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## A Descriptive Analysis of Lively Accounting Acceptance from the View of Accounting Education: The Integration of Academic Flashcards and Augmented Reality Technology

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### Abstract

Due to the Covid-19 global pandemic, the use of technological advancement is increasingly becoming a great determinant in education which demands accounting educators to consistently establish new innovative teaching and learning methods. Accounting education seeks to develop concepts, rules and theories for solving accounting problems. However, teaching accounting in accounting education is not an easy task. Students ordinarily encounter the complexities of not just understanding the technical mechanisms, but also to apply the terminology and fundamentals of accounting. The main objective of this study is to develop primary results on the practicality of the main features of Lively Accounting which integrates flashcards with augmented reality application and to identify other expanded TAM variables towards technology acceptance of Lively Accounting. Reminiscing and understanding accounting theories is the main issue experienced by students. Therefore, Lively Accounting as a flexible educational tool creates a different style of experience where users can learn both offline and online. Descriptive approach was used in this present study. For data collection, questionnaires were distributed through an online platform and an illustrative video about Lively Accounting was disseminated to accounting students in UiTM Tapah. The major findings of this study discovered that the main attributes of Lively Accounting do satisfy the needs and preferences of students as it enhances students' knowledge and understanding for the related course. The acceptance of Lively Accounting is believed to be contributed initially by the constructs of perceived usefulness, perceived ease of use, perceived enjoyment and attitude toward use. It seems that students with a pleasant feeling about the usefulness of technology will be motivated to use and accept this new learning experience. Due to the demand for an innovative accounting learning tool, Lively

Accounting is considered as one of the recommended methods especially in accounting education. Future research should consider the effect of augmented reality applications on students' learning effectiveness to give better insight for educators to use appropriate learning styles and strategies.

**Keywords:** Accounting Education, Lively Accounting, Technology Acceptance Model, Flash Cards, Augmented Reality

### Introduction

The accountancy profession, like all professions, is an incredibly great career as it provides the best in an individual. With the aim to have a great accounting professional, it is important for us to ensure that they get the best accounting education from the beginning or the primary level of their study journey. Accounting education among other things, seeks to develop concepts, rules, skills, procedures, theories and general knowledge for solving accounting problems. In order to avoid the extinction of accounting education, it must stay relevant in today's advance environment. Nevertheless, teaching accounting in accounting education is not an easy task. Teaching accounting subjects has always been a challenging task for educators as students nowadays seek more interactive, fun ways of learning. Other than making sure that the students get the numbers correct, educators need to make sure that the concepts, theories and justifications are well understood by the students. Rebele and St. Pierre's (2019) suggested that emphasis on technical skills is very important and Apostolou et al (2020) further added that the development of soft skills is also equally important. These arguments were supported by Fogarty (2019) and hence suggested that educators are facing a tricky task of balancing the growth of students' technical and soft skills. Apart from that, challenges in accounting education are also connected with the changes in the mental and moral distinctive qualities of individual students in this millennial generation.

In line with the goals to produce great output in students' accounting education, teachers or educators need to focus on the process and input strategies. For effective teaching and learning output, accounting educators require a wide range of teaching aids and instructional materials along the way ranging from innovations and advancement in teaching and learning methods as well as materials in accounting. They have become vital to ensure students get the highest quality learning experience as the output. Educators need modern teaching aids, adequate and creative pedagogical approach and should not exclusively rely on lame lecture delivery method. However, not all new techniques and tools is favourable. Calabor et al (2019) claims that many issues need to be considered as implementing something new in education has many barriers such as time constraints and incentives. Amongst the biggest drawbacks of teaching and learning aids is the investment costs. The costs of developing can be substantial and not to forget the costs of maintaining the aids as well. Furthermore, major shift from traditional learning to modern learning tools will encourage a high time of gadget engagement that will disconnect students from their real social life. This is apparently not good as students need to possess observation skills.

Additionally, outcomes of transforming or moving towards new advancement in teaching and learning process can be said to outweigh the costs. A study by Wang et al (2019) found that majority of the students have agreed that, adopting a project management technique (A3 Planner) used by Toyota, had improved the management of assignments and projects. Sprenger and Schwaninger (2021) in their study found that, amongst the digital technologies

used in learning process, classroom response system was rated the best by students, closely followed by e-lectures, then the classroom chat and then the mobile virtual reality. The students evaluated all tools favourably after usage except for mobile virtual reality. Other than that, digital technologies in education, Humpherys et al (2022) found that role play and simulation were scored as realistic, engaging and interesting by students and they helped them in tacit knowledge skills and increased their motivation to learn. Silva et al (2019) found that games can also significantly improve the learning process. Previous literature also highlighted further creative and innovative learning methods which include choice-based learning (Opdecam & Everaert, 2019), collaborative learning (Tan, 2019), experiential education (Butler et al., 2019) and storytelling (Freeman & Burkette, 2019). These efforts in developing a better learning environment shows that the opportunity to create, innovate and improve the approaches in teaching and learning process is always present.

