



# INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



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ISSN: 2222-6990

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To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v11-i10/11337> DOI:10.6007/IJARBSS/v11-i10/11337

**Received:** 12 August 2021, **Revised:** 14 September 2021, **Accepted:** 24 September 2021

**Published Online:** 08 October 2021

**In-Text Citation:** (Awang et al., 2021)

**To Cite this Article:** Awang, Y., Taib, A., Shuhidan, S. M., Rashid, N., & Hasan, M. S. (2021). Examining Gender Differences on Technology Knowledge and Readiness towards Digitalization of Accounting Profession. *International Journal of Academic Research in Business and Social Sciences*, 11(10), 473–486.

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Vol. 11, No. 10, 2021, Pg. 473 - 486

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## Examining Gender Differences on Technology Knowledge and Readiness towards Digitalization of Accounting Profession

Yunita Awang<sup>1</sup>, Azuraidah Taib<sup>2</sup>, Shazalina Mohamed Shuhidan<sup>3</sup>, Norfadzilah Rashid<sup>4</sup>, Mohd Sidki Hasan<sup>5</sup>

<sup>1,2</sup>Faculty of Accountancy, Universiti Teknologi MARA (UiTM) Dungun Campus, Terengganu, Malaysia, <sup>3</sup>Faculty of Accountancy, Universiti Teknologi MARA (UiTM) Puncak Alam Campus, Selangor, Malaysia, <sup>4</sup>Faculty of Business & Management, Universiti Sultan Zainal Abidin, Gong Badak Campus, Terengganu, Malaysia, <sup>5</sup>Special Project Q3 Management Solution Sdn Bhd

Email: [yunita@uitm.edu.my](mailto:yunita@uitm.edu.my)

### Abstract

Digitalization of the work process affects almost all industries due to the Fourth Industrial Revolution. The accounting profession is no exception, urging future accountants to equip themselves with the technological knowledge and readiness to digitize. As the digitalization of the accounting profession is driven by technological advancement, the gender of future accountants may influence the digitalization process. Thus, this is a timely study to examine the gender differences in technology knowledge and technology readiness towards digitalization among the future accountants. Based on non-probability purposive sampling with future accountants as unit of analysis, results indicate a moderate level for technological knowledge and readiness among the respondents. There is no significant difference found in technological knowledge and readiness between male and female respondents. The findings may reflect the existing group of future accountants belong to Generation Z that is heavily exposed to technology. They are comfortable with technology utilisation, agile, adaptive, and able to migrate quickly to new platforms. This gives insights to employers on gender selection in the hiring process to meet industry needs. Future research could be extended to accounting interns at private universities and to current accounting practitioners being the potential mentors for newcomers into the accounting profession.

**Keywords:** Gender, Technology Knowledge, Technology Readiness, Digitalization, Accounting Profession.

### Introduction

Fourth Industrial Revolution (IR4.0) has transformed the global industrial landscape, requiring a greater reliance on digital software and the automation of robotic functions to replace human labour. In today's households, businesses, and government agencies, the use of information technology has increased rapidly. IR4.0 has impacted the work process of

digitalization in almost any sector. The use of technology, such as office automation, big data and data analytics, Artificial Intelligence, and cloud computing, has highlighted changes in the work process, making them part and parcel in carrying out professional responsibilities.

Digitalization is linked to significant changes in socio-technical structures (Yoo et al., 2010). The examination of the underlying assumptions underpinning the creation and use of digital technologies reconfigures those structures (Thorseng & Grisot, 2017). Accounting profession is no exception. Traditionally, the work of accountants was manually conducted, but with the advancement of technology, the accountants are expected to align with the adoption and adaptation of technology in the implementation of their professional tasks.

Based on technical and technological components, accounting evolution can be divided into five (5) stages, namely: 1) traditional manual accounting; 2) mechanised accounting; 3) automated accounting; 4) robotic accounting; and 5) artificial intelligence-assisted accounting (Bakulina, Kalinina, Luchkova, Pikushina, & Gracheva, 2020). Meanwhile, digitalization has a number of new effects on accounting practise, three of which are particularly important comprising of 1) increases elusive boundaries of accounting; 2) emergence of new forms of power relations; and, 3) poses new questions about knowledge generation for decision-making (Knudsen, 2020).

