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Editor

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**INTERNATIONAL CONFERENCE ON BUSINESS
MANAGEMENT & INNOVATION
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THE EFFECTIVENESS OF ONLINE LEARNING TOOLS USING ARCS MOTIVATION MODEL

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ABSTRACT

Recently, teaching through online approaches become new phenomena. This trend is escalating during Covid-19 when our teaching and learning had been switching to fully online method. However, it still relevant although our country has announced to endemic phase. The significant of online learning are pursue and still applied with several institution. Online learning cannot be successfully implemented if there is no collaboration with our students. There are several factors that influence students to adapt with new way in teaching and learning process. Within this study, the researcher aims to examine the motivation factors that influence the usage of online learning tools. Using ARCS Motivation factors (attention, relevant, confident and satisfaction), this study explores the relationship and the most influence factor between effectiveness of online learning tools. The data will be collected among students' part 4 who takes entrepreneurship and management courses in UiTM Perak Branch. A set of questionnaires consist of Part A, B and C will be distribute and analyse using SPSS software. Therefore, this study should give positive impact to education field and government to enhance technology usage in teaching and learning process as well as to shed light on the evolving landscape of education in the digital age and its implications for both learners and educator.

Keywords: Online learning, ARCS Motivation model, entrepreneurship

1. INTRODUCTION

Online learning has revolutionized the way we acquire knowledge and skills in the digital age. With the rapid advancement of technology and the increasing accessibility of the internet, online learning has become a cornerstone of modern education. This transformative educational approach transcends geographical boundaries, making quality education available to individuals around the globe, irrespective of their physical location or time constraints.

In this era of online learning, learners have the flexibility to choose when and where they engage with educational content, allowing for a more personalized and adaptable learning experience. Whether you're a student pursuing a degree, a professional looking to upskill, or simply someone eager to explore new interests, online learning offers a wide array of courses and resources to cater to your specific needs and

aspirations.

Maintaining student engagement and motivation in online courses can be challenging, leading to higher dropout rates and reduced learning outcomes. Nowadays, student's characteristic and interest are different compared to the era before Covid-19. As an instructor, they need to cater with this problem and make some changes to approach students. Some of them are too fragile and cannot manage with the changes and challenges that education level had face today. Even though, our education methods had evolved, can the students realize it?

In this paper, we will explore the motivation factors the will give some impact to effectiveness of online learning tools. ARCS Motivation Model that consists of Attention, Relevance, Confidence and Satisfaction will be tested towards effectiveness of online learning. There are two main research questions for this study which are:

1) *What is the relationship between*

motivation factors and effectiveness of online learning tools?

- 2) *Which motivation factors most significant factors that influence effectiveness of online learning tools?*

Research objectives are prepared to answer the following research questions as stated below:

- 1) *To examine the relationships between motivation factors and effectiveness of online learning tools.*
- 2) *To explore the most significant factors that influence the effectiveness of online learning tools.*

2. LITERATURE REVIEW

2.1 Online Learning

Nowadays, online learning has become more practical and acceptable in the educational field. There are many tools and software that were developed to give favor to educators implement and diversify teaching methods. Online learning finds application in a wide array of fields, including marketing, business, healthcare, and education (Özhan & Kocadere, 2020). According to Anderson (2011) has been listed several knowledge related to online learning that are summarized from multiple resources, some of it stated that tools that we use in online learning is significant to help the student's interaction with the theory. Therefore, for some students, a computer serves as a tool to provide the necessary processing capabilities and deliver instructional content to learners.

The terminologies used for online learning also might differ such as e-learning, Internet learning, Distributed learning, networked learning, virtual learning, web-based learning, and distance learning. Hence, it can be challenging to formulate a one-size-fits-all or generic definition for online learning due to its diverse interpretations and applications. The definition of online learning exhibits a significant range of interpretations. Anderson (2011) summarizes it as the utilization of the internet to access learning materials, engage with course content, interact with instructors and fellow learners, and receive support throughout the learning journey. The ultimate goal of online learning is to acquire knowledge, construct personal understanding, and benefit from the overall learning experience.

