Digitalization of the accounting profession: An assessment of digital competencies in a Malaysian comprehensive university

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Abstract: Most professions will change or disappear altogether as a result of digitalization. While some professions will disappear completely, others will continue to grow, and it is also possible that additional professions will emerge in the future that we do not currently know about. Numerous technological advances impacting the accounting industry are forcing accountants to acquire essential digital skills and competencies to ensure their survival. This study, therefore, seeks to investigate the level of digital competencies among postgraduate accounting students. Online questionnaires were distributed to 440 registered postgraduate accounting students in a Malaysian comprehensive university. Mean analysis shows moderate to high scores on items measuring the components of digital competence. In addition, the results show a positive moderate relationship between media literacy and digital literacy, while a positive strong relationship was found between information literacy, information and communication technology literacy, and digital literacy with digitalization. The results shed light on the level of digital competencies of accounting students after graduation, which helps to assess how digital competencies affects the digitization of the accounting profession. Future research could be extended to include students from other universities and accounting practitioners to improve the research findings.

1.   Introduction

The accounting profession has been influenced recently for a number of reasons, including technology (Petani et al., 2021). The fourth industrial revolution (IR4.0), which increases reliance on digital

software and automated robotic tasks to replace human labour, has transformed the global industrial environment. With the drive toward the digitalization of the accounting profession, the accounting sector is expected to respond to similar changes as the profession continues to digitise. According to IR4.0, multitasking is required as accounting, compliance, management and control, strategy and risk, funding, and resourcing, which are all part of financial responsibilities, face obstacles and pressures in the organisational environment (Smith & Payne, 2011).

Accounting is known as a traditional profession whose rules and concepts have been in place for many years and have not changed (Gulin et al., 2019). However, the accounting profession is also influenced by economic globalisation, stricter laws and numerous technological advances. The need for rapid adaptation and transformation of business practises and business processes, without deviating from basic accounting laws and principles, poses challenges to the accounting profession. Technical transformations in professional accountants may continue to increase, and such transformations may significantly affect the profitability component of the business (Ghorbani, 2019). It is believed that the holistic adoption of IR4.0 is hindered by specific skill requirements of the workforce, such as digital, technological and human competency (Lestari & Santoso, 2019; Mian et al., 2020). Using various digital technologies can help develop understanding and skills and potentially prepare for a great career (Rizal et al., 2021). Kim (2020) found that digital skills improve perceived employability, while Lestari and Santoso (2019) demonstrate that digital, technological and human skills have a positive and significant impact on employment readiness.

Concerns have been raised in the past about the ability of higher education and professional training to effectively and efficiently prepare accountants for the challenges of 'machine learning' and its widespread application in business (Chang & Hwang 1, 2003). The accounting profession and the accounting education sector need to focus on the needs of the younger generation, the "digital natives", who are experiencing rapid digitisation and who need to prepare their job-related education in terms of integrating and using the relevant technology. The intellectual challenges of future accountants do not arise automatically, but result from the increasing complexity of modern work tasks and technological tasks (Al-Htaybat et al., 2018).

Previous studies show that there are various problems in the digitization of skills and knowledge in accounting education. For example, a study in Thailand found that Thai accounting professionals have problems communicating in English and using IT, despite having a high level of accounting knowledge and skills (Wattanawirai & Sithipolvanichgul, 2012). Moreover, communication skills in English and IT skills in using accounting software are still weak among Thai accounting students (Suttipun, 2014). Malaysian accounting students, meanwhile, seem confident that their current accounting education can prepare them for professional accounting education, but students' awareness of higher accounting education programmes should be improved (Mas Ervina et al., 2015). This could be due to the fact that today's accounting students have more digital competence but create less digital content (Kongpradit et al., 2020). Meanwhile, the research of Lestari and Santoso (2019) shows that for Indonesian accounting students, digital literacy has the greatest impact (14.9%) on work readiness compared to technological and human literacy. Therefore, students need to demonstrate their readiness for the world of work when they engage in digital literacy. As a result, universities need to take more initiative in promoting technological and human competence.

However, readiness alone is not enough to map digital transformation in industry. To assess the effectiveness of digitalisation, it is necessary to increase the understanding of the level of digital literacy. The report by ACCA (2020) on the digital skills of accountants in various countries shows that although 83% of Malaysian accountants believe that digital skills are relevant to accountants and finance professionals in their industry, their level and application of digital skills is low. Only 54% of Malaysian accountants use digital skills constantly in their role, while only 53% believe they have the right level of required digital skills.

