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Undergraduate students' motivation toward online learning and intention to enrol in future online courses

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Abstract

Online education has become increasingly common, particularly in higher education, and students' willingness to learn online has increased following the COVID-19 pandemic. This study aimed to understand the factors that motivate students to learn online and their intentions to continue taking online courses. The research surveyed 112 students from a private university in Malaysia and found that both intrinsic and extrinsic factors motivated them to learn online. The majority of students also intended to continue with online learning in the future. Extrinsic incentives such as performance improvement were found to be the most effective motivators. Universities should consider adjusting the curriculum to improve student learning while considering the flexibility of the time and effort that students should put in to build a meaningful online learning experience.

Keywords:
Intrinsic;
Extrinsic;
Motivation;
Online learning;
Intention

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1. Introduction

Today, there are more and more universities offering online undergraduate and graduate programmes to meet the demand of the students. The enrolment in online courses has grown significantly over the last few years (Zhu et. al., 2020). According to the National Centre for Education Statistics (2022), the enrolment of undergraduate students in 2020 in distance educational courses was 186% higher than in 2019. The increase in online learning basically provides more space for students in terms of accessing information and also more flexibility for students to learn at their own pace and time (Harandi, 2015).

The COVID-19 pandemic has forced online learning for all educational institutions (Gustiani, 2020). During the pandemic, students could not go to school, so online learning was the only solution to ensure that students could continue learning at home. In the post pandemic period, online learning seems to be a part of students' educational lives, especially in higher education. The existence of online learning has significantly affected students' motivation to learn (Alfarimba et. al., 2021).

In addition, Motevalli et al. (2020), students are motivated to participate and display a high level of interest in the learning process when both intrinsic and extrinsic motivational factors are present. If a student is motivated, normally he or she will pay attention to the class, participate

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actively in the classroom activities, come early to the class, and submit their assignments or projects on time. In a physical face-to-face class, it is easy to observe whether a student is motivated to learn in the classroom. However, in an online learning environment, with Google Meet or Zoom the more commonly used platforms, such observation is difficult because students' responses and facial expressions are not directly visible or immediately observable by the teacher or the lecturer. Maintaining the attention and positive attitudes of students in online learning is a key challenge (Dumford & Miller, 2018). Although students can learn at their own pace and time in an online course, there seems to be a lack of motivation to learn among some students.

The motivation of students engaged in online learning can also be affected by both internal and external factors. According to Simamora (2020), students' motivation for online learning is mainly affected by external factors, such as learning environments and instrumental support. On the other hand, Fitriyani et al. (2020) argued that intrinsic factors have a significant impact on students' motivation in online learning. Students' self-regulation in learning and their enthusiasm and ambition to learn new knowledge have driven them to learn through online courses (Gustiani, 2020). If students are not motivated to learn, they may not start to learn anything, or even if they have started to learn, they may not continue to learn (Che Soh et. al., 2022). Meşe and Sevilen (2021) observed that the intrinsic and extrinsic motivation of participants was lower in online learning than in face-to-face education. They claimed that a lack of connection with peers and teachers was the main reason students were less motivated in online learning. Therefore, the research problem addressed in this study is to investigate the relationship between university students' motivation in online learning and their intention to continue taking online courses. Specifically, this study aims to explore some of the intrinsic and extrinsic motivational factors, such as social interaction, self-initiative, and technical challenges, that influence students' intention to continue taking online courses.

In this study, responses from full-time students from a private university in the southern state of Malaysia were examined to answer the following research questions:

RQ1: What are the intrinsic and extrinsic factors that affect university students' motivation for online learning?

RQ2. Is there any relationship between students' motivation for online learning and their intention to continue taking online courses?

The goal of this study is to identify the intrinsic and extrinsic motivating factors that affect students' online learning and to determine the significant relationship between students' online learning motivation and their future intention to continue taking online courses. The findings of this study contribute to a better understanding of the factors that influence university students' motivation for online learning and their intention to continue taking online courses. This knowledge can be used to inform the development of strategies and interventions that promote students' engagement and motivation in online learning environments, ultimately improving the quality of online education and increasing their success in online courses.

