Entangling the Interrelationship Between Demographics Profiles, Referencing Competencies and Individual Performance in the Digital Environments

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Abstract—Digital competency is the ability of an individual to successfully navigate through the abundance of digital information available on the Internet. Coincidently, the rise of digital competency leads to the significant importance of referencing competency, which is the knowledge, skills, and ability to properly manage digital resources. However, much focus has been given towards competency assessment rather than studying the determinants and impacts of referencing competency. Additionally, fewer studies have focused on the influence of demographic profiles on referencing competency and its subsequent impacts. Therefore, the purpose of this study is to investigate the interrelationship between demographic profiles, referencing competency, and individual performance in the context of Malaysia. To answer the research question, a quantitative study was conducted. The instrument was developed, pre-test, and pilot test, before actual data collection. A total of 394 valid responses was received and analysed using Statistical Package for Social Sciences version 26.

Keywords—competency, digital, referencing, citation, and performance

1 Introduction

Competency has a wide definition as it is defined differently by different scholars in different aspects of research. For the last 40 years, competencies have already been used as valid predictors of superior on-the-job performance mainly in a business organization [1] and many organizations today are all concerned in terms of competence which they believe in excelling and not just competing [2]. According to Chung & Lo [3], competencies is defined as skills, knowledge, and capabilities that individuals should have had in completing assigned tasks or achieving the goals. Draganidis and Mentzas [4] defined competencies as direct and indirect skills and behaviours that enable individuals to perform given tasks or assigned roles effectively. Competencies are very important as it is one of the elements that are being used to measure the success of

the tasks given [5]. In an academic environment, students are required to have referencing competencies which are skills and knowledge in doing citation or references, to help them from doing plagiarism.

Pandemic COVID19 had changed the traditional way of having a face-to-face class session to an online class. This situation affected the way students learn and seek information. Besides that, Fourth Industrial Revolution (IR4.0) technologies such as Google Classrooms, Frog Classrooms and MOOCS also give an impact on education where it enables the learning to be conducted in an easier and more significant way [6, 7]. These situations may affect digital skills or competencies among students. Setyaningsih et al. [8] defined digital competencies as interest against attitudes and abilities of individuals in using digital technology and communication tools. Digital competency is related to know on how to use devices and applications that are elaborately connected with skills to communicate with ICT, as well as information skills [9].

On the other hand, Haight, Quan-Haase and Corbett [10] found that one of the factors that contribute to existing inequalities to income, education, rural/urban, immigration status, and age in society is the access to the internet and people used the internet is differing in the aspect of education, gender, and age. Research being conducted by De Marco, Robles and Antino [11] also found that socio-demographic variables influence digital skills. Besides that, students in higher education who are being exposed to some information skills class will have better skills and ability in referencing as they are better in information searching and retrieval [5]. These show that demographic profiles may demonstrate the digital competencies among individuals. However, a lack of focus has been given on the influence of demographic profiles on competency and its subsequent impacts (such as satisfaction, performance, and benefits) [12-15]. Therefore, the main purpose of this paper is to investigate the interrelationship between demographic profiles, referencing competency, and individual performance in the context of Malaysia.

The subsequent section is organized as follows: First, the paper discusses the literature on digital competency. Second, the methodology of the study is presented, then the finding of the study is formulated. Finally, the findings are discussed in detail and the conclusion is outlined.

2 Literature review

The following subsections will discuss the literature review of the study from the context of Malaysia and Southeast Asia.

2.1 Competency in digital environment

Higher education institutions look to need to make adjustments to disciplinary approaches to ramp up the quantity of digital upskilling across disciplines. While the terms online learning, e-learning, and digital competency have become commonplace in higher education discourses, little attention has been paid to assessing skill levels in graduate outcomes [16]. The importance of digital competency is developing as one of

the major competencies necessary in the Fourth Industrial Revolution era. Digital competency is defined as the capacity to use digital technology to find and evaluate relevant information while collaborating and communicating with others to solve problems in a digital society and deliver the desired outcome [17].

