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## Perceived ODL Effectiveness among Gen-Z Non-Accounting Students Learning Accounting

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### Abstract

The study is concerned with how to make learning effective given the change in the education environment due to digitisation and the escalation of open distance learning (ODL) brought about by the COVID-19 pandemic. Generation Z (Gen-Z) non-accounting students taking accounting courses face challenges and may be demotivated from having to learn subjects they are not inclined toward. These challenges are examined together with their level of motivation. This study provides insight into relevant learning tools incorporating new digital approaches in learning accounting subjects. Understanding Gen-Z learning style may provide input to formulating appropriate teaching delivery and changing teaching methods to suit current generation needs hence contributes towards sustainable and resilient education system to future generation learners. The study seeks to establish relationships between Gen-Z non-accounting students' reaction to challenges, and motivation to learn accounting courses, with ODL's perceived effectiveness. This quantitative study is based on a sample of 265 non-accounting students taking ODL accounting courses. The statistical analyses find that positive students' reaction to challenges faced during ODL leads to better perceived ODL effectiveness. Students' motivation level has no impact on the perceived ODL effectiveness. The digital tools used by students for ODL positively impacts the perceived ODL effectiveness.

**Keywords:** Gen-Z Non-Accounting Students, Learning Challenges, Learning Motivation, Odl Effectiveness, Digital Tools

### Introduction

Countries across the globe formulate their own education policies to cope with the emerging technologies to prepare graduates with digital and employability skills. In the global fight against the COVID-19 pandemic the reliance on technology escalates worldwide to ensure the continuity of education when movement is restricted. Having access to digital tools becomes more important during this period. The use of devices such as mobile phones, tablets, laptops and others become more ubiquitous as students attend classes online.

The perspective of this study is concerned with how to make learning effective given the change in the education environment. In the context of education digitisation, students'

learning experience may be meaningful when learning is flexible, inclusive and relevant. For Gen-Z students with wide and easy access to information, the move from traditional learning framework to online learning may present challenges for and affect the level of motivation of many beginners taking up accounting courses as part of their programme requirement. This research seeks to examine their reaction to these challenges and their level of motivation.

There are different teaching methodologies that incorporate active learning to support non-accounting students to develop interest in accounting and enhance their critical thinking skills in the acquisition of accounting knowledge. This research will also include discussions on the use of technology and enhancement of teaching and learning tools to facilitate learning on digital platforms. Drawing on reflections of students' learning style, this research aims to provide a perspective and critical commentary on some of the challenges faced by these students and their implications for an increasing need of a more effective delivery framework in digitising education.

This study also examines if the preference for and challenges of online learning could be predicted from some relevant factors such as the non-accounting students' perceptions to learning accounting courses online relative to their respective academic disciplines, or the extent of usage of digital devices in their daily lives. Combining the insights obtained on the challenges faced by non-accounting students with the impact of digital learning platforms, this research aims to explore the extent to which a digitalised approach can enhance learning experience for non-accounting students in line with Malaysia's Higher Education Framework to redesign learning environment and learning experiences to attain learning outcomes required for future economic business. (Framing Higher Education 4.0, 2018)

According to the Technology Acceptance model (TAM), perceived usefulness and perceived ease of use can explain learners' belief, behavioural intention and attitude of learners to use available digital tools. So based on the survey responses, this study also considers the availability of new learning tools to increase the motivation of non-accounting students to enhance their academic performance for the non-accounting courses.

### **Problem Statement**

Non-accounting students are sometimes required to complete certain accounting courses throughout their programme either as compulsory or elective courses.

They often face a number of barriers to their learning experiences. Gen-Z non-accounting students who have to take accounting courses face challenges and may be demotivated from having to learn subjects that they are not inclined towards and negative attitudes emerge when students are unable to calculate accounting exercises correctly (Goh and Scerri, 2016). This may be caused by their level of understanding of elementary accounting made more difficult when faced with concepts and technical jargons that do not match their understanding of their own discipline of study. These students do not learn by traditional methods of knowledge transmission from expert to novice. Rather, the students in this generation believe that his or her experiences are valuable and that they must synthesize knowledge in order to understand it (Purcell, 2018).

The omnipresence of digital devices and accessibility to the internet combined with the digital lifestyle of generation Z might mean there is a certain preference to online learning among these students. Therefore, the knowledge of the non-accounting students' perceptions to learning accounting courses online relative to their respective academic disciplines and

today's technology advancement would contribute towards developing learning styles that incorporate new digital approaches in learning accounting subjects and changing the method of teaching to suit the present needs.