2.2 Attention

In order to keep motivated, attention is the first factor that students need to cater. Getting their attention is crucial, yet it's even more vital to sustain it throughout the entire instructional process (Jokelova, 2013). In terms of motivation,

the primary focus is on capturing and maintaining one's attention. When considering its role in learning, the primary objective is to guide attention toward the relevant stimuli. On a basic level, gaining attention can be achieved relatively effortlessly through various means, such as making a striking statement, producing a sudden loud noise, or employing moments of silence, among other techniques (Brewin et al., 1987).

According to Keller (2016) the attention category encompasses studies on various aspects including curiosity and arousal, as well as interest, boredom, and other associated topics like sensation seeking.

2.3 Relevance

Relevance pertains to how learners perceive that the instructional demands align with their objectives, match their preferred learning styles, and relate to their previous experiences (Keller, 2016). In the other sentences, the concept of relevance is closely tied to the question "Why?" that students often ask when contemplating whether to enrol in a course or how much effort to invest in an activity. A satisfactory response to this question implies that the course or the information provided is likely to be pertinent to the students, and as a result, they will be motivated to engage actively in achieving the instructional objectives (Jokelova, 2013).

2.4 Confidence

Students tend to be more motivated in their learning when they are confident in their ability to succeed through their efforts and when they understand that their success is determined by their own skills and not by external factors beyond their control (Jokelova, 2013).

Students with a confident characteristic might divided into internal and external locus of control (Jokelova, 2013). When an individual believes that the results of their actions are contingent on their own abilities and personal traits, they possess an internal locus of control. For example, a student will study hard for a test because they believe that the results are depends on their ability and capability. A student with an external locus of control may not see the need to study because they believe that test scores are determined by luck and fate, and no matter how diligently they study, the score will not accurately reflect their efforts.

2.5 Satisfaction

Satisfaction is the last factor in ARCS Motivation Model. Satisfaction can be defined as experiencing a positive feeling or contentment regarding one's accomplishments (Jokelova, 2013). This factor is known as post-task

component because it arrives after finishing all the tasks. While satisfaction may not be an immediate requirement for the current task at hand, it serves as a fundamental prerequisite for any future tasks. Being content with the results of instruction is what consistently fuels students' motivation to continue learning beyond the completion of their current task (Jokelova, 2013).

3. HYPOTHESES DEVELOPMENT

A compilation of hypotheses was formulated in order to address the inquiries presented in the introduction part. These hypotheses were primarily derived from previous research findings and are closely linked to the research objectives.

3.1) Attention Factor and Effectiveness of Online Learning

Based on previous research there are many studies that agree that attention significantly impacts online learning. According to Conati et al. (2013) that conducted a study on influential elements impacting students' attention to adaptive hints while engaging with an educational computer game, stated that enhancing attention to hints is a valuable objective, especially in the context of Prime Climb, as when students engage with and pay attention to hints, it can have a beneficial impact on their performance in the game.

Other than that, there is a research by Papanastasiou et al. (2016) shown that an increasing body of research advocates for the utilization of information and communication technologies (ICTs) via gaming applications to elevate the learning experience for students with attention difficulties, ultimately enhancing their levels of attention and academic achievement, while benefiting all children. This proves that attention is crucial for effective online learning not only for students but also children.

Nevertheless there are a study conducted by Chen et al. (2019) indicated that there is no significant results between attention and experiments group. Within this study the researchers showed that individuals who engaged in the digital game containing additional cartoon-like, animated, and interactive elements achieved notably better scores on the learning outcome tests compared to both the group that used a less complex digital game and the group that utilized traditional paper-and-pencil methods. Furthermore, unlike several prior studies, the utilization of these digital games did not seem to influence learning motivation and attention negatively.

Therefore, hypothesis for attention factor support as below:

H1: Attention has a significant relationship with effectiveness of online learning.

3.2) Relevant Factor and Effectiveness of Online Learning

During this phase, the objective is to create educational content that aligns with the learning requirements of the students. Based on study conducted by Lajane et al. (2021) that measure the motivation of nursing students in using e-assessment found that students believed the online quizzes to be relevant by the score obtained by relevance factor was 3.93, with a minimum score of 3.8 and a maximum score of 4.27.

Therefore, the hypothesis on relevance factor was described as below:

H2: Relevant has significant relationship with effectiveness of online learning.

3.3) Confidence Factor and Effectiveness of Online Learning

Confidence is one of the elements that crucial to make sure that students can use and are interested in using online learning tools. According to the previous research, through multiple regression analyses, it was determined that students' confidence in their ability to learn online emerged as the most robust and positive predictor of satisfaction and the perceived usefulness of online classes (Landrum, 2020).