Competence in using digital technology is one of the skills required in this digital environment in the twenty-first century and the era of the 4th industrial revolution. The advent of new technologies, of course, necessitates the development of new skills [18, 19]. Competence in the use of digital technology is a critical skill for navigating the workplace in the revolutionary era 4.0. To compete and satisfy the demands of today's emerging competencies, the workforce must have a thorough understanding of technology [20, 21].

Due to the significant influence and impact of technology on the education and employability sectors, scholars and stakeholders have advocated for the inclusion of digital competency in the educational curriculum. College and university students will be prepared with the required digital literacy skills and competencies as a result of this and will be able to use digital resources for lifelong learning. Colleges and universities may play a critical role in ensuring that these tools are seamlessly integrated so that student's skills and abilities can be updated when new technologies emerge [22].

2.2 Digital competency in southeast Asia

Information and communication technology (ICT) has become an indispensable element of our daily lives and has radically altered how our societies function. The exponential rise of ICT in recent decades has considerably lowered the cost of its provision and consumption, making technology more accessible to everyone and enabling simple access to information, people, goods, and services. Countries in Europe and the Americas, for example, have begun to improve their civic and labour skills, particularly in digital technology [23]. In Asian countries such as China, Japan, Singapore, Malaysia, and Thailand, similar movements have occurred [24, 25]. Digital literacy is an interest in individual attitudes and skills when dealing with digital technology and means of communication (Setyaningsih et al. 2019). Digital competency components comprise of (1) Fundamental of digital; (2) Accessing digital information; (3) Using digital information; (4) Creating digital information and media; (5) Communicating digital information; (6) Managing digital information; and (7) Evaluating digital information (Gil-Flores et al., 2017; Leekitchwatana, 2017; Krasnova & Shurygin, 2017; Suwanroj et al., 2017; Suwanroj et al., 2019). UNESCO (2016) defines digital citizenship as the ability to effectively seek, access, use, and produce information; actively, critically, sensitively, and ethically connect with users and content while navigating digital environments. As a result, digital citizenship comprises the ability to use the Internet's resources for positive growth in areas like education, skill-building, and civic involvement, as well as the ability to neutralise dangers and respect others.

Some researchers believe that it is important to develop digital competency at the early stage of education where the higher institution is the most suitable place to gain knowledge about digital technology. In Thailand, higher-level education management

for digital competency enhancement has been ongoing since 2010 (Rodmunkong, Wannapiroon & Nilsook, 2015) to prepare graduates for the industrial sector and equip them with the necessary skills to handle everyday work tasks. It is thought that after certain digital abilities of higher-education students have been fully cultivated, they will be helpful to the students both while studying and after graduation when they work in businesses (Suwanroj, Leekitchwatana & Pimdee, 2019). From the study that been done by Nordelina Zulkarnain, Safawi Abdul Rahman & Muhammad Saiful Anuar Yusoff (2021) in public higher education in Malaysia, they found that 87.1% of the respondence have a high level of digital competency but they also found that even though students are good at searching and filtering information, and storing and retaining information, but they seem to struggle to evaluate information and digital content.

The Fourth Industrial Revolution (IR4.0) has a significant impact on people's daily lives, company operations, and economic growth. In terms of education, IR4.0 technology facilitates the learning process where it facilitates the delivery of learning through Google Classrooms, Frog Classrooms, MOOCS, Google Meet, Zoom, and Kalam, among others (Nordelina Zulkarnain, Safawi Abdul Rahman & Muhammad Saiful Anuar Yusoff, 2021). According to Hasnah (2020), 89.5 per cent of students at a Malaysian public institution utilised the Google Meet app to follow online lessons, whereas 2.6 per cent used Kalam. It is clear that digital competency among users is important where it helps them to catch up with teaching and learning activities that can take place at any time and in any location.

2.3   Referencing competencies in southeast Asia

Competence is the set of demonstrable characteristics and skills that enable and improve the efficiency or performance of a job. One of the core competencies of librarianship by the American Library Association (ALA) is Reference and User Services. Based on ALA, it is the concepts, principles and techniques of reference and user services that provide access to relevant and accurate recorded knowledge and information to individuals of all ages and groups. It can also be referring as techniques used to retrieve, evaluate, and synthesize information from diverse sources for use.