2. Literature review

2.1 Intrinsic and extrinsic motivation in online learning

In an online learning environment, students have the flexibility to decide when, where, and how to learn (Wang et. al., 2013). However, not all students find online learning satisfactory. Understanding student satisfaction with online learning is important for understanding their choice to take online courses over face-to-face courses (Cole et al, 2014). Experiences through

online learning influence the motivation of students and their intention to continue taking online courses.

In general, there are two types of motivation: intrinsic and extrinsic motivation (Ryan & Deci, 2000a). According to Ryan and Deci (2020), intrinsic motivation can be defined as the act of engaging in an activity for one's own benefit and satisfaction. People with intrinsic motivation normally find a task delightful to complete. In contrast, extrinsic motivation refers to situations in which an activity is carried out with the aim of achieving a distinct, tangible result (Ryan & Deci, 2000a). One might be motivated to engage in activities through external influences such as rewards and praise from others.

Several studies have examined the influence of intrinsic and extrinsic motivations on students' experiences in online learning environments. Gustiani (2020) found that participants of online learning were intrinsically motivated as they desire to learn new things and enjoy experimenting with new learning methods. Only five students claimed that their online learning was influenced by external factors, specifically punishment associated with not attending online classes and a lack of supporting facilities.

In contrast, a study conducted by Minda (2020) found that online learning had a weak impact on students' motivation. In other words, online learning does not inspire student motivation. The factors that were identified are mostly extrinsic; for example, teachers lack literacy in the use of technology, learning strategies are not engaging, cost and time spent on online learning, lack of interaction between teachers and students, and inadequate Internet access.

Studies by Mardesci (2020) and Alfarimba et al. (2021) also show that students' motivation is negatively impacted by online learning. They found a negative relationship between online learning and student motivation to learn. In other words, an increase in online learning decreases student motivation to learn. This impact is mainly due to extrinsic factors, such as the absence of interaction between teachers and students, absence of resources, absence of support from parents, and absence of conditions conducive to learning (Alfarimba et al., 2021).

2.2 Intention to continue online learning

Highly motivated students are more likely to approach their assignments with a positive attitude, put effort into them, and remain persistent in their learning (Zhu et. al., 2020). In addition, if students are very driven to learn online, it is very likely that they will continue to enrol in online courses in the future. The intention to continue using online learning is also important for determining the success of online learning implementation.

In this regard, several researchers have studied variables that can affect students' intention to continue choosing online learning. For example, Alhamami (2018) conducted research on a blended learning environment for students' intentions to learn a foreign language. The author discovered that students' intentions to learn a foreign language online were influenced by their perception of the learning environment, performance in the course, and perception of the people around them.

A recent study from Hussein and Helmi (2022) measured the desire to continue using online learning among students in Malaysian Universities during the post pandemic. The results show that the following variables are positively correlated with students' intention to continue online learning: curriculum, online learning readiness, perceived usefulness, and perceived ease of use. Their results were also in line with those reported by Sukendroa et al. (2020) and Vululleh (2018), who found a positive relationship between perceived usefulness and perceived ease of use and students' intention to continue using online learning.

Another study that predicted the intention of students to continue using online learning in the post pandemic era was conducted by Marandu et. al. (2022). The study found that social influence and satisfaction are factors that significantly influenced students' intention to continue using

online learning. Based on the work of Marandu et al.. (2022), students seem to believe that online learning improves their performance, and that they are satisfied with online learning. Satisfaction is intimately linked to continuance intentions in online learning (Choi-Meng et. al., 2020). In addition, the social influences that include classmates, instructors, and family members who think that students should continue using online learning will then motivate the students to uphold their expectations of their referents (Marandu et. al., 2022). This finding is supported by Panigrahi et. al. (2018) also identified the influence of social and environmental factors on students' intention to continue using online learning.

This study aims to identify the intrinsic and extrinsic factors that affect students' motivation for online learning. How do these motivational elements ultimately affect students' desire to continue taking online courses? Therefore, it may be interesting to investigate the impact of students' motivation on their continued intention to study online within the context of Self-Determination Theory (SDT).