Besides that, there are other studies that used Technology Acceptance Model (TAM) plus with other factors, namely self-confidence and subject norm towards e-learning among accounting students at Malang State University. The results of this study indicate that the perceived usefulness, perceived ease of use, self-confidence, and subjective norms have a significant effect on the use of e-learning.

Therefore, the new similar hypothesis also used in this research as below:

H3: Confident has significant relationship with effectiveness of online.

3.4) Satisfaction Factor and Effectiveness of Online Learning

Satisfaction can be seen as a facilitating factor that might help the student's motivation to implement online learning tools. A research by Hampton et al. (2020) that examined degree of self-efficacy in teaching and overall satisfaction among online nursing faculty members validates that the participants displayed notably elevated levels of self-efficacy in online teaching and reported high levels of satisfaction. Other than that, they also reported that instructor satisfaction due to the benefits of the online environment include flexibility, convenience and access to learning tools shows the highest score.

Additionally, Gopal et al. (2021) also recommended that student's satisfaction is

positively impact online teaching on student's performance. The aim of that study is to explore whether the four factors (quality of instructor, course design, instructor's prompt feedback and student's expectations) had impact the perceived satisfaction. The findings indicate that four distinct factors examined in the study had a positive influence on student satisfaction. Additionally, higher levels of student satisfaction were associated with improved student performance.

Different with a study organized by Wei & Chou (2020) found that the relationship between online learning perceptions and both online learning performance and course satisfaction was not statistically significant. This had denied the hypotheses from that research which are 1) College students' online learning perceptions significantly and positively affect online learning performance, which includes online discussion score, midterm exam/final exam score (exam score), and group project score 2) College students' online learning perceptions significantly and positively affect online course satisfaction.

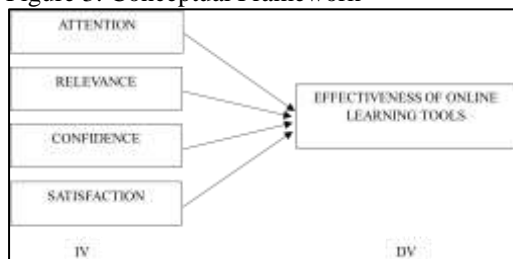
Thus, satisfaction factor will be tested under hypothesis that:

H4: Satisfaction has a significant relationship with effectiveness of online.

3.5) Conceptual Framework

This Figure 3 below illustrate the framework that used to determine the motivation factors that influence the effectiveness of online learning tools. First independent variable indicates the attention factor that give impact to the effectiveness of online learning. Second variable is relevance followed by confidence. Next independent variable is on satisfaction itself. Lastly is dependent variable which is effectiveness of online learning tools.

Figure 3: Conceptual Framework



4. RESEARCH METHADODOLOGY

4.1) Operationalization of Construct

This study utilized a quantitative approach for gathering data, involving the use of a survey instrument distributed to selected participants. As

Mukesh et al. (2013) point out, quantitative research involves the application of statistical methods with a substantial dataset. One of the techniques commonly employed in quantitative research is surveys. In this case, the researchers chose to employ a questionnaire as it aligned with the study's aim of assessing the factors influencing the effectiveness of online learning.

Furthermore, there are several benefits associated with the use of questionnaires that can be explored here. To begin with, the questionnaire technique offers a cost-effective, prompt, efficient, and precise way of gathering information from a population (Zikmund, 2003) Additionally, it provides greater flexibility compared to alternative methods. This is often referred to as respondent convenience, as individuals have the liberty to respond to questions at their own pace and in their preferred setting.

However, this technique also comes with certain drawbacks. Among these are challenges related to the return of completed questionnaires. Researchers have limited control over when respondents choose to return them, as it falls outside their jurisdiction. Furthermore, there is the potential for a low response rate due to unreturned questionnaires. Nevertheless, these shortcomings have been mitigated by the distribution of questionnaires through electronic devices.

The questionnaire has been created based on the variables identified in the literature review. It will employ the Likert scale technique, which uses a one to five scale (1=strongly disagree, 2=disagree, 3=not sure, 4=agree, and 5=strongly agree) to assess each item within these variables. In this study, the questionnaire method has been selected as the primary means of data collection, and it will be administered in the English language.