Combined with the increasing value of behavioural skills, this presents the accounting profession with challenges. Digital technology has an effect on the company's strategic and competitive goals. nonetheless, it also impacts the consumer trends, competitive benefits and the company's market strategy. In addition, digital technology has a major impact on accounting information and control systems (Mancini et al., 2017). As the result of technological growth, the coverage of the work of accountants is evolving and consumer expectations are changing. Technological advancement and digitisation enable accounting improvements and adjustments. With technology advancements, several automated systems that did not exist five years ago are now actively in use within the accounting profession. The development of sophisticated computer systems decreases accountants' workload, while the repetitive activities in a conventional methods setting are made simple and easy (Tekbas & Nonwoven, 2018).

The accountancy industry is one of the most relevant profession in which technological advances and globalisation are and will be most influenced. The careers are evolving constantly in technological advances, globalisation and intensified competition. The expectation on adoption and adaptation of technology does not lie only for the existing accountants in their practice, but also with the future accountants who will continue to provide accounting professional services in their future career. In capturing such expectations, apart from gaining adequate accounting knowledge, the future accountants must equip themselves with the technological knowledge and readiness towards digitalization. As such, the practical activity is required in order to offer students hands-on skill development and knowledge that cannot be achieved in a classroom setting. This is made possible through work-based educational experiences linked to specific jobs, positions, occupations, or professions, known as internships or immersion programmes (Adeosun, Shittu, & Owolabi, 2021). After completing their internship, accounting students are able to increase their skills through real-world experience and the knowledge obtained from their

employers. The present study defined accounting interns as future accountants as they are current accounting students who will shortly enter the accounting profession (Suhaiza, 2014).

As the move towards digitalization of accounting profession is with reliance on technology advancement, the gender of future accountants may affect the digitalization process. According to popular theory and research, strong beliefs and cultural biases may play a role in gender differences in the use of technology and computer skills (Cheryan, Plaut, Handron, & Hudson, 2013; Master, Cheryan, & Meltzoff, 2016). Additionally, Mayoux (2001 as cited in Goswami & Dutta, 2015) emphasized that when running their businesses, women face more obstacles than men in terms of socio-cultural, educational, and technological issues. Venkatesh and Morris (2000) conducted a study on 342 employees in the workplace and found that women are more likely to adopt technology that requires less work, hence their expectations of effort is higher than men. In addition, compared with their male counterparts, women have a lower perception of comfort in use because they have higher levels of computer anxiety. Thus, this is a timely study to examine the gender differences in technological knowledge and readiness towards digitalization among the future accountants.

## **Literature Review**

### ***Technology Knowledge***

Modern information and communication technologies (ICT) have completely changed the types of skills needed to participate, communicate and work successfully in a modern society. As a result, national policies have been formed in many countries to promote digital competence in schools and the workplace (Gnambs, 2021). Specific skills requirements among the workforce are thought to be limiting the holistic adoption of IR4.0 (Mian, Salah, Ameen, Moiduddin, & Alkhalefah, 2020), including proficiency in new literacy in digital, technological, and human literacy (Lestari & Santoso, 2019). Additionally, professional digital skills are essential for the development and deployment of emerging technologies in the workplace.

It is important to understand, as practitioners in finance and accounting, that digital knowledge is a vital part of the workplace. Ferreira et al (2021) revealed that the optimistic stance prevails, implying the digital transformation is more of an opportunity than a threat for accounting. The widespread use of information technology has become the norm in commercial enterprises. The accountant's job has evolved from collector to disseminator to interpretation and decision maker as technology has advanced. Thus, accounting students with technological abilities and knowledge are in high demand by the business sector today since they are needed in the industry. The students' technological knowledge should therefore be improved to meet the present skills that most managers have to comply with in order to work in the related business sector. Accounting students as future accountants should have technical abilities and be prepared for technological advancements so that they may help the industry by using the apps involved. These capable accountants would be required to do analysis and interpretation in order to communicate with the decision maker concerned.