This study emphasizes on a new creative learning tool that combines short notes on flashcards with augmented reality (AR) called Lively Accounting. The aim of this tool is to provide versatile and portable short notes for accounting students. Students can read the flashcards, as there is explanation on the topic matters, or they scan them using the Zappar App to make the cards come to life. By using technology of AR, the live information is always shown in three-dimension (3D) perspective, which will give students the feeling of physical capacity of its surroundings. Furthermore, students can interact in the real and current situations with the virtual elements portrayed in Lively Accounting. This will enhance students' current perception of reality, that is from having to read the explanations on the card to watching a virtual explanation. With Lively Accounting, students can visualize like someone, or their educator is explaining to them, live. This can also support the feature of interactive learning in real time. Real world changes will change the effects to virtual world.

Besides that, students also can play videos that are linked with YouTube to explain the related concepts. Lively Accounting comes in a few topics such as partnership, issuance of shares, redemption of shares, presentation of financial statements and manufacturing account. The main feature of Lively Accounting is that it can be used online and offline. Students can refer the flashcards anywhere and anytime and this will reduce the time for students need to prepare their own short notes. There are many grounds on why this tool was created. One of the main reasons is that the analysis of UiTM Tapah past final examination results for subject Financial Accounting 5 extracted from semester March-August 2021, revealed that students were able to score calculation questions, but some (72%) are worrying that they failed to get at least 50 marks for theoretical questions. This is one of the signs that accounting students are quite frail in the theoretical parts. Lively Accounting flashcards provide students the key information or theories for that particular topic, where they need to stress on.

In general, the objective of this study is to explore the main features of Lively Accounting by considering students' preferred learning materials. This study also serves as preliminary evidence regarding the development and the practicality of Lively Accounting application from the perception of users. Furthermore, this study aims to reveal comments and feedback by prospective users of the instrument and to identify other expanded variables towards technology acceptance of Lively Accounting. Table 1 listed out the descriptions of the main features of Lively Accounting that are: i) versatility; ii) design and understandability and; iii) use of AR technology.

Table 1

*Main Features of Lively Accounting*

Main Features	Description
i. Versatility	Flexible; able to be used offline and online; mobile user friendly
ii. Design and understandability	Create short notes on flashcards; designed to look like presentation slides; use simple terms; produce short explanation videos to explain the concepts and theories; concentrate more on helping users to understand rather than memorise.
iii. Use of augmented reality (AR) technology	Users can scan the flashcards using the Zappar App to watch and listen to the explanation of the related terms.

**Literature Review****Application of Augmented Reality (AR) Technology**

The introduction of advanced digitization, communication, internet and smart object technologies which known as the fourth industrial revolution (IR4.0), has caused a paradigm shift in various industries (Sharma et al., 2022). Because of this IR4.0, the technologies that are used to create augmented environments are already widely available (Cabiria, 2012) and have started to appear in a wide range of fields such as manufacturing, aviation, construction, surgery, military and others.

The way students today access information and learn in the education sector has changed as a result of the digitalization of daily life. These unheard-of needs can be met by utilising AR (Lampropoulos et al., 2020). With the rise in the usage of mobile devices and the internet in the past decade, the use of AR to create interactive learning is poised to be one of the important tools in education. Stojsic et al (2020) suggested that education is one of the most promising sectors for implementing AR because it has the potential to enhance teaching and learning at all educational levels.

According to the Chang et al (2010), AR is a technology that allows the superimposing of computer-generated virtual 3D objects over the real environment in real time. It is further supported by Sudharshan (2020) which explained that AR will integrate the user's view of the real world by overlaying a computer-generated image on that real world. By applying this technology, people can interact with both real and virtual worlds and obtain real-time data (Nayyar et al., 2018). In order to apply AR systems, users need to have a display normally by using cell phones where real and virtual images are integrated, a computer to create interactive graphics and a tracking system. A tracking system is used to position and place the digital objects accurately in the physical surroundings (Sharma et al., 2022).

In addition, Redondo et al (2012) explained that, in contrast to virtual reality (VR), AR uses the real world as a background to be registered rather than replacing it. The end result is a dynamic image that combines a 3D virtual model with a real-time video of the surroundings. The authors further added that the users may experience it on a computer screen or through other devices, such as projectors, digital boards, special glasses, or 3G mobile phones. The ability of AR to enhance reality with computer-generated sights, sounds and data will change how students view and interact with the world (Egaji et al., 2022), whereas previously education relied primarily on teachers to deliver course content in the classrooms. The two most popular formats for utilising AR in learning and teaching processes, according to Billingham and Dunser (2012), are augmented books and AR apps for handheld mobile devices.

### **Implementation of AR Technology in Education Settings: Advantages and Difficulties**

Previous literatures have documented a lot of advantages of AR in the education settings around the world. Among them are the use of AR in orthodontic teaching and research that has enhanced the ability of students and educators in assimilating and imparting knowledge (Gandedkar et al., 2021). The use of AR in education is widely documented in medical schools as well (see Kovoov et al., 2021; Moro et al., 2021).