Considering that digital competence has been defined as one of the fundamental competencies for lifelong learning, efforts must be made to promote the development of digital competence among all people, regardless of age, occupation or level of current ICT use (Ala-Mutka, 2011). The aim of this study is therefore to assess the level of digital competence among postgraduate accounting students and its impact on the digitalization of the accounting profession. Taking up postgraduate studies is an expression of the voluntariness to learn and develop skills that meet the requirements of the profession. Moreover, the group of postgraduates is very heterogeneous in terms of age, social background and technical knowledge, which makes them ideal respondents (Edwards et al., 2011). As such, they are able to provide valuable insight into the digital competence and digitalization of the accounting profession.

The remainder of this paper is structured to provide, firstly, an overview of previous research in this area; secondly, the methodology used, the analysis and discussion of the results; and thirdly, the conclusion, implications of the study and future research.

2.   Literature review

2.1   Digital Competencies

No matter how the corporate environment evolves, it will require adaptability and relevance. Professional accountants need to continuously improve their technical skills while nurturing their professional and personal attributes (ACCA, 2016); therefore, these skills should be nurtured at the educational level. Suwanroj et al. (2019) believe that certain digital skills of university students, after being thoroughly cultivated, can be beneficial to the students themselves both during their studies and after graduation when they work in companies.

Competence is defined by Moreno-Morilla et al. (2021) as "the set of knowledge, abilities, and attitudes necessary for individuals' development in many contexts (such as family, school, library, office, etc.)". In the digital society, however, digital competence refers to essential life skills and abilities. With the changing tools and techniques that people use in work, study, and leisure, digital competence must be constantly developed (Ala-Mutka, 2011).

According to Kongpradit et al. (2020), "digital competence" includes digital literacy, digital skills, electronic skills, internet skills and media literacy, among other 21st century skills. For the present study, four elements of digital competence were adopted, which include digital literacy, information literacy, ICT and internet literacy, and media literacy (Ala-Mutka, 2011). The definitions of these four elements are described in Moreno-Morilla et al. (2021) and summarised as follows.

Table 1. Definitions of these four elements

Definitions	Components
The ability to search for, select, analyse, organize, and communicate information effectively.	Information literacy
The ability to understand, interpret, recreate, and assess different media.	Media literacy
The set of skills and knowledge related to the ICT industry.	ICT literacy
The technical ability to use the computer and internet.	Digital literacy

(Source: Guzmán-Simón et al., 2017)

Furthermore, with the widespread use of IR4.0, the need for specific skills in the workforce should be clarified (Mian et al., 2020). The terms 'digital literacy" and "technology literacy', as well as the more general concept of "information literacy', are increasingly used due to the rapid development of information and computer technologies. These concepts serve as cornerstones for the growth of modern society.

Meeting the demand and need in developing skills in digital universities that match current job openings therefore requires urgent attention and planning (Tandon & Tandon, 2020). Hence, there is a need to investigate the level of digital competency of future accountants in performing their duties in the digitised environment. In short, this paper attempts to assess the level of digital competencies among postgraduate accounting students in a comprehensive university (CU). The results of this study can serve as a benchmark

for assessing the digital competencies of postgraduate accounting students who already have some work experience, as this may reflect the players' readiness to digitalize the accounting profession. In the era of digitalization, it is necessary to assess the readiness of postgraduate students to digitalize the accounting profession. Therefore, we pose the research question: What is the level of digital literacy of Malaysian postgraduate accounting students?

According to Kruskopf et al. (2020), the discussion of the digital revolution in the accounting industry has received much attention as the accounting and auditing professions are changing. Even though the revolution is spreading rapidly, many parts of its future are still undetermined. These changes may lead to the loss of many jobs, but they also open up lots of new opportunities for workers who want to expand their skills, as well as for graduates. Against this backdrop, technology is becoming more prevalent in society and the economy, changing a variety of aspects of people's lives, including how they work, learn, communicate, access information and use their leisure time. Therefore, access to digital tools and media can be helpful in all aspects of life in today's society (Ala-Mutka, 2011).

Digital literacy is the awareness, attitude and ability of people to use digital tools and facilities appropriately to identify, access, manage, integrate, evaluate and synthesise digital resources, create new knowledge, communicate with others through media and express themselves in the context of specific life situations (Martin, 2006 as cited in Lestari & Santoso, 2019). Technology literacy and digital literacy differ in that the former requires proficient use of technology, while the latter requires fluency in digital communication, comprehension, filtering and manipulation to be successful in the future (Lestari & Santoso, 2019). Digital literacy can also be described as a social activity that requires literacy skills in the use of digital technology. Creating, using, analysing and disseminating texts is part of digital literacy (Milenkova & Lendzhova, 2021). On the other hand, digital competence refers to essential life skills and abilities in the information society. Digital competence should be seen as a progression from instrumental skills to productive and strategic personal competences. Understanding basic tools and computer applications is only the first step towards developing advanced knowledge, skills and attitudes.