In accounting history, the advancement of technology has caused the manual process of accounting to gradually shrink as accounting systems have favoured automation since it is faster, more precise, and dependable, and can access large volumes of transactions. Technological advancements aid in the creation of better chances in the sector in present

time, as well as in the future. Even though the typical accountants will never go out of business, the number of them will diminish as their duties become more automated and efficient (Duong & Fledsberg, 2019). With the impact of technology on the accountant's job scope, inexperienced accounting graduates may be left behind. As a result, they will need to adapt and expand in tandem with technological advancements.

### ***Technology Readiness***

In the last few decades, the business world has changed dramatically, and more disruption and transformation of the industry will occur over the next decade through technological development. Technological developments and the importance of conduction skills such as ethical and legal action, the practise of professional judgement and emotional intelligence will offer many new and current practitioners with challenges and opportunities. Most technologies have become products or sharing of resources, and the boundaries between technologies have also reduced (Blut & Wang, 2020). Recent technological combinations introduced such that the existing market and business models will radically change. The technology that has a profound effect on business processes includes mobile apps, cloud computing, big data and bitcoin, artificial intelligence technology and drone technology. Similarly, Fintech, big data, blockchain, drone technology, social media, and other digital technological advances give impact on the accounting profession.

Technology readiness refers to people's willingness to adopt and use new technology in their personal and professional lives (Parasuraman, 2000). It reflects a gestalt of mental motivators and inhibitors that work together to determine a person's willingness to use new technology (Parasuraman & Colby, 2015). As technological advances give impact on the accounting profession, graduate accountants must be willing to adopt new technology as preparation to embark themselves in the future workplace. The impact of technology on tasks has exponentially increased the rate of progress and efficiency with which business occurs. Accountants are now more efficient than ever before due to advancements in technology (Zhang, Dai, & Vasarhelyi, 2018).

The graduate accountants cannot run away from the expected changes related to technological advancement in their future profession. The graduate accountants need more exposure to technology in order to be excellent (Tan & Veal, 2005). The advancement of technology as a major driver of global change is the crucial push factor for them to keep up with the changes. This is equally important to the accounting interns as the future accountants who will sustain the credibility and relevance of professional services in the digital environment. With the advancement of new technologies, there is a need for information about how human characteristics influence technology readiness (Blut & Wang, 2020).

### ***Gender and Technology***

In the literature on business ethics, gender is one of the variables at the individual level most frequently investigated (see Craft, 2013; Ford & Richardson, 1994; Loe, Ferrell, & Mansfield, 2000; Lopez-Nicolas, Nikou, Molina-Castillo, & Bouwman, 2020; Lu et al., 2020; O'Fallon & Butterfield, 2005). Gender differences in values and work interest are broadly explained by the gender socialization approach and the structural approach (Betz, O'Connell, & Shepard, 1989). The gender socialization notion posits that "women are more unlikely to perform work

that is likely to be harmful to others and are more likely to demonstrate stronger feelings regarding ethical issues than men" (Owhoso, 2002: 363). The gender socialization approach emphasized that the early socialization process influenced the way women and men view ethical situations (Peterson, Rhoads & Vaught, 2001). Meanwhile, the structural approach stated that any gender disparities resulting from early socialisation would be countered by occupational duties, resulting in males and females in specific occupations making similar work-related decisions (Feldberg & Glenn, 1979; Lacy, Bokemeier, & Shepard, 1983).

The involvement of both males and females within various domains of business organizations like education, banking, health care and others requires further understanding of the gender contribution in the increasing use of technology. In the education sector, educators can better encourage male students to use technology by demonstrating how relevant the technology is to their future (Park, Kim, Cho, & Han, 2019). Understanding the reasons for gender differences in the acceptance of new technologies will promote the overall development of the technology (Mayoux, 2001 as cited in Goswami & Dutta, 2015).

In reviewing the existing literature on technology usage and intention to use technology from the gender perspective, Goswami and Dutta (2015) identified gender as an important factor in explaining human acceptance of technology. Differences between men and women have been studied in a variety of areas, including email, information seeking, online learning, communication technology, and online shopping behaviour, with the majority of research being studied skewed towards men compared to women (Orji, 2010). According to Venkatesh et al. (2003) females are more worried than males about information technology (IT) use, and this characteristic of females influences their self-efficacy, leading to a greater awareness of the effort required to use computers. Females are more anxious than men counterparts do when it comes to IT use, and this character of the females affected their self-efficacy, which led to greater perceptions of the effort required to use IT (Venkatesh et al., 2003). In addition, females are more prone to computer anxiety, less efficient computer use, and negative attitudes towards computer use (Jackson et al., 2001 as cited in Goswami & Dutta, 2015).