Developing competency models and frameworks are already in various literature. Based on [26], worked on developing a core competencies framework for information professionals of Thailand academic libraries, focus on its roles in the next decade. In the Philippines, the development of the National Competency-based Standard for Filipino Librarians (NCBFL) was described by [27] in her recent work. The standard is divided into two major areas which are professional and personal. The personal standards are made up of seven domains and the professional competencies are made up of four domains.

The development of the competency index was brought to a broader scale when the researchers expanded the study to a different group on a regional spectrum– the Theological Librarians in Southeast Asia (TLSA). This initiative was pursued due to a lack of a localized or regionalized framework for assessing the current skills. Theological Libraries (TL) in Southeast Asia have developed diversely. Countries like Hong Kong and Taiwan have integrated better ICT components, and standard library practices are

also more established in the Philippines and Thailand while Myanmar is still in the process of developing. In terms of organizing materials, two theological libraries use the Dewey Decimal Classification (DDC) and one uses the Library of Congress (LC).

3 Methodology

The purpose of the study is to investigate the interrelationship between demographic profiles, referencing competency, and individual performance in the context of Malaysia. Thus, the best possible method is a quantitative study. An instrument was developed by adopting the work of [28], [29], [30], [31], and [32]. Later, the instrument was sent for the expert review process by 5 experts in the field of Information System (IS), and Library and Information Science (LIS) to determine the appropriateness of the items measuring the instrument. Each expert was given 4 weeks to complete the evaluation. To guide the evaluation process, the Content Validity and Relevance Index (CVI) of [33] was adopted. A modification was made to the instrument according to suggestions from the expert review process. Following the completion of instrument-item validation, a pilot study was conducted to determine the reliability of the instrument. Next, data collection was performed. Respondents were selected using the convenience sampling method from 6 public universities in Malaysia. Data collection took 2 weeks, and the findings was analysis using Statistical Package for Social Sciences (SPSS) version 26. The subsequent section discusses the finding of the study.

4 Finding and discussion

The following subsections discuss the finding of the study concerning demographics, normality test, reliability test, common method bias, independent sample t-test and one-way analysis of variances (ANOVA).

4.1 Demographic

A total of 394 valid responses were received − indicating a sufficient number of sample size as asserted by [34] and [35]. The following Table 1 shows the demographic results of the study.

Based on data from Table 1, more than half of the respondents are female (82.2% or N=324), while males are represented by 17.8% (of N=70). In relation to age, most respondents are between 18 to 22 years old (N=336 or 85.28%), followed by 23 to 26 years old (N=49 or 12.44%), 27 to 30 years old (N=8 or 2.03%), and 31 to 50 years old (N=1 or 0.25%). Concerning respondents' level of education, the responses show the fair distribution in which the majority of respondents are from diplomas (N=223 or 56.6%) while the degree is represented by 43.4% or N=171.

Table 1. Demographic

Item	Sub-item	Frequency	Percentage
Gender	Male	70	17.8
	Female	324	82.2
Education	Diploma	223	56.6
	Degree	171	43.4
Age	18 to 22 years	336	85.28
	23 to 26 years	49	12.44
	27 to 30 years	8	2.03
	31 to 50 years	1	0.25

4.2 Normality test

WebPower was used to determine the normality of multivariate variable assessment as suggested by [36]. Table 2 presented the result of the multivariate normality assessment of the study.

Table 2. Mardia's multivariate skewness and kurtosis

	B	z	p-value
Skewness	195.5022	12837.97961	0.000
Kurtosis	1202.1811	70.96193	0.000

To assume data is not normally distributed, [37] suggested that the p-value must be smaller than 0.05. Therefore, the normality test of the study shows that the Mardia's multivariate skewness ($\beta = 195.5022$, $p < 0.01$) and Mardia's multivariate kurtosis ($\beta = 1202.1811$, $p < 0.01$), indicating that the data was just slightly not normal.