### Research Objectives and Research Questions

Table 1 depicts the research objectives and questions for this study:

Table 1

*Research objectives and research questions*

	Research objectives		Research questions
RO1	To examine if the learning challenges faced by Gen-Z non-accounting students attending ODL accounting courses affect the perceived effectiveness of ODL	RQ1	Do the challenges faced by Gen-Z non-accounting students attending ODL accounting courses affect the perceived effectiveness of ODL?
RO2	To examine if the level of motivation of Gen-Z non-accounting students attending ODL accounting courses affect the perceived effectiveness of ODL	RQ2	Does the motivation of Gen-Z non-accounting students attending ODL accounting courses affect the perceived effectiveness of ODL?
RO3	To examine whether the digital tools used by non-accounting students affect the perceived effectiveness of ODL	RQ3	Do the digital tools used by non-accounting students affect the perceived effectiveness of ODL?

### Significance of the Study

This study examines issues and challenges to come up with recommendations on teaching and learning delivery of accounting courses that are relevant in the digital learning environment. On a larger scale, this contributes towards a sustainable education system that is more resilient to future generation learners. The outcome of this study highlights the importance of how technology is used to facilitate learning that addresses learners' cognition.

### Scope and Limitations of Study

Data collection is conducted during the MCO where the classes are totally online. Computer self-efficacy is excluded from the study where all the students are assumed to be IT-literate. The sample consists of Year 2 students taking two accounting courses therefore responses might be confined to their perception towards the specific accounting courses. Most of the respondents are from the programmes in the social science discipline hence they tend to be more disinclined towards accounting courses as opposed to science discipline students.

### Literature Review

#### *Digitalisation of Education*

Emerging technologies such as automation, robotics, artificial intelligence (AI), machine to machine (M2M) and the internet of things (IoT), are changing the way the world operates and have assisted in the global fight against the COVID-19 pandemic on a global scale. In the context of Malaysia, the impact of digitalisation on the nation is formally addressed by the publication of the government policy on the industrial revolution (National 4IR Policy) in 2021 to transform socioeconomic development by creating a conducive ecosystem to cope and

build trust in an inclusive digital society. Therefore, Malaysia Education Blueprint 2015 – 2025 for Higher Education prepares Malaysian youth with fundamental transformation through the current operation of the higher education system and higher learning institutions (IHLs). This is to ensure technology-enabled innovations to deliver and tailor education for all students by leveraging technology-enabled models to enable more personalised learning (Malaysia Education Blueprint 2015 – 2025 for Higher Education, 2015). According to Zain et al (2017), over the years, the evolution of Malaysia's education system has rapidly transformed, with standards and better systems in place and the shift towards internationalisation brought about by globalization, as a regional hub for higher education.

A learning-centric ecosystem is rather about what humans can do well rendered by smart technology and machines (Education 5.0 @ UiTM, 2019). Thus, it is about capitalising and leveraging on technology innovation to ensure provision of courses are efficient and students' learning experiences are meaningful and exciting through tools such as augmented reality, mobiles, and learning on cloud space. Students' meaningful learning experience refers to learning that is flexible, diverse, inclusive, respectful and relevant.

Salleh et al (2020) in their study, discuss the educators' acceptance of Education 5.0 framework. Education 5.0@UiTM is an educational transformation framework and finding from this research shows that it is sufficiently understood by educators and acceptance of the framework is perceived to produce better graduates.

According to Kamal et al (2019) on the Education 5.0 and Industry 4.0 learning technologies, immersive and interactive educational experience is the future of teaching and learning. Both educators and students need to adapt with technology. The research found challenges of expensive mobile internet cost, and stable internet connection as barriers. Also, virtual reality technology is proven to be more advantageous as students get to see how it is used, and how to use it. Other improvements include language skills, two-way communication and visual experience, and ability to grasp new skills with a clearer understanding.

### **Gen-Z's Characteristics and Learning Style**

Salleh et al (2017) in their study define Gen-Z as those born between 1995 to 2012. The finding of the research on behavioural characteristics and its effect identify that Gen-Z are bold, open minded, and respond openly to their surroundings. This is consistent with previous literature's findings. Demir and Sonmiz (2021) state that Gen-Z grew up with mobile communication technologies and the internet. Therefore, this generation perceives the world in different ways. These digital natives are quick to receive information and are able to multitask. The Gen-Z as visual learners, have shorter attention spans. The research finds that students use mobile devices and social media as means of classroom technology, as they are part of Gen-Z's daily lives. So, teachers should teach using the internet and other digital tools.

Dolot (2018) studies Gen-Z characteristics based on the age brackets, adopting the widest age brackets; that is, people born in 1990 and later. Among the top three characteristics is they like getting to know and use technology. Empathy is another characteristic of Gen-Z as revealed by Moscrip (2019) showing that females have a higher level of empathy and it is influenced by distinctive experiences and attributes. Ghaidani et al (2019) find that Gen-Z are digital-centric, being brought up with the current technology where Gen-Z communicates

largely through video. Communication is also more verbal rather than written. Ghaidani opines that Gen-Z will out-communicate their predecessors.