Furthermore, Mayoux (2001 as cited in Goswami & Dutta, 2015) indicates that in the management of their business, females encounter more obstacles in terms of socio-cultural issues, education and technology than men counterparts do. Cai, Fan and Du (2017) summarised a meta-analysis of seventeen years of prior work and found that, in general, males have a more favourable attitude towards the use of technology than females. Jackson et al. (2001) found that females use email more than males, while males use the Internet more than females among the 630 Anglo-American students. Based on a study of 220 Chinese students and 245 UK students, Li and Kirkup (2007) found that male in both countries use email and chat rooms more than females; male play computer games more; and men are more confident in their computer skills than the women are. Females are more responsive to suggestions from peers, according to Venkatesh et al (2003), and therefore the social influence will be greater when the intention to use information technology arises.

In contrast, only minor disparities in ICT literacy were discovered between boys and girls about ICT literacy disadvantages (Gnambs, 2021). Gender variables did not affect students' opinions towards technology. It has revealed that there is no statistically significant difference between male and female students towards technology (Verma & Dahiya, 2016). Based on an online survey, females were found to be equally optimistic about embracing technology. According to Blasko, Lum and Campbell (2020), it is incorrect to argue that females are less

willing to adopt technology; rather the adoption of technology among females is dependent on the use of the technology for the tasks at hand.

### **Research Methodology**

A non-probability purposive sampling approach is adopted in this study, with future accountants as unit of analysis. This study considered accounting interns as future accountants because they are current accounting students who will enter the profession in the near future (Suhaiza, 2014). The sample consisted of final-year accounting students engaging in the internship programme from Malaysia's top six (6) public universities for accounting and finance. Although Malaysia boasts eight (8) top accounting and finance programmes from public and private colleges (<https://www.easyuni.my>), two (2) private universities were excluded from this study in order to avoid information inconsistencies when comparing public and private institutions.

A quantitative approach is used in this study by means of a survey. The questionnaires were distributed online to the accounting interns through respective Internship Coordinators. Section A describes the respondents' demographic; Section B and C measure Technology knowledge and Technology readiness respectively, while Section D measures Digitalization of the accounting profession. The questionnaire items were measured based on a likert-scale of "1: Extremely low" to "5: Extremely high" and adapted from various sources namely Shih and Chuang (2013); Strong and Portz (2015). The collection of questionnaires is self-administered by the researchers and few contacts were done with the respective Internship Coordinators. The researchers followed up at least three times to ensure that as many accounting interns as possible took part in the survey. The data collection period lasted approximately two (2) months. The questionnaires were returned by 187 out of 546 (34.25%) accounting interns.

### **Analysis and Findings**

Based on 187 (34.25%) returned questionnaires, the analysis was conducted using SPSS. These include analysis on demographic information; mean score to gauge the level of technology knowledge and technology readiness among the respondents; and an independent t-test to examine any significant difference in technology knowledge and technology readiness between male and female respondents.

### **Demographics of Respondents**

The respondents were 38 (20.3%) male and 149 (79.7%) female from the selected six (6) public universities. The majority of the accounting interns (157 or 84%) are between the ages of 20 and 24, with internships lasting between three and six months. Malay interns make up 148 (or 79.1%) of the total, with Chinese interns coming in second (18 or 9.6%). At their respective universities, all of the respondents enrolled in a Bachelor of Accountancy programme.

The most prevalent business sector in which accounting interns are working is audit companies (116 or 62%), followed by private firms (36 or 19.3%). The remaining employers include federal government agencies, state government agencies, financial institutions, and others such as tax businesses and essential services firms. In terms of employers' location, Selangor (48%) and Kuala Lumpur (43%) are the most, Johor (21%), and other states with low

numbers of fewer than ten percent in some cases. The demographic data highlights the respondents' trustworthiness as survey participants for this study.

### **Reliability Analysis**

Cronbach's Alpha is used to assess measurement reliability, in which the values more than 0.7 are considered acceptable and the values greater than 0.8 are desired (Pallant, 2010). Table 1 shows that all of the Cronbach's Alpha values for the items in the questionnaires are above 0.8, indicating the items are reliable and can be used for further analysis.

**Table 1: Reliability Statistics**

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Knowledge about technology (BKnowledgeTech)	.963	.963	35
Technology readiness (CTechReadiness)	.889	.885	16

### **Mean score for Technology Knowledge and Readiness**

The level of the mean score for knowledge about technology and technology readiness is interpreted according to the level of the mean score used by Landell (1997, as cited in Abdul Halim et al., 2017; Hairuzila & Lim, 2018). The mean scores levels are represented by 1.00-2.33 as "low"; 2.34-3.67 as "medium"; and, 3.68-5.00 as "high", respectively. The mean scores for the overall level of technological knowledge and readiness among future accountants are summarised in Table 2.

**Table 2: Mean score**

	N	Minimum	Maximum	Mean	S.D.
Knowledge about technology (BKnowledgeTech)	187	1.58	5.00	3.1675	.56368
Technology readiness (CTechReadiness)	187	1.94	5.00	3.5682	.56088

**Note:**

N = the population size; Mean = Average of a data set; S.D. = Standard Deviation

Table 2 shows that the respondents have a moderate level of technological knowledge, with a mean score of 3.17. The score indicates that future accountants have an understanding of the function and operation of currently available technology and applications in the accounting industry. The findings provide support to Amirul, Mail, Abu Bakar and Ripain (2017) that accounting graduates must have knowledge and skills in accounting software, accounting systems, database design and analysis, project management, and business process management. It is proven that technologies have been developed to assist accountants in performing important duties and completing complicated processes in a more effective, efficient, and time-efficient manner (Shanker, 2013).

Similarly, the mean score of 3.57 indicates a moderate level of technology readiness among the respondents. Technology readiness is a collection of technology-related attitudes that together indicate the willingness of a customer, employee, or executive to accept new



technologies in order to achieve their goals, both at work and in their leisure time (www.igi.global). The resulted mean score indicates that the respondents are moderately ready or willing to adapt and apply new technology in their personal and professional lives (Parasuraman, 2000).

As digitalization is inevitable, future accountants should look for all possibilities to improve their technology knowledge and be prepared to use new technology not only in their personal but also in their future professional lives. Even though the traditional accountant will never be extinct, the number of them will decline due to the automation and efficiency with which their jobs are performed (Duong & Fledsberg, 2019). Therefore, they will need to develop and evolve with the technological changes. Accountants have huge opportunities to improve their level of expertise, especially in terms of digitalization skills and knowledge which may give the impression that accountants' jobs will become more difficult in the future (Moll & Yigitbasioglu, 2019).

### **Gender Differences with Technology Knowledge and Readiness**

An independent t-test was carried out to determine a link between gender and technology knowledge; as well as between gender and technology readiness among future accountants. The results are summarised in Table 3.

Table 3: Independent t-test results

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
BKnowledgeTech	Male	38	3.1699	.52206	.08469
	Female	149	3.1669	.57548	.04714
CTechReadiness	Male	38	3.6053	.52293	.08483
	Female	149	3.5587	.57145	.04681

### Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
BKnowledgeTech	Equal variances assumed	1.170	.281	.029	185	.977	.00296	.10272	-.19969	.20560
CTechReadiness	Equal variances assumed	.524	.470	.456	185	.649	.04654	.10215	-.15499	.24807

*Note: The significance levels for Levene's test for technology knowledge and technology readiness are 0.281 and 0.470, respectively, which are larger than the cut-off of 0.05 (Pallant, 2010). This indicates no violation of equal variance assumption.*

Results in Table 3 show a slightly higher mean in technology knowledge for male (M = 3.1699; SD = 0.5221) as compared to female (M = 3.1669; SD = 0.5755) future accountants. However, the difference is insignificant as indicated by the Sig. (2-tailed) value (t = .029; df = 185; p =

0.977). The magnitude of differences in mean (mean difference = .00296, 95% CI: -.19969 to .20560) is very small (eta squared = 0.00).

In addition, a marginally higher mean is also seen in the technology readiness for male ( $M = 3.6053$ ;  $SD = 0.5229$ ) than the female future accountants ( $M = 3.5587$ ;  $SD = 0.5715$ ). Nevertheless, based on the Sig. (2-tailed) value, this difference is not significant ( $t = .456$ ;  $df = 185$ ;  $p = 0.649$ ). Meanwhile, the magnitude of the difference in the mean (mean difference = .04654, 95% CI: -.15499 to .24807) is very small (eta squared = 0.00).

Thus, the findings reveal that there is no significant difference in technology knowledge and technology readiness between male and female future accountants. The results of this study may reflect the existing group of future accountants that belongs to Generation Z. As stated earlier, the majority (157 or 84%) of respondents in this study are within the age range between 20 to 24 years old that fall within the Generation Z group.

Generation Z is the demographic cohort born after 1995, the generation after the millennials. This generation is more at ease with utilising technology to communicate in social situations (Gabriellova & Buchko, 2021). According to Friedriech et al (2010), Generation Z also known as Generation C (connected, communicating, content-centric, computerised, community-oriented, clicking), is the first generation born between 1995 and 2009 (McCrindle & Wolfinger, 2009) or between 1995 and 2010 (Seemiller & Grace, 2016). They are the first generation to grow up in a globally connected world (Cilliers, 2017) when young people had easy access to technology (Turner, 2015 as cited in Kirchmayer & Fratričová, 2020). Thus, the result of gender indifference in relation to technology knowledge and technology readiness is not surprising as this generation is very much exposed to technology. They are at ease with technology utilisation and are agile, adaptive, as well as able to transition quickly to new platforms (Gabriellova & Buchko, 2021). However, the findings are inconsistent with previous literature that found differences in gender and technology. In the context of information technology usage, including computers, email services, electronic data management systems, and other related technologies, gender is an influencing factor in technology adoption, with men being found to be more technologically adept than women in comparison (Goswami & Dutta, 2015). Meanwhile, Park et al (2019) study indicated that gender difference plays a role as a moderator in the multimedia adoption for learning. The influence of task technology fit on perceived usefulness is stronger in males than in females, which led to the conclusion that men are more likely to see the technology as beneficial when a good fit between the task and the technology.

Thus, the results of this study enhance the literature to support that males and females are competing for the best career performance and the females no longer perceive negatively the advancement of technology. As they are the Generation Z who are exposed to technology at an early age, the technological knowledge and readiness are not seen as an issue for the male or female future accountants towards digitalization of the accounting profession. Even women were equally optimistic about embracing technology in the current digital age (Blasko et al., 2020). This may then provide insights to the employers on the gender indifferent to assist their selection and hiring process of new employees to cater for the industry needs. As such, employers in both commercial and public accounting practices may then focus on creating programmes and training needed to improve the abilities of both male and female

newcomers into the profession to use emerging ICT applications to align with the digitalization. This will greatly assist to place the accounting profession at par or even better than other professions, parallel with the IR 4.0 technological demand.

### Conclusion

The digitalization of the accounting profession is to align with the IR4.0. The level of technology knowledge and technology readiness among the future accountants as the group of people who will continue the professional triumph is one of the indicators to meet the expectation for the digitalization of the accounting profession.

The findings indicate that there is no significant difference in gender in terms of technological knowledge and readiness towards digitalization of the accounting profession among future accountants. Both male and female future accountants are equally ready towards digitalization of accounting profession. Thus, selection of employees in the hiring process associated with IT should not be primarily influenced by gender. Similarly, the findings provide insights to the universities on the level of technology knowledge and readiness among accounting interns who will potentially serve as future accountants. This may assist in any curriculum devise for accounting courses at the universities.

Future research could then be expanded to examine the accounting interns at private universities as the emphasis of curriculum may differ from public universities. Equally, research may be conducted on the existing accounting practitioners who could play a role as mentors to the newcomers in the accounting profession.

### Acknowledgement

The authors would like to thank UiTM Cawangan Terengganu for providing financial support under the Research Collaboration Fund 2020 (600-UiTMCTKD (PJI/RMU 5/2/1) Jld. 4). In conducting the survey, research participants are provided with sufficient information to assist an informed decision as to whether to take part in research (informed consent) through the cover letter or questionnaire.

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