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Readiness of Persons with Disabilities in K-Economy Thinking: The Role of Technological Competence, Attitude, and Interest

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Abstract

The readiness of persons with disabilities (PwDs) to engage in the K-Economy remains an important yet underexplored area in the field of inclusive development. This study investigates the role of technological competence, attitude, and interest in influencing readiness for K-Economy thinking among PwDs. Using a quantitative cross-sectional survey design, data were collected through a structured questionnaire administered to a sample of 54 PwDs. Descriptive statistics revealed that the levels of technological competence (M = 2.94, SD = 0.32), attitude (M = 2.79, SD = 0.58), interest (M = 2.69, SD = 0.71), and readiness (M = 2.87, SD = 0.56) were all at moderate levels. A multiple regression analysis was conducted to examine the predictive power of the three independent variables on readiness. The results showed that all three predictors were statistically significant: technological competence (β = 0.247, p = 0.016), attitude (β = 0.455, p = 0.001), and interest (β = 0.262, p = 0.018). The overall model explained 66.3% of the variance in readiness, and the regression was statistically significant. These findings underscore the importance of fostering not only technological skills but also positive attitudes and personal interest among PwDs to enhance their participation in the K-Economy. The study provides insights for policymakers, educators, and support service providers to develop more inclusive digital capacity-building programs tailored to PwDs.

Keywords: K-Economy, Persons with Disabilities, Technological Competence, Attitude, Interest, Readiness

Introduction

Malaysia is rapidly progressing toward becoming a digital and knowledge-based nation. In this context, the knowledge-based economy or also known as K-Economy has become main key pillar of national development. According to *Dewan Bahasa dan Pustaka*, K-Economy refers to an economy that involves knowledge, where the application of information and technology is deeply integrated across all sectors including public administration and corporate

management. The key to success in a K-Economy lies in the strength of a technologically competent, highly educated workforce that can adapt and compete on a global scale. According to the Ministry of Economy Malaysia (2023), transitioning toward a knowledge-based economy is crucial for tackling the challenges of globalization and the Fourth Industrial Revolution, both of which demand a society that is digitally literate, inclusive, and agile in keeping up with rapid technological changes. It emphasizes the role of innovation, digital infrastructure, and human capital in driving economic growth, rather than relying solely on physical assets (Powell & Snellman, 2004; World Bank, 2020). The government's commitment to this direction can be seen through policies such as the National Artificial Intelligence Roadmap and digital inclusion strategies under the MADANI framework (Ministry of Science, Technology and Innovation (MOSTI), 2024).

However, despite these advancements, persons with disabilities (PwD) are still often excluded from full participation in the digital economy. While recent efforts like the Digital Literacy Empowerment Programme for PwD (Malay Mail, 2023) aim to enhance digital skills among PwD, many still face barriers such as inaccessible technology, limited support, and social stigma (The Star, 2024). These barriers limit their ability to engage with the opportunities offered by the K-Economy.

To ensure PwD are not left behind, it is important to understand the factors that influence their participation in this new economic environment. First is technological competence which is the practical ability to navigate digital tools and platforms that power today's economy (Ng, 2012). Second is attitude, which reflects how positively or openly PwD individuals view their role in a digital driven society (Rogers, 2003). And third is interest of their personal motivation and drive to get involved in knowledge intensive activities like digital entrepreneurship or innovation (Deci & Ryan, 2020). These psychological and behavioral constructs, well-documented in motivational and innovation diffusion theory, can either propel or hinder one's readiness to thrive in a K-Economy. Understanding these concepts is essential, serving both as a learning process and as a crucial step towards fostering an inclusive digital future, ensuring that all individuals, despite their abilities, have equal opportunities for success.

For many PwD individuals, these elements are shaped by limited access to digital technology, inequitable educational opportunities, and social discrimination. Research reveals that these barriers significantly affect their involvement and empowerment in the digital domain (Lee & Low, 2023; Aziz & Ibrahim, 2022; Hashim & Pillay, 2021; Talib et al., 2019). Even though programs like the OKU Talent Enhancement Programme (OTEP) and targeted job efforts for PwD people in the Johor-Singapore Special Economic Zone (SEZ) have been started (The Star, June 2024; Feb 2025), there is still lack of data to show how the readiness of PwD are for this change.

This study explores the readiness of persons with disabilities in Malaysia to participate in the K-Economy by identifying their current levels of technological competence, attitude, and interest, and examining how these factors collectively influence their ability to engage meaningfully in a knowledge-driven economy.

Objective

1. To identify the levels of technological competence, attitude, interest, and readiness in K-Economy thinking from the perspective of persons with disabilities (PwDs).
2. To determine the influence of technological competence, attitude, and interest on readiness in K-Economy thinking from the perspective of persons with disabilities (PwDs).

Literature Review

The Concept of the Knowledge Economy

The ability of a society to position knowledge as the primary foundation of economic development is known as knowledge-based economic thinking. In today's era of globalization and digital revolution, knowledge is no longer merely a component of conventional economic factors such as land, labor, and capital. Instead, it has evolved into a key factor contributing to economic sustainability, competitiveness, and technological advancement. According to Saddam (2020), the knowledge-based economy shifts away from reliance on conventional inputs such as land and physical labor, and prioritizes knowledge, intellectual capital, and innovation in generating economic value and growth. As the knowledge-based economy emphasizes that information and knowledge are critical components in creating economic value and driving progress, it is increasingly gaining attention across various industries (Nagari et al., 2024). Evidence suggests that education in fields such as economics and accounting has enhanced students' readiness to participate in the knowledge-based economy, highlighting the importance of more modern and relevant teaching plans and curricula (Sam, 2024). Therefore, knowledge-based economic thinking requires more than just mastery of knowledge; it also demands a shift in how individuals perceive the world of work in order to effectively apply innovation and technology.

Technological Competence Among Persons with Disabilities

The term "technological competence" refers to an individual's level of skill and ability in handling, utilizing, and applying information and communication technology (ICT) across various domains, such as education, employment, and daily life. Technological competence for persons with disabilities (PwD) is more challenging, as it requires not only basic skills such as the use of computers and the internet, but also access to technology or support systems tailored to their physical and cognitive needs. Due to various barriers such as financial and language constraints. This often faces difficulties in accessing and using technology, according to several studies (Starks & Reich, 2022). Furthermore, compared to other forms of support, access to specialized instruction from special education teachers remains limited (Fernández-Batanero et al., 2022).

A local study by Ramli, Alias, and Alias (2023) indicated that the level of technological competence among persons with disabilities (PwD) remains low. This persists despite increased government efforts in recent years to empower PwDs through ICT skills training. The issue stems from a lack of tailored educational opportunities, the inability to afford technological devices, and challenges in understanding the technical language used in digital systems. Nevertheless, to ensure that PwDs are not left behind in the wave of technological advancement, the acquisition of technological skills is essential (Olakanmi et al., 2020), particularly in relation to emerging tools such as augmented reality (AR). The development and application of specialized software and techniques are crucial innovations that support this group in mastering modern technologies (Yngve et al., 2021). Therefore, technological

competence should be viewed as a form of social empowerment that enables PwDs to participate in the knowledge-based economy, rather than merely a technical skill.

Technology and Knowledge Economy Acceptance Among Persons with Disabilities

The perception of persons with disabilities (PwD) regarding the ease of use and benefits of technology greatly influences its acceptance. Technologies that are easy to understand and accessible are more likely to be adopted, as they help reduce the physical and cognitive barriers that typically hinder access and participation (Winkelkotte et al., 2024). Internal factors such as personal attitude and self-belief are equally important, alongside functionality. A positive mindset, self-confidence, and an inventive approach have been found to increase the likelihood of technology acceptance among PwD, enabling them to view digital tools as empowering rather than intimidating (Kabir et al., 2023). These psychological elements influence their motivation and willingness to use technology in areas such as education, employment, and daily life. As the knowledge-based economy continues to grow, these internal enablers are becoming increasingly vital to ensure that PwD are included in both digital and economic advancement.

External influences, particularly the social and environmental support surrounding persons with disabilities (PwD), are equally important. Support from family members, caregivers, and peers has been identified as a key factor in encouraging the adoption and sustained use of technology (Barlott et al., 2020). In the process of learning and adaptation, a nurturing environment can enhance confidence, reduce anxiety, and provide necessary guidance. Furthermore, evidence shows that technologies such as assistive communication devices and digital applications can significantly improve independence, social participation, and quality of life for individuals with brain-related disabilities, especially when appropriately tailored to meet individual needs (Jamwal et al., 2020). These findings highlight that technology acceptance should be viewed as a multidimensional process that involves both individual agency and contextual support systems, rather than occurring in isolation.

The Relationship between Technological Competence, Attitude, and Interest in Readiness

Consistently, technological competence and a positive attitude toward technology have been identified as key predictors of readiness across various educational and training environments, including among educators and students (Galaraga & Alpuerto, 2022). Individuals with strong technical skills and a constructive mindset are more likely to demonstrate adaptability and a willingness to meet the demands of technology-driven environments. One's confidence, willingness to engage in innovation, and resilience in adapting to changes within the knowledge-based economy are all influenced by the combination of these two components.

While interest also shows a positive correlation with readiness, its predictive strength is generally lower compared to that of competence and attitude (Abd. Halim et al., 2024). Nonetheless, interest remains a meaningful motivational component that can enhance persistence and learning engagement. Moreover, readiness can be cultivated and strengthened through targeted interventions such as professional development, structured training, and the creation of supportive environments that encourage the use of technology (Kertiasih et al., 2024). However, existing research on these relationships remains limited when it comes to persons with disabilities. This gap highlights the need for further

investigation to better understand how these factors operate within the unique socio-educational and technological contexts faced by PwD.

In summary, multiple factors influence the readiness of persons with disabilities (PwD) to participate in the knowledge-based economy. These include their attitude, interest, and technological abilities. A recent study found that even if individuals possess basic technical skills to operate digital tools, it is not sufficient without optimism and intrinsic motivation to improve. The usability and accessibility of technology, personal belief systems, social support, and the alignment between technology and individual goals are among the key factors affecting technology adoption among PwD. When interest emerges as a primary predictor linking competence to actual behavior, it strengthens its role as a central driver of readiness. The findings indicate that efforts to empower PwD within the knowledge economy must go beyond skills training to include strategies that build confidence, foster interest, and create supportive environments. To ensure equitable and sustainable participation of PwD in knowledge-driven development, it is essential to adopt a holistic approach that integrates all these elements.

Methodology

This study adopted a quantitative cross-sectional survey design to examine the readiness of persons with disabilities (PwDs) in relation to K-Economy thinking and to determine the influence of technological competence, attitude, and interest. This design is suitable for collecting data at a single point in time and identifying relationships between variables (Creswell & Creswell, 2018). The data that were collected covered four dimensions which is technological competence, attitude, interest and readiness that was adapted from validated instruments. Each item was measured using a 5-point Likert scale, which is a reliable tool for collecting perceptions and self-reported attitudes (Joshi et al., 2015). A total of 54 respondents were chosen using a purposive sampling technique that targeted persons with disabilities with some level of technological experience. This sampling method is appropriate when working with specific or hard-to-reach populations (Palinkas et al., 2015). Finally, data analysis involved descriptive statistics (mean and standard deviation) to assess the levels of each variable, and multiple regression analysis to test the influence of the predictors on readiness. The regression model was checked for assumptions such as linearity and multicollinearity. All analyses were conducted using IBM SPSS software. Ethical approval was obtained, and participation was voluntary, anonymous, and confidential (Babbie, 2020).

Result and Discussions

The Levels of Technological Competence, Attitude, Interest, And Readiness In K-Economy Thinking from The Perspective of Persons with Disabilities (PwDs)

A descriptive statistical analysis was carried out in order to evaluate the levels of technological competence, attitude, interest, and readiness among students with disabilities (PwDs) in relation to their future participation in the Knowledge-Based Economy (K-Economy). As can be seen in Table 1, all four constructs were assessed at the medium level. This rating was based on the interpretation scale that was recommended by Jamaludin et al. (2020), which is as follows (1.00–1.99 = Low; 2.00–2.99 = Medium; 3.00–4.00 = High).

Table 1
Descriptive statistics for technological competence, attitude, interest, and readiness in K-Economy

Variables	Mean (M)	Std. Deviation (SD)	Interpretation
Technological Competence	2.94	0.32	Medium
Attitude	2.79	0.58	Medium
Interest	2.69	0.71	Medium
Readiness	2.87	0.56	Medium

Technological competence recorded the highest mean (M = 2.94, SD = 0.32), indicating that students with disabilities possess a moderate level of digital literacy and capability to interact with technological tools. This is a promising indication that with sufficient assistance and accessible accommodations, PwDs should be able to fully engage in digital learning and economic activities. Al-Azawei and Serenelli (2021) state that students with impairments are much more engaged when they use adaptive interfaces and inclusive technologies. Similarly, Alias et al. (2021) pointed out that institutions have been motivated to produce more accessible technologies due to the post-pandemic move towards digital platforms. This has improved digital equity for students with special needs.

Based on the results, (M= 2.87, SD= 0.56) which is also rated as medium for PwDs readiness to engage in the K-Economy. This also shows that further empowerment is needed through skill-based training and targeted career guidance for students with disabilities although they may have foundational readiness. According to Zainuddin and Perera (2020), to ensure there is an inclusivity in Industry 4.0, technical and soft skills needed to accommodate the diverse needs of PwDs. Moreover, readiness also can significantly increase through experiential learning, vocational exposure and the use of assistive technologies in educational settings (Mustafa et al. 2023).

In terms of attitude, a medium level was observed (M = 2.79, SD = 0.58), suggesting that students with disabilities show a moderate amount of openness and a positive attitude towards the digital economy although they may still be hesitant to fully embrace it because of institutional barriers and a lack of role models in the field. According to Wong et al. (2022), students with disabilities are more likely to have an inclusive attitude when institutions empowered with culture, inclusive policies, and visible support systems. Furthermore, Nasir and Efendi (2022) observed students with disabilities in higher education need peer support, mentorship, and advocacy groups are crucial to help building confidence and a positive attitude for them.

Although it was still within the medium range, the interest variable had the lowest mean (M = 2.69, SD = 0.71). This finding shows PwDs are under-represented in digital career pathways and are unaware of the opportunities available in the K-Economy. According to Lim and Jalil (2021), students with disabilities may have difficulty making connections between learning and possible job careers when curricular material is not inclusively contextualised. Proactive attempts to integrate PwD success stories, adaptive pedagogy, and personalised learning experiences are necessary for interest development, according to Tan et al. (2023). According to Ramli et al. (2022) demonstrated that gamification and assistive digital tools can enhance motivation among students with cognitive or physical impairments.

As a conclusion, the results show that students with disabilities have a moderate foundation in all four measured domains technological competence, attitude, interest, and readiness to participate in the K-Economy. These results underscore the need for inclusive educational policies, universal design for learning (UDL), and multi-layered support systems to transition from preparedness to full participation. As emphasized by the OECD (2021) and UNESCO (2020), creating equitable digital economies requires not only skill development but also systemic transformation to dismantle structural barriers faced by marginalized populations, including persons with disabilities.

The Influence of Technological Competence, Attitude, and Interest on Readiness In K-Economy Thinking from The Perspective of Persons with Disabilities

A multiple linear regression analysis was conducted to examine whether technological competence, attitude, and interest significantly predicted readiness in K-Economy thinking among Persons with Disabilities. (PwDs).

Table 2

Regression coefficients of technological competence, attitude, and interest on readiness in K-Economy

		Coefficients					
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R Square
		B	Std. Error	Beta			
1	(Constant)	-0.081	0.414		-0.195	0.847	0.663
	Technological Competence	0.419	0.169	0.247	2.483	0.016	(66.3%)
	Attitude	0.431	0.104	0.455	4.144	0.001	
	Interest	0.199	0.081	0.262	2.450	0.018	

a. Dependent Variable: Readiness

The results of the multiple regression analysis using the stepwise method were conducted to examine the predictive influence of technological competence, attitude, and interest on readiness for K-Economy thinking among students with disabilities (PwDs). As shown in Table 2, all three predictor variables were found to be statistically significant contributors to readiness: technological competence (β = 0.247, p = .016), attitude (β = 0.445, p = .001), and interest (β = 0.262, p = .018). These three factors collectively explained 66.3% of the variance in K-Economy readiness among PwDs. To further examine the overall significance of the predictors on the criterion variable, an ANOVA test for the regression model was conducted, as presented in Table 3.

Table 3

Analysis of Varian on technological competence, attitude, and interest on readiness in K-Economy

		ANOVA[a]				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.528	3	3.509	32.831	0.001[b]
	Residual	5.345	50	0.107		
	Total	15.873	53			

a. Dependent Variable: Readiness

b. Predictors: (Constant), Interest, Technological Competence, Attitude

Thus, the findings from the analysis of variance (see. Table 3) confirmed that the overall regression model was statistically significant, $F(3, 50) = 32.83$, $p < 0.001$, indicating that the combined predictors technological competence, attitude, and interest significantly explained a substantial proportion of the variance in readiness for participation in the K-Economy among PwDs.

The results show that PwDs technological ability, attitude, and interest significantly predict their readiness in K-Economy thinking. This indicates that people with disabilities may be better prepared to take part in knowledge-based and digitally driven economies if these three areas are improved. These findings align with previous studies that emphasize the importance of digital skills and technological confidence for inclusion in modern economic systems (Al-Azawei et al., 2022; Yusuf et al., 2021). In particular, technological competence is increasingly seen as foundational for employability and independent living in the 21st century, particularly for individuals with disabilities (Sharma & Tietjen, 2023).

The findings indicate that attitude stands out as the most significant predictor in this study, reinforcing the idea that a person's mindset toward change, innovation, and continuous learning plays a vital role in their ability to adapt and participate in the modern economy. This aligns with Ajzen's (1991) Theory of Planned Behavior, which suggests that positive attitudes are a strong driver of both intention and actual behavior. For persons with disabilities (PwDs), attitude often acts as a bridge between their abilities and their real-world participation (Chiner et al., 2020). Similarly, research by Tan et al. (2022) and Chukwuemeka and Omotayo (2023) highlights that having a constructive outlook toward digital tools and economic involvement is a key factor that enables PwDs to engage more actively, especially within the gig economy and online work platforms.

Interest was also a statistically significant predictor, indicating that a desire to understand and use technology can motivate people to be economically active. Based on the research on self-determination theory, Deci and Ryan (2000) found that interest and intrinsic motivation are the most important factors in maintaining engagement. Research has shown that marginalised people, including people with disabilities, can be motivated to investigate and engage in digital workspaces by developing an interest in digital tools, entrepreneurial activities, and new media (Nguyen et al., 2023; Lee & Park, 2021). The significance of structural support becomes apparent when considering that interest alone might not be enough in the absence of matching opportunities and enabling settings.

Nonetheless, while the findings are generally supported by existing literature, it is worth noting that some studies have reported technological competence alone to be insufficient for readiness if not complemented by contextual support such as training, policy, and infrastructure (Kim & Park, 2022; Khetarpal & Singh, 2021). For PwDs, challenges such as inaccessible digital interfaces, lack of tailored training, and social exclusion continue to hinder full readiness despite positive attitudes and interests (World Bank, 2021). Therefore, while the predictors examined in this study are significant, future research should integrate environmental and systemic factors to provide a more comprehensive model of readiness in the K-Economy for persons with disabilities.

Recommendation and Conclusion

The findings of this study show that people with disabilities (PwDs) require a better intervention to help them be ready for the knowledge economy. Programs that promote optimistic worldviews should be given top priority because attitude is the most reliable indicator of readiness. This may offer workshops, motivational talks, and meetings with successful individuals from a variety of backgrounds who are employed in the digital and knowledge sectors. Hence, by incorporating attitude development into our existing ICT training, we can assist students in developing confidence in their abilities and abilities to succeed in the technologically driven world of today. Also, it is crucial to enhance the self-efficacy of individuals with disabilities and reduce their anxiety regarding digital interactions in order to prepare them for employment.

In addition, for attitude support, efforts to improve technological competence must be enhanced through inclusive and adaptive training modules that cater to different types of disabilities. Access to assistive technology, hands-on learning, and personalized support can help bridge existing skill gaps. Although interest was the weakest predictor in this study, it should not be overlooked. This sustained engagement and motivation often stem from personal interest, especially when supported by family, caregivers, and peers. Therefore, a holistic approach that combines psychological readiness, technical support, and social inclusion is crucial. Governmental agencies, educational institutions, and non-profit organizations must collaborate to create scalable, localized initiatives that provide continuous opportunities for growth and participation in the digital and knowledge economy.

This study is motivated by the growing need to ensure that persons with disabilities are not marginalized in the transition towards a knowledge-based economy, where technological competence, positive attitudes, and sustained interest are essential for participation and empowerment. The findings contribute by demonstrating how these factors collectively influence the readiness of persons with disabilities to embrace the demands of the K-economy. In doing so, this study not only extends the discourse on inclusive digital transformation but also provides valuable insights for policymakers, educators, and stakeholders in designing targeted interventions, training programs, and support systems that foster equitable opportunities in the digital era.

In conclusion, the study shows that the level of readiness of people with disabilities (PwDs) to participate in the knowledge economy is influenced by factors such as attitude, technological capabilities, and interest. Of these, attitude was the most influential. Emotional support, technical training, and personal motivation must be combined to build true readiness. The implications of these findings underscore the urgency of designing responsive and inclusive interventions that empower PwDs not only to adapt but to thrive in an evolving economic landscape. Moving forward, policy frameworks and research agendas must priorities the specific needs of PwDs to ensure equitable representation and active involvement in the knowledge-based economy.

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