

Stayed Motivated: Perceived Task Values on Undergraduates' Online Learning Motivation

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ABSTRACT

The outbreak of the global pandemic has changed the education landscape and made online learning the new normal. Hence, this research aims to examine the individual related factors (i.e., influence of locus of control and self-regulation) and perceived task value on online learning motivation among Malaysian undergraduate students. There were 200 local undergraduates from both public and private higher education institutions engaged in current study. Partial Least Square Structural Equation Modelling (PLS-SEM) was employed for data analysis. The results established that internal locus of control, self-regulation and perceived task value have a significant positive relationship with online learning motivation, whereas external locus of control has a significant negative correlation with online learning motivation. The empirical findings of current study provide insights to the local higher education institutions and educators to understand the important factors in helping students stay motivated in their online studies. In addition, the study seeks to enhance awareness and effectiveness of online learning mode in local higher education institutions as part of complementary strategies to the existing learning and teaching approach.

Keywords: Locus of Control, Undergraduate, Online Learning Motivation, Perceived Task Value, Self-regulation

INTRODUCTION

Since the first Movement Control Order (MCO) began in March 2020, Malaysian local higher education institutions has shifted from face to face (f2f) classes to online learning mode. As the adaptation of virtual learning was sudden, most of these institutions were unprepared for the abrupt shift. Although the pandemic crisis has lasted for around two years, issues surrounding online learning and students' motivation persist. Hence, it is pertinent to examine the factors influencing undergraduates' