The Students' Digital Capacities in Islamic Higher Education

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Abstract. The objective of this study is to investigate the digital competencies of students in Islamic higher education institutions in Indonesia. The study employed a descriptive quantitative research design by using a survey approach. The study was carried out at three private Islamic higher education institutions, namely the Islamic University of Riau, Al-Kifayah Riau Islamic College, and Diniyyah Riau Islamic Institution. The research sample was obtained by the utilization of the incidental sampling approach. The data was gathered using a questionnaire that was derived from the Jisc digital capacity framework and administered through Google Forms. A total of 385 students participated in the research study. Based on the data, it can be inferred that the respondents demonstrate a typically limited level of digital capability across all categories. The study focused on the students' digital capacities. It did not investigate the factor which related to the it. It is also important to find the students' digital capacity factors. Research has the potential to make numerous noteworthy contributions to the domain of education, specifically within the framework of institutions that provide Islamic higher education. This novel viewpoint examines the potential application of students' digital competencies in Islamic higher institution which was not explored by other researchers.

Keywords: Digital capacity, Higher Education

1 Introduction

The significance of incorporating digital technologies into higher education institutions has grown considerably in recent years on a global scale (Becerra & Escobar, 2023). The aforementioned phenomenon holds particular significance within the context of Indonesia, where Islamic institutions of higher learning exert a substantial influence on the nation's educational framework (Marhamah & Fauzi, 2020). Given the quick advancement of technology, it is imperative to comprehend the digital proficiencies of students enrolled in Indonesian Islamic higher education and the subsequent influence of these proficiencies on their educational encounters.

Indonesian Islamic higher education institutions have acknowledged the imperative to adapt to the digital era and integrate technology into their pedagogical practices(Varga-Atkins, 2020). The primary objective of these educational institutions is to provide its students with the essential digital skills and competencies required for success in a society heavily

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influenced by technology (Biggins et al., 2017). Nevertheless, various factors exert an influence on the digital competencies of students within this particular setting.

Access to technology is a crucial determinant that impacts the digital capabilities of students (Hinrichsen & Coombs, 2013). In Indonesia, urban areas typically exhibit superior access to technology infrastructure, but rural areas and distant locations may have obstacles pertaining to connectivity and the availability of digital resources (Nabella et al., 2022). The unequal access to digital resources can lead to a division in educational possibilities among students, so restricting their ability to acquire and enhance their digital competencies (Yustika & Iswati, 2020). There exists a significant disparity in the level of technical literacy among students (Yustika & Iswati, 2020). Certain pupils may already exhibit sophisticated digital skills, whereas others may have minimal exposure to technology(Tejedor et al., 2020). This variance can be attributed to factors such as socioeconomic background, previous educational experiences, and individual motivation (Khan et al., 2022). The evaluation of the digital capabilities of students in Indonesian Islamic higher education institutions and the subsequent provision of suitable assistance and training are crucial.

Moreover, the educational curriculum and pedagogical strategies implemented by these academic institutions play a crucial role in shaping and enhancing students' digital competencies (Coldwell-Neilson et al., 2019). The use of technology into the educational curriculum has the potential to augment student engagement, foster critical thinking abilities, and cultivate problem-solving aptitude (Hinrichsen & Coombs, 2013). Nevertheless, the utilization of digital tools successfully necessitates instructors to possess a high level of proficiency (Varga-Atkins, 2020). Furthermore, it is imperative for curriculum design to take into account the incorporation of both theoretical knowledge and practical application of digital abilities that are pertinent to the students' prospective professional endeavours.

Furthermore, the significance of educators in cultivating students' digital competencies cannot be overemphasized (Johnston, 2020). It is imperative for educators to possess the requisite digital competencies in order to proficiently incorporate technology into their pedagogical approaches (Falloon, 2020). It is imperative for individuals to possess an understanding of the potential obstacles and ethical implications that may arise from the utilization of technology within educational environments (Burton et al., 2021). Through the provision of advice, mentorship, and support, educators have the ability to empower students in the cultivation and enhancement of their digital competencies (Alexander et al., 2017).The imperative for bolstering students' digital capacities necessitates a collaborative effort among Indonesian Islamic higher education institutions, government agencies, and industry partners (Poole, 2015). Partnerships have the potential to enhance the sharing of knowledge, allocation of resources, and dissemination of best practices in the integration of technology within the realm of higher education (Lea & Jones, 2011) (Bowers, 2019). Furthermore, engaging in collaborations might facilitate the identification of emerging trends and technologies that hold relevance for the students' prospective professional trajectories.

In the context of Indonesian Islamic higher education, it is imperative to comprehend the digital competencies of students in order to develop instructional techniques that effectively equip them for the digital era (Khan et al., 2022). By considering several elements such as the availability of technology, proficiency in technology usage, the structure of educational programs, the responsibilities of educators, and opportunities for collaboration, these educational institutions can enable their students to develop digital competence, thereby preparing them to make meaningful contributions to society (Clarke-Darrington et al., 2023). (Mishra & Pandey (2019) have made research about This study aims to evaluate the effectiveness of digital capabilities training programs offered by the top twenty universities in

India. It is recommended that educational institutions develop a comprehensive set of training programs and workshops targeting students, teachers, and staff members, drawing upon the foundational principles outlined by JISC's six pillars. However, there is no research which describe the higher education students' digital literacy capacity. It is important for further digital literacy development in Indonesia, especially in higher education.

2 Literature Review

The digital capability framework is a theoretical construct that delineates the essential elements and competencies required by individuals, organizations, and society to adeptly navigate and prosper in the era of digitalization (Kastolani, 2019). The framework offers a conceptual framework for comprehending and evaluating the competencies, expertise, attitudes, and resources necessary for complete engagement in the digital realm(Ghafur, 2021). The framework has multiple elements, namely digital literacy, digital skills, digital access, digital infrastructure, and digital rights.

In 2013, the European Commission released DigComp, a significant framework designed to enhance the digital abilities of citizens, facilitate policy development for policymakers, and provide guidance for education and training efforts. During the course of the study, it was the initial version did not expressly target the higher education industry. The concept of lifelong learning refers to the continuous acquisition of knowledge and skills throughout an individual's lifetime The mostly employed within the spheres of work, education, and training (Pelletier et al., 2022).

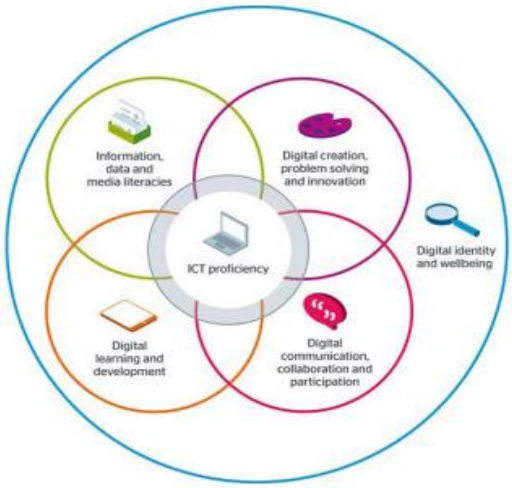

Fig. 1. Jisc's 2015 Digital Capabilities Framework
(source https://www.jisc.ac.uk/ rd/projects/building-digital-capability).

The latest version of Jisc's Digital Capabilities Framework was published in 2015 (see to figure 3). This release was informed by an assessment of its usage and continuous referencing to other frameworks (Falloon, 2020). In terms of visual aspects, the modification in the

Framework design involves a transition towards the utilization of overlapping sections in its layout (Yustika & Iswati, 2020).

Propose a framework for understanding the interdependence of capacities and the transition towards a new paradigm (Burton et al., 2021). The competency in information and communication technology (ICT) plays a crucial role as a gateway to acquiring other essential skills (Munyua, 2020). Additionally, it extracts Digital Identity and Wellbeing can be understood as all-encompassing concerns (Capabilities, Building digital capabilities framework The six elements defined Jisc building digital, 2022). This implies the implementation of digital skills and literacies in higher education in the United Kingdom (Becerra & Escobar, 2023). The proposed developmental model is based on the foundational eLearning paradigm, with the integration of various elements. The pyramid model illustrates the fundamental components of digital literacy, encompassing basic information and communication technology (ICT) skills(Akbari & Pratomo, 2022). Operations can be considered as the fundamental building blocks, while digital identity serves as the pinnacle or ultimate achievement (Capabilities, Building digital capabilities framework The six elements defined Jisc building digital, 2022).

This is a nationally recognized framework from JISC (Joint Information Systems Committee). JISC Digital Capabilities Six Elements are:

a. Digital proficiency and productivity
   Use of ICT-based devices, apps, software, and services through their interfaces is a concern. Interfaces include mouse, keyboard, touch screen, voice control, displays, and microphones. Basic productivity, web browser, and writing/presentation tools are required. Additionally, one needs know how to operate digital cameras. Higher levels require skills in selecting, adapting, and customizing ICT applications and systems.
b. Information, data and media literacies
   Information literacy, media literacy, and data literacy have emerged in the digital age. Being literate in all these areas is important. Even opening content requires knowledge of finding, analyzing, organizing, and sharing digital information. One should also know how to organize, access, and use digital data in spreadsheets and other formats. Privacy and security are important since life is unpredictable. Thus, one should be too adept at recording and exploiting personal data and monitoring it so others can't overlook it. Additionally, one should learn about the benefits and uses of legal, ethical, and security rules for data collecting and use.
c. Digital creation, problem-solving and innovation
   Developing and designing new digital content, writing, imaging, and editing photos, video, and audio are essential. One should know how to acquire and analyze digital research data. Another requirement is the ability to use digital technology to create new practices in any firm, including digital entrepreneurship.
d. Digital communication, collaboration and participation
   One should be able to communicate effectively using digital media and forums because technology transformed how people communicate. Effective communicators obey cultural, social, and communicative norms. Different communications are needed for different purposes and audiences. Respect for each other in public and privacy in private should be prioritized. One should be able to collaborate in any digital team or group using shared digital tools and material for shared goals. One should also be able to create shared materials and collaborate across cultural, socioeconomic, and linguistic borders. Use digital services and forums for participation, facilitation, and network building. One should be able to network safely

and ethically to make positive connections and build contacts to engage in social and cultural life.

e. Digital learning and development
   Technology has made digital learning possible, but before learning anything digitally, we must recognize opportunities. Digital media should be used for learning and teaching. Learners should organize, plan, and reflect using digital technologies. Recording learning events/data aids self-analysis, reflection, and achievement. One should be able to self-assess and participate in other digital assessments. Finally, digital learning requires attention and motivation.
f. Digital identity and wellbeing
   Creating a positive digital identity is important. Managing digital reputation on numerous platforms is necessary after developing a positive digital persona. A digital profile should also be created and maintained. Personal preferences and ideals can make digital participation more meaningful. Personal content should be curated throughout digital networks. In digital contexts, we must balance work and life while taking care of our health, safety, and relationships. Personal data should be used to promote one's well-being, but it's hard. One should also know how to manage digital stress and balance digital and real-world interactions. “Digital capabilities: the 6 elements defined” (2018)

Higher education institutions need these aspects to describe digital capabilities and their facets.

3 Methodology

This section provides an overview of the methodology and data collection procedures employed in a descriptive quantitative research study undertaken at three private Islamic higher education institutions in Riau, Indonesia. The objective of the study was to evaluate the digital proficiency of students through the utilization of a questionnaire that was designed in accordance with the Jisc digital capability framework. The study employed accidental sampling as the sample method and gathered data from a total of 385 students using Google Forms.

The study was carried out at three privately-owned Islamic higher education institutes situated in Riau, Indonesia. The aforementioned entities encompass: the Islamic University of Riau, Al-Kifayah Riau Islamic College, the Diniyyah Riau Islamic Institution is a prominent educational establishment that focuses on Islamic studies where an institution of higher education located in the province of Riau, Indonesia.

The data gathering process utilized the incidental sampling method, which is a non-probabilistic strategy. This approach entails the selection of persons who are conveniently accessible during the data collecting period and express a willingness to partake in the study. The objective of the study was to encompass a wide range of students from various institutions. The primary data gathering technique employed in this study was a questionnaire. The development of the questionnaire was informed by the Jisc digital capacity framework. The aforementioned paradigm offers a systematic approach for evaluating the digital literacy and competency of individuals. The survey instrument was specifically developed to assess multiple dimensions of digital capability.

