Inclusive Digital World: Examining Access, Affordability and Ability in Malaysian Underserved Community

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ABSTRACT

Digital inclusion is a pressing global challenge and Malaysia is no exception. Access, affordability and digital ability remains a challenge in achieving digital inclusion in Malaysia. Previous studies have only focused either one or two of these three factors at a time, leading to the absence of a comprehensive digital inclusion model. Additionally, there is dearth of study on the topic of digital inclusion among the lower income group. The purpose of this study is to investigate the factors that contribute to digital inclusion within the B40 community and to further investigate the digital gender gap that exists within that community. The study adopts quantitative research paradigm utilising survey questionnaire as data collection method. Questionnaire items were adopted from past research works consisting of three constructs; access, affordability, and digital ability, as measurement tool for digital inclusion model. Survey was distributed and administered physically in the presence of researcher and community leader at *Pusat Perumahan Rakyat (PPR) Kerinchi* which is located in Kuala Lumpur city centre. Among the three factors, study findings shows that affordability is the main barrier for the B40 community to be digitally included as digital technologies and cost of internet are becoming too costly. Consequently, this has an effect on their accessibility to the internet as a result of the fact that the likelihood of them possessing devices and purchasing internet and mobile data plans is significantly reduced due to their fairly low income. The findings of the survey also showed that there is no difference between men and women regarding their level of perceived digital inclusion within the community. The study findings reveal the importance of a holistic approach to digital inclusion in Malaysia. The interplay between access, affordability and digital ability emphasizes the need for collaborative efforts among government, civil society, academia and industry stakeholders to create an inclusive digital ecosystem

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INTRODUCTION

According to Frønes et al. (2020) digital inclusion pertains to the ability of individuals and communities to effectively engage with information and communication technologies (ICT). Malaysia recognizes the significance of bridging the digital divide to promote social and economic development in the country. To achieve digital inclusion, Malaysia has implemented various initiatives and policies. One notable initiative is the National Fiberisation and Connectivity Plan (NFCP), which aims to provide high-speed broadband infrastructure across the nation, including rural and remote areas. Besides this, Jalinan Digital Negara (JENDELA) program under the purview of Malaysian Communications and Multimedia Commission (MCMC) targets to increase digital connectivity and include provision for 5G transition (*JENDELA*, 2020).

By improving internet connectivity, the government aims to enhance digital accessibility and empower underserved communities. Through the *Program Jaringan Prihatin* as proposed in Malaysian Budget 2021 aims to provide the underserved community with affordable internet access. Under the program, eligible individuals and households receive RM180 to offset the cost of internet subscription (Malaysian Communications and Multimedia Commission, 2021). The program not only addresses the issue of affordability but also focuses on digital literacy.

Additionally, Malaysia has placed emphasis on digital literacy programs to enhance the digital skills of its citizens. The government has collaborated with industry players to introduce initiatives such as the Digital Community Centres and digital skills training programs to equip individuals with necessary knowledge and skills to fully participate in the digital world. One such collaboration is witnessed through Malaysia Digital Economy Corporation (MDEC) that launched #SayaDigital movement at national level. The initiative offers workshops, seminars, and online modules covering wide range of topics such as basic digital skills, online safety, e-commerce and digital entrepreneurship targeting various groups including students, senior citizens, micro-entrepreneur, and individuals from marginalised communities (MDEC, 2021).

Furthermore, Malaysia has been actively promoting e-government services to enhance convenience and accessibility for citizens. Intiatives like MyGovXchange and MyPay have been introduced to streamline government processes and enable online transactions, making public services more accessible to all.