The questions include in this questionnaire are about 22. This set of questionnaires can be divided into three parts which are Part A for demographic, Part B examine ARCS Motivation Model and Part C is effectiveness of online learning tools. Construct of thus questionnaire appears as Table 4.1 below.

Table 4.1: Construct of Questionnaire

Part	Category	No. of Items
A	Demographic	4
B	ARCS Motivation Model	15
C	Effectiveness of Online Learning Tools	3
Total		22

Part A: Demographic

This section observe the respondent profile that include gender, semester and program. The aim of this section is only to get the first knowledge about the respondent background. The respondent were advised to tick only single tick into the column provided. Table 4.2 illustrated the items involved.

Table 4.2: Items Measuring Background of Respondent and

No.	Items	Source
1.	Gender	Ma & Chei (2021)
2.	Semester	Ma & Chei (2021)
3.	Program	Ma & Chei (2021)

Part B: Examine ARCS Motivation Factors

All the Part B questions are related to motivation model which are attention, relevance, confidence and satisfaction. Items developed using the previous study conducted by Hao & Lee (2019). There are 15 items in this part using the Likert scale ranging from one to five scale (1=strongly disagree, 2=disagree, 3=not sure, 4=agree and 5=strongly agree). Items within this construct were modify appropriately with the research title which is motivation factors. Table 4.3, Table 4.4, Table 4.5 below shows the items that developed under ARCS Motivation Model.

Table 4.3: Items Developed for Attention Factor

No.	Items	Source
1.	This material allows me to become even more focused than before.	Hao & Lee (2019)
2.	This material deeply fascinates me.	Hao & Lee (2019)
3.	This material boosts my learning motivation.	Hao & Lee (2019)
4.	This material can help me become focused in my studies	Hao & Lee (2019)

Table 4.5: Items Developed for Relevance Factor

No.	Items	Source
1.	This material teaches me how to apply knowledge that I have learnt from class.	Hao & Lee (2019)
2.	This material helps me understand basic knowledge of "Where Are You Going?" and	Hao & Lee (2019)

"What Do You See?"

3.	This material allows me to fully understand the concepts that are being expressed.	Hao & Lee (2019)
4.	This material allows me to fully understand the concepts that are being expressed.	Hao & Lee (2019)

Table 4.5: Items Developed for Confidence Factors

No.	Items	Source
1.	This material makes me work diligently and achieve good learning results.	Hao & Lee (2019)
2.	This material provides me with the confidence that I need to successfully complete my studies.	Hao & Lee (2019)
3.	This material gives me the confidence that I need to achieve my learning targets.	Hao & Lee (2019)

Table 4.6: Items Developed for Satisfaction Factor

No.	Items	Source
1.	I feel satisfied when I see myself making a progress using this material.	Hao & Lee (2019)
2.	This material motivates me to work hard to learn and practice even if I am unable to completely master the course material.	Hao & Lee (2019)
3.	I am happy to learn entrepreneurship through the use of this digital software.	Hao & Lee (2019)
4.	Time flies when I use this material because it is fun to use.	Hao & Lee (2019)

Part C: Effectiveness of Online Learning

There are total of only three items are positioned in this part. This part is mainly about assessing the effectiveness of online learning tools. The items used were established from Bahasoan et al. (2020). Table 4.7 below shows all the items within this part.

Table 4.7: Items Developed for Effectiveness of Online Learning Tools

No.	Items	Source
1.	Level of satisfaction	Bahasoan et al. (2020)
2.	Obstacle during usage of online learning	Bahasoan et al. (2020)
3.	Materials delivered during online learning tools	Bahasoan et al. (2020)

4.2) Research Instrument

The questionnaire was designed to gather data from the student's in UiTM Perak branch to find out the effectiveness of online learning tools. All the questions within this questionnaire were developed based on previous study that conducting different concept of study. Within this research, the items used were modified to suit with the scope and research objective. Furthermore, this research applied Likert scale technique to measure effectiveness of each motivation factors. Likert scale rating is the most suitable in this study because it easy to measure of each construct and easier for the respondent to understand and give the best answer.

The Google Form utilized for creating the surveys will serve as the platform for distributing them online. Each participant will receive guidance on how to complete the Likert scale questionnaire for the various evaluation factors.