Although AR is still a relatively new technology in English language teaching, Kohnke and Leskis (2018) found that it can infuse a typical English language education with enlivening visual imagery. By using their mobile phones and tablets with software, students will be able to view real-life objects with virtual media overlaid in the camera of a mobile device. As a result, this will increase the level of students' engagement with the context, environment, and language needed to communicate the learner's ideas (Klopfer, 2008; Kohnke & Leskis, 2018).

From the perspectives of accounting education, Hadi et al (2021) has developed an AR mobile application for teaching accounting ethics for university students using revenue recognition cases. This study which applied the Technology Acceptance Model (TAM), shows that potential users intent to use the application and the intention is affected by the perceived ease of use and the attitude towards the application. In another study done by Binti Che Din and Binti Yope @ Yahya (2022), a simple AR application has been introduced as a teaching tool in fundamental accounting subjects to enhance student's knowledge on the document sources through the visual image. The findings exposed that student were excited to use the application since most of them know the types of document sources used in the accounting records, however they cannot imagine what it would look like.

Other researchers have also documented positive results relating to the use of AR in education. For instance, AR supports the understanding of complex phenomena by explaining abstract concepts to learners and offering interactive experiences that combine real and virtual information (Chang et al., 2010; Billinghamurst & Dunser, 2012). A study by Akçayir and Akçayir (2017) mentioned the most reported advantage of AR is that it promotes enhanced learning achievement. Meanwhile, Radu (2012) claimed that AR will increase context understanding, favours long-term knowledge retention and increases learning motivation. Wu et al. (2013) added to the benefits of AR by saying that it empowers, ubiquitous, collaborative and situated learning, visualising the invisible and bridging formal and informal learning.

However, the studies also mentioned various difficulties in implementing the AR technology with the learners. This supports Akçayir and Akçayir (2017) assertions that there are certain basic challenges being encountered by the students such as usability issues and frequent technical problems. Usability difficulties may cause time loss for students and may require excessive additional lecture time (Akçayir & Akçayir, 2017). This time constraints issue was also emphasised by (Kohnke and Leskis, 2018; Calabor et al., 2019). Other issues highlighted by the researchers are funding or budget constraints (Shuck, 2016; Kohnke & Leskis, 2018), security and privacy concerns (Isaías, 2018; Sharma et al., 2022) and incentives to motivate and increase knowledge to use new teaching tools (Calabor et al., 2019).

Besides that, Isaías (2018) revealed the fact that not all educators possess the necessary skills to use technology effectively is one of its challenges. This is supported by Stojšić et al. (2020)'s example of designing gamified solutions, which calls for a particular strategy and a unique set of abilities that not many people have. This is a significant barrier to its adoption (Williams, 2017; Stojšić et al., 2020). Incorporating AR in the classroom is an exciting new avenue to explore, however it will increase demands on the teacher (Kohnke & Leskis, 2018).

Furthermore, because the AR systems are so sensitive, distractions cause them to process information more slowly (Sharma et al., 2022). It was proven by an experiment done by Redondo, Fonseca, Sánchez and Navarro (2012) 's students, the image often unrecognised in less favourable light conditions. Inconsistencies in the scene are also common. That suggests that these systems are very sensitive to changes in light conditions and may become useless.

### **Impact of Pandemic Crisis over The Practicality of AR in Education**

Recently, the Covid-19 pandemic caused entire campuses and classrooms to switch their attention to online learning using digital media. Digital technologies are used to teach millions of students (Williamson, 2021; Egaji et al., 2022). As specified by Isaías (2018), the majority of learning materials will be digitalised in the future, and there will be widespread use of online courses, digital libraries, and global internet access. Technology will also act as a time-and-space bridge, enhancing the connections between education and practise.

Moreover, Li and Liu (2022) mentioned that the use of mobile learning is expanding. The advantages of mobile learning have been proven during the Covid-19 pandemic, enabling information to be transmitted and exchanged in a way that is less constrained by time and place. Mobile learning is possible at any time using digital teaching resources as long as a user has a portable device.

Shen et al (2022) studied the factors that determine the acceptability of AR and VR applications in tertiary tourism education within the context of the current pandemic. Due to resource and geographic limitations caused by the pandemic, universities are forced to use digital platforms for various teaching activities (Chung-Shing et al., 2020).

### **Integration of Technology Acceptance Model (TAM)**

To achieve the objectives of this study, theoretical basis of TAM was adopted. TAM is an information systems theory that demonstrates how users come to accept and use a technology. The real system use is the point at which people interact with technology. People use technology because of their behavioural intentions. Teo and Noyes (2011) found that attitudes toward use contribute only modestly to the TAM. On the other hand, the attributes perceived utility, perceived ease of use, perceived enjoyment, price consciousness, perceived risk, and personal innovativeness all had a significant impact on people's attitudes regarding chatbots. However, only trust, personal innovativeness and attitude had a direct influence on intention to use (Kasilingam, 2020).