Despite numerous efforts and strategies addressing digital inclusion in Malaysia, there remains a significant knowledge gap regarding the progress made, particularly within the lower-income community. Digital inclusion is a crucial aspect of modern society, as access to digital technologies and the internet is increasingly essential for various aspects of digital life, including education, employment, healthcare and social engagement. Past researches have acknowledged that rapid development of ICT does not guarantee accrued perceived benefits as some individuals and communities face challenges such as affordability (Noh, 2019; Obi et al, 2021; Thinyane, 2009; Thomas et al, 2018), knowledge on using ICT devices (Obi et al, 2021; Thinyane & Terzoli, 2009; Thomas et al, 2018;) and accessibility to the technology (DeGuzman et al, 2020; Obi et al, 2021; Thomas et al, 2018). Lack of comprehensive data and insights hinders the assessment of the effectiveness of these efforts and strategies in reaching the intended goals, particularly among individuals and communities with limited financial resources. Furthermore, in a report by Rowntree and Shanahan (2020), Malaysia, along with other countries in Southeast Asia, continues to face a significant gender gap in terms of mobile phone ownership and mobile internet usage. The report highlights the disparities between men and women in accessing and utilizing mobile technologies, which can have profound implications for digital inclusion and socio-economic opportunities.

Malaysia has witnessed multiple intiatives, policies, and programs designed to promote digital inclusion. Understanding the scope and impact of these efforts is cucial to assessing the overall progress. To comprehensively evaluate progress, it is necessary to consider the dimensions of digital inclusion. Hence, the present study sets the stage for preliminary investigation on assessing digital inclusion indicators/factors consisting of access, affordability and digital ability as a comprehensive measurement model. These three dimensions are crucial in bridging the digital divide. We further examine the gender disparity that may exist within the community as the determinant factor for digital inclusion. Therefore, the research questions that we aim to address are: (i) *What are the factors contributed to digital inclusion among the low-income community?*, and (ii) *Is there a gender gap exist in perceived digital inclusion among the low-income community?*

This paper provides an evaluation of the elements that contribute to digital inclusion, utilising the Digital Inclusion Index model created by Thomas et al (2018). The literature review section provides a more detailed analysis and exploration of the model and its various elements. The study's methodology and findings were thoroughly

examined and deliberated upon. In conclusion, this study provides a comprehensive analysis of the subject matter. Based on the findings, some recommendations for future research are proposed to encourage the engagement of scholars and policy makers in this field. By understanding the elements influencing digital inclusion, this paper can contribute to strategies that bridge the digital divide to ensure that marginalized groups, have equal opportunities to participate in the digital world. Furthermore, this paper sheds light on individuals' ability to manage information effectively. By assessing digital ability skills, we can develop solutions to enhance information management skills, leading to better decision-making, increased productivity, and improved quality of life.

LITERATURE REVIEW

Digital Inclusion

According to Onwu and Abah (2019), and Farooq et al. (2015), the term digital inclusion refers to the capacity of individuals and communities to gain access to information and communication technologies. The term digital inclusion was described by Hartnett and Fields (2019) as something in which we all need to participate, make an effort, and be successful because this serves as supremacy to all individuals, communities, and governments all around the world. Internet access is simply one component of what is meant by digital inclusion. There is much more to it than accessibility. In a broader sense, it refers to the capability of utilizing technology as well as the availability of hardware and software (Reder, 2015). More generally, it includes access to and proficiency with technological tools. It has become a financial necessity. According to Farooq et al. (2015), digital inclusion can be improved by making it simpler to access technological resources. Digital exclusion, which may be traced back to a lack of proficiency in digital literacy, has led to economic inequality.

In a survey by MCMC revealed that the number of Internet users in Malaysia has increased gradually from 87.4% in 2018 to 88.7 % in 2020 (Malaysian Communications and Multimedia Commission, 2020). The increment of 1.3% can be seen as a positive starting point to be in line with fast pace technological development. This indicates that Government has successfully played an important role in making sure that the citizens are able to use the internet. Various programs and aids have been introduced to citizens and it is now up to individuals to make use and benefit from it or ignore it.