4.2.1) Population and Sampling

The level of analysis for this study is on UiTM Students in Perak branch that focusing in one campus which is Seri Iskandar. UiTM campus Seri Iskandar was selected due to number of students who takes entrepreneurship and management are higher during this semester. The population of manufacturing SMEs were determined from lecturer who use the online learning tools as an additional material for teaching. It stated about 206 students who need to participate.

This study was conducted only for students in part 4 and part 1. According to the statistics from lecturer in charge (LIC), about 1410 students who takes entrepreneurship and management course in UiTM Seri Iskandar however, only students under lecturer who implement the online learning tools are selected. Sampling technique was examine based on Krejcie and Morgan Table for Sample Size Determination. According to the 206 population of students only 132 sample needed to accomplish the data collection.

4.3) Data Analysis Procedure

The data analysis process commences with the initiation of correlation analysis. This step primarily seeks to investigate the relationship between the independent and dependent variables. Additionally, it aims to determine the strength of any such relationships that may exist. Subsequently, regression analysis is employed. This method is utilized to ascertain which construct provides the most statistically significant and unique contribution to the dependent variable. This is confirmed by evaluating whether the Sig. value is less than 0.000.

4.3.1) Correlation Analysis

Correlation analysis is one of the features available in the SPSS software. It is employed to elucidate the connection between two distinct variables. The Pearson correlation coefficient, which ranges between -1 and +1, is utilized for this purpose. The sign preceding the coefficient signifies whether the correlation is positive or negative (Pallant, 2011). Furthermore, this analysis can help identify the strongest relationship that impacts the independent and dependent variables.

4.3.2) Multiple Regression

Multiple regression analysis holds significant importance in this study as it plays a crucial role in addressing the first objective, which is to assess the primary motivational factors influencing the effectiveness of online learning. Multiple regression analysis enables the examination of the most influential factors from among the four constructs (attention, relevance, confidence, and satisfaction) that have a substantial impact on the dependent variable. This method is also utilized to rigorously test each of the hypotheses and provide robust evidence regarding which factor is the most significant in relation to its dependent variable (Pallant, 2011). Moreover, multiple regression extends beyond correlation analysis, allowing for a more sophisticated exploration of the interrelationships among a set of variables.

5. RESEARCH TIMELINE

The project is anticipated to reach completion within a span of 20 weeks, with the following durations specified for each segment of the research project:

Research Section	Duration
1. Title	1 week
2. Introduction	2 weeks
3. Need for this Study	1 weeks

4. Background	2 weeks
5. Objectives	1 week
6. Research Questions and or Hypothesis	1 week
7. Research Methodology	3 weeks
8. Data Collection	3 weeks
9. Data analysis interpretations and discussions	3 weeks
10. Summary conclusion and recommendations	2 weeks
11. Reviewing work for final submission	1 week

6. CONCLUSION

The importance of conducting a conceptual study on the application of the ARCS Motivation Model to online learning tools in higher education-level entrepreneurship and management courses cannot be overstated. This research holds significance because it enables tertiary educational institutions to adopt effective strategies that attract and encourage students to make extensive use of online learning tools for courses related to entrepreneurship and management. To further boost the adoption rates of these tools in the classroom, especially among tertiary education students, instructors and lecturers should capitalize on the factors that hold value for these students. Numerous studies have demonstrated that the utilization of online learning tools positively impacts the learning experience, motivating students to engage with information in an enjoyable and imaginative manner.

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Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
Rektor
Universiti Teknologi MARA
Cawangan Perak



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2. Adalah dimaklumkan bahawa pihak kami ingin memohon kelulusan tuan untuk mengimbas (*digitize*) dan memuat naik semua jenis penerbitan di bawah UiTM Cawangan Perak melalui Repositori Institusi UiTM, PTAR.

3. Tujuan permohonan ini adalah bagi membolehkan akses yang lebih meluas oleh pengguna perpustakaan terhadap semua maklumat yang terkandung di dalam penerbitan melalui laman Web PTAR UiTM Cawangan Perak.

Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

“BERKHIDMAT UNTUK NEGARA”

Saya yang menjalankan amanah,

SITI BASRIYAH SHAIK BAHARUDIN
Timbalan Ketua Pustakawan

nar

Setuju.

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PROF. MADYA DR. NUR HISHAM IBRAHIM
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