Similarly, attitude, enjoyment and actual use were all linked to long-term intention. Furthermore, perceived usefulness, perceived ease of use, enjoyment, speed, perceived advantages, user happiness, actual use and attitude are strong predictors of online transaction retention intention (Tella & Olasina, 2014). In another study done by Suki and Suki

(2011), they found that perceived usefulness, perceived ease of use and attitude all play a role in deciding subscribers' willingness to use 3G wireless mobile telecommunications technology.

Other study by Venkatesh et al (2002) further posited that individuals who find that the technology they used was interesting would start to enjoy the activity they experienced and realize the usefulness of it and find it easier to use. When a user feels enjoyment while using a new system, there is a possibility of a decline in their perceptions of the effort they are putting in and showing, in learning and applying those new systems. It can be noted that perceived enjoyment indicates a substantial factor that further describes the adoption or acceptance of technology especially from the view of undergraduates' students (Al Kurdi et al., 2020). Furthermore, Reis (2010) found that students with a high level of interest were considered to have positive attitudes towards the adoption in technology-based learning environments. With a greater experience in online learning, learners will have a better attitude towards technology-based learning. With the positive attitude, it will generate a positive outcome which in turn lead the students to try a new method for learning. Hence, this indicates that the acceptance of technology is based on several factors that have been discussed above.

## **Research Methodology**

### **Data Selection**

Present study employs descriptive approaches. The targeted sample of this study is accounting students in Universiti Teknologi MARA Perak Branch, Tapah Campus which represent a large population of accountancy diploma students as compared to other Private Finance Initiative (PFI) campuses. For data collection, a full set of questionnaires were circulated through an online survey using Google Form. In terms of selection of accounting students to be included as a sample of this study, a simple random sampling technique was used. As the respondents are randomly selected from the sampling frame, all students have an equivalent chance to be participated in the study. Overall, a total of 362 respondents have participated in the survey.

### **Measurement of Variables**

The questionnaires were created to explore students' needs, preferences in accounting education and acceptance of Lively Accounting. In the meantime, a YouTube video showing the features and attributes of the Lively Accounting prototype was uploaded online to track reactions and comments. The survey consists of three sections. Section A needs the respondents to fulfill their demographic information for instance gender, current semester, age, current location, the distance of residence to the nearest town, devices used for online learning, internet connection quality, internet connection issues and total family income per month. Section B consists of 45 questions, designed particularly to ask about the respondents' needs and preferred learning materials.

Whereas Section C specifically asks about the respondents' acceptance of Lively Accounting which consists of technology acceptance constructs mainly perceived usefulness, perceived ease of use, perceived enjoyment and attitude toward use. All the questions for this section were ordinarily adapted after the prior research obtained through an analysis of literature which is revised suitably in the perspectives of Lively Accounting. Perceived usefulness,



perceived ease of use, attitude toward use and Lively Accounting technology acceptance were adapted from well-established instruments and fairly tested for validity and reliability which led to the reliable results and findings (Venkatesh et al., 2003, Venkatesh & Bala, 2008). While perceived enjoyment was adapted from Efiloğlu Kurt and Tingöy (2017). Variables represented for Section C were measured by a seven-point interval scale ranging from: (1) strongly disagree to (7) strongly agree.

## Data Analysis

### Demographic Information

According to the analysis of demographics with the computation of frequency and percentage, the majority of the respondents as per Table 2 are among female undergraduate accounting students (75.4%). Students undertaking courses from semester 2 (47.5%) and 4 (46.7%) are actively participating in this current study. This data implies that most of the respondents already have previous online learning experience. 93.1% of the students are getting online learning from home when the survey was conducted. In terms of current geographical location, students mostly stay in urban areas in which the distance of residence to the nearest town is less than 5 km when the online learning was conducted (57.5%).

Students mostly found it is preferable for them to use a laptop as a medium of study (95.9%) followed by smartphones (mobile user) as compared to other devices together with readily internet connectivity. Furthermore, the majority of respondents have a good internet connection quality in their residence area (74.3%) and infrequently or even rarely face internet connection problems. Indirectly, students can easily get access to the internet facilities for their learning process. It is also important to highlight that 51.4% of the students are from B40 families, 26% are from M40 families and 12.7% are from T20 families. 9.9% of the respondents came from families with a monthly household income of less than RM1,000. The impact of Covid-19 pandemic indirectly has led many households to lower-income categories due to income reduction and loss of employment.

Table 2  
*Respondent Demographic Information*

Variables	Sub	Frequency (f)	Percentage
Gender	Male	89	24.6%
	Female	273	75.4%
Semester	1	12	3.3%
	2	172	47.5%
	3	4	1.1%
	4	169	46.7%
	5	5	1.4%
Age	18-20	354	97.8%
	21-25	8	2.2%
Current location	At home	337	93.1%
	In campus	25	6.9%
Distance of residence to town	0-5 km	208	57.5%
	6-10 km	99	27.3%
	11-15 km	21	5.8%

	More than 15 km	34	9.4%
Devices use to study (Student may choose more than one)	PC	25	6.9%
	Laptop	347	95.9%
	Smartphones	331	91.4%
	Tablets	24	6.6%
Internet connection quality	No internet	2	0.6%
	Poor	54	14.9%
	Good	269	74.3%
	Very good	37	10.2%
Internet connection problems	All the time	7	1.9%
	Most of the time	47	13%
	Sometimes	219	60.5%
	Rarely	81	22.4%
	Never	8	2.2%
Family household income (monthly)	< RM1,000	36	9.9%
	RM1,000-RM5,000	186	51.4%
	RM5,001-RM10,000	94	26%
	> RM10,000	46	12.7%

N = 362

### Discussion of Results

There are several categories of learning resources accessible to students including online/offline materials such as printed and visual materials (books, notes, slides, short notes, study guide), audio materials (audio recordings, podcasts, radio), audio-visual materials (videos, online classes), and electronic interactive materials (mobile apps, games). However, from the perspective of versatility, it was found that students do prefer offline materials over online materials. Lively Accounting has fulfilled the students' preference which it created a different kind of experience where users can learn offline and online. As supported in Table 3, 77.3% students favour offline materials and 66% of their learning materials to be in hardcopy. It was also documented that the students use both online materials and offline materials to study. This demonstrates that although they prefer hardcopies of learning materials, online resources are equally important to complement the printed materials.

Table 3

#### *Students' Preference on Versatility Features*

Features	Yes	Percentage	No	Percentage
Prefers hardcopy over softcopy	239	66%	123	34%
Prefers offline materials	280	77.3%	82	22.7%
Uses offline materials more often	197	54.4%	165	45.6%

N = 362

Students' preference on the design and understandability from the view of Lively Accounting is well presented in Table 4. The results show that the features of Lively Accounting meet the students' needs in learning. By providing short notes which are designed to resemble teaching presentation slides, it fulfills 89.5% of students preferred learning material. The results also show that 50.3% of the students prepare their own short notes. Lively Accounting will reduce the time needed in preparing those notes. As the students do not have to spend significant

amounts of time and effort for notes preparation, thus they are able to concentrate on other learning issues and increase their chances of achieving important things in their study. According to the results, the majority of the students (98.1%) use explanation videos and prefer it to be in short duration (91.2%). Lively Accounting supports the students' need and fulfils their study requirement which links the flashcards with online videos prepared by lectures to explain certain terms which most students (74%) use in their learning activities. The usage of videos has been widely used by educators around the world to increase students' knowledge, competency and improve their study habits. The results are consistent with Taylor et al (2018) that pointed out digital materials will enhance students' engagement and conceptual understanding. Moreover, the inclusion of online videos will positively affect students' learning effectiveness as proved by (D'Aquila et al., 2019). By 2025, Shuck (2016) forecasted online videos and mobile devices will take over laptops and learning in classrooms as the prime methods of student interaction with learning material.

Table 4

*Students' Preference on Design, Understandability and Use of AR Features*

<b>Features</b>	<b>Agree</b>	<b>Percentage</b>	<b>Neutral/ Disagree</b>	<b>Percentage</b>
Uses presentation slides to study	324	89.5%	38	10.5%
Make own short notes	182	50.3%	180	49.7%
Use video materials to study	355	98.1%	7	1.9%
Prefers short explanation videos	330	91.2%	32	8.8%
Stream online to watch videos	268	74%	94	26%
Use of augmented reality (AR) materials	289	79.8%	73	20.2%

N = 362

Besides that, Table 4 disclosed the most important finding which 79.8% of the students are attracted to use AR technology which resembles the application in Lively Accounting. This intention to use AR may be due to the majority of the accounting students (97.8%) in this study are the young adults who are at the range of age 18-20 years that are eager to explore new experiences. As the students also prefer to use smartphones for their medium of study, the application of augmented reality technology is suitable for them as it is mobile user friendly and it will provide better learning styles. Some of the probable reasons for not achieving 100% ready use rate is that students realise that this education tool which is specifically designed for a particular subject comes with a price and the result of the study indicates that students on average are only willing to pay up within the range of RM5-RM20 for the tool. This price as shown in Table 5 will be considered affordable for them to spend for their learning aid since most of the students in this study come from B40 families with a household income of within RM1,000 to RM5,000 only. Due to the limitation of income and buying power, the B40 group of income normally will prevent buying costly items which are beyond the reach of many B40 families.

Table 5 further highlights that 14.1% of the students are willing to pay for a mobile application by using interactive technology such as AR to facilitate their studying. While 41.4% and 38.1% of them do not mind paying for this learning materials but depending on the price and the usefulness respectively. More notably, most students will intend to use the learning tool once

it is made available to the public as it is cost-free. This claim further supported by previous literatures who stated that the effort to employ different approach in education and capture the users' attention will greatly face several challenges and barriers (Akçayir & Akçayir, 2017; Calabor et al., 2019).