2.3 Self-Determination Theory

Ryan and Deci (2000b) developed a motivational theory known as the self-determination theory (SDT). According to Ryan and Deci (2000b), human motivation is fuelled by the satisfaction of three basic psychological needs: autonomy, competence, and relatedness. When these needs are satisfied, individuals have greater motivation. A brief overview of these three fundamental psychological needs is as follows.

The need for autonomy is the drive to be in control of, and in agreement with, one's actions (Luo et. al., 2021). The greater the autonomy given, the higher the motivation to perform a task. In relation to online learning, the term "need for autonomy" refers to the desire of the students to make their own decision and engage in independent learning (Luo et. al., 2021). As a result, it is anticipated that the degree of autonomy in online learning will be positively correlated with students' motivation to learn.

The desire to be efficient and competent is referred to as a need for competence. This refers to an individual's perceived effectiveness in performing a task. In relation to online learning, the term "need for competence" refers to the desire of the students to effectively use the online resources in order to improve their academic achievement (Luo et. al., 2021). The more effective the students in utilising online tools, the higher their motivation to study through online learning.

The term "need for relatedness" is the desire to feel related to, accountable to, and supported by other individuals and groups. A relationship such as one between a love partner or close friends is crucial in setting the environment to examine motivated behaviour, according to Ryan and Deci (2000b). High-quality relationships tend to increase the motivation to perform a particular task. In relation to online learning, the need for relatedness is shown in students' desire to feel connected to and supported in their endeavours by others who are close to them (Luo et. al., 2021).

To understand students' intrinsic and extrinsic motivation for studying online and how this influences their decision to continue taking online courses in the future, the motivational factors identified in this study are based on the three basic psychological needs of Self-Determination Theory.

3. Research methods

This study used a quantitative research methodology to evaluate how intrinsic and extrinsic motivating factors influence university students' online learning, and how those factors affect students' intentions to continue taking online courses. Figure 1 presents the research framework of this study.

The questionnaire was administered online using Google Forms. A 5-point Likert-type scale was employed in the survey with (1) identified as strongly disagree, (5) strongly agree, and (3) neutral options. To obtain samples more efficiently for this study, a convenience sampling method was used to help collect the data. The link to the survey was sent through email, WhatsApp, and Google Classroom to the students. A brief introduction to the survey and ethical handling of the survey were mentioned on the first page of the questionnaire. Participants were then directed to the demographic questions in the first section, questions regarding students' intrinsic motivation factors through online learning in the second section, questions regarding extrinsic motivational factors through online learning in the fourth section, and the last section regarding their intention to continue taking online courses. The questions were pre-set in the Google form as "required to answer" before the participants completed their online forms; therefore, they were all mandatory. The construct measurements were adapted from previous research (Sørebø et. al., 2009).

SPSS (version 27) software was used to analyse the relationship between the variables and participants' intended use of online learning in the future. The alpha level was set at 0.05 in order to determine the significance level. Counts and percentages were computed for each variable, including demographic details, motivating factors, and intent to continue online learning. The relationship between the independent variables, which included the motivational factors, and the dependent variable, which was the intention to continue taking online courses, was examined using bivariate analysis (Pearson correlation coefficient).

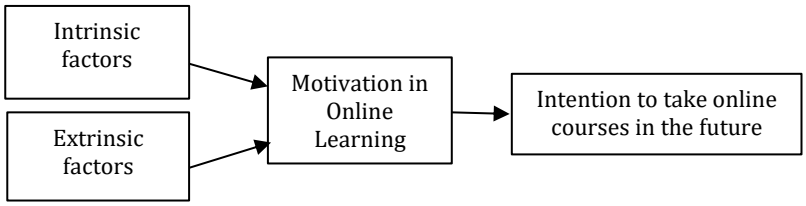

Figure 1: Research Framework

4. Results

4.1 Demographic summary

A total of 112 students voluntarily participated in this study. Participants were from different fields of study, including business and management, information technology, engineering, and law. They were also from different levels of study, including foundation, diploma, and bachelor's degree.