Chan et al (2021) research on smartphone usage among Gen-Z finds that addiction to mobile phones is unfavourable towards academic performance and induces emotional instability. Nicholas (2020)'s study finds that Gen-Z always have access to the internet thus are more inclined to e-books due to their exposure to technology. Therefore, they are able to get information immediately and this strongly influences their learning style.

Ariffin et al (2021)'s study on student's strategies in learning English online finds that metacognitive strategies are preferred as online learning requires students to be more independent. Students can guide their own learning process by taking responsibility for it and playing an active role throughout the learning process facilitated by digital tools.

Iftode (2019) also proves that technology plays a major role in Gen-Z's learning style. Understanding the learning style is important to ensure active involvement. Gen-Z are identified with an auto-didactic and independent learning type, and choose how and what to study. However, lack of time and work experience also shape their learning style. The study shows that this generation is focused on practical study methods with connections to real life.

#### *Issues and challenges of Gen-Z's non-accounting students in learning accounting courses*

Advancement of technology has bearing on Generation Z's learning process where access to information is easy through smartphones, broadband internet access at home, or an online connection at school. Gen-Z, being guided by technology in almost all aspects of their lives are dependents of smart devices, the internet, the social media and other tools and services offered by the IT domain (Bogoslov and Georgescu, 2019). However, Generation Z is also characterised as the generation whose personal contact is repressed by communication through modern technological devices (Jurenkam et al., 2018).

Schwieger and Ladwig (2018) inform on Ernst and Young (EY) Reports on Gen-Z in 2016 where the researchers found Gen-Z members to be very entrepreneurial, self-educated and self-sufficient; relying more on self-service tools to research products, as opposed to seeking an interaction with experts. As learners, they become comfortable and accustomed to learning independently and engage in education practices in an individual setting such as reading an article or an eBook, completing an online module, or watching an instructional video and more importantly set their own learning pace (Seemiller & Grace, 2017).

Ahmed et al (2017), in their study use the internet and smartphone as moderating variables to establish the impact of customer attitude and technology on brand awareness. Di and Zheng (2022) also examine the moderating effects of virtual technologies and learning application types in their study of the impact of virtual technologies on students' spatial ability. A study by Ahmed et al (2020) that examines the influence of smartphone usage in university students, and its impact on their academic performance incorporated technology as a moderating variable between independent variables and outcome variables. They measure the influence of the moderating variables and find that technology is a significant moderator in the relationship.

Eventually what determines the learning process is the skills and opportunities of the learner (Szabó et al., 2021). Digitisation of accounting knowledge and information provide opportunities for learners to utilise these digital tools for more effective learning. Hasbolah et al (2020)'s study reveals that non-accounting undergraduate students feel confident and keen to learn accounting courses online as long as they acquire the perceived skills to use the online tools. Learning accounting courses on digital platforms may be more easily accepted if it can provide the identical learning experience based on the traditional lecture-based classroom.

Although traditional education strategies such as lectures, written exercises, oral presentations, the use of the board and overhead projectors still prevail, there is room for some innovation and the benefits that always result from a different approach (Silva et al., 2021). Silva et al's study on game-based learning dimensions in the teaching-learning process of accounting finds that students felt motivated to use a different resource from what they were used to in order to help their learning process. In addition, they also find that the characteristics of the resource had a positive impact on the students' attitude to learning the content of the curricular units in question.

Access to voluminous accounting materials on the internet as well as printed materials may not necessarily be beneficial to students' learning. For non-accounting students having to learn introductory accounting courses for the first time may be overwhelmed by the volume of information available and may hinder their learning process.

Based on their review of the accounting education literature, Apostolou, et al (2017 suggest that research studies are needed to identify technologies that have the potential to improve accounting education and to examine how such technologies are being used or can be used in accounting education. The use of technologies is beneficial if they create an adequate learning environment for students with plenty of attractive and simple applications (Válek and Sládek, 2017)

The study on Omani non-accounting students by Velasco (2021) shows a high inclination on the learning approach as the key variable associated with the students' performance. Surface learning approaches, level of English comprehension required to understand accounting terms and concepts, and the study habits of the students contribute to their academic performance. Students are found to be more focused on passing the assessments than building knowledge and skills. The study recommends guided independent learning for students with focus on knowledge and skills building activities, and utilising the independent learning hours of the students.

Sam (2020)'s study on learning approach suggests that course instructors should emphasize on teaching strategy that directs students to self-regulate their learning and brainstorming. These strategies would help students to appreciate conceptual understanding and applications rather than resorting to a rote style of learning to be able to apply conceptual knowledge of those courses to actual situations.