Lestari and Santoso (2019) are of the view that in order to improve digital literacy among their students, universities need to promote the habit and culture of using the internet to obtain a variety of information. The findings of their study suggest that students' perceptions of their readiness for professional life, especially among accounting students, are influenced by their level of digital literacy, technical literacy and human literacy. These three competences could play a role in motivating students to declare their readiness to enter the accounting profession.

The importance of mastering digital literacies therefore makes it necessary for students to apply the knowledge they have acquired in practise and facilitate employment. Students can use the search function to quickly find out about professional tasks. All higher education students need to have digital skills to succeed in today's online environment, but accounting students especially need these skills as they work with digital data on a daily basis and need to apply critical evaluation methods (O'Callaghan et al., 2021). Accountants in future are forced to use new technologies in the digital age as they are challenged by social media, cloud computing and new analytical tools (Fettry et al., 2019). Similarly, mastery of digital literacy is one of the fundamental teaching competencies that all educators must possess. Access to a variety of information sources can help instructor discover numerous opportunities and strategies to use in the classroom. The summary of digital skills that accountants need is shown in Table 2.

Table 2. Potential required skills for current and future accountants

Technical/Digital skills		Social skills	
Understanding the capabilities of the software	Basics of coding	Strong communication	Emotional intelligence, ethical
Analysis skills	Fintech software knowledge	Conflict solving	Adaptability, tolerant of uncertainty
data visualization	Data security, forensic tools	Leadership skills	Sales knowledge
Knowledge of International Standards	data warehouse management	Risk Management	Innovative/creative
Knowledge of industry-specific regulations	ERR (Enterprise resource planning) experience	Strategic decision making	Customer service orientation

According to Polizzi (2020), media literacy, which focuses on digital media and the Internet, and digital literacy are related to one another. It can be viewed in two different ways: functionally, it refers to the knowledge and skills required for online participation, and critically, it should be considered as more than just the ability to evaluate online content. Media literacy, on the other hand, is just a framework in a complicated world of media and information. Most often, media literacy is defined as a skill that promotes critical engagement with media messages (Bulger & Davison, 2018). The aim of the media literacy education movement is to help people of all ages develop the skills needed to behave properly in a modern digital environment. It helps people to secure their access to new information, understand the meaning of the news, and maintain their privacy when using the Internet to understand the information they receive, express themselves freely and participate in any issue or social progress (Moeller, 2009). Media literate accounting students thus acquire knowledge in their academic programmes and are better able to choose their careers for personal development. Furthermore, Leaning (2019) defines digital literacy as a broad range of skills related to the use of computers, digital media and information and communication technology (ICT). The development of information literacy has been necessitated by the development of Internet technologies, which has also promoted the development of digital competencies (Deja et al., 2021). This term is often considered to encompass (or to have absorbed) a number of other forms of literacy, including computer literacy, Internet literacy, media literacy and information literacy. According to Yu et al., (2017), information literacy is the most important factor that has led to the use of ICT. It is argued that the integration and strategic revision of both provides a digitally aware and critically nuanced direction for digital literacy (Leaning, 2019).

As more and faster digital technologies are used in the workplace, people today need to constantly update and improve their skills and knowledge to keep up with ongoing developments and new advances in the digital world (Khan et al., 2020). Potential accountants should therefore have digital skills to ensure that they can maintain their professionalism in the industry. In addition, universities should be responsible for training graduates to achieve the goals of Malaysia's national digital strategy, which is to build a digital workforce capable of meeting national and international economic demands (Khan et al., 2021).

2.2   Digitalization in the accounting profession

Digitalization describes a change that goes beyond the mere digitisation of existing processes or services, such that companies are affected by digitalization in multiple ways through the use of digital technologies in the workplace or operating environment (Parviainen et al., 2017). In a broader sense, digitalization refers to the transformation of interactions, communications, business functions and business models into digital models (Branca et al., 2020). Already impacting many aspects of our lives, digitalization is now considered one of the largest and longest lasting transformations (Leitner-Hanetseder et al., 2021). The terms artificial intelligence, Big Data, blockchain technology, cloud solution, software robot and integrated system are commonly used in the accounting industry today. With the use of new intelligent technologies and Big Data, accountants will experience changes that require new responsibilities, skills upgrading, and innovative ways of collaboration and engagement, especially in human-machine interactions (Gulin et al., 2019).

The complexity and scale of these new technologies place the people who create them in a new position within the ecosystem of professions, or more precisely within the network of relationships between professionals and other players including clients, service providers, other professions, regulators and the public (Petani et al., 2021). The field of accounting is a long-established one, with rules and guidelines that have been in place for a very long time.

As far as digitalization in accounting is concerned, accountants are expected to actively participate in system development projects. They are supposed to ensure that their needs are met by the system developer IT; they are supposed to be responsible for the conceptual system that specifies the type, sources,

destination and applicable accounting rules of the required information; they are supposed to conduct proper analyses of the investments of IT with the associated benefits (Noor Azizi & Azlan Zainol, 2009). The accounting sector is in urgent need of a team of knowledgeable accounting information systems professionals (AIS) who can deal with the complex IT requirements for accounting services and activities (Pan & Seow, 2016). In the future, currently employed accountants will be replaced by notarial and creative accountants (Slyozko & Zahorodnya, 2016; Yang, 2012). Due to its crucial role in transforming society, technology literacy is currently seen as a means of training professionals with the necessary skills. Accountants need to possess and develop several skills and competences associated with their profession, as they have to perform a variety of different tasks.

Leitner-Hanetseder et al., (2021)'s study shows that while the 'core" roles and tasks of professional accountants will remain in the future, some of them will be performed by AI-enabled technology rather than humans, leading to significant changes in the tasks and skills of current professions in the broader context of accounting over the next decade. This indicates that people will need to use digital technology wisely and to some extent collaborate with AI-based technology to fill various "new" roles. According to (Fettry et al., 2019), digitalisation has changed the way Indonesian accountants think about and practise their craft. It shows that the majority of accountants see the benefits and challenges of digitalisation and are striving to cope with the technological revolution.

The global economy is evolving rapidly. The accounting profession needs to ensure that its members have the information, skills and competencies required to help businesses maintain economic growth and competitiveness at a national and international level. As a result, professional accountants, as well as those who train and hire them, must be able to meet both current and future demands in order to continue to add value (ACCA, 2016).

3.   Methodology

The unit of analysis for this study was postgraduate accounting students at a comprehensive university in Malaysia. A total of 440 registered students were used as the study population. The total number was obtained from the registration database of the Office of Postgraduate in Accounting at the time of commencement of the study. In this study, a quantitative methodology was used to assess the level of digital competency of postgraduate students in accounting and its impact on the digitalization of the accounting profession by distributing an online questionnaire to the target population.

This study employs non-probability sampling (purposive sampling), and SPSS is used for data analysis. Purposive sampling "is confined to specific types of people who can provide the desired information, either because they are the only ones who have it or conform to some criteria set by the researcher" (Sekaran & Bougie, 2010: 276). A total of 136 people (or 30.9%) responded to the survey.

As the digitalization of accounting is still a relatively new problem, there are very few studies in this area, including those dealing with postgraduate accounting students. For this reason, the questions for this study were modified from several previous studies relevant to this study.

4.   Findings and discussion

4.1   Respondents' profile

The majority of respondents were women (110 or 81%) than men (26 or 19%). Most respondents are Malays (121 or 89%); 1% are Chinese and 10% belong to another ethnic group. Most of the respondents are postgraduates pursuing the Master of Forensic Accounting and Financial Criminology (43%), followed by the Master of Accountancy (38%). Most respondents are part-time students (79 or 58%) compared to full-time students with only 42% (57). Most students are currently in their second year of study (63 out of 136 students), while the fewest students are from the fourth and higher years of study (only 12). In terms

of the age of the respondents, most are between 25 and 29 years old, followed by 35 to 39 years old and 40 years old with a frequency of 52, 32 and 23 years respectively.

4.2   Reliability of the Instrument

The Cronbach Alpha value is used to test the reliability and validity of the internal consistency of the scale. The Cronbach Alpha value had to be above 0.7 (DeVellis, 2003) to be considered reliable. The result of Cronbach Alpha in Table 3 shows that all values for the questionnaire are above 0.7. It can be concluded that the questionnaire is reliable and valid.

Table 3. Reliability test

Factor	Cronbach-Alpha
Information Literacy	0.942
Media Literacy	0.951
Communication Technology	0.937
Digital Literacy	0.960
Digitalization	0.870

4.3   Mean analysis

Mean analysis for all variables is performed to determine the average value for each variable in the study, which gives an idea of where the "centre" of a data set is located. Landell's (1997, as mentioned in Abdul Halim et al., 2017; Hairuzila & Muhammad Ridhuan Tony Lim, 2018) levels of low (i.e., 1.00 - 2.33), medium (i.e., 2.34 - 3.67), and high (i.e. 3.68 - 5.00) were used to interpret the mean score. The mean values for each variable are explained in more detail below.

4.3.1   Information Literacy

Based on Table 4 below, a total of 21 items on information literacy were included in the questionnaire, with the scale ranging from 1(strongly disagree) to 5 (Strongly Agree).

The table shows that the majority of participants agreed with item 5 "strongly agree", indicating that they preferred to use more than one search engine to find information (mean = 4.33). In contrast, most participants answered neutrally to item number 8, which states that they always use Boolean operators when searching for information (mean = 3.25). The remaining items also show that the participants all agree with the question, as all mean values are between 3.41 and 4.20. The mean values of the items on information literacy are thus between medium and high.

Table 4. Mean score for Information Literacy

No	Item	Minimum	Maximum	Mean
1	I can identify the main concepts for task identification given by my supervisor, by using keywords	1	5	4.04
2	I can differentiate between relevant and irrelevant information given by my supervisor, for my task	1	5	4.14
3	I use similar words with similar meaning to describe a concept for a task given by my supervisor	2	5	4.01
4	I can recognize information needed to solve tasks given by my supervisor	1	5	4.04

No	Item	Minimum	Maximum	Mean
5	I use more than one search engine to find information (e.g., Google Scholar, Library Database, Open Access etc.).	1	5	4.33
6	I search for information by myself.	2	5	4.17
7	I get help from someone (e.g., lecturers, friends, etc.) to find information.	1	5	3.81
8	I always use Boolean operators (e.g., "AND", "OR" and "NOT") in my information seeking.	1	5	3.25
9	I utilize the search tools (e.g., catalog, index, abstract, etc.) in locating information.	1	5	3.81
10	I find and locate the online sources and materials by saving them directly from the source.	1	5	4.02
11	I use a Web environment (e.g., Web search) to search for information location and access.	1	5	4.13
12	I am concerned with the type of publication to use for my course assignments between popular (opinion-based) and scholarly (research-base) sources.	1	5	3.96
13	I discuss with others (e.g., lecturers, friends, etc.) about the information found.	1	5	3.97
14	I use a Web environment (e.g., Web search) to search for information.	1	5	4.14
15	I synthesize multiple streams of simultaneous information.	1	5	3.93
16	I incorporate selected information into one's knowledge base.	1	5	3.97
17	I recheck, evaluate and verify the quality of the information.	2	5	4.02
18	I know when to include a reference to avoid Plagiarism.	1	5	4.04
19	I always evaluate information and its sources critically.	1	5	3.93
20	I am aware of the need to access and use information and technology responsibly and ethically.	1	5	4.17
21	I only trust the information received from and/or published by the authoritative bodies.	1	5	4.07

4.3.2 Media Literacy

Referring to Table 5, there is a total of 12 items measuring media literacy, which the scale used ranging from 1 (strongly disagree) to 5 (Strongly Agree).

With a mean value of 4.36, it can be seen that the majority of the participants strongly agree with statement no. 1, "I can use media devices in the technical sense" The other items also have a medium to high value, as the mean values for all items are in the range of 3.41 to 4.20.

Table 5. Mean score for Media Literacy

No	Item	Minimum	Maximum	Mean
1	I can use media devices, in a technical sense (e.g., computer, projector, tablets, smartphone, interactive whiteboard).	1	5	4.36
2	I can consciously choose between different media devices, based on their function (e.g., computer, smartphone or tablet, navigate through hyperlinks).	1	5	4.19
3	I can purposefully use different sources of information and media devices (e.g., search for information using social network sites, the internet).	1	5	4.18
4	I know that media represent information in a selective way and know how to interpret media messages (e.g., implicit versus explicit media language, the structure of a text/article/film/video/…).	1	5	4.02
5	I know how media production and distribution works (e.g., from source to article, the filtering of news, the intersection between politics, media, and democracy).	1	5	3.87
6	I know how media content is tailored to the target audience (e.g., selection possibilities, personalized online offer through cookies, newspapers/television channels/websites and their target audience).	1	5	3.87
7	I can evaluate media content taking into account various criteria (e.g., accuracy of information, comparison of information, appreciation of aesthetic aspects).	1	5	3.82
8	I am aware of the effects of media (e.g., influence on purchasing behavior, undesired effects such as hate or addiction).	1	5	4.05
9	I am aware of my own media behavior (e.g., copyright, illegal downloads, dangerous media behavior).	1	5	4.07
10	I can create media content (e.g., write an article, create a photo, or video document, set up a blog).	1	5	3.68
11	I can communicate and present contents using media (e.g., structure and adapt a presentation, publish media content through an appropriate channel such as blogs, directories, YouTube).	1	5	3.83
12	I can participate in the public debate through media (e.g., show commitment using (social) media, contact organizations by email, reader reactions or social media).	1	5	3.67

4.3.3 Information and Communication Technology Literacy

The descriptive Table 6 shows that there is a total of 20 items under the Information and Communication Technology Literacy section in the questionnaire used with a scale ranging from 1 to 5 (i.e., Strongly disagree to Strongly Agree).

The results show that respondents strongly agreed with items 1 to 5 and item 13 with high mean scores of 4.43, 4.29, 4.26, 4.23, 4.37 and 4.21 respectively. In addition, most respondents answered

neutrally to item number 8: "I like to meet friends and play computer and video games with them" with a mean of 3.26. The remaining items show that respondents moderately to strongly agree with the corresponding items as the mean for each item ranges from 3.40 to 4.20.

Table 6. Mean score for Information and Communication Technology Literacy

No	Item	Minimum	Maximum	Mean
1	I find that the Internet is a great resource for obtaining information I am interested in (e.g., news, sports, dictionary).	1	5	4.43
2	I find that it is very useful to have social networks on the Internet.	2	5	4.29
3	I am really excited discovering new digital devices or applications.	1	5	4.26
4	I really feel bad if no Internet connection is possible.	1	5	4.23
5	I like using digital devices.	1	5	4.37
6	I feel comfortable using digital devices that I am less familiar with.	1	5	3.64
7	I can give advice if my friends and relatives want to buy new devices or applications.	1	5	3.62
8	I feel comfortable using my digital devices at home.	1	5	4.30
9	I think I can find a solution when I come across problems with digital devices.	1	5	3.82
10	I can help if my friends and relatives have a problem with digital devices.	1	5	3.73
11	I install new software by myself if I need it.	1	5	3.99
12	I read information about digital devices to be independent.	1	5	3.99
13	I use digital devices as I want to use them.	1	5	4.21
14	I start to find a solution on my own if I have a problem with digital devices.	1	5	4.03
15	I choose a new application by myself, if I need it.	1	5	4.03
16	I like to talk about digital devices with my friends to learn something new about them.	1	5	3.52
17	I like to exchange solutions to problems with digital devices with others on the Internet.	1	5	3.49
18	I like to meet friends and play computer and video games with them.	1	5	3.26
19	I like to share information about digital devices with my friends.	1	5	3.54
20	I learn a lot about digital media by discussing with my friends and relatives.	1	5	3.60

4.3.4 Digital Literacy

Descriptive table 7 shows that there is a total of 18 items under the Digital Literacy section in the questionnaire. The measurement scale ranged 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5= Strongly Agree.

Table 5 shows that most respondents strongly agree with items 1 to 3 and 5 to 7 with mean scores of 4.3, 4.24, 4.33, 4.27, 4.37 and 4.21 respectively. The remaining items show that respondents' agreement is moderate to high, with mean scores ranging from 3.40 to 4.20.

Table 7. Mean score for Digital Literacy

No	Item	Minimum	Maximum	Mean
1	I like using ICT for learning.	1	5	4.30
2	I learn better with ICT.	1	5	4.24
3	ICT makes learning more interesting.	1	5	4.33
4	I am more motivated to learn with ICT.	1	5	4.13
5	ICT enables me to be a self-directed and independent learner.	2	5	4.27
6	There is a lot of potential in the use of mobile technologies (e.g. mobile phones, PDAs, iPods, smartphones, etc) for learning.	2	5	4.37
7	Lecturers should use more ICT in their teaching of my classes.	1	5	4.21
8	I know how to solve my technical problems.	1	5	3.60
9	I can learn new technologies easily.	1	5	3.85
10	I keep up with important new technologies.	1	5	3.81
11	I know about a lot of different technologies.	1	5	3.55
12	I have the technical skills I need to use ICT for learning and to create artifacts (e.g. presentations, digital stories, wikis, blogs) that demonstrate my understanding of what I have learned.	1	5	3.73
13	I have good ICT skills.	1	5	3.71
14	I am confident with my search skills in obtaining information from the web.	1	5	3.93
15	I am confident with my evaluation skills in obtaining information from the web.	2	5	3.92
16	I am familiar with issues related to web-based activities e.g. cyber safety, search issues, and plagiarism.	1	5	3.96
17	ICT enables me to collaborate better with my peers on project work and other learning activities.	1	5	4.11
18	I frequently obtain help with my university work from my friends over the Internet e.g. through Skype, Google Meet, Facebook, and Blogs.	1	5	3.91

4.3.5   Digitalization of the Accounting Profession

Table 8 shows that the questionnaire contains a total of 18 questions on digitalization, with a scale ranging from 1 (strongly disagree) to 5 (strongly agree). All respondents moderately to strongly agree with each item on digitalization, as the mean scores range from 3.40 to 4.20. Overall, the mean analysis shows that the average values, which reflect the "middle" of a data set, range from moderate to high for all variables in this study.