Table 1 summarises the respondents' profiles. 50.9% (57) of the total participants were females and 49.1% (55) were male. 80.4% of the participants, 80.4% were aged between 18 and 20 years, 17% between 21 and 23 years, and 2.6% between 24 and 26 years. Most of the participants were Chinese (74.1%), followed by Indians (16.1%), Malays (8.9%), and others (0.9%) who were international students. The participants were asked about their field of study. The majority of the participants (63.4%) came from the field of business and management, 29.5% from information and technology, 5.4% from law, and only 1.8% from engineering. Approximately 66.1% of the participants were from the foundation level, 7.1% from the diploma level, and 26.8% were bachelor's degree students. Participants were also asked to indicate their cumulative grade point average (CGPA) in this study. 36.6% of the participants, 36.6% achieved a CGPA between 3.7 and 4, and most participants (44.6%) achieved a CGPA between 3 and 3. 69.8% were achieving a range of CGPA between 2 to 2.99 and 10.7% had a CGPA below 2.

Table 1: Participants' demographic background

		n	%
Gender	Male	55	49.1
	Female	57	50.9
Age (in years)	18 – 20	90	80.4
	21 – 23	19	17.0
	24 – 26	3	2.6
Ethnicity	Malay	10	8.9
	Chinese	83	74.1
	Indian	18	16.1
	Others	1	0.9
Field of study	Business and management	71	63.4
	Law	6	5.4
	Engineering	2	1.8
	Information technology	33	29.5
Level of study	Foundation	74	66.1
	Diploma	8	7.1
	Degree	30	26.8
Cumulative Grade Point Average (CGPA)	0 – 1.99	12	10.7
	2 – 2.99	9	8.0
	3 – 3.69	50	44.6
	3.7 – 4.0	41	36.6

4.2 Intrinsic motivational factors through online learning

Ten items were used to measure intrinsic motivation, including inputs that students can make in deciding the use of online technology in online learning, opportunities that students have in deciding the use of online technology in online learning, decisions that students can make about online learning, ability of the students to search for extra information to understand better through online learning, students' confidence in finding learning material online, students' proficiency with online technology, capability of students to find the learning material online, enjoyment that students find in online learning, pleasant experiences that students feel in the actual process of using online learning, and whether they have fun using online learning. The participants were required to indicate the extent to which they agreed with each intrinsic motivation factor.

Table 2 shows that students' initiative in searching extra information to understand better about the course that they take while having online learning received the highest score for the intrinsic motivating factor (M = 3.89). The second highest score of the intrinsic factor that motivated students through online learning is the decision that students can make while having their online lesson (M = 3.84). Students' confidence level in searching for learning materials online is the third highest score of the intrinsic factors (M = 3.83) which motivated students through online learning. Having fun while learning online (M = 3.64) and the ability to make several inputs to decide the use of technology in online learning (M = 3.64) has the same score in motivating students intrinsically. Students find online learning to be enjoyable is one of the lowest intrinsic motivating factors (M = 3.62) and the lowest score is the pleasant process of using online learning (M = 3.60).

Table 2: Intrinsic motivational factors through online learning

		Frequencies* (%)				
	Mean	1	2	3	4	5
IM1: I feel like I can make a lot of inputs to decide how I use online technology in my online learning	3.64	3.57	4.46	38.39	31.25	22.32
IM2: There is a lot of opportunity for me to decide for myself how to use online technology in my online learning	3.79	3.57	2.68	33.04	33.04	27.68
IM3: I can make my own decisions about online learning	3.84	2.68	6.25	28.57	29.46	33.04
IM4: I will search extra information to understand better the course that I take through online learning	3.89	3.57	5.36	23.21	33.93	33.93
IM5: I feel confident in finding the learning material online	3.83	4.46	6.25	22.32	35.71	31.25
IM6: I am good at online technology in my online learning	3.68	4.46	9.82	27.68	29.46	28.57
IM7: I think that I have the capability to find learning material online	3.81	4.46	5.36	20.54	43.75	25.89
IM8: I find using online learning to be enjoyable	3.62	6.25	10.71	24.11	33.04	25.89
IM9: The actual process of using online learning is pleasant	3.60	5.36	8.93	27.68	36.61	21.43
IM10: I have fun using online learning	3.64	7.14	6.25	26.79	34.82	25.00