Table 1. Reliability Validity Test Results

Indicator	Correlation Sig. (2- tiled)	Result	Cronbach Alfa	Composite reliability
Digital proficiency and productivity			0.826	0.821
The utilization of digital devices, networks, platforms, systems, applications, software, and services	0.924***	Accepted		
The ability to readily embrace and incorporate new technological gadgets, applications, software, and services, as well as the capability to remain informed and current with advancements in the digital realm.	0.678***	Rejected		
A comprehensive comprehension of the challenges pertaining to accessibility, inclusion, and equity in the utilization of digital devices, apps, software, and services.	0.894***	Accepted		
A comprehension of the influence of technologies on the environment.	0.560***	Rejected		
Information, data and media literacies			0.711	0.778
The ability to locate, assess, handle, curate, arrange, and distribute digital information; analyze digital information for academic and professional/vocational objectives	0.741***	Accepted		
A critical examination of information entails assessing its provenance, relevance, worth, and credibility.	0.581***	rejected		
A comprehension of the technological and conceptual accessibility pertaining to digital information.	0.724***	Accepted		
Digital creation, problem-solving and innovation			0.786	0.812
The ability to conceive and produce novel digital content, encompassing many forms such as written text, images, audio and video files, computer programming code, applications, user interfaces, and web pages.	0.829***	Accepted		

A comprehensive comprehension of several digital production methodologies and fundamental principles of editing.	0.853***	Accepted		
A comprehension of the concepts of technical and intellectual accessibility in the context of digital content production	0.510***	Rejected		
The ability to utilize digital evidence for problem-solving, decision-making, and inquiry; gather and organize new evidence; assess the credibility and significance of evidence; and disseminate evidence and findings through digital means.	0.715**	Accepted		
A comprehensive comprehension of digital research methodologies and diverse data analysis tools and procedures.	0.624***	Rejected		
The ability to recognize, embrace, and enhance novel methodologies utilizing digital technology across many contexts	0.824***	Accepted		
Digital communication, collaboration and participation			0.822	0.871
The ability to proficiently engage in communication within digital platforms and spaces, including but not limited to text-based forums, online video and audio platforms, as well as various social media platforms	0.864***	Accepted		
A comprehensive comprehension of the characteristics inherent in many forms of digital media utilized for communication, as well as an awareness of the diverse range of communication standards and requirements	0.770***	Accepted		
A comprehensive comprehension of the technical and conceptual aspects pertaining to accessibility within the realm of digital communication	0.760***	Accepted		
Digital learning and development			0.772	0.881
The ability to engage in and derive advantages from digital educational opportunities	0.864***	Accepted		
A comprehensive comprehension of the various prospects and obstacles associated with online learning, as well as an awareness	0.570***	rejected		

of one's individual requirements and preferences as a digital learner (such as accessibility, media usage, platform selection, and pedagogical approaches)				
The ability to proficiently utilize digital tools and resources in order to provide assistance and facilitate the growth of others	0.760***	Accepted		
A comprehensive comprehension of the educational significance and potential of diverse media for the purposes of instruction, acquisition of knowledge, and evaluation, as well as an awareness of various educational methodologies and their implementation within technologically advanced environments	0.616***	Rejected		
The comprehension pertaining to the technological and intellectual accessibility of content, instructional methodologies, assessment practices, and provision of assistance to digital learners	0.768***	Accepted		
Digital identity and wellbeing			0.822	0.871
The ability to cultivate and present a favorable online persona or personas	0.724***	Accepted		
A comprehension of the reputational advantages and disadvantages associated with engaging in digital activities.	0.778***	Accepted		
A comprehension of the features of inclusivity pertaining to the potential for cultivating digital personas.	0.754***	Accepted		
A comprehensive comprehension of the advantages and potential drawbacks associated with engaging in digital activities in the context of health and overall well-being consequences.	0.760***	Accepted		

Adapted from. Jisc's 2015 Digital Capabilities Framework

The students' Digital Capabilities was divided into 3 classifications; high, medium and low. To determine the range scale for each level, the following formula was used.

$X < (\mu - 1.0\sigma)$: Low

$(\mu-1.0\sigma) \leq X < (\mu+1.0\sigma)$:Medium

$(\mu+1.0\sigma) \leq X$: High

Note: μ= number of item

$$\sigma = \frac{maximum\ score - minimum\ score}{6}$$

(Anwar :2010)

4 Results and discussion

The information that is presented in the table consists of several classifications of digital proficiency and productivity based on the responses of 385 individuals to the survey. An investigation into these categories offers exciting new ideas and elicits the need for additional conversation. The descriptive data statisistic in table 2:

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Digital proficiency and productivity	385	1.1	4.6	2.801	1.0593
Information, data and media literacies	385	2.1	3.74	2.501	1.2100
Digital creation, problem-solving and innovation	385	1.71	4.41	2.124	1.223
Digital communication, collaboration and participation	385	1.20	5.01	1.952	1.234
Digital learning and development	385	1.21	4.11	1.830	1.361
Digital identity and wellbeing	385	1.32	4.25	1.67	2.003

The table 2 states that the Digital proficiency and productivity got the average score in this particular category is rather low, measuring at 2.801 This indicates that, on average, the participants possess a restricted degree of digital skill and productivity. Nevertheless, a discrepancy in the data is apparent, since the minimum score (1.1) exceeds the maximum score (4.6). The calculated standard deviation of 1.0593 suggests that there is a relatively little amount of fluctuation in the scores within this particular category.

The students' Information, data and media literacies capacity average score is elevated at 2.501, suggesting a little degree of proficiency within this particular category. Similar to the aforementioned category, a discrepancy arises in the minimum score (2.1) surpassing the maximum score (3.74). The calculated standard deviation of 1.2100 indicates a moderate level of variability in the observed scores.

The data Digital creation, problem-solving and innovation indicates that the participants in the sample possess a moderate level of competency in the domains of digital creation, problem-solving, and innovation, as evidenced by the mean score of 2.124. The observed range of scores (1.71 to 4.41) reveals a significant dispersion in the scores, while the standard deviation of 1.223 indicates a considerable amount of variability in the proficiency levels of the participants. This suggests that although the overall level of proficiency is modest, there are notable variations among the individual scores, implying that certain people may demonstrate exceptional abilities in certain activities while others may exhibit lower levels of proficiency.

In the domain of digital communication, cooperation, and participation, the obtained mean score of 1.952 indicates that, on average, the individuals included in the sample

demonstrate a degree of competency that ranges from relatively low to moderate. The observed range of scores (1.2 to 5.01) indicates substantial variability in the degrees of proficiency exhibited by the subjects. The elevated standard deviation of 1.234 signifies a significant degree of diversity in the proficiency levels of the participants. This implies that certain individuals within the sample demonstrate high proficiency in digital communication, collaboration, and involvement, whilst others may have difficulties or get lower scores, leading to a considerable variation in their skill levels within this area.

The domain of digital learning and development, the calculated mean score of 1.83 indicates that the participants in the sample demonstrate a comparatively limited level of competence in these specific domains, on average. The observed range of scores (ranging from 1.21 to 4.11) suggests a substantial degree of variability in the degrees of proficiency exhibited by the participants. The elevated standard deviation of 1.361 indicates a significant degree of diversity in the proficiency levels exhibited by the participants. This suggests that among the participants, there exists a subset of persons who demonstrate high proficiency in digital learning and development, while others may have difficulties or get lower scores, leading to a considerable variation in proficiency levels within this domain. Additional analysis or investigation may be required in order to comprehensively comprehend the elements that contribute to this diversity and to determine strategies for improving digital learning and development within this particular demographic.

In the domain of digital identity and wellbeing, the average score of 1.67 indicates that the participants in the sample demonstrate a comparatively limited level of competence in these domains. The observed range of scores (1.32 to 4.25) suggests a significant disparity in the degrees of proficiency exhibited by the subjects. The observed standard deviation of 2.003 indicates a significant degree of diversity in the proficiency levels of the participants. This suggests that the sample consists of individuals who possess varying degrees of expertise in digital identification and wellbeing. It is of utmost significance to delve deeper into the factors contributing to this heterogeneity and devise approaches to enhance digital identity and welfare within this demographic, with a specific focus on individuals with limited proficiency levels.

In summary, the data suggests that respondents exhibit a generally low level of digital proficiency and productivity across all categories, with variable degrees of inconsistency observed in the minimum and maximum values. These findings highlight the need for potential interventions or strategies to address this issue. The observed standard deviations indicate the presence of variety in scores within each respective category. The investigation and potential correction of data inconsistencies are crucial in order to achieve a more precise evaluation of digital competency across many domains.

4.1 The Students' Digital Competencies Capability Across All Categories

The aforementioned section provides clarification that the data utilized in the study applies exclusively to the students' proficiency in digital competences, regardless of the exact category. The study aimed to evaluate and quantify the students' comprehensive digital proficiency and productivity. This encompassed a diverse array of digital skills and competencies across multiple categories, such as digital creation, problem-solving, innovation, information literacy, communication, collaboration, participation, learning, development, and digital identity and wellbeing. The holistic method employed in this context allows a thorough

assessment of the students' digital competencies, including their level of proficiency across diverse digital domains.

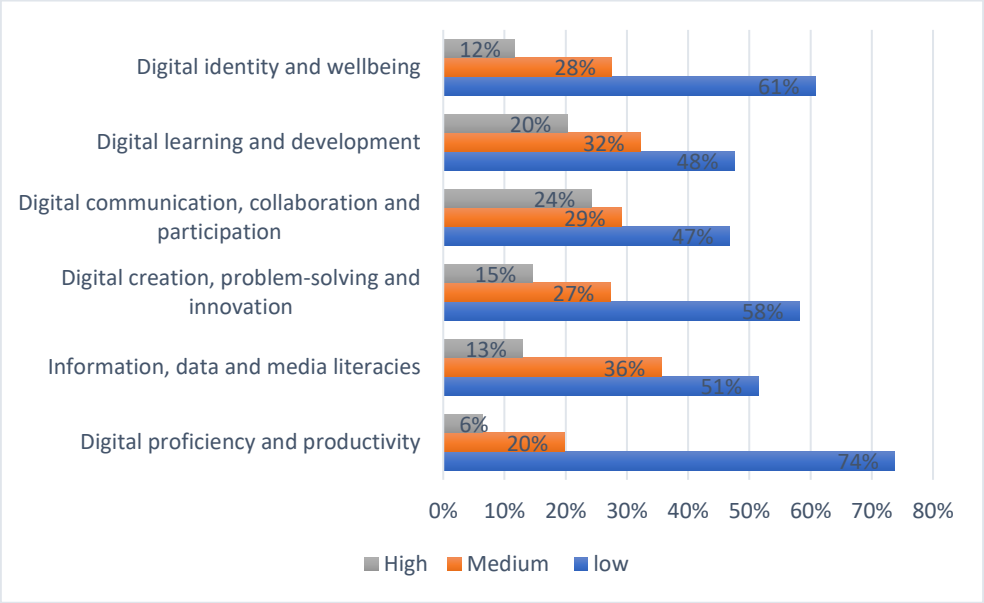

Fig. 2. The Students' Digital Competencies Capability Across All Categories

The figure 2 shown offers an overview of the distribution of digital competencies within a cohort of persons across several categories, categorized into three degrees of proficiency: low, medium, and high. In this analysis, we will undertake a comprehensive examination and elucidation of the data. Within the category of "Digital Proficiency and Productivity," a notable proportion of 74% of the individuals polled are categorized as possessing low levels of digital competence and productivity. This suggests that a considerable segment of the populace encounters difficulties in proficiently utilizing digital technologies and achieving productivity within digital contexts. Merely a modest 6% of individuals are considered to possess a notable degree of proficiency, hence suggesting the existence of potential for further development in augmenting digital competencies and productivity.

Shifting focus to the topic of "Information, Data, and Media Literacies," the data indicates that a majority of persons, specifically 51%, demonstrate a low level of proficiency in these essential domains. This indicates a significant deficiency in the ability to effectively manage and navigate information, data, and media within the digital domain. One notable aspect is that a considerable proportion of 13% exhibit a noteworthy degree of proficiency, indicating the presence of persons who possess a substantial command of various literacies.

In the area of "Digital Creation, Problem-Solving, and Innovation," a substantial proportion (58%) of individuals exhibit low skill levels. This finding suggests that a big segment of the population encounters difficulties when engaging in activities associated with digital creation, problem-solving, and innovation. On the contrary, a notable 15% of individuals demonstrate a commendable level of expertise in these domains, implying the

presence of untapped opportunities for advancement and enhancement in these fundamental digital competencies.

Regarding the domain of "Digital Communication, Collaboration, and Participation," the data exhibits a higher degree of equilibrium. While 47% of individuals are identified as possessing low competence, a significant proportion of 24% are characterized as exhibiting high proficiency. This finding suggests that digital communication and collaboration skills exhibit a comparatively higher level of performance when compared to other categories.

The category of "Digital Learning and Development" indicates that a significant proportion, specifically 48%, of persons possess a low level of skill in this domain. This underscores the necessity for enhancing digital learning and development competencies. Nevertheless, it is worth noting that a comparatively larger percentage (20%) of persons exhibit a heightened level of proficiency, indicating that certain individuals demonstrate exceptional aptitude in this particular facet of digital capabilities.

In the field of "Digital Identity and Wellbeing," a significant proportion of 61% of the respondents exhibited low competency. This presents a significant issue in the realm of digital identity management and the preservation of well-being within the digital sphere. The data reveals that an only 12% of individuals demonstrate a considerable level of proficiency, hence highlighting the necessity for assistance and educational interventions in this particular domain.

In conclusion, the data shown in the table illustrates that a significant segment of the surveyed population exhibits little proficiency in diverse digital competencies. This finding underscores the necessity for the implementation of digital education and training initiatives aimed at augmenting individuals' digital aptitude. The variability in proficiency levels across different categories underscores the significance of implementing targeted treatments to effectively address specific areas of deficiency. In the contemporary period characterized by a growing reliance on digital technologies, the acquisition of digital literacy and proficiency has become imperative for individuals. The aforementioned observations emphasize the significance of addressing the disparity in digital abilities.

The digital competencies of students enrolled in Islamic higher education institutions in Indonesia remain comparatively limited. This implies that pupils enrolled in these educational establishments possess restricted proficiency and understanding in effectively utilizing digital technology for educational and scholarly objectives. The aforementioned phenomenon can be ascribed to a multitude of variables, including but not limited to restricted availability of technological resources, insufficient infrastructure, poor training in digital literacy, and conventional pedagogical approaches that fail to successfully incorporate digital technologies.

The research support the previous research by Kastolani (2019) said limited access to technology is a prominent factor contributing to the insufficient digital capacities of students. A considerable number of students enrolled in Islamic higher education institutions in Indonesia hail from socioeconomically deprived homes, which may impede their ability to acquire personal computers or access dependable internet connections(Haddade et al., 2023). This impedes their capacity to interact with digital materials and actively participate in online educational endeavors. Furthermore, the insufficiency of infrastructure within these educational institutions exacerbates the limited digital capabilities of students. The limited availability of computer laboratories, utilization of obsolete software, and suboptimal internet speeds impede students' capacity to efficiently utilize digital technologies for educational purposes. The limited availability of technology resources hinders their access to digital learning environments and impedes the acquisition of crucial digital skills (Juhaidi et al., 2023) .

The absence of adequate digital literacy instruction serves as an additional determinant in the limited digital competencies exhibited by students. Several Indonesian Islamic higher education institutions lack emphasis on and fail to offer sufficient training in utilizing digital technologies successfully for academic objectives (Zuhdi, 2023). Consequently, pupils exhibit a deficiency in the essential competencies required to effectively traverse online platforms, critically assess sources of information, and engage in digital collaboration with their fellow peers. Furthermore, the inadequate integration of digital technologies in traditional teaching techniques is also a contributing factor to pupils' limited digital capacities. In Indonesian Islamic higher education institutions, a significant number of teachers employ conventional lecture-based methodologies, which lack the integration of interactive and collaborative digital activities. The current situation restricts students' access to cutting-edge educational approaches, hence impeding their capacity to cultivate digital proficiencies (Suyadi et al., 2022).

The insufficient digital competencies exhibited by students in Indonesian Islamic higher education institutions can be ascribed to restricted technological accessibility, inadequate infrastructure, insufficient digital literacy instruction, and reliance on conventional pedagogical approaches. To tackle these difficulties, it is imperative to allocate resources towards the development of technological infrastructure, implement digital literacy training initiatives, and advocate for the incorporation of digital technologies into educational practices.

5 Conclusion

The proficiency in information and communication technology (ICT) is vital for the acquisition of other fundamental skills and the advancement of digital identity and well-being. The Jisc framework for digital literacy encompasses six key components: digital competence, information literacy, data literacy, media literacy, digital creation, and problem-solving and innovation. Additionally, it addresses digital communication and collaboration, digital learning, and digital identity and welfare. These features are derived from the fundamental eLearning paradigm and are important for higher education institutions in the United Kingdom. The framework places significant emphasis on the recognition and application of digital skills and literacies, the safeguarding of privacy and security, and the advancement of digital identity and welfare.

According to the research, a vast majority of the population, specifically 74%, exhibits low levels of digital competence and productivity, while an only 6% demonstrates notable ability in this domain. A significant proportion of persons exhibit little competency in information, data, and media literacy, with a notable 51% encountering difficulties in digital production, problem-solving, and innovation. The proficiency levels in digital communication, collaboration, and involvement are very good, however a significant portion, specifically 48%, have low skills in digital learning and growth. The data further emphasizes the necessity of implementing focused interventions in the areas of digital identity and well-being. The resolution of these discrepancies holds significant importance in the contemporary society that heavily relies on digital technologies.

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