Table 8. Mean score for Digitalization of the Accounting Profession

No	Item	Minimum	Maximum	Mean
1	Digitalization creates more new jobs.	1	5	4.14
2	Digitalization reduced working time.	1	5	4.20
3	Digitalization raises more work autonomy.	1	5	4.17
4	Digitalization provides better agronomics (support in performing heavy, dangerous or complex work).	1	5	4.19
5	Digitalization enhance more gender equality for women in work.	1	5	4.10
6	Digitalization introduces challenges to the work.	1	5	4.04
7	Digitalization raises job instability	1	5	3.56
8	Digitalization expands working time (work at anywhere and anytime).	1	5	4.10
9	Digitalization would increase the workload (work intensification, dependence of 'data masters' and surveillance).	1	5	3.79
10	Digitalization increases competition among employees.	1	5	3.99

4.4   Correlation Analysis

In order to achieve the objective of the study, which is to examine the relationship between digital competency, which consists of information literacy, media literacy, information and communication technology literacy and digital literacy, with the digitalization of the accounting profession among postgraduate accounting students, the Pearson correlation value and scatter plot between the independent variable and the dependent variable were used in this study. Table 9 of the Pearson correlation measures the strength of the relationship between information literacy, media literacy, information and communication technology literacy and digital literacy with digitalization.

The table shows that there is a moderate positive relationship between media literacy and digitalization since the correlation value is 0.494, while a strong positive relationship was found between information literacy, information and communication technology literacy and digital literacy and digitalization as the correlation value is 0.692, 0.633 and 0.702 respectively. The result is consistent with the study of Mas Ervina et al., (2015) which shows that Malaysian accounting students seem to have confidence in the ability of their current accounting education to prepare them for professional accounting education.

Table 9. Pearson Correlation

	Correlate	Pearson correlation value
Digitalization	Information Literacy	0.692
	Media Literacy	0.494
	Information and Communication Technology Literacy	0.633
	Digital Literacy	0.702

The findings on media literacy are consistent with the study by Mapes et al., (2021), which shows that students benefit from media literacy during the continuous transition to digital pedagogy. Students' academic empowerment goals are significantly enhanced by media literacy. The focus on media literacy is important because it can be used to enhance students' understanding of the subject matter and related issues that are reinforced by digital technology. As for information literacy and information and communication

technology literacy, the findings are consistent with Avcı and Ergün 's (2022) study, which shows that information literacy is crucial to enhance students' participation and interaction. Such designs improve students' interaction with digital technology, which also promotes student engagement.

In terms of digital literacy, the result shows that respondents are interested and enjoy learning ICT as part of their digital literacy. This means that the use of technology in education has made digitisation a global requirement, made teaching and learning more enjoyable and made it easier for both teachers and students to learn new information (Subnani & Khatri, 2021). This is in line with (Gonçalves et al., 2022), who stated that accounting professionals operating in the digital age are expected to combine digital skills with previously required knowledge, competencies and skills in a logic of addition and replacement.

Furthermore, Figure 1 below shows that information literacy, media literacy, information and communication technology literacy and digital literacy all have a positive linear relationship with the digitalization of accounting. This indicates that higher levels of digitalization are associated with higher levels of information literacy, media literacy, information and communication technology literacy and digital literacy.

Hence, the scatterplot table confirms the results of the Pearson correlation table.
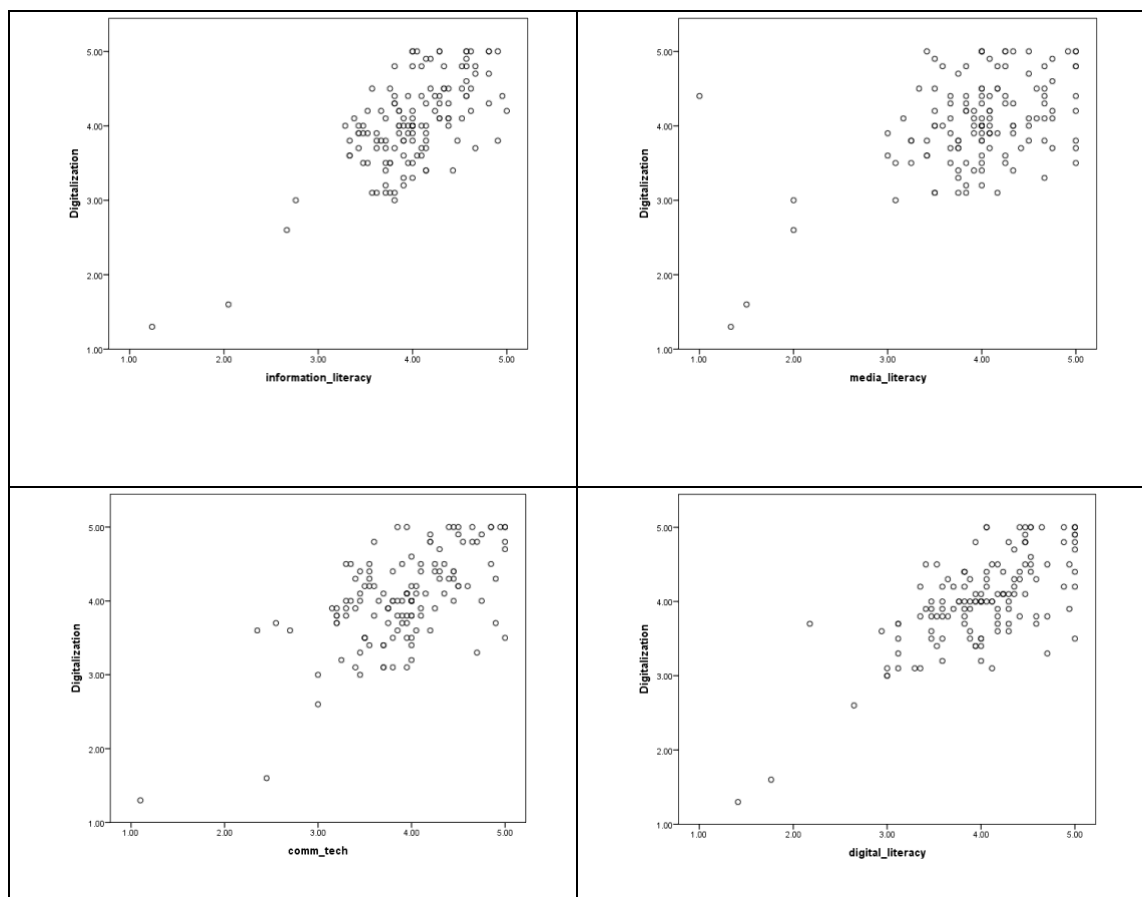

Fig. 1 Scatterplot

In short, due to the fourth industrial revolution, practically all industries are affected by the digitization of the work process. This also applies to the accounting industry, which advises aspiring accountants to equip themselves with the necessary digital skills and prepare for digitalization (Awang et al., 2021).

5.   Conclusion

The global development agenda now centres on the rapidly growing digital economy. As such, digital competencies are used as the integration of digital technology into all functions of an organisation, radically changing the way companies do business and deliver value to their customers. In the era of IR4.0,

digital competencies are the key skills and capabilities that accountants must possess to transform themselves into sustainable and successful professionals, with digital technology serving as an enabler.

This study investigated the level of digital competence among postgraduate accounting students and its impact on the digitalization of the accounting profession. The results of the mean score analysis show that the mean scores reflecting digital competence, namely information literacy, media literacy, information and communication technology literacy, digital literacy and information literacy, are moderate to high. In terms of association, the results show a positive moderate association between media literacy and digitalization, while a positive strong association was found between information literacy, information and communication technology literacy and digital literacy with digitalization.

The findings provide insight on the level of digital competencies of postgraduate accounting students, which helps to assess how digital competencies affect the digitalization of the accounting profession. In addition, this research would signal to the accounting profession the readiness of potential players within the profession for digitalize accounting.

Finally, the study was conducted with a group of postgraduate accounting students from a comprehensive university. To enrich the findings, future studies could include postgraduate students from other universities. In addition, the focus of future studies could be broadened to include an assessment of accounting practitioners' perspectives on their level of digital literacy in relation to the digitisation of accounting.

6. Co-Author Contribution

The authors declared that there is no conflict of interest in this article. All authors are involved in the conceptualization of the article. In addition, Authors 1, 2, and 3 contributed to the writing, data collection, analysis, and interpretation of the quantitative data for the final manuscript. Author 4 was responsible for the technical aspect of the manuscript, while Authors 5 and 6 assisted with the literature review and related theory.

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