* Response scale: 1= strongly disagree; 2= disagree; 3=neutral; 4 = agree; 5 = strongly agree

4.3 Extrinsic motivational factors through online learning

There were ten items used to measure extrinsic motivation, which included the ease of communicating freely with lecturers during online learning, getting along with peers in online learning, receiving support from friends during online learning, avoiding interruptions from parents and family members while having online lessons, improving study performance while using online learning, increasing knowledge while using online learning, saving energy while following online lessons, saving time while following online lessons, relevant presentations by the instructor, and usefulness of online learning to students' study. Table 3 shows that saving time while following online learning has the highest score in motivating students extrinsically (M = 3.87). Next is energy saving while following the online lesson (M = 3.76). The way the instructors presented the material has the third highest score (M = 3.73) in motivating students extrinsically through online learning. The ease to communicate freely with lecturers through online learning has one of the lowest scores among factors that extrinsically motivate students (M = 3.47). Support from friends has the second lowest score in motivating students extrinsically through online learning (M = 3.46) and the lowest score of the extrinsic factor is getting along with peers through online learning (M = 3.26).

Table 3: Extrinsic motivational factors through online learning

		Frequencies* (%)				
	Mean	1	2	3	4	5
EM1: I can communicate freely with the lecturers through online learning	3.47	5.36	15.18	29.46	26.79	23.21
EM2: I get along with my peers (classmates) in online learning	3.26	7.14	20.54	30.36	23.21	18.75
EM3: My friends at online learning support me	3.46	4.46	12.50	34.82	28.57	19.64
EM4: My parents and family members will not interrupt me while I am having online learning	3.59	6.25	12.50	26.79	25.00	29.46
EM5: Using online learning improves my study performance	3.48	9.82	5.36	35.71	25.00	24.11
EM6: Using online learning increases my knowledge	3.60	6.25	7.14	20.26	33.04	23.21
EM7: Studying online can save my energy in following learning	3.76	4.46	7.14	26.79	31.25	30.36
EM8: Studying online can save my time in following learning	3.87	3.57	7.14	23.21	31.25	34.82
EM9: The instructor presents the material in a way that makes it relevant to me	3.73	4.46	7.14	26.79	33.93	27.68
EM10: Overall, I find online learning useful to my studying	3.72	6.25	5.36	27.68	31.25	29.46

* Response scale: 1= strongly disagree; 2= disagree; 3=neutral; 4 = agree; 5 = strongly agree

4.4 Intention to take online courses in the future

Table 4 shows the students' intention to continue taking online courses. The highest mean score of 3.53 indicates that students will study online in any subject area in the future. The intention to continue using online learning in the future had the second highest mean score (M = 3.50). The third highest score (M = 3.39) in terms of students' intentions to enrol in online courses in the future was that they preferred to study online versus face-to-face instruction. When compared to other items, students will only study online for a subject that is familiar to them and has a lower score (M = 3.13). The question regarding students not taking online courses in the future received the lowest score (M = 2.47).

Table 4: Students' intention to continue taking online course

		Frequencies* (%)				
	Mean	1	2	3	4	5
IC1: I prefer to study online than face-to-face	3.39	8.93	14.29	30.36	21.43	25.00
IC2: I intend to continue using online learning in the future	3.50	8.04	8.04	34.82	24.11	25.00
IC3: I will study online in any subject area	3.53	8.93	8.93	30.36	24.11	27.68
IC4: I will study online only in the subject are with which I am familiar	3.13	13.39	15.18	32.14	24.11	15.18
IC5: I will not study any course online	2.47	27.68	23.21	31.25	9.82	8.04

* Response scale: 1= strongly disagree; 2= disagree; 3=neutral; 4 = agree; 5 = strongly agree

A Pearson correlation coefficient was computed to assess the linear relationship between intrinsic motivational factors and the intention to continue taking online courses, as shown in Table 5. Intention to continue taking online courses was positively correlated with all intrinsic motivational factors. The results showed that the likelihood that students will continue taking online courses was most strongly correlated with the fun they had while learning online (r = 0.614, p < 0.000). Next was the relationship between students' perceptions of enjoyment of online learning and their intention to continue with it in the future (r = 0.610, p < 0.000). Motivation to search for extra information through online learning had the weakest relationship with students' intention to continue taking online courses (r = 0.376, p < 0.000).