Gender Equality and Digital Inclusion

The digital gender gap persists in many parts of the world: including access to mobile phones, internet connectivity, and digital literacy. Women, particularly in low-income communities and rural areas, often face challenges such as affordability, cultural barriers, lack of digital skills training, and social norms that restrict their access to and use of digital technologies. This gap prevents women from fully benefiting from the digital revolution, limiting their ability to access information, educational resources, employment opportunities, financial services and other digital platforms. A survey study by Delaporte & Bahia (2022) on mobile internet gender gap has seen a sharp increase of 41% in 2021 from 36% in 2020 in South Asia region. Although the survey indicated relatively unchanged percentage on mobile internet gender gap in other regions including East Asia (including Malaysia), gender gap still persist in about 2%.

Empirical Studies on Digital Inclusion

Numerous empirical studies have been undertaken to investigate the phenomenon of digital inclusion in Malaysia as well as other regions across the globe. The objective of these research is to gain insight into the present condition of digital inclusion, ascertain the obstacles and difficulties encountered, and suggest approaches to narrow the digital divide, with a particular emphasis on underserved communities including indigenous groups, women entrepreneurs, and individuals with disabilities.

In an earlier study by Hashim et al (2011) found that the Semai indigenous community has very low digital literacy due to lack of digital skills. This is mainly attributed to their lack of early education as 31% have never attended any school and 38.5% completed primary school level. In another study by Wok et al. (2018) investigated digital inclusion among disabled people and revealed that they understand the benefit of internet and have a positive mindset about it. However, they face barriers to use internet such as, lack of technical knowledge on operating electronic devices (31.2%) and challenged by the frequency of use due to their disabilities. In addition to this, there was a noticeable improvement brought about by the incorporation of digital technology among female business owners in Malaysia (Omar et al, 2015). They will almost always contact with the clients using the

internet, as well as use the internet to find info from reputable sources on the internet just as their male counterparts. The findings of the study demonstrated that women entrepreneurs particularly in Malaysia have higher levels of digital inclusion.

In Australia, Wilson et al. (2019) revealed that Australian Digital Inclusion Index (ADII) among the Australians shows promising sign of digital inclusion. Despite the digital inclusion index is growing, the rate of increase is slackening as there are groups of people face difficulties in accessing technology especially from village (remote) area, elderly people, unemployed, people who are impoverished and do not have a strong background in education. According to Park et al, (2019) those who live away from urban area struggles to have better connectivity due to lower internet penetration at that area. On the other hand, people who have more revenue can enjoy the technology compared to those who do not have sufficient money. Also, people that have weak background of education will face challenges in understanding how-to use the technology. The Australian Digital Inclusion Index is one of the most extensive and commonly used assessment tools in Australia. It takes into account factors such as a person's location, social status, and demographics in relation with access, affordability and digital ability.

Research into the topic of digital inclusion has also been conducted in countries like United States, New Zealand and Ghana. Noh (2019) investigated internet services in public libraries in Unites States, and findings suggest that all public libraries had successfully equipped with internet access. About 97.5% were equipped with Wi-Fi, 98.0% prepare training on technology related education, 53.3% gives space for remote worker, and 95.6% gives information of their employment online. However, the libraries do face challenges like operating cost, slow connectivity, lack of know-how in technology in provisioning broadband internet service to public. In New Zealand, Grimes and White (2019) performed a study to determine which community that is digitally excluded and the impact of digital inclusion on citizen wellbeing. Their findings revealed that there has been a digital age gap among the older population especially for those over 75 years old. In general and most appealing finding in their study is that New Zealand does not experience digital gender gap as the proportion of male and female who are unable to access internet are the same (5.4%). Quayson et al. (2020) investigated digital inclusion among smallholders farmers in Ghana. Since the study setting conducted during the pandemic, and was seen as main factor that pushed the farmers to use technology to ensure their businesses are going well and able to operate like normal. The study too proposed farmers to learn on how to use digital transaction, attending digital classes, using Ghana Farmerline and AgroCenta artifical intelligence to gain information on weather forecast, farming advice, market information and many more (Quayson et al., 2020).

Framework To Measure Digital Inclusion

A study on the state of digital inclusion in Australia was conducted by Thomas et al. (2018) using the Australian Digital Inclusion Index (ADII). It is a research initiative that assesses the extent to which individuals and communities can access and use digital technologies effectively. The index underpins three dimensions of access, affordability, and digital ability to measure digital inclusion as shown in Figure 1.
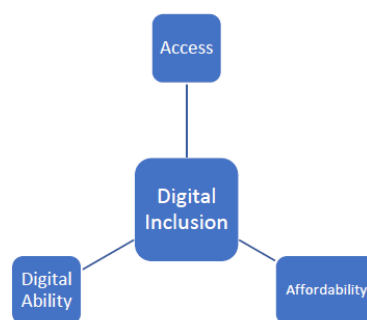

Figure 1: ADII conceptual model (Thomas et al., 2018)

Thomas et al. (2018) define accessibility as a way to measure internet access, internet technology, and the amount of data you can use on the internet. Accessibility is often affected by where a person is. People who live in cities have better access to technology because the internet is more widely used, cyber cafes are everywhere, and there are a lot of tech gadgets to choose from. People who live in rural areas might have trouble getting gadgets and have to drive for hours to do so. Next, affordability is define as expenditure on accessing internet and determined by income level of individuals. According to Thinyane and Terzoli (2009), acquiring hardware can be expensive for low-income communities, which can make it difficult for these groups to gain access to ICT solutions.

The third dimension, digital ability, describes the skills, attitudes, and behaviors required to be a digitally inclusive citizen (Thomas et al., 2018). Initiating a computer session, utilizing Microsoft Word/Excel/PowerPoint, and utilizing a search engine are examples of digital skills. The ADII combines these three dimensions to provide valuable insights into digital inclusion trends, identifies areas of improvement, and informs policy and program development to address digital inequalities.

METHODOLOGY

This research adopts quantitative approach using survey questionnaire to gather empirical data and tests the gender gap hypothesis. Research model were extended from ADII model and integrating with contextual factor like gender. Figure 2 depicts the research model for this study.
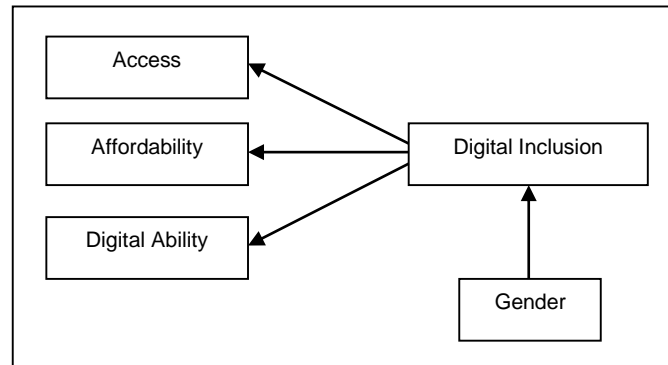

Figure 2: Research Model

Development of Questionnaire Items

The questionnaire items were adopted from Thomas et al. (2018) and Obi et al. (2021) consisting 32 questions. The questionnaire was categorised into four main sections of demographic profile, accessibility, affordability and digital ability. In order to facilitate the respondents' ability to read and comprehend the questionnaire, a Malay language version was produced. The final version questionnaire survey was available in both English and Malay languages for distribution. Table 1 presents each constructs and their measurement items.

Table 1: Constructs and Measurement Items

Constructs	Questionnaire Items
Demographic: Age (year) Gender Employment Status Household income (RM) Education Level	a) 20-29 b) 30-39 c) 40-49 d) > 49 a) Female b) Male a) Full time b) Part time c) Self Employed d) Not working a) <1000 b) 1000-2000 c) 2001-3000 d) 3001-4000 e) 4001-5000 f) >5001 a) PMR b) SPM c) Certificate d) Diplome e) Degree f) None of above
Access (Scale: Yes/No)	I have ever accessed internet I have accessed internet in last 3 months I have accessed internet away from home I have accessed internet from home I have only one internet product I have two or more internet products I have personal computer or tablet computer in household I own or use mobile phone I have mobile internet I have mobile internet data allowance over 1GB I have fixed broadband I have fixed Broadband data allowance over 10GB

Table 1: Constructs and Measurement Items (cont…)

Constructs	Questionnaire Items
Affordability (Scale: Likert 1-strongly disagree … 5-strongly agree)	The cost of the technologies is affordable (Example : tablet, smartphone)
	I can spend some money on tech without overshooting my monthly budget
	The technologies are not expensive
	The internet access is affordable
Digital Ability (Scale: Likert 1-strongly disagree … 5-strongly agree)	Computers and technology ease my daily routine
	I am interested in being able to access the Internet wherever I am
	I go out of my way to learn everything I can about new technology
	I keep my computer up to date with security software
	I can keep up with evolving technology
	I have general internet skills
	I have mobile phone skills
	I have internet banking skills
	I have internet shopping skills
	I have internet community skills
	I have internet information skills
	I have streamed, played, or downloaded content online
	I have purchased or sold a product online
	I have created or managed a site or blog
	I have searched for advanced information

Data Collection Strategy

The strategy for data collection utilized convenience sampling at one low-income community living, *Pusat Perumahan Rakyat (PPR) Kerinchi* located in the Klang Valley region. The low-income community is regarded as B40 (bottom 40%) representing household income of less than RM4850 (*Department of Statistics Malaysia*, 2020).

The total number of residents at PPR Kerinchi is 7218 (Pusat Ekonomi Digital, 2014). Using the Slovin's formula calculator and the marginal error (*e*) at 10% (0.1), total sample calculated is around 99. We randomly identified 100 respondents to represent a 50-50 male-female equivalence to identify the digital gender gap.

$$n = \frac{N}{1 + N(e)^2}$$
$$n = \frac{7218}{1 + (7218)(0.10)^2}$$
$$n = \frac{7218}{73.18}$$
$$n = 99$$

Initial data collection was administered using online form disseminated via WhatsApp with the help of lead member of the residents' community, and the response rate was quite low. We decided then to print out the questionnaire and handed to them physically. This method somehow gained their confidence and responded to questionnaire promptly. The entire data collection period lasted for about a month with 100 respondents.

Data obtained were further analysed using Statistical Package for the Social Sciences (SPSS) Statistics version 21.0 to allow for descriptive and inferential statistics.

RESULT AND DISCUSSION

Descriptive Analysis

We present the demographic profile of the respondents based on the following characteristics; gender, age, level and position as shown in Table 2.

Table 2: Respondents' Demographic Profile

Demographic Characteristics	Frequency/ Percentage
Gender: Male Female	 50 50
Age (years): 20-29 30-39 40-49 More than 49	 21% 31% 16% 22%
Employment Status: Employed, Full time Employed, Part time Self Employed Not working	 47 12 19 22
Household Income: <1000 1001-2000 2001-3000 3001-4000 4001-5000 >5001	 4 20 42 16 9 9

Table 2 represents respondents with equal distribution of male and female. High percentage (31%) of respondents belongs from the age group between 30-39 years old, followed by 22% from the age group above 49 years old. Only 16% belong in the age group of between 40-49 years old. Majority of the respondents, 59 of them, are working either full time or part time, and total of 19 are self-employed. The remaining 22 are not employed nor working. Majority of respondents (about 42) earning a monthly household income of between RM2001-RM3000. About 4 respondents earn less than RM1000 a month.

The frequency of each factor of digital inclusion is then evaluated for the B40 demographic. Table 3 depicts access construct using frequency possessing mobile/broadband plans.

Table 3: Frequency and Mean Average for Access Construct

Items	Frequency Yes	Frequency No	Mean (S.D)
I have ever accessed internet	93	7	0.93 (0.26)
I have accessed internet in last 3 months	91	9	0.91 (0.29)
I have accessed internet away from home	90	10	0.90 (0.30)
I have accessed internet from home	91	9	0.91 (0.29)
I have only one internet product	51	49	0.51 (0.50)
I have two or more internet products	17	83	0.17 (0.38)
I have personal computer or tablet computer in household	65	35	0.65 (0.48)
I own or use mobile phone	97	3	0.97 (0.17)
I have mobile internet	91	9	0.91 (0.29)
I have mobile internet data allowance over 1GB	78	22	0.78 (0.42)
I have fixed broadband	16	84	0.16 (0.37)
I have fixed Broadband data allowance over 10GB	16	84	0.16 (0.37)

Table 3 shows that 93 (from total 100) respondents are able to access internet while the remaining 7 are not able to do so. And a majority of them do have access to internet from home, and access internet in recent months and even when away from home. Given their background profile, interestingly, 97 respondents do own/use a mobile phone. Only 51 respondents possess one internet product (e.g. Wifi or broadband), and another 49 do not own any internet product as they use internet hotspot due to affordability issue. We found that the *PPR* is equipped with community internet centre (*Pusat Internet Komuniti)* caters their need for accessibility to internet. Children living in the B40 community make frequent use of the community's internet centre to complete school work and explore the internet at no cost to them.

On the other hand, affordability is the main hindering factor towards digital inclusion as majority of the respondents strongly disagree that the cost of technologies such as tablets, laptops, are affordable. As they earn a low-income for living, they must plan their budget before buying such technological devices which are often overpriced. Table 4 depicts the frequency level of agreement towards affordability.

Table 4: Frequency and Mean Average for Affordability Construct

Items	Frequency					Mean (S.D)
	1	2	3	4	5	
The cost of the technologies is affordable	53	12	15	9	11	2.13 (1.43)
I can spend some money on it without overshooting my monthly budget	52	12	11	14	11	2.20 (1.47)
The technologies are not expensive	52	13	12	12	11	2.17 (1.45)
The internet access is affordable	39	10	13	21	17	2.67 (1.57)

The third construct on digital ability describes their ability in using technology. Table 5 shows that majority of the B40 community are interested to explore and motivated to be digitally included. They are in agreement that technology ease their routine and keen to access internet wherever they are. Majority do agree that they take initiative to learn more about new technology and updates on the latest technology. Moreover, they possess an excellent general internet, mobile phone, internet banking and internet shopping skills.

Table 5: Frequency and Mean Average for Digital Ability Construct

Items	Frequency					Mean (S.D)
	1	2	3	4	5	
Computers and technology ease my daily routine	6	1	7	25	61	4.34 (1.08)
I am interested in being able to access the Internet wherever I am	6	2	8	17	67	4.37 (1.12)
I go out of my way to learn everything I can about new technology	12	3	7	22	56	4.07 (1.36)
I can keep up with evolving technology	16	4	10	17	53	3.87 (1.50)
I keep my computer up to date with security software	16	8	12	15	49	3.73 (1.52)
I have general internet skills	3	5	8	17	67	4.40 (1.03)
I have mobile phone skills	4	3	8	16	69	4.43 (1.04)
I have internet banking skills	19	4	8	10	59	3.86 (1.60)
I have internet shopping skills	20	5	9	8	58	3.79 (1.63)
I have internet community skills	12	3	8	15	62	4.12 (1.38)
I have internet information skills	10	5	8	13	64	4.16 (1.35)
I have streamed, played, or downloaded content online	9	6	7	14	64	4.18 (1.32)
I have purchased or sold a product online	39	4	9	8	40	3.06 (1.82)
I have created or managed a site or blog	67	11	9	1	12	1.8 (1.36)
I have searched for advanced information	9	4	8	12	67	4.24 (1.30)

By analysing these three constructs, it can be concluded that B40 community, specifically *PPR Kerinchi* residents are challenged with affordability issue as the main hindering factor for digital inclusion.

Digital Inclusion Factors – Mean and Standard Deviation Distribution

We further analyse the three factors using mean score and standard deviation to understand how well digitally included the residents. Table 6 illustrates mean average for affordability and digital ability.

Table 6: Mean Average for Affordability and Digital Ability Constructs

Construct	Mean	Standard deviation
Affordability	2.30	1.33
Digital Ability	3.90	1.00

Indicators for questions that uses 5-point Likert scale, any mean that has a value of 1.0-1.8 is considered very low, 1.81-2.60 considered as low. While mean value ranging from 2.61-3.4 considered as average, 3.41- 4.2 as high, and finally, mean greater than 4.21 is very high. The construct digital ability with mean value of 3.9 shows that most of the residents has high digital skills such as online banking skill, general internet skill and related online activities. On the other hand, affordability is yet relatively low as the cost to purchase and/or access internet is not affordable enough for the B40 community (mean value of 2.30). For accessibility, since its dichotomous value (yes or no), mean score is calculated at 66 respondents. This means that majority (more than half) B40 community in PPR Kerinchi has access to internet. By analysing these three constructs above, it can be concluded that B40 community, specifically PPR Kerinchi residents are not digitally included as they cannot afford the technology. Affordability is one of the main components to enable digitally included citizen.

Gender Gap Analysis

We further analyse the relationship between gender and perceived digital inclusion factors among the B40 community using independent t-test analysis. Table 7 illustrates that female and male in B40 community do not experience significant difference ($p\text{-value} > 0.05$) with accessibility, affordability, and digital ability. There is no gender disparity observed to be digitally included among the B40 community.

Table 7: Relationship between Access, Affordability, Digital Ability and Gender

Measures	Female		Male		df	p-values	Decision
	Mean	SD	Mean	SD			
Access	8.04	1.99	7.88	2.69	98	0.74	not significant
Affordability	9.22	5.32	9.12	5.35	98	0.93	not significant
Digital Ability	61.06	13.5	55.78	16.19	98	0.08	not significant

Discussion

This study has made a valuable contribution towards the expansion of technology subsidies for the B40 population in Malaysia. Given the limited number of previous studies conducted on the digital inclusion of the B40 population, the findings of this study would hold significant value for the government (Hashim et al., 2011; Omar et al., 2015; Wok et al., 2018). Despite possessing commendable digital access and proficiency, the B40 community face financial constraints that impede their full participation in the digital economy. The cost of internet connectivity, devices, and digital services can pose substantial challenges, limiting the extent to which individuals within this community can leverage digital resources for education, employment, and other socio-economic activities (Abedin, 2022; Olsen, 2018). It is imperative that a collaborative discourse be initiated to address the matter of affordability within the B40 community, given its status as the most populous demographic in Malaysia. Conducting comprehensive and meticulous study on this particular community will facilitate the provision of appropriate assistance, such as technological subsidies, to all its members.

Furthermore, Wi-Fi service providers in Malaysia have the capability to provide a "special" plan aimed at assisting the B40 community. Government initiatives, such as subsidies for internet connectivity and affordable access to devices, could play a pivotal role in alleviating financial constraints for the B40 community. Currently, the pricing structure for services remains uniform for all users, irrespective of their socioeconomic standing, using a flat fee

system. There are those who choose not to install Wi-Fi in their homes or businesses owing to the perceived high monthly expenses and contractual obligations associated with its usage (Holmes & Burgess, 2022). Conversely, the family members are utilising mobile data for their internet usage, resulting in decreased performance due to the shared nature of the resource. The data presented above indicates that a portion of those surveyed possess Wi-Fi connectivity in their homes, while the remaining respondents do not possess this technology. The internet has played a significant and indispensable role in our daily lives amidst the Covid-19 pandemic.