An efficient education system is one that considers the behavioural attitude and learning characteristics of the students based on a learner-centred approach. The latter modern

theories of learning have gradually transited to individual-focussed learning (Bogoslov and Georgescu, 2019). As digitalisation impacts the society as a whole, it can also be utilised in a learner-centred education by digitising traditional learning tools for the individuals' cognitive level. Under Malaysian Higher Education Frame 4.0, higher education programmes are tasked to promote students' diversification of roles as curators of knowledge, content producers, connection-makers, the web as the open global curriculum and educators as the resource guide (Framing Malaysian Higher Education 4.0, 2018).

Students studying an introductory financial accounting subject face large amounts of information that may appear isolated conceptually (Sithole and Abeysekera, 2017). They struggle to understand accounting concepts and subsequently fail to recognise the interrelations of the concepts. Unlike accounting students who learn accounting courses to develop competencies to practice as an accountant, non-accounting students learn accounting as a secondary subject. Their level of understanding of elementary accounting is made more difficult when faced with concepts and technical jargons that do not match their understanding of their own study discipline. Through traditional teaching of accounting lectures and exercises, students only learn to view the selected business operation in the accounting system. They are not trained to apply their acquired accounting knowledge to managerial decision making in business. (Stejskalová et al., 2019)

#### *Learning Theories*

Given the role of technology to comprehensively support the more efficient and effective education process, the use of appropriate cognitive theories is applied to better understand the learners' perspective. Digital tools can be beneficial to learners when they are appropriately designed and address the cognitive challenge of learning accounting. For example, these tools can be structured to contain accounting knowledge that is organised in an integrated structure where accounting information is organised to facilitate the cognitive process of understanding accounting.

Characteristics such as multitaskers, quick to receive information, shorter attention spans and, visual learners are among those identified by the literature review above as Gen-Z learners. They use mobile devices and social media as part of their daily lives. This study proposes to examine how Gen-Z accepts this medium as part of the classroom technology.

Cognitive learning through a learning-persuasion relationship is effective when the learner accepts the contents. Greenwald (1968) hypothesises that persuasion is a function of knowledge retention. Persuasive messages through public communication media can be a source of cognition. In today's world this would be social media and digital tools in addition to face-to-face communication. Persuasive communication as a cognitive learning process assisted by contents of attitude-relevant cognition elicited (Greenwald, 1968) as opposed to internet search suggests that digital learning tools may be beneficial to Gen-Z learners.

Alshurafat et al (2021) study the use of online learning systems by accounting students found that the perceived usefulness of the online learning system was positively affected by the ease of use of the online learning system. They recommend that systems developed should be user-friendly, easy to use, and manageable because if users (students and instructors) find



the online learning system easy to use, they are capable of effectively implementing the online learning system.

The use of cognitive load theory is relevant as it is based on a constructivist perspective. Learners' learning process and understanding are mediated by their own personal experience and social interactions. Sithole (2019) states that to attain effective teaching and learning outcomes, the instructional theories are employed to lead the development of instructional design strategies that produce applicable cognitive processes. He applies cognitive load theory (CLT) in his study as the theoretical evidence underpinning the design and delivery of accounting instructional materials in a blended learning unit. The theory is also applied by Yang and Farley (2019) in their study of academic performance of accounting students whose first language is not English but with instructions in English. The finding suggests that teaching and learning can be eased by instructive tools that can lower the extraneous cognitive load that a learner can absorb.

Similarly, digital tools are beneficial to learners to the extent that they are utilised effectively. Technology Acceptance Model (TAM)'s theory construct is based on the two cognitive beliefs of perceived usefulness and perceived ease of use. Learners' belief, behavioural intention and attitude of learners to use available digital tools can be explained by this model to assess directly or indirectly learners' actual use of the technology (Hussein, 2017) that is whether learners would use digital tools to assist in their learning process because they find the tools useful and easy and convenient to use.

A Technology Acceptance Model (TAM) can be designed to include additional behaviour constructs to develop further understanding of technology acceptance (Siegel et al, 2017). The study includes motivation and organisational support as constructs of TAM. A study by Ibrahim et al (2017) investigates students' acceptance of e-learning in university using a modified TAM model using six constructs namely instructor characteristics, computer self-efficacy, course design, perceived usefulness, perceived ease of use and intention to use. The finding is that computer self-efficacy, perceived ease of use and intention to use e-learning are the significant factors that affect students' use of e-learning but not instructor characteristics and perceived usefulness.

Addressing the cause of resistance to new technology is important to the learning process. Interest leads to the internal motivation to overcome obstacles in the desire for an internal reward such as better academic performance. The increase in internal motivation may ultimately lead to greater acceptance of technology (Siegel et al., 2017)

### **Research Methodology**

This is a quantitative study on motivation and challenges of Gen-Z non-accounting students in learning accounting courses. The study analyses data collected from a sample representing a students' population consisting of Gen-Z non-accounting students who have taken one or more accounting courses as part of their programme curriculum requirement for their first degree study.

*Research questions and hypotheses development*

The research questions were used to form hypotheses and guide the quantitative research design to establish the relation between challenges and motivation, and perceived effectiveness of online distance learning (ODL) as in Table 2:

Table 2  
*Research questions and hypotheses*

Research question		Hypothesis	
RQ1	Do the challenges faced by Gen-Z non-accounting students attending ODL accounting courses affect the perceived effectiveness of ODL?	H1	There is a positive relationship between students' reaction to challenges and the perceived effectiveness of ODL.
RQ2	Does the motivation of Gen-Z non-accounting students attending ODL accounting courses affect the perceived effectiveness of ODL?	H2	There is a positive relationship between the level of student motivation and the perceived effectiveness of ODL.
RQ3	Do the digital tools used by non-accounting students influence the perceived effectiveness of ODL?	H3	The digital tools have a positive impact on the perceived effectiveness of ODL
		H3a	The digital tools strengthen the relationship between the challenges and the perceived effectiveness of ODL.
		H3b	The digital tools strengthen the relationship between the motivation level and the perceived effectiveness of ODL

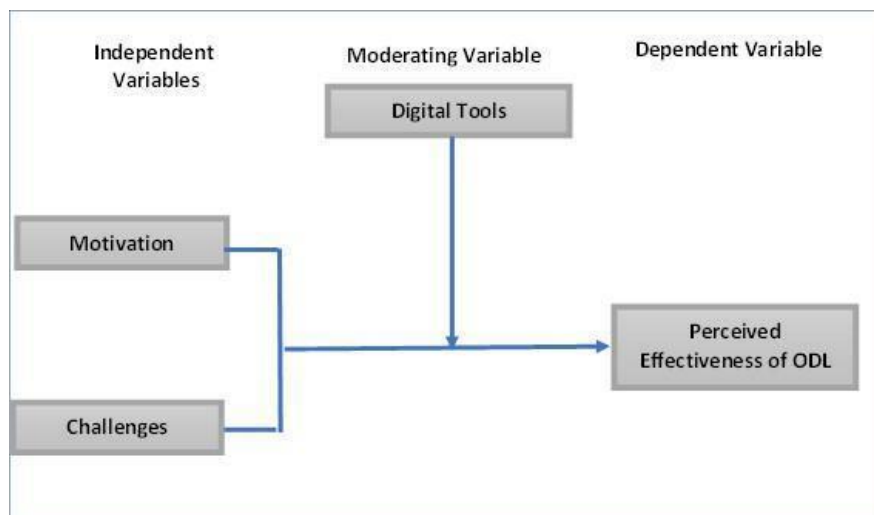


Figure 1 depicts the research framework.

Figure 1: Research framework

Drawing from extensive literature, motivation and challenges have been identified as potential impact on students' perceived effectiveness of ODL. The more motivated the students are, the more engaged they will be during class and hence they would perceive the

class to be effective. Motivated students tend to be more focused in class and thus generally have a better understanding of the subject being delivered.

Their reaction to the challenges faced during online learning also affects the perceived ODL effectiveness. Positive reaction to challenges means students do not find the challenges as major obstacles or they have ways to overcome those challenges. This indicates that online learning as effective as their learning experience is not hindered significantly by these challenges.

Types of digital tools to access students' ODL are included in the theoretical model as moderating variables to explain the link between the independent and dependent variables, and its effect on the strength and direction of the relationship. The digital tools may be perceived as overcoming the challenges faced during online learning as well as may increase students' motivation level.

### **Instrumentation**

This study employs primary data collected from responses to the questionnaires. Questionnaire surveys are administered through google form to students who were sitting for one non-accounting course at Universiti Teknologi MARA (UiTM) in the semester March-August 2021. The questionnaire includes sections on personal details and background, questions related to challenges, motivation and perceived effectiveness of ODL, and the use of digital tools.

### **Population and Sample**

The population for this study is Gen-Z non-accounting students who take accounting courses in Year 2 as required by their first degree's curriculum. This study's sample consists of 265 UiTM students with no accounting background who are required to complete an accounting course in their respective programs. These students come from various programs including administrative science, environmental technology, office systems management, business administration, computer science, food service management and hotel management. The respondents are mainly those who have to take Intermediate Financial Accounting and Reporting (ACC406) and Cost and Management Accounting (ACC416) courses as part of the program requirement.

### **Data Collection**

Data is collected over three weeks during the ODL study session due to Covid-19 pandemic. These students are given a questionnaire to collect their responses to challenges they face and the motivation that drive them during ODL. These responses are measured using Likert scale of 1 to 5. 1 means the students strongly disagree with the statement and 5 means they strongly agree with it. It also gathers information on personal background, their perception of ODL effectiveness, and the type of internet connection and devices they use for ODL.

### **Data Analysis**

The questionnaire and students' responses are captured via Google form. Regression analysis is used to form conclusions on the relationship between challenges and motivation and perceived ODL effectiveness. Reliability test is performed on the research model and data validity is statistically tested.

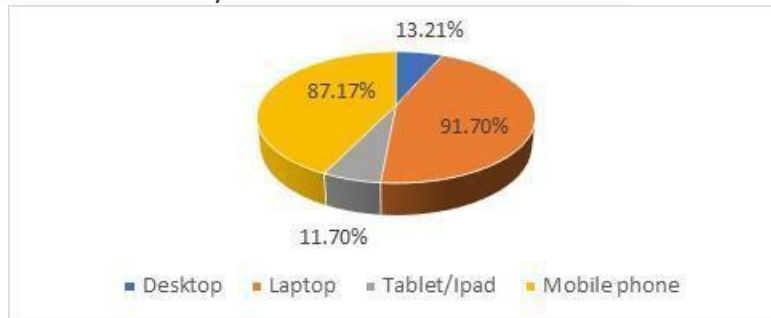
## Results

### *Descriptive Analysis*

The analysis on the different means of students' attendance to their ODL classes are depicted in charts 1 and 2.

As depicted in Chart 1, most of the 265 students use laptops and mobile phones to access their ODL classes with a majority owning both these devices as opposed to desktop due to the former's portability. Tablets are the least used device, as students may find them less value-worthy in relation to their cost, function, and size.

Chart 1: Types of devices used by students to access ODL classes



In terms of connectivity, the majority of the students use wireless internet at home to access ODL classes. Quite a significant percentage also use their mobile data plan for internet access (see Chart 2). This indicates that most students have home internet access with less than 2% accessing the internet from other places.

Chart 2: Types of connectivity used by students to access online classes

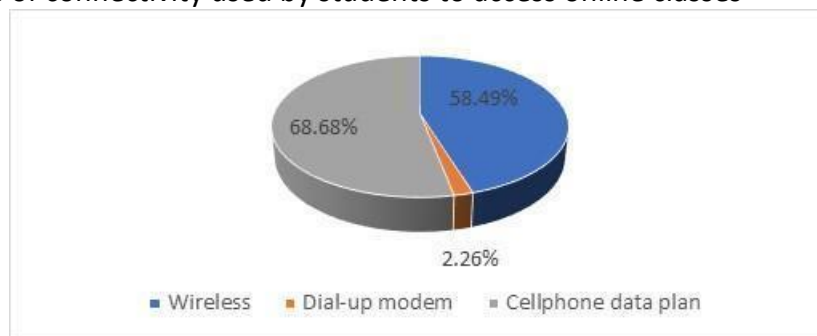
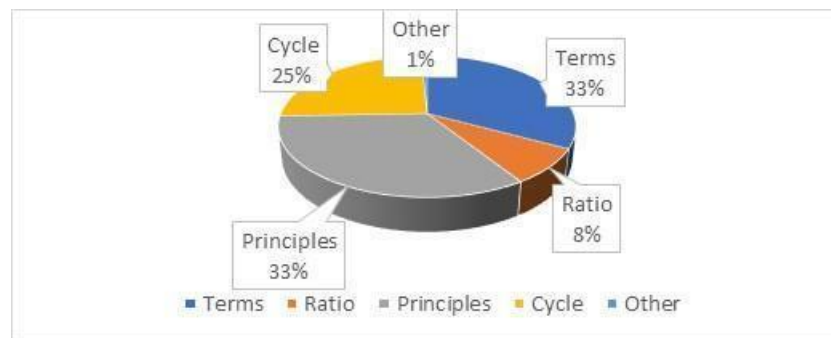


Chart 3 analyses the common accounting-related matters most-searched for, indicating areas that they find challenging in learning accounting. Chart 3 shows that students mostly search for explanations on accounting principles and definition of terms. 25% of them access the internet for information on accounting cycles and only a small percentage (8%) search for financial ratios. This indicates that most non-accounting students find it challenging to understand the conceptual rather than the technical side of accounting.

Chart 3: Accounting topics searched by students on the internet



Responses to the questionnaires show that students are generally quite motivated. However, it is interesting to note that quite a noticeable percentage disagree that ODL is the best way to learn accounting and 16% disagree with the continuation of ODL when face-to-face classes are allowed. Majority of students also react positively towards the challenges associated with ODL, indicating that most of them have access to the internet and are participative during ODL. In terms of perceived ODL effectiveness, most students are satisfied with the lecture delivery. About 16% find ODL stressful and this resonates with the feedback on motivation, indicating that some students still prefer physical classes.

### Regression Analysis

Regression analysis is to establish relationships between challenges and motivation with students' perception of ODL effectiveness. The regression analysis is performed by setting Perceived Effectiveness of ODL as dependent variable, Challenges and Motivation as independent variables and Digital Medium as the moderating variable. This is to establish whether the challenges faced by students during ODL and their level of motivation affect how they perceive ODL effectiveness.

The model's reliability in this study is tested using a number of tests. As the results in Table 3 show, the model passes all the tests. The composite reliability scores are more than 0.7 and the Average Variance Extracted (AVE) scores are more than 0.5. This is supported by Cronbach's Alpha reliability estimates at more than 0.6.

#### *The impact of students' reaction to challenges on perceived ODL effectiveness*

Table 4 shows that the coefficient for challenges is significant at the 5% level. The value of the coefficient is positive at 0.566. Hence, it can be inferred that hypothesis H1 is supported. In other words, the more positively students react to the challenges they face during ODL, the greater the perceived ODL effectiveness.

#### *The impact of motivation on perceived ODL effectiveness*

Table 4 shows that the coefficient for motivation is not significant both at the 5% and 10% levels. Hence, it can be concluded that hypothesis H2 is not supported. In other words, students' level of motivation has no impact on the ODL perceived effectiveness.

*The impact of digital tools on perceived ODL effectiveness*

From the regression results, the coefficient for digital tools is significant at the 5% level with a positive coefficient of 0.295. Hence, hypothesis H3 is also supported, indicating that the digital tools used by students for ODL positively impacts the perceived ODL effectiveness.

*The impact of digital tools as moderating variable*

The coefficients for digital tools as the moderating variable for both motivation and challenges are not significant even at 10% level. Hence, hypotheses H3a and H3b are rejected. This shows that digital tools do not strengthen or weaken the relationship between students' reaction to challenges and their level of motivation with the perceived ODL effectiveness. This is further explained by the effect size calculator in Table 5, where the f-squared is less than 0.02. The moderating variable has no impact on the relationships between independent and dependent variables.

Table 3  
*Reliability Tests*

	<b>Cronbach's Alpha</b>	<b>Composite</b>	<b>AVE</b>
Challenges	0.675	0.816	0.599
Challenges*Digital Tools	0.975	0.977	0.741
Digital Tools	0.876	0.914	0.687
Effectiveness of ODL	0.737	0.849	0.654
Motivation	0.903	0.921	0.540
Motivation*Digital Tools	0.991	0.991	0.691

Table 4

*Hypothesis testing – path coefficient*

Hypothesis	Path	Original Sample (O)	Sample Mean (M)	T Statistics	P Values	LL (5%)	UL (95%)
H1	Challenges -> Effectiveness of ODL	0.566	0.630	1.990	<b>0.023</b>	<b>0.131</b>	<b>1.035</b>
H2	Motivation -> Effectiveness of ODL	0.384	0.318	1.159	0.123	-0.221	0.837
H3	Digital Tools -> Effectiveness of ODL	0.295	0.300	2.054	<b>0.020</b>	<b>0.036</b>	<b>0.506</b>
H3a	Challenges* Digital Tools -> Effectiveness of ODL	-0.093	-0.113	0.999	0.159	-0.247	0.053
H3b	Motivation* Digital Tools -> Effectiveness of ODL	0.028	0.048	0.262	0.397	-0.125	0.220

Table 5

*Effect size calculator*

	Included	Excluded	f-squared	Effect size
R-squared	0.609	0.603	0.0153	None

Drawing from these results, a revised model is proposed in Figure 2 below, showing digital tools as an independent variable having a direct effect on the perceived ODL effectiveness.