Table 5: Correlation results for intrinsic motivation

Items	Intention to continue online learning	*p*-values
IM1	0.512	0.000
IM2	0.494	0.000
IM3	0.531	0.000
IM4	0.376	0.000
IM5	0.517	0.000
IM6	0.439	0.000
IM7	0.529	0.000
IM8	0.610	0.000
IM9	0.584	0.000
IM10	0.614	0.000

Table 6 shows that students' intention to continue taking online courses in the future was positively influenced by all the extrinsic motivating factors. The improvement in academic achievement brought about by online learning and the desire to continue taking online courses were found to have a strong correlation (r = 0.677, p < 0.000). Next was the perceived usefulness of online learning and intention to continue taking online courses (r = 0.674, p < 0.000). Friends' interaction and encouragement during online learning and the intention to continue taking online courses were found to have the weakest relationship (r = 0.379, p < 0.000).

Table 6: Correlation results for extrinsic motivation

Items	Intention to continue online learning	*p*-values
EM1	0.422	0.000
EM2	0.475	0.000
EM3	0.379	0.000
EM4	0.533	0.000
EM5	0.677	0.000
EM6	0.653	0.000
EM7	0.590	0.000
EM8	0.542	0.000
EM9	0.576	0.000
IM10	0.674	0.000

5. Discussions

The findings demonstrated that most students who participated in online learning are intrinsically and extrinsically motivated. The most motivating factor that affects students intrinsically is the initiative they have in searching for extra information to better understand the course they took while learning online. On the other hand, it was discovered that time saving is the biggest extrinsic motivator for students in online learning.

The results of this study demonstrated that every motivational factor, both intrinsic and extrinsic, have a positive relationship with students' intention to continue using online learning. The highest intrinsic influence on students' intention to continue taking online courses is perceived as fun during online lessons. On the other hand, improvement in study performance through online learning is the external motivation factor that has the highest correlation with the intention to continue taking online courses.

Based on the findings of this study, the majority of university students appear to be motivated to learn online in the post pandemic era by both intrinsic and extrinsic factors. Most students felt that their performance had improved as a result of their experience with online learning during the COVID-19 pandemic. Students' motivation for online learning has enhanced their desire to enrol in more online courses in the future. This suggests that universities should consider changing their curriculum to support online learning in the future, whether or not there is a pandemic (Marandu et. al., 2022).

6. Conclusions

According to the results, students seem to be more extrinsically motivated in online learning, where few factors can be considered by universities to make online learning a better experience for students to learn in the future. The results show that improvements in performance and perceived usefulness in online learning are the most important factors for students to continue taking online courses in the future. Therefore, universities can look into teaching methods that can improve students' learning while considering the flexibility of time and effort that students should put in to make meaningful learning online. Considerable thought should go into designing a curriculum with engaging course content, creating a learning community, and incorporating gamification into teaching and learning. In addition, the presentation of the lecturers is also important, as highlighted in the study, where students find themselves motivated in online learning because the lecturers can make the learning materials relevant to them. Therefore, lecturers should look into various ways to improve the teaching methods in online learning to keep the students motivated, and lecturers should also have open communication with the students to provide a supportive environment for them to share their thoughts. Universities

administrators should look into the synchronisation of online platforms or learning management systems (LMS) to provide a better "place" for students to obtain all relevant information and learning materials for online learning purposes.

This study had some limitations. First, the limited sample size of 112 was relatively small, which may prevent the generalisation of the findings to a larger population. Second, the focus of this study on foundation-level students, with comparably few participants from diplomas and bachelor's degrees, is a significant limitation. The results of this study cannot be applied to a wider educational setting because of the imbalance in the sample representation. Future researchers can include a more diverse range of participants from all academic levels to provide a more comprehensive understanding of students' motivation in online learning and their intention to continue taking online courses in the future. A study from the teachers' point of view about students' motivation in online learning may be possible in the future as well, so as to compare the views of both the students and teachers.

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