Table 5

*Further Analysis of Students' Preferences for Learning Material*

Questions	Measurement	Frequency (f)	Percentage
1. Do your lecturers provide electronic interactive materials (AR) for the related course subject?	Yes	49	13.5%
	Some	198	54.7%
	No	115	31.8%
2. If electronic interactive materials (AR) are available, I will most likely use.... (Student can choose more than one answer)	Games app.	179	49.4%
	Notes app.	244	67.4%
	Question app.	214	58.1%
	Keywords app.	146	40.3%
	Videos app.	177	48.9%
3. Do you mind paying for mobile apps (AR technology, etc.) that could facilitate your learning activity?	Yes	51	14.1%
	No	23	6.4%
	Maybe (depending on the price)	150	41.4%
	Maybe (depending on the usefulness)	138	38.1%
4. How much would you pay for a mobile app (AR technology, etc.) that is specifically designed for a particular subject?	Less than RM1	34	9.5%
	RM1 to RM5	58	16.2%
	RM5 to RM10	99	27.7%
	RM10 to RM20	92	25.41%
	RM20 to RM30	41	11.5%
	RM30 to RM40	12	3.4%
	RM40 to RM50	15	4.2%
More than RM50	11	3.1%	

N = 362

Additionally, Table 5 also revealed that some accounting lecturers (54.7%) do provide AR materials for delivering the related subject. This implies that accounting students are somehow familiar with the use of AR since they have been introduced in certain subjects by their lecturer which consequently encourage them to adopt it. From the utilisation of AR technology, Table 5 further documented that student most likely interested to use notes application (67.4%) which resembles Lively Accounting features that also offers virtual short notes, key definitions and videos for accounting students. The advancement of AR technology has inspired academicians to recognize their implications for progressive adjustments to new learning styles, from a verbal to a virtual approach.

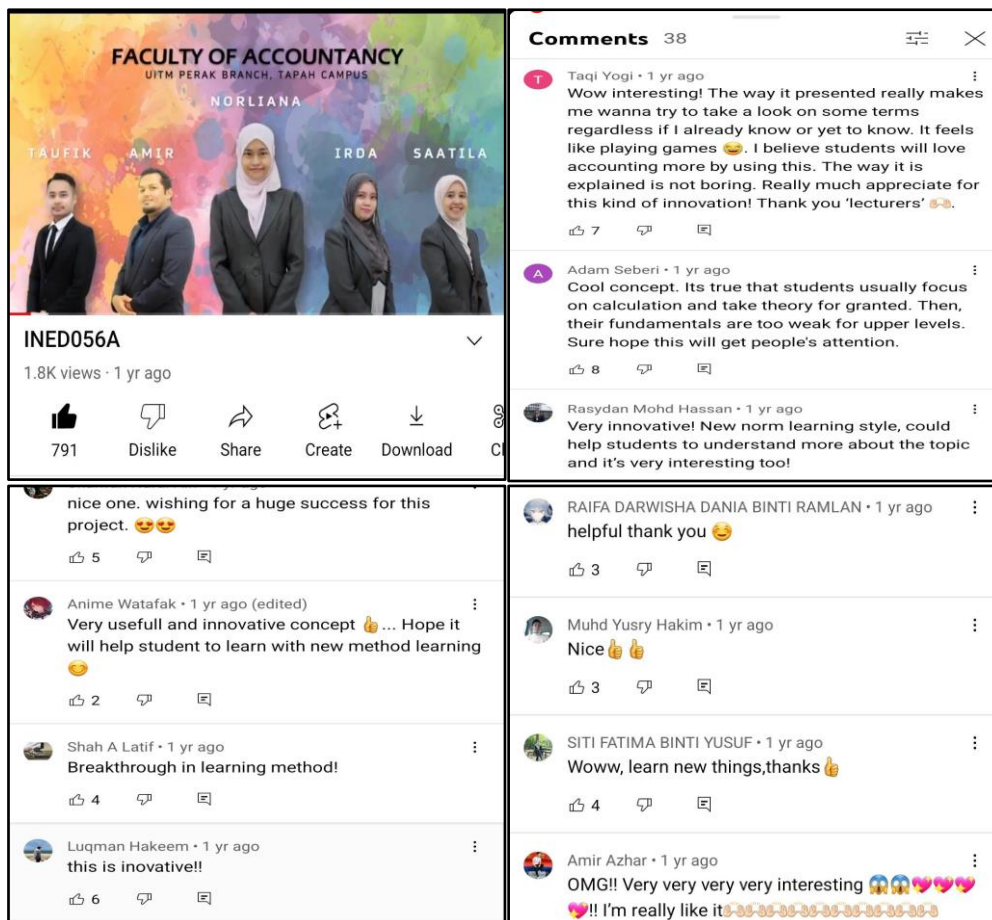


Figure 1: Students’ Feedback on Effectiveness of Lively Accounting Illustrative Video

In the meantime, an illustrative video about Lively Accounting was distributed to accounting students in UiTM Tapah with the intention to obtain feedback on effectiveness of Lively Accounting. Currently, the informational video of the Lively Accounting concept and prototype in YouTube successfully received 1,855 views and was liked by 791 viewers. 38 positive comments were received highlighting the advancement, creative and innovative accounting learning tool. Some of the viewers agree that students tend to focus more on the calculation part, resulting in weak understanding of theoretical concepts. One of the viewers mentioned that the tool will engage students to learn more about accounting. Additionally, most of the viewers propose that the concept of using AR in teaching accounting education is innovative and will greatly benefit the learners. Students’ engagement and motivation can be increase by using AR technology specially to learn fundamental concepts that are difficult to understand. Application of technologies such as AR not only improves learning outcomes, but also makes teaching and learning more interesting and motivating (Cheng, 2017).

Table 6

*Descriptive Analysis of Contributing Variables*

Variables	Frequency and Percentage		
	Agree	Neutral	Disagree
<b>1. Perceived usefulness (<math>\alpha = 0.907</math>; N = 5)</b>			
i. Using Lively Accounting will allow me to accomplish the task more quickly.	189 (52.2%)	112 (30.8%)	61 (16.9%)
ii. Using Lively Accounting will improve my learning performance.	148 (40.8%)	122 (33.8)	92 (25.4%)
iii. Using Lively Accounting will make it simpler to learn course content.	142 (39%)	131 (36.3%)	89 (24.7%)
iv. Using Lively Accounting will increase my learning productivity.	132 (36.6%)	115 (31.7%)	115 (31.7%)
v. Using Lively Accounting will enhance my effectiveness in learning.	147 (40.5%)	122 (33.8%)	93 (25.6%)
<b>2. Perceived ease of use (<math>\alpha = 0.889</math>; N = 4)</b>			
i. Learning to operate the Lively Accounting is easy for me.	195 (53.8%)	105 (29%)	62 (17.2%)
ii. The instruction on how to use Lively Accounting is clear and understandable.	184 (50.8%)	104 (28.7%)	74 (20.5%)
iii. I find it is easy to have Lively Accounting to perform what I want it to do.	212 (58.6%)	94 (26%)	56 (15.4%)
iv. Overall, I find Lively Accounting is easy to use.	215 (59.4%)	98 (27.1%)	49 (13.5%)
<b>3. Perceived enjoyment (<math>\alpha = 0.954</math>; N = 5)</b>			
i. I experience fun using the Lively Accounting method.	149 (41.2%)	134 (37%)	79 (21.8%)
ii. It is exciting to use the Lively Accounting method.	146 (40.3%)	135 (37.3%)	81 (22.4%)
iii. The use of the Lively Accounting method is enjoyable.	137 (37.8%)	143 (39.5%)	82 (22.7%)
iv. The experience of using Lively Accounting is interesting.	178 (49.2%)	113 (31.3%)	71 (19.5%)
v. Overall, I enjoy using Lively Accounting.	181 (49.9%)	122 (33.8%)	59 (16.3%)
<b>4. Attitude toward use (<math>\alpha = 0.871</math>, N = 3)</b>			
i. I believe that using Lively Accounting as a new learning tool is a good idea.	194 (53.6%)	100 (27.6%)	68 (18.8%)
ii. I believe that using Lively Accounting as a new learning tool is advisable.	169 (46.7%)	123 (34%)	70 (19.3%)
iii. I believe it is better for me to use Lively Accounting especially when learning online.	140 (38.6%)	118 (32.6%)	104 (28.8%)
<b>5. Lively Accounting Acceptance (<math>\alpha = 0.861</math>; N = 3)</b>			
i. I plan to use Lively Accounting regularly in the future.	146 (40.3%)	134 (37%)	82 (22.7%)
ii. I will strongly recommend others to use Lively Accounting.	169 (46.7%)	90 (24.9%)	103 (28.4%)

iii. Overall, I like using the Lively Accounting method.	174 (48.2%)	100 (27.6%)	88 (24.2%)
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N = 362

To support the predicted use and primary acceptance of Lively Accounting by the students, the study further utilises certain variables of TAM such as perceived usefulness, perceived ease of use, perceived enjoyment as well as attitude toward use in which all the Cronbach's alpha values exceeded the reliability acceptable level of 0.6. Thus, components of TAM included in the survey were valid, which led to the reliable results and findings. TAM has widely become the most popular research model to determine and predict use and acceptance by an individual regarding information systems and technology. As per Table 6, 48.2% of the students appeared to like using the Live Accounting application and 40.3% of them plan to use Lively Accounting which links the flashcards with technology of AR regularly in the future which indicates their positive acceptance toward this innovative learning tool. Due to this positive acceptance, a few of them (46.7%) are also strongly keen to propose others to use Lively Accounting.