4.3 Reliability test

Table 3 shows the reliability analysis of the study. The assessment was made to the value of Cronbach's Alpha coefficient. According to [38], the value of Cronbach's Alpha coefficient must be greater than 0.7 to consider the instrument as reliable. The result in Table 3 shows values ranging from 0.890 to 0.965, indicating that the instrument is reliable.

Table 3. Reliability analysis

	Variable	Item	Cronbach's Alpha
Referencing Competencies	Knowledge	5	0.925
	Skills	4	0.890
	Ability	4	0.927
Individual Performance	Task Productivity	5	0.965
	Task Satisfaction	4	0.950

4.4 Common method bias

The collinearity assessment approach was used instead of the Harmann Single Factor test to determine the common method bias (CMB) of the study, as suggested by [39]. Table 4 show the result of CMB. Based on Table 4, all value of collinearity statistics (VIF) is below 5.5; indicating sufficient result to assume that there is no issue of CMB for the current study, as suggested by [40].

Table 4. Common method bias

	Ability	**Individual Performance**	**Knowledge**	**Skills**
Ability	-	3.735	3.488	2.776
Individual Performance	2.303	-	2.206	2.218
Knowledge	2.603	2.674	-	2.713
Skills	2.782	3.592	3.631	-

4.5 Independent sample T-Test

Table 5 shows the result of the Independent Sample T-Test of the study between gender (male and female) and the test variables (Referencing Competency and Individual Performance). The result show that (1) there is not a significant difference in the score between male (M=4.48, SD=1.14) and female (M=4.52, SD=0.90) conditions; t (88.5) = -0.288, p = 0.774 on referencing competency, and (2) there is not a significant difference in the score between male (M=4.48, SD=1.14) and female (M=4.52, SD=0.90) conditions; t (99.6) = -4.467, p = 0.145 on individual performance. The test result suggests that different kind of genders does not have the capability to influence the referencing competency and individual performance.

Table 5. Independent sample T-Test

Grouping Variable	**Test Variable**		**F**	**Sig.**	**df**	**Sig. (2 tailed)**
Gender	Referencing Competency	Equal variances assumed	2.071	0.151	392	0.774
		Equal variances not assumed			88.5	
	Individual Performance	Equal variances assumed	0.265	0.607	392	0.145
		Equal variances not assumed			99.6	

4.6 One-way analysis of variance (ANOVA)

Table 6 shows the result of the One-Way Analysis of Variance (ANOVA) of the study. The test was conducted between the demographic profiles (age and level of education) towards referencing competency and individual performance. The result indicating as follows: (1) there is no significant different between two ranges of education [F(1, 392) = 0.27, p = 0.145] on referencing competency, (2) there is a significant different between two ranges of education [F(1, 392) = 14.77, p = 0.00] on individual performance, (3) there is a significant different between four ranges of age [F(3, 390)

= 5.22, p = 0.02] on referencing competency, and (4) there is a significant different between four ranges of age [F(3, 390) = 4.21, p = 0.00] on individual performance. The findings from ANOVA indicate that different levels of user education have a significant difference to individual performance. This is supported by [41], [42], and [43] that indicated the importance of education on enhancing individual performance. Concerning the effect of age, it is found out that the impact of age is significant towards both referencing competency and individual performance; meaning that different level of age has a different impact on both the tested variables. It can be assumed that as individual gathers knowledge throughout their study period, the more knowledgeable they become and subsequently contributed to the improvement of their referencing competency and individual performance.

Table 6. One way analysis of variance (ANOVA)

Independent	Dependent		Sum of squares	df	Mean square	F	Sig.
Education	Referencing Competency	Between groups	8.50	1	8.50	0.27	0.145
		Within groups	343.47	392	0.876		
	Individual Performance	Between groups	15.42	1	15.42	14.77	0.00
		Within groups	409.13	392	1.04		
Age	Referencing Competency	Between groups	13.58	3	4.53	5.22	0.02
		Within groups	338.40	390	0.87		
	Individual Performance	Between groups	13.33	3	4.44	4.21	0.00
		Within groups	411.22	390	1.05		

5   Conclusion

The purpose of the study is to investigate the interrelationship between demographic profiles, referencing competency, and individual performance in the context of Malaysia. A quantitative study was conducted, and the result was analysed using two statistical tests. The result of the study indicates that gender has an insignificant impact on referencing competency and individual performance. On the other hand, further tests on the impact of age and education on referencing competency and individual performance indicate that both demographic profiles have a positive significant effect – except for the relationship between education and referencing competency.

