones in various activities in their daily lives. Therefore, these information and communication tools should be utilised to improve the quality of learning. Blended learning allows teachers/lecturers to provide a more comprehensive learning experience to students (Handoko and Waskito 2018:6). Lecturers or teachers can combine face-to-face (offline) and online learning and also make it easier for teachers to provide learning materials and students can access, improve quality and understanding and reduce learning costs.

Mastery of ICT by all lecturers as a standard of competence in the digital era is a top priority. Digital literacy competence in all employees, both educational and non-educational personnel, will assist in the administrative management of educational institutions in managing administrative problems so as to provide more accurate and precise information in school policy making.

Lecturers or teachers in the digital era in carrying out learning process activities to students or students who belong to the Millineal and Z generations in the 21st century require teachers to adjust teaching strategies, models and methods to the characteristics of these generations. Lecturers or teachers are required to change by mastering the development of existing Information and Communication Technology (ICT). Teachers should not be stagnant in responding to ICT developments. Teachers can no longer teach with standard and conventional learning strategies, models and methods. Teachers must be creative, innovative and productive by enriching and renewing knowledge and skills to be able to present learning activities with interesting material content by utilising technology through e-learning.

Based on this description, researchers are interested in examining how the direct and indirect effects of Information Communication Technology (ICT) facilities and blended learning mediate lecturers' digital literacy competencies on students' digital skills.

LITERATURE REVIEW

1.1. *Digital Skill*

Digital Skills can be defined as the ability to understand, evaluate, use, create, and manage content using digital devices such as computers and smartphones (Maulidia 2022:10–11). Technology has become a central part of the daily lives of all humans including students. Students in the information communication and technology (ICT) era are required to have good digital skills. Digital literacy for students is a necessity in learning in higher education.
Digital literacy is one of the abilities that must be mastered by students in order to prepare themselves for the industrial revolution 4.0 and 5.0 (Dinata 2021:105). The knowledge is related to several things, namely: (1). Basic skills about the digital landscape-internet and cyberspace, (2). Basic knowledge of information search engines, how to use and select data, (3). Basic knowledge of conversation and social media applications, (4). Basic knowledge of digital wallet applications, market places, and digital transactions (Kemenkominfo 2022). Digital skills possessed by students will have a positive impact on the success of higher education, namely easy access to information and learning whenever and wherever they are related to the study programme taken.

1.2. ICT Facilities

ICT in Education is a rapidly growing field globally that offers many strategic opportunities (Ó Siochru and Attwell 2019:ii). Such strategic opportunities could include future research activities related to other types of ICT besides

computer and Internet-based. For this, there must be a clear definition of what ICT is. The following definition may serve as a guide:

1. Information Technology (IT) is a term used to describe the equipment (hardware) and computer programmes (software) that enable us to access, retrieve, store, organise, manipulate and present information through electronic means. Personal computers, scanners and digital cameras fall into the hardware category. Database storage programmes and multimedia programmes fall into the software category.
2. Communication technology (CT) is a term used to describe telecommunications equipment through which information can be searched and accessed, such as telephones, faxes, modems and computers.
3. Information literacy is the combination of knowledge, understanding, skills and attitudes that students need to contribute fully as members of society in the information age. When students become information literate, they develop the ability to select, interpret, evaluate, manipulate and present information (UNESCO 2011:7).
4. The rapid advancement of information and communication technology is regarded as one of the key factors of change in human society. The main impact of ICT in education can be seen in enhancing the ability of instructors, changing the structure of education, creating opportunities for greater and more comprehensive learning, improving the quality of education, and improving teaching skills (Ahmadi, Keshavarzi, and Foroutan 2011:474). The available ICT will provide support for the success of education in higher education.

1.3. Digital Literacy Competence of Lecturers

Lecturers are professional educators and scientists with the main task of transforming, developing, and disseminating science, technology, and art through education, research, and community service. A professional workforce whose main characteristics are educated and trained. Therefore, lecturers must always be updated on the development of science and technology to support their professional work.

The world of education has experienced a continuous process of ICT transformation in the field of education management in higher education by improving the quality of human resources, namely lecturers and employees. The impact of the ICT transformation process in the world of education was found to increase the understanding of digital literacy of teachers (lecturers) on the problems arising from the digital transformation of education (Bafadal 2013:17).

Lecturers must always update their abilities in accordance with the development of ICT which continues to alternate with various innovations that are more accessible. This can be seen in the ICT development process carried out over the years with various frameworks, models, and literacies have been developed to guide lecturer educators in their efforts to build digital capabilities in their students, which will support them to use new and emerging technologies in their classrooms in the future (Falloon 2020:2449).

The development of the framework, and existing digital literacy competencies are expected to provide recommendations for the refinement of digital literacy models that include visual literacy as a core skill; and discuss the implications of the relationship between digital literacy skills and visual literacy (Osterman 2012:135). Visual literacy is the ability to interpret and give meaning to information in the form of images or visuals. Meanwhile, digital literacy is a person's ability to understand and use all information that can be accessed through computers, digital media, communication tools or networks.

1.4. Blended Learning

The development of the learning paradigm has reached the level of the concept of technology-based learning, and the application of blended learning is a 21st century learning model. The learning process cannot escape the touch of technology, especially internet-based. Students today are millennials and generation Z who are very familiar with information and communication technology. A lecturer must be able to adjust to the characteristics of millennial students, so they can no longer teach with conventional learning strategies. The result of the blended learning process is effective because it is able to overcome the weaknesses of face-to-face learning models dominated by lecturers or teachers, as well as the weaknesses of e-learning which only relies on communication technology (Puspitarini 2022:1).

This e-learning model includes elements of communication and collaboration in the form of active participation in learning and research activities. It consists of individual competence components in the form of usage skills, critical understanding, and communicative ability. This research contributes to the model of strengthening digital literacy

through the use of e-learning (Setyaningsih et al. 2019:1200). However, it has not touched on the internalisation of the values of the material that has been taught to students.

Blended learning is an innovative concept that embraces the advantages of traditional classroom teaching and ICT-supported learning, including offline learning and online learning. (Dangwal 2017:129). So as to provide comprehensive learning outcomes between offline and online learning activities. This is supported by the research findings that there is a difference between student learning outcomes in the expository learning model class and student learning outcomes in the blanded learning model class (Pahmi, Maipita, and Yusuf 2021:598). The blended learning model has higher student learning outcomes than the expository learning model.

Lecturers can utilise blended learning to achieve professional learning. As the research results in this study found that the nature of teachers' professional learning through personal learning network (PLN) is individualised, social, and digitally connected through social technology. This finding is crucial for researchers, education policy makers, school administrators and practitioners to shape flexible, innovative and easily accessible approaches to achieve professional learning (Oddone 2022:1). In principle, blended learning is flexible, innovative, and can be accessed easily whenever and wherever students can learn.

1.5. The Relationship Between Information Communication Technology (ICT) Facilities, Blended Learning, Digital Literacy Competencies and Digital Skills.

Industrial revolution 4.0 and Society 5.0 aim to build a value chain that spans heterogeneous industrial domains, enhances reuse, increases production flexibility, and demonstrates resilience in times of disruption. The society 5.0 era is a long-term vision that takes us beyond the 4.0 era, by fostering seamless cooperation and process coordination, building a circular and sustainable value chain (Patera et al. 2022:1).

The transformation of education in this era requires education to adapt so that education can meet the needs of future human resources. Digitalisation of the education system by providing ICT facilities is a form of response to the development of education in the 4.0 and 5.0 era. Digitalisation of the education system requires lecturers and education personnel to have additional competencies, namely digital competence.

Digital literacy for lecturers as human resources is an ability to use information and communication technology to obtain, read, understand, utilise, assess, create and disseminate new knowledge to assist teachers in carrying out teacher duties effectively and efficiently in teaching and learning activities, namely by using blended learning.

Blended learning is 21st century learning as a complementary form of e-learning. Strengthening digital literacy in all human resources involved in managing education in higher education can be done with various forms of education and training, both formally, informally and non-formally to explain the use of information and communication technology in helping to carry out tasks as education personnel in managing education administration and teachers, including the use of digital technology as an additional learning resource, the use of digital technology-based learning media, accessing information quickly, school promotion, and publication of work and information. In its implementation, digital literacy can be carried out in the form of training (Guru et al. 2019:133).

Education and training carried out by lecturers who have digital literacy competencies in higher education will be able to build a competent social environment that is able to access information and communication technology (ICT) in the framework of improving quality in learning activities based on blended learning which will have an impact on improving students' digital skills through the teaching and learning process in all existing courses.

METHODOLOGY

This research is a quantitative study with a survey approach, the unit of analysis in the study is the digital skills of students. The study population was 80 students at IAIN Kudus from S1 and S2 programmes, the sampling technique was Cluster Sampling technique. Data collection using a questionnaire with google form 5-point Likert scale, ranging from positive responses (score 5) to negative responses (score 1). Variables and variable measurements as table 1 below.

Table 1. Variables, Dimensions and Indicators

No.	Variable	Operational Definition of Variables	Dimension/ Aspect	Indicators
1.	Lecturer Digital Literacy Competence (X1)	as the ability of lecturers to operate information and communication technology (ICT), find, evaluate, use, create, and transmit content/information, with both cognitive and technical abilities, skilled and creative in learning.	1. Practional and Functional skill	Able to operate ICT (learning well).
			2. Creativity	1. Able to create products or outputs in various models and formats by utilising digital technology. 2. Able to think creatively and imaginatively starting from planning, composing content, and exploring ideas that are still related to the material taught.
			3. Collaboration	1. Able to take part in the digital space 2. Able to explain and negotiate ideas with interlocutors in the digital space.
			4. Proficient Communication	1. Able to communicate through digital technology. 2. Able to understand and relate to others.
			5. Curate Information	Able to search and select information.
			6. Critical Thinking and Evaluation	Be able to contribute, analyse and think critically when handling information.
			7. Cultural and social Understanding	Able to respond to digital space in harmony with the context of social and cultural understanding.
			8. E-Savety(Nabhan, 2021; Nugroho & Nasionalita, 2020; Soriani, 2018 (Kuncoro et al., 2022, p. 24)	Able to ensure security when users explore, create, and collaborate with digital technology.
2.	Information and Communication Tech-nology (ICT) facilities (Z)	tor a method or system used to help process information, store, and then communicate or convey this information in the form of multimedia accommodated through computer	1. Computer	1. Computer Hardware. 2. Computer Software
			2. Network	1. Network and Communication 2. Data Base
			3. Information	Information Technology Personnel (Turnip 2015:4)

		assistance for decision making.		
3.	Blended Lear-ning (X2)	a learning model that combines traditional face-to-face classroom learning strategies with online learning (e-learning) that utilises Information and Communication Technology (ICT) so as to combine the innovation and technological advantages of online learning with the interaction and participation of face-to-face learning advantages.	1. Live event	Able to design synchronous face-to-face learning in the same time and place (classroom) or same time but different place (virtual classroom).
			2. Self-paced learning	Able to combine with self-paced learning that allows learners to learn anytime, anywhere by using various content (learning materials) specifically designed for self-learning both text-based and multimedia-based (video, animation, simulation, images, audio, or a combination of all).
			3. Collaboratio n	Combine collaboration, both teacher collaboration, and collaboration between learners, both of which can be across schools/campuses.
			4. Assessment	Able to concoct a combination of assessment types both test and non-test, or tests that are more authentic (authentic assessment / portfolio) in the form of projects, products etc.
			5. Perfo-rmance support materials(Riadi 2021:2–3)	Able to provide resources, Learning materials are prepared in digital form that can be accessed offline (in the form of CDs, MP3s, DVDs, etc.) or online (Learning / Content Management System /LCMS), as well as the existence of this system application has been installed properly, easily accessible, and so on.
4.	*Student Digital Skills (Y)*	Is the ability to use information and communication technology to find, utilise, create, evaluate, and communicate content/informa tion, with cognitive and technical skills.	1. Digital landscape	1. Know the types of hardware and software (protection devices and features). 2. Understand the types of hardware and software (protection devices and features). 3. Know the types of information search engines, how to use them and sort out data.
			2. Information Search Engine	1. Know how to access and sort data in information search engines. 2. Understand the types of information search engines and their uses.
			3. Conversation and Social Media Apps	1. Types of conversation apps and social media 2. How to access chat and social media apps. 3. Variety of features available on

				chat and social media apps.
			4. Digital wallet, marketplace, and digital transaction apps	1. Know the types of digital wallet applications, marketplaces, and digital transactions. 2. Know how to access digital wallet apps, marketplaces, and digital transactions. 3. Understand the features available in digital wallet apps, lokapasar, and digital transactions (Kemenkominfo 2022)

The data analysis technique uses SEM-PLS using the SmartPLS 4 application with both calculation functions to test the causal relationship between research variables as Hair et. Al, (2018) and Sarstedt and Cheah, (2019) in Handoko, (2021, 1–3). That is:

1. PLS Algorithm. This algorithm is to estimate the parameters t and u by an iterative process of least square regression with the following analysed results: (a). Path coefficient value, (b). Outer loading, (c). Direct effect, indirect effect and total effect, (d). R Square and Adjusted R Square, (e). F square, (f). Construct reliability and validity, (f). Discriminant validity, (g). Collinearity Statistic.
2. Bootstrapping is a process to assess the significance level or probability of direct effects, indirect effects and total effects. In addition, bootstrapping can also assess the significance level of other values including: r square and adjusted r square, f square, outer loading and outer weight with the following analysis results: (a). The t statistic value, (b). P value, (c). Original sample,

In the causal relationship of the variables in the study, it can be seen that there are at least two main things, namely:

1. Direct effect between Lecturer Digital Literacy Competence (X1) with Blended Learning (X2), ICT Facilities (Z) and Student Digital Skills (Y), as well as Blended Learning (X2) with ICT Facilities (Z) and Student Digital Skills (Y) and
2. Indirect effect, namely Lecturer Digital Literacy Competence (X1) mediated by Blended Learning (X2) and Information Communication Technology (ICT) Facilities (Z) on Student Digital Skills (Y).

RESULTS AND DISCUSSION

Results

This study uses SEM PLS analysis with the calculation process assisted by the SmartPLS 4 software application program. Partial Least Square (PLS) analysis is a multivariate statistical technique that compares multiple dependent variables, multiple independent variables and mediating variables. The stages after processing the data with the help of the SmartPLS 4 application are interpreting the results of data processing using SEM PLS, namely:

A. Instrument Test Analysis

This analysis tests whether the indicators used are good or not in measuring a variable. Indicators commonly used in validity and reliability tests in SEM PLS are Composite Reability, Cronbach Alpha and Average Variance. A good indicator with the criteria is a value above 0.6.

Table 2. Validity and Reliability Constructs

Variables	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
X1	0,927	0, 931	0,938	0,579
X2	0,859	0,865	0,895	0,587
Y	0,962	0,963	0,967	0,727
Z	0,881	0,883	0,913	0,678

Data Source: SmartPLS 4 Output

From the output above, the AVE value for all variables is greater than 0.5 so that it can be said that all valid indicators converge in forming their respective variables. In addition, the Cronbach's Alpha and CR values are also obtained which have values greater than 0.6 for all variables. It can be concluded that all variables and items used in this study fulfil the validity and reliability in variable measurement.

B. Goodness of Fit Testing

This goodness of fit test is used to determine whether your data to measure the relationship between variables is good or not. There are 2 indicators used in this test, namely the coefficient of determination and the model fit test.

1. Coefficient of Determination

The coefficient of determination is used to see how much the independent variable contributes in explaining its relationship with the dependent variable. The coefficient of determination is done by looking at the statistical value of R-Squared in each variable relationship found as table 3 below.

Table 3. Coefficient of Determination *(R-Squared)*

Variabel	R-Square	R-Square adjusted
X1	0,521	0, 515
Y	0,439	0,417
Z	0,792	0,786

Data Source: SmartPLS 4 Output

It can be seen that the R-Square value on the Blended Learning variable (X2), Student Digital Skills (Y) and Z (ICT Facilities) is 0.521, 0.439 and 0.792 respectively. This figure can illustrate three findings, namely:

1. The Lecturer Digital Literacy Competency variable (X1) contributes to explaining Blended Leraning Learning (X2) by 0.521 (52.1%) while the other 47.9% is explained by other variables outside the model.
2. The variable of Lecturer Digital Literacy Competence (X1) and Blended Learning (X2) mediated by ICT Facilities (Z) in only able to explain Student Digital Skills (Y) by 0.439 (43.9%) while the remaining 56.1% is explained by other variables outside the model. Therefore, it is necessary to include other variables that are likely to explain the Student Digital Skill (Y) variable well.
3. The variable of Lecturer Digital Literacy Competence (X1) and Blended Learning (X2) is able to explain the mediation variable of ICT Facilities (Z) by 0.792 (79.2%) while the remaining 20.8% is explained by other variables outside the model.

2. Model Fit Test

The model fit test uses several statistical indicators including, Standardised Root Mean Square Residual (SRMR). To get a suitable model, the indicator must meet a value, namely SRMS <0.10 (Muhson 2022:3).

Table 4. Model fit test

	Saturated Model	Estimated Model
SRMR	0,085	0,085
d_ULS	4,049	4,049
d_G	4,664	4,664
Chi-Square	1,383.789	1,383.789
NFI	0,573	0,573

Data Source: SmartPLS 4 Output

Based on this output, it is obtained that the SRMS value is 0.085, which is less than 0.100. From these indicators it can be concluded that the model formed has met the suitability criteria so that the model can be used and is good at describing the relationship between variables.

C. SEM Model Building

The next step after the goodness of fit model test is the Bootstrapping Complete PLS SEM analysis. Bootstrapping basic to calculate the level of significance with p-values or the meaning of direct effects, indirect effects and total effects and also calculate the significance of outer loading and outer weight, for more details can be seen in Figure 1 below.

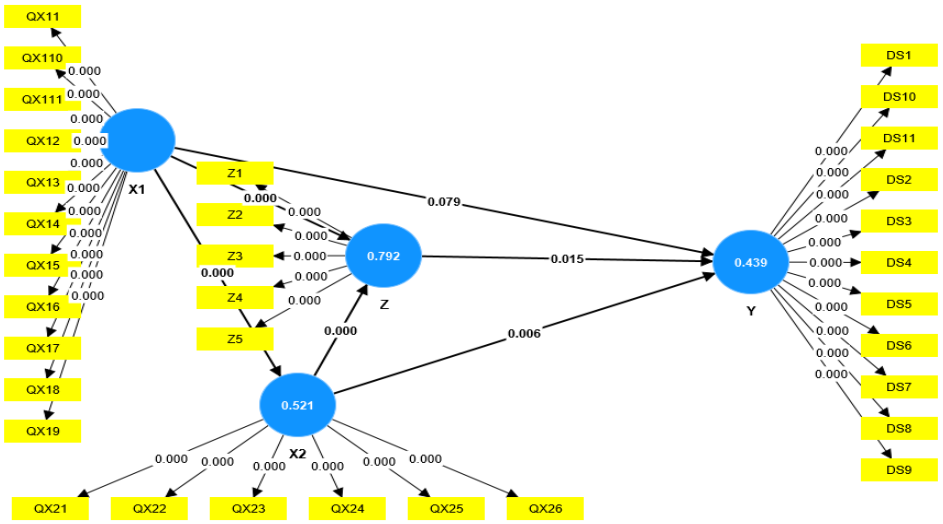

Figure 1. Structural Modelling Results with P-Values Test

The next step is to interpret the scheme in Figure 1 above about the formation of the SEM model. There are 2 relationships, namely direct effect and indirect effect. The relationship between variables is significant if the T-Statistic p-value is less than 0.05, then the relationship is said to be significant. The results of the relationship between these variables can be seen below:

1. *Direct Effects*

The direct relationship between variables is said to be significant if the p-value is smaller than 0.05. After the p-values test was carried out, it was found that there were variables that had a p-value greater than the 0.05 significance level, namely the direct relationship between X1 and Y. While the other p-value is smaller than 0.05 so that it is significant, namely: X1 to X2, X1 to Z, X2 to Y and X2 to Z, Z to Y. for more details can be seen in table 5 below.

Table 5. Output of Direct Effect with P-Values

Direct Effect Variable Relationship	P Values	Significance Statement
X1→X2	**0,000**	**Significant**
X1→Y	**0,079**	**No Significant**
X1→Z	**0,000**	**Significant**
X2→Y	**0,006**	**Significant**
X2→Z	**0,000**	**Significant**
Z→Y	**0,015**	**Significant**

Data Source: SmartPLS 4 Output

2. *Indirect Effects*

The indirect relationship between variables is said to be significant if the p-value is smaller than 0.05. After testing the p-values, it was found that there were variables that had a p-value greater than the 0.05 significance level, namely the indirect relationship between X1 mediated by X2 and Z to Y. Meanwhile, the other p-value is smaller

than 0.05 so it is significant, namely: X1 mediated Z to Y, X2 mediated Z to Y, X1 mediated X2 to Z and X1 mediated X2 to Y. for more details can be seen in table 6 below.

Table 6. Output of *Indirect Effect* with *P-Values*

Indirect Relationship (Indirect Effect)	*P-Values*	Significance Statement
X1→Z→Y	0,023	Significant
X2→Z→Y	0,028	Significant
X1→X2→Z	0,000	Significant
X1→X2→Y	0,025	Significant
X1→X2→Z→Y	0,055	No Significant

Data Source: SmartPLS 4 Output

3. Model Interpretation / Conclusion

After conducting the instrument test and model test, the model interpretation of the structural modelling scheme assisted by the SmartPLS 4 application has been obtained as shown in Figure 2 below.

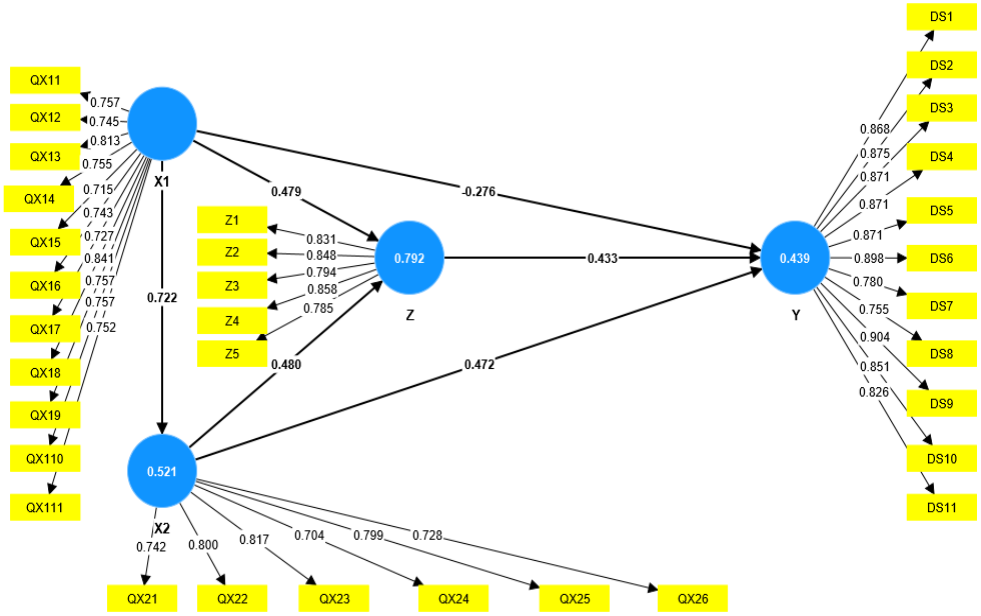

Figure 2. Path Coefficients

Table 7.
Relationship between Research Variables Both Direct Effect and Indirect Effect

No.	Relationship between Variables	*Correlation Coefficient*	P Values	Significance Statement
1	Direct Effect Variable Relationship			
	X1→X2	0,722	0,000	Significant
	X1→Y	-0,276	0,079	No Significant
	X1→Z	0,479	0,000	Significant
	X2→Y	0,472	0,006	Significant
	X2→Z	0,480	0,000	Significant
	Z→Y	0,433	0,015	Significant
2	Indirect Variable Relationship (Specific Indirect Effect)			

	X1→Z→Y	**0,207**	**0,023**	**Significant**
	X2→Z→Y	**0,208**	**0,028**	**Significant**
	X1→X2→Z	**0,347**	**0,000**	**Significant**
	X1→X2→Y	**0,341**	**0,025**	**Significant**
	X1→X2→Z→Y	**0,150**	**0,055**	**No Significant**

Data Source: SmartPLS 4 Output

Table 7 above can provide an overview as follows:

1. The direct relationship between X1 and X2 has a positive and significant effect with a figure of 0.722. So that the Digital Literacy Competence of Lecturers increases, will increase Blended Learning and vice versa.
2. The direct relationship between X1 and Y does not have a positive and significant effect with a figure of -0.276. So that the Digital Literacy Competence of Lecturers does not directly increase students' Digital Skills.
3. The direct relationship between X1 and Z has a positive and significant effect with a figure of 0.479. So that the Digital Literacy Competence of Lecturers increases, will increase ICT Facilities and vice versa.
4. The direct relationship between X2 and Y has a positive and significant effect with a figure of 0.472. So that Blended Learning increases, will increase student Digital Skills and vice versa.
5. The direct relationship between X2 and Z has a positive and significant effect with a figure of 0.480. So that Blended Learning increases, will increase ICT facilities and vice versa.
6. The direct relationship between Z and Y has a positive and significant effect with a figure of 0.433. So that ICT facilities increase, will increase student Digital Skills and vice versa.
7. The indirect relationship between X1 mediated by Z to Y has a positive and significant effect with a figure of 0.207. So that the Digital Literacy Competence of Lecturers mediated by ICT Facilities increases, will increase student Digital Skills and vice versa.
8. The indirect relationship X2 mediated by Z to Y has a positive and significant effect with a figure of 0.208. So that Blended Learning mediated by ICT facilities increases, will increase student Digital Skills and vice versa.
9. The indirect relationship between X1 mediated by X2 on Z has a positive and significant effect with a figure of 0.347. So that the Digital Literacy Competence of Lecturers mediated by Blended Learning increases, will increase ICT Facilities and vice versa.
10. The indirect relationship between X1 mediated by X2 to Y has a positive and significant effect with a figure of 0.341. So that the Digital Literacy Competence of Lecturers mediated by Blended Learning will directly increase student Digital Skills.
11. The indirect relationship between X1 mediated by X2 and Z to Y does not have a positive and significant effect with a figure of 0.150. So that the Digital Literacy Competence of Lecturers mediated by Blended Learning and ICT Facilities will not increase student Digital Skills and vice versa.

Discussions

This study has found that the direct and indirect effects of Information Communication Technology (ICT) facilities and blended learning mediate lecturers' digital literacy competence on students' digital skills by being found:

1. There is a positive and significant direct influence between Lecturer Digital Literacy Competencies and Blended Learning with a figure of 0.722. This illustrates that increasing the Digital Literacy Competence of Lecturers can increase the optimisation of Blended Learning activities on campus, which is the most important part in order to provide support for strengthening the implementation of ICT-based learning with the Merdeka Belajar Kampus Merdeka (MBKM) curriculum, especially in the 21st century era.

2. There is no direct positive and significant effect on Lecturers' Digital Literacy Competencies and students' Digital Skills with a figure of -0.276. These findings explain that the existing Lecturer Digital Literacy Competencies have not been able to directly improve student Digital Skills. This is because most lecturers in carrying out teaching and learning activities still do not utilise existing ICT facilities. They use a lot of offline learning with the lecture method, so that students are used to learning conventionally without much access to technology.

3. There is a positive and significant direct influence between Lecturers' Digital Literacy Competence and ICT Facilities with a figure of 0.479. This means that the Digital Literacy Competence of Lecturers will be able to increase the massive use of available ICT facilities in various kinds of learning activities on campus. Lecturers who

have good digital literacy competency qualifications will provide support for the development of ICT facilities on campus.

4. There is a positive and significant direct influence between Blended Leaning Learning and student Digital Skills with a figure of 0.472. This means that the Blended Learning activities carried out by lecturers will increase the ability of students' Digital Skills directly, because inevitably students must want to follow the flow of learning activities that have been carried out by the lecturer concerned. If a lecturer uses blended learning in teaching and learning activities, then students will follow these activities and the impact is that students will become more accustomed to using blended learning methods.

5. There is a direct positive and significant influence between Blended Learning and ICT Facilities with a figure of 0.480. This illustrates that Blended Learning activities really need the availability of ICT facilities that are very adequate according to the needs and developments in existing technology.