This encouraging technology acceptance may be due to a few probable reasons. 52.2% of the students perceived that by using Lively Accounting will allow them to accomplish the task more quickly and expected to improve their academic performance (40.8%), thus enhancing their effectiveness in learning (40.5%). Initially, students assume that learning productivity can be enhanced (36.6%) by accepting this technology since it will provide learning assistance and is simpler for them to learn course content (perceived usefulness). Taat and Francis (2020) further indicated that the use of technology in education will improve students' learning performance, increase their productivity, enhance understanding and effectiveness of learning. Perceived usefulness commonly implies the expectation that the use of technology can enhance learning outcomes. When students are able to estimate the positive consequences of using technologies such as Lively Accounting, it is likely that they will experience pleasure from, and feel interested by them. In other words, if students felt that the technology would not help in enhancing and improving their learning performance, they would possibly hunt for an alternative interactive learning environment (Al-Azawei, 2019).

Moreover, the majority of the students (59.4%) shown in Table 6 believed that the Lively Accounting application as a whole is easy to use, beneficial and makes the learning process easier. Learning to operate Lively Accounting is easy for them (53.8%) as it is user friendly, instruction to use is also clear and understandable which can simplify their learning process (conceptually similar to perceived ease of use). Additionally, 58.6% of the students find it is easy to have Lively Accounting to perform what they want to do. If students did not know how to operate certain platforms and applications, it would take up so much time and make the learning process become unnecessarily tedious. Generally, perceived ease of use represents the expected mental effort needed to use the technology. Students will not perceive Lively Accounting usefulness if they feel that this educational technology requires high effort to be used (Al-Azawei, 2019). Furthermore, when students do not have to spend a significant amount of time and effort on using online learning technology, they are quite likely to adopt this medium. The perception of not encountering any difficulties when interacting through Lively Accounting is expected to make students experience pleasure from and feel interested by it.

With the initiative of integrating flashcards that link with AR which includes some real-life examples, students agree that the experience of using Lively Accounting is fun (41.2%), exciting (40.3%), interesting (49.2%) and enjoyable (49.9%) which in turn led them to positively accept the new approach of education. Perceived enjoyment has a direct influence on behaviour attention and indirectly affects attitude toward use due to the positive emotions. Overall, it can be concluded that students' perception of joy, exciting and positive experience serves as contributors in describing student acceptance and usage behaviour of new learning tools. Students will certainly not prefer to participate again with this new technology in education whenever they do not enjoy the learning process (Latip et al., 2020).

In terms of attitude toward use which represents how users feel about a technology system, most of the students (53.6%) shown in Table 6 believed that using Lively Accounting as a new educational instrument is a good idea and 46.7% of them agreed it is an advisable learning tool. Some of the students also believed that it is better for them to use Lively Accounting especially when learning online (38.6%), most probably because the initiative of linking flashcards and AR is assumed to bring more excitement to them. Indirectly, this implies that a positive attitude toward use will generate a positive outcome particularly when the students are willing to try a new method for online learning such as Lively Accounting. With a greater experience in online learning, students will have a better attitude towards the usage of technology-based learning. The willingness of students to adopt new technology will increase whenever they have a favourable attitude towards it. This argument was further supported by Razmak and Bélanger (2018) who claimed that individuals' attitude toward use are considered as a significant predictor in determining the adoption of technology. In summary, this result provides indication about student intentions and readiness to use this new technology application as their interactive learning aid most probably due to the views of usefulness, ease of use, enjoyment and attitude toward use.

### **Conclusions, Limitations & Recommendation**

The challenges and the need for innovative teaching tools in educational environments is well documented by prior literature. Given that technology has the power to transform education, educators may use technological advancements in innovating teaching methods and creating new learning materials. Educators must be mindful and adapt the transformation in learning styles to stay connected with their students. Therefore, the aim of this study is to explore and provide preliminary evidence of the usefulness and acceptance of Lively Accounting, an interactive learning tool that integrates flashcards with AR. In conclusion, the result of this study shows that Lively Accounting will be a useful tool as it satisfies students' preference of learning materials and provides features of a modern accounting education tool. The use of AR technology is perceived to bring positive attitudes and outcomes of students such as academic level improvement, motivation, enjoyment, excitement and creativity. Initially, perceived usefulness, perceived ease of use, perceived enjoyment and attitude toward use are believed to be among the relevant predictors of technology acceptance specifically for Lively Accounting. It is expected that students with a favourable feeling about the usefulness of technology will be motivated to use it and accept it in a way to gain new online learning experience. When students can estimate the desirable consequences of using technology in learning, it is likely that they will experience pleasure from, and feel attracted by them.



However, the limitation of this study is that the result may only serve as a primary understanding of how Lively Accounting would fit in accounting education as the survey was done based on the prototype and not the full version. More research must be done to better understand the product and well-develop the conclusions on its practicality. Other different models for explaining the technology adoption together with the regression analysis can be fully utilised in future research as it would give better insight and interpretation regarding the application of Lively Accounting. Advanced studies also should be conducted to demonstrate the comprehensive effect of AR applications on students' learning effectiveness. Next, the selection of students particularly in accounting education in UiTM Tapah may restrict the generalisation of the results. Further research should broaden the opportunity of the sample selection outside the sample of UiTM accounting students to generate a true representative of the overall population.

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