The contribution and limitation of this research are as follows; first, the research entangles the relationship between demographic profiles, referencing competency, and individual performance by proving or disapproving the significant relationship based on the perceptual measure. For future study, we suggested researchers look to a deeper perspective by utilizing other methods such as qualitative study via interview, observation, or document analysis. Second, the study conceptualizes referencing competency as the combination of three dimensions. Future studies may include another conceptualization of referencing competency. We suggest the inclusion of behavioural perspectives, motivation, attitudes, etc.

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7 References

[1] S.-C. Wong, "Competency Definitions, Development and Assessment: A Brief Review," *International Journal of Academic Research in Progressive Education and Development,* vol. 9, pp. 96-114, 2020. https://doi.org/10.6007/IJARPED/v9-i3/8223

[2] V. S. Chouhan and S. Srivastava, "Understanding competencies and competency model-ing—A literature survey," *IOSR Journal of Business and Management,* vol. 16, pp. 14-22, 2014. https://doi.org/10.9790/487X-16111422

[3] R.-G. Chung and C.-L. Lo, "The development of teamwork competence questionnaire: Us-ing students of business administration department as an example," *International Journal of Technology and Engineering Education,* pp. 51-57, 2007.

[4] F. Draganidis and G. Mentzas, "Competency based management: a review of systems and approaches," *Information management & computer security,* vol. 14, pp. 51-64, 2006. https://doi.org/10.1108/09685220610648373

[5] M. R. M. Rosman, A. I. M. Shukry, N. A. Alimin, N. S. Baharuddin, N. N. I. Nik Rosli, and N. M. Razlan, "Level of Individual Performance in the Context of Referencing Compe-tency," presented at the 1st International Conference on Law, Social Science, Economics, and Education, ICLSSEE 2021, Jakarta, Indonesia, 2021. https://doi.org/10.4108/eai.6-3-2021.2306482

[6] N. Zulkarnain, S. Abdul Rahman, and M. S. A. Yusoff, "Digital competency among stu-dents: a case study at UiTM Kelantan Branch," *Journal of Academic Library Management (AcLiM),* vol. 1, pp. 55-64, 2021. https://doi.org/10.24191/aclim.v1i1.6

[7] K. Yatigammana and G. Wijayarathna, "Students' Perceptions of Online Lecture Delivery Modes: Higher Education During Covid-19 Pandemic and Beyond," *International Journal of Emerging Technologies in Learning (iJET),* vol. 16, pp. pp. 58-73, 11/15 2021. https://doi.org/10.3991/ijet.v16i21.25305

[8] R. Setyaningsih, A. Abdullah, E. Prihantoro, and H. Hustinawaty, "Model penguatan literasi digital melalui pemanfaatan e-learning," *Jurnal Aspikom,* vol. 3, pp. 1200-1214, 2019. https://doi.org/10.24329/aspikom.v3i6.333

[9] J. Janssen, S. Stoyanov, A. Ferrari, Y. Punie, K. Pannekeet, and P. Sloep, "Experts' views on digital competence: Commonalities and differences," *Computers & Education,* vol. 68, pp. 473-481, 2013. https://doi.org/10.1016/j.compedu.2013.06.008

[10] M. Haight, A. Quan-Haase, and B. A. Corbett, "Revisiting the digital divide in Canada: The impact of demographic factors on access to the internet, level of online activity, and social networking site usage," *Information, Communication & Society,* vol. 17, pp. 503-519, 2014. https://doi.org/10.1080/1369118X.2014.891633

[11] S. De Marco, J. M. Robles, and M. Antino, "Digital skills as a conditioning factor for digital political participation," *Communications,* vol. 39, pp. 43-65, 2014. https://doi.org/10.1515/commun-2014-0004

[12] M. R. M. Rosman, N. N. I. N. Rosli, N. M. Razlan, A. I. M. Shukry, N. A. Alimin, and N. S. Baharuddin, "Modelling Referencing Competency and Individual Performance," *International Journal of Information Science and Management (IJISM),* vol. 20, pp. 407-426, 2022.