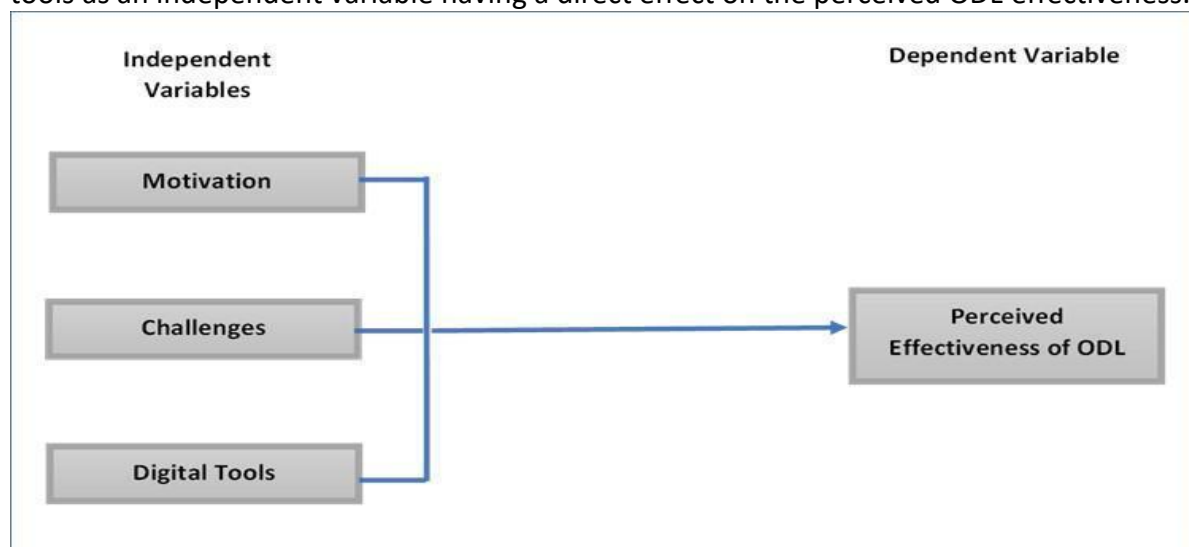


Figure 2: Revised research model

## **Analysis, Conclusions, and Recommendations**

### *Analysis*

The regression analysis supports hypotheses H1 and H3 whilst H2, H3a and H3b are rejected. The reaction to challenges does have a significant impact on the perceived ODL effectiveness. Students respond positively to ODL challenges. They put in a significant level of commitment for ODL. They are comfortable learning accounting through ODL and seldom miss ODL classes despite of accessibility issues. The better they are at adapting to ODL challenges, the more effective they perceive ODL. According to cognitive learning theory, the learner is persuaded and learning becomes more effective when the learner accepts the contents. Knowledge is better retained when the learner overcomes ODL challenges. This is also consistent with the Technology Acceptance Model (TAM) where constructs such as computer self-efficacy, perceived ease of use and intention to use e-learning are the significant factors that affect students' ODL.

The use of digital tools may motivate students in their online learning through various functions of the tools. For example, the use of latest smartphone models results in better audio and video quality and faster internet access. These make online learning experience more engaging and effective. These tools also make online classes accessible from virtually anywhere and this may reduce the challenges faced by students. Despite this, this study finds that digital tools do not have a significant impact on the relationship between challenges and perceived effectiveness of ODL. They do not moderate the relationship, instead they have a direct relationship with the perceived ODL effectiveness. Regardless of digital tools used, students react positively to ODL challenges. This may be because during the pandemic, students inadvertently need access to these tools for them to attend ODL.

Consistent with literature, Gen-Z learners are comfortable and accustomed to learning independently and engage in education practices in an individual setting and more importantly set their own learning pace. Motivation level does not have a significant impact on the perceived ODL effectiveness. The barriers to their learning experiences are in other forms such as disinclination towards taking non-core courses such as accounting and negative attitude emerge when students are unable to complete accounting exercises. Digital tools as a moderating variable in this study does not have a significant impact on the relationship between the level of motivation and the perceived ODL effectiveness, meaning that the level of motivation is not influenced by types of digital tools used. Non-accounting students are not motivated to learn accounting regardless of tools used.

However, digital tools have a direct significant relationship with perceived ODL effectiveness. Gen-Z being digital natives are already familiar and comfortable with digital tools. Therefore, the use of digital tools as part of their learning is a natural extension of their daily lives. The disruption caused by Covid-19 pandemic has further magnified the reliance on such tools. The omnipresence of digital devices and accessibility to the internet combined with the digital lifestyle of gen-Z might indicate there is a certain preference to ODL. Responses from the survey indicate that students prefer synchronous sessions with recorded sessions made available for after-class viewing. This can also address the poor internet connection issue.

The preference for and challenges of ODL are predicted based on the survey responses. It is found that students extend the use of digital tools such as laptops and mobile phones in their daily lives to learning. Students also find ODL to be challenging to learn accounting especially for tutorial classes. It is anticipated that hybrid teaching delivery is more relevant where



tutorials can be conducted face to face and lectures are delivered through ODL particularly using synchronous mode.

### Conclusions and Recommendations

The context of this study is Gen-Z non-accounting students taking accounting courses. The study finds that motivation level does not influence the perceived ODL effectiveness but challenges do. Digital tools do not moderate these relationships but have direct influence on perceived ODL effectiveness. It is recommended that higher learning institutions look into developing learning tools that incorporate new digital approaches in learning accounting subjects and changing the method of teaching to suit the needs of the current generation. Based on the findings of this study, a mobile application that integrates modules on fundamental and technical principles of accounting is being developed to complement their seamless and interactive learning into the daily lives of Gen-Z.

### Recommendations for Future Research

Based on limitations of this study, factors that are excluded such as computer self-efficacy and teaching delivery may be further explored in future studies to better understand what affects the ODL effectiveness given the growing importance of ODL. Other factors such as how classes are conducted whether they are synchronous or asynchronous can also be factored in. As the findings of this study indicate an insignificant motivation level among the non-accounting students towards the effectiveness of ODL in learning accounting, future research can also examine this issue that may have an implication to the policymakers.

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