6. There is a direct positive and significant influence between ICT Facilities and Digital Skills of students with a figure of 0.433. This illustrates that the availability of ICT facilities on campus will encourage an increase in student Digital Skills, which builds an ICT-based environmental climate that is continuously considered by higher education managers will make it easier for students to access information related to existing lecture activities and have an impact on student digital skills directly.

7. There is a positive and significant indirect effect between the Digital Literacy Competence of Lecturers mediated by ICT Facilities on student Digital Skills with a figure of 0.207. This illustrates that the digital literacy competence of lecturers with the support of the availability of adequate ICT facilities on campus will be able to improve students' digital skills. ICT facility support is very helpful for a lecturer in improving students' digital skills by introducing various kinds of ICT-based learning content to be accessed by students whenever and wherever they study.

8. There is a positive and significant indirect effect between Blended Learning mediated by ICT Facilities on Student Digital Skills with a figure of 0.208. This illustrates that Blended Learning requires ICT facilities in order to improve student digital skills and vice versa. Available ICT is very supportive of blended learning activities. Blended learning activities carried out by a lecturer will have an impact on the digital skills of students.

9. There is an indirect effect of Digital Literacy Competence of Lecturers mediated by Blended Learning on ICT Facilities with a figure of 0.347. This illustrates that the digital literacy competence of good lecturers will be able to implement blended learning activities and in these activities requires adequate ICT facilities in using and developing creative and innovative learning activities.

10. There is an indirect effect of Lecturer Digital Literacy Competence mediated by Blended Learning on student Digital Skills with a figure of 0.341. This illustrates that the digital literacy competence of lecturers will encourage them to always use blended learning with the assumption that it is easy, clear and much liked by students in learning activities. Blended learning activities on campus will be followed by students who will indirectly have an impact on student digital skills. The campus social environment that is built will encourage the formation of social competence among them.

11. There is no indirect effect of Lecturer Digital Literacy Competence mediated together between Blended Learning and ICT Facilities on student Digital Skills with a figure of 0.150. This means that the digital literacy competence of lecturers mediated sequentially between blended learning and the availability of ICT facilities on campus has not been able to improve student Digital Skills. This can occur due to the gap between blended learning activities that are less consistent and serious in carrying out teaching and learning activities (KMB) between lecturers and students and ICT facilities have not supported each other related to the development of ICT needed to be able to improve student digital skills. ICT facilities that are out of date with current ICT developments will slow down access to information and communication and will have an impact on the process of building students' digital skills.

Based on the results of the research above, it can be concluded that the campus must be able to build a social environment to learn and continue to learn whenever and wherever they are supported by the digital literacy competence of lecturers guided by the implementation of blended learning and the availability of ICT facilities in accordance with the development of information and communication technology will be able to build students' digital skills that are needed in the 21st century.

The existing social environment will provide encouragement to always improve competence both independently and in groups. Therefore, creating a conducive social environment will encourage the formation of positive social interactions and will build mutual competence among them. As (Cwirlej-Sozanska et al. 2019:5)

CONCLUSION

This study has found several influential relationships between research variables, both directly and indirectly, namely: (1). There is a positive and significant direct influence between Lecturers' Digital Literacy Competence and Blended Learning, (2). There is no positive and significant direct influence between Lecturers' Digital Literacy Competence and students' Digital Skills, (3). There is a direct positive and significant influence between Lecturer Digital Literacy Competence and ICT Facilities, (4). There is a direct positive and significant influence between Blended Leaning Learning and student Digital Skills, (5). There is a direct positive and significant influence between Blended Learning and ICT Facilities, (6). There is a direct positive and significant influence between ICT Facilities and student Digital Skills, (7). There is a positive and significant indirect effect between Lecturer Digital Literacy Competence mediated by ICT Facilities on student Digital Skills, (8). There is a positive and significant indirect effect between Blended Learning mediated by ICT Facilities on Student Digital Skills, (8). There is an indirect effect of Digital Literacy Competence of Lecturers mediated by Blended Learning on ICT Facilities, (9). There is an indirect effect of Lecturer Digital Literacy Competence mediated by Blended Learning on student Digital Skills, (10). There is no indirect effect of Lecturer Digital Literacy Competence mediated jointly between Blended Learning and ICT Facilities on student Digital Skills.

CONFLICTOFINTEREST

The authors declare no conflict of interest.

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