Furthermore, it should be noted that the *PPR* understudy still offers the 1Malaysia Free Wi-Fi service; nevertheless, it is important to acknowledge that not all individuals have the means to avail themselves of this service. The limited scope of coverage necessitates dissemination to a larger population within that region. Additionally, it is evident that the router may not be adequately updated with the latest technological advancements. It is recommended that the government consider implementing a feedback mechanism within this community to assess the effectiveness and adequacy of the current internet infrastructure. As government strive to create a digitally inclusive environment, the importance of robust and reliable internet connectivity cannot be overstated. Both corporate and government social responsibility focus in assessing the viability of telecommunications infrastructure projects that meet the needs of underserved community (Marshall et al., 2023). It is imperative to conduct regular maintenance in order to ensure that the residents, particularly the students, are able to utilise the facility without any disruptions. The quantity of routers must be augmented in each *PPR* block to ensure that every floor is capable of accessing them.

The absence of gender disparity in digital inclusion factors within the B40 community is a positive and encouraging trend. Whilst other country within the South Asia region has witnessed a sharp increase in gender gap (Delaporte & Bahia, 2022), Malaysia has yielded an intriguing observation of notable absence of gender disparity. It underscores the potential for targeted initiatives, education, and supportive policies to create an environment where both genders can participate equally in the digital economy. Continous efforts and vigilance are necessary to ensure that the observed equality is maintained and further strengthened over time. Finally, this study also offers valuable insights on the B40 community in Malaysia. The individuals demonstrated proficient digital skills; yet, their limited monthly income and many obligations were challenges in attaining digital inclusion. The individual expresses a strong desire for governmental or pertinent bodies to take action in order to prevent being marginalised, particularly in an era where tasks may be accomplished with ease through a single action. Individuals must adjust to the emerging societal norms, wherein the internet will serve as their primary means for conducting online activities.

CONCLUSION

In light of the potential benefits of digital inclusion for the B40 community, cost is a barrier to their full participation in the digital economy. The data also showed that this B40 group has excellent access to and proficiency with digital resources. Government and NGOs should continue to provide technological aid to empower B40 community to be digitally included as this can uplift them. By bridging the digital divide, Malaysia can unlock its full potential, fostering innovation, economy growth, and social development of all its citizen. There exist various limitations pertaining to this study. Efforts were made to collect data at fieldwork as the online dissemination of questionnaires received low responses. During the process of distributing the questionnaire, the researcher also received some feedback when interacting with the respondents. Regrettably, as a result of employing a quantitative methodology, it is not possible to compute and substantiate the aforementioned responses to a greater extent. The construct digital inclusion, in this study is a composite variable of accessibility, affordability and digital ability, thus lacking previously validated items for a dependent variable measure. Furthermore, it is important to note that this study exclusively focuses on the B40 community residing in Kuala Lumpur. The same community may encounter varying circumstances in different states. There are several potential barriers that impede individuals from achieving digital inclusion, such as issues related to access or a lack of digital skills. Furthermore, in order to enhance the sampling size and provide a more comprehensive understanding of the specific community in question. The objective of this study is to examine the existence of a digital gender gap. The concept of a digital generation gap is a subject of interest that may warrant investigation by future scholars.

Regarding future research endeavours, it is recommended that researchers employ physical means of data collection, as the dissemination of online questionnaires proved insufficient in obtaining comprehensive data from the population. This method is also applicable to other communities residing in rural areas, as they may have less comprehension. The physical presence of a researcher at the location can facilitate their ability to provide a prompt and accurate response. In addition to the aforementioned, future research should investigate the presence of a

technological generation gap among the B40 community. This study reveals a disparity in internet access between individuals aged 20-39 years (gen Z and millennials) and those aged 40 years and above (gen X and boomers). Future research should investigate the underlying causes and contributing elements that give rise to the income disparity, in order to determine whether it is comparable to other income groups such as M40 and T20, or if it is unique to the B40 community. In addition, researchers may inquire about any obstacles encountered by respondents in utilising the internet or mobile phones during the interview. This initiative has the potential to assist the government in providing support, such as digital training courses, to the elderly population who may be lacking in digital literacy skills.

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