[13] M. R. M. Rosman, I. H. Arshad, M. S. Md Saleh, N. Abdullah, F. H. Fadzil, and M. Z. M. Zawawi, "User Behavioral Intention to Use Online Distance Learning (ODL): The Role of Self-Efficacy and Domain Knowledge," *International Journal of Interactive Mobile Technologies,* vol. 15, 2021. https://doi.org/10.3991/ijim.v15i18.24539

[14] I. Goll and A. A. Rasheed, "The relationships between top management demographic characteristics, rational decision making, environmental munificence, and firm performance," *Organization studies,* vol. 26, pp. 999-1023, 2005. https://doi.org/10.1177/0170840605053538

[15] Y. Zou, L. Shen, and S. Dadparvar, "The Influence of E-learning Behavior on Students' Learning Performance of Disaster Emergency Knowledge," *International Journal of Emerging Technologies in Learning (iJET),* vol. 17, pp. 49-59, 01/20 2022. https://doi.org/10.3991/ijet.v17i01.28475

[16] J. Duncan-Howell, "Digital mismatch: Expectations and realities of digital competency amongst pre-service education students," *Australasian Journal of Educational Technology,* vol. 28, pp. 827-840, 2012. https://doi.org/10.14742/ajet.819

[17] S. Y. Choi, "A study on the digital competency for the fourth industrial revolution," *The Journal of Korean association of computer education,* vol. 21, pp. 25-35, 2018. https://doi.org/10.32431/kace.2018.21.5.003

[18] M. Astuti, Z. Arifin, F. Mutohhari, and M. Nurtanto, "Competency of digital technology: the maturity levels of teachers and students in vocational education in Indonesia," *Journal of Education Technology,* vol. 5, pp. 254-262, 2021. https://doi.org/10.23887/jet.v5i3.35108

[19] C. Llopis-Albert, F. Rubio, and F. Valero, "Impact of digital transformation on the automotive industry," *Technological forecasting and social change,* vol. 162, p. 120343, 2021. https://doi.org/10.1016/j.techfore.2020.120343

[20] S. Kergroach, "Industry 4.0: New challenges and opportunities for the labour market," *Foresight and STI Governance,* vol. 11, pp. 6-8, 2017. https://doi.org/10.17323/2500-2597.2017.4.6.8

[21] D. Rotatori, E. J. Lee, and S. Sleeva, "The evolution of the workforce during the fourth industrial revolution," *Human Resource Development International,* vol. 24, pp. 92-103, 2021. https://doi.org/10.1080/13678868.2020.1767453

[22] P. Reddy, B. N. Sharma, and K. C. Chaudhary, "Measuring the digital competency of freshmen at a higher education institute," in *Pacific Asia Conference on Information Systems Proceedings*, 2020, pp. 1-12.

[23] T. Suwanroj, P. Leekitchwatana, and P. Pimdee, "Confirmatory factor analysis of the essential digital competencies for undergraduate students in Thai higher education institutions," *JOTSE: Journal of Technology and Science Education,* vol. 9, pp. 340-356, 2019. https://doi.org/10.3926/jotse.645

[24] N. C. Burbules and T. A. Callister, *Watch IT: The risks and promises of information technologies for education*. New York: Routledge, 2018. https://doi.org/10.4324/9780429503153

[25] T. R. Shannon, *An introduction to the world-system perspective*, 2 ed. New York: Routledge, 2018. https://doi.org/10.4324/9780429494154

[26] P. Tanloet and K. Tuamsuk, "Core competencies for information professionals of Thai academic libraries in the next decade (AD 2010–2019)," *The International Information & Library Review,* vol. 43, pp. 122-129, 2011. https://doi.org/10.1080/10572317.2011.10762889

[27] L. T. David, "Continuing Professional Development and the Philippine Qualifications Framework: A Way Forward to Mutual Recognition Arrangements," in *Internationalization of Library and Information Science Education in the Asia-Pacific Region*, ed: IGI Global, 2020, pp. 33-49. https://doi.org/10.4018/978-1-7998-2273-8.ch002

[28] Stephen F. Austin State University. (2012). *SFASU Knowledge, Skills, and Abilities (KSA) Bank*. Available: https://www.sfasu.edu/docs/human-resources/ksa-bank.docx

[29] M. K. Omar, F. N. Zahar, and A. M. Rashid, "Knowledge, skills, and attitudes as predictors in determining teachers' competency in Malaysian TVET institutions," *Universal Journal of Educational Research,* vol. 8, pp. 95-104, 2020. https://doi.org/10.13189/ujer.2020.081612

[30] K. Kiran and S. Diljit, "Modeling web-based library service quality," *Library & Information Science Research,* vol. 34, pp. 184-196, 2012. https://doi.org/10.1016/j.lisr.2012.02.005

[31] H. M. Abu-Dalbouh, "A questionnaire approach based on the technology acceptance model for mobile tracking on patient progress applications," *J. Comput. Sci.,* vol. 9, pp. 763-770, 2013. https://doi.org/10.3844/jcssp.2013.763.770

[32] M. N. Masrek and J. E. Gaskin, "Assessing users satisfaction with web digital library: the case of Universiti Teknologi MARA," *The International Journal of Information and Learning Technology,* 2016. https://doi.org/10.1108/IJILT-06-2015-0019

[33] D. F. Polit and C. T. Beck, "The content validity index: are you sure you know what's being reported? Critique and recommendations," *Research in nursing & health,* vol. 29, pp. 489-497, 2006. https://doi.org/10.1002/nur.20147

[34] J. F. Hair, M. Sarstedt, L. Hopkins, and V. G. Kuppelwieser, "Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research," *European Business Review,* vol. 26, pp. 106-121, 2014. https://doi.org/10.1108/EBR-10-2013-0128

[35] D. S. Soper. (2022, 22 February). *A-priori Sample Size Calculator for Structural Equation Models*. Available: https://www.danielsoper.com/statcalc

[36] Z. Zhang and K.-H. Yuan, *Practical statistical power analysis using Webpower and R*: Isdsa Press, 2018.

[37] M. K. Cain, Z. Zhang, and K.-H. Yuan, "Univariate and multivariate skewness and kurtosis for measuring nonnormality: Prevalence, influence and estimation," *Behavior research methods,* vol. 49, pp. 1716-1735, 2017. https://doi.org/10.3758/s13428-016-0814-1

[38] J. C. Nunnaly, "PSychoneric Theory," *Second Edion, McGraw-Hil,* 1978.

[39] N. Kock, "Common method bias in PLS-SEM: A full collinearity assessment approach," *International Journal of e-Collaboration (ijec),* vol. 11, pp. 1-10, 2015. https://doi.org/10.4018/ijec.2015100101

[40] J. F. Hair, G. T. M. Hult, C. M. Ringle, M. Sarstedt, and K. O. Thiele, "Mirror, mirror on the wall: a comparative evaluation of composite-based structural equation modeling methods," *Journal of the academy of marketing science,* vol. 45, pp. 616-632, 2017. https://doi.org/10.1007/s11747-017-0517-x

[41] T. W. Ng and D. C. Feldman, "How broadly does education contribute to job performance?," *Personnel psychology,* vol. 62, pp. 89-134, 2009. https://doi.org/10.1111/j.1744-6570.2008.01130.x

[42] S. Berlinski, S. Galiani, and P. Gertler, "The effect of pre-primary education on primary school performance," *Journal of Public Economics,* vol. 93, pp. 219-234, 2009. https://doi.org/10.1016/j.jpubeco.2008.09.002

[43] J. Bauzon, A. Alver, V. Ravikumar, A. Devera, T. Mikhael, R. Nauman*, et al.*, "The impact of educational resources and perceived preparedness on medical education performance," *Medical Science Educator,* vol. 31, pp. 1319-1326, 2021. https://doi.org/10.1007/s40670-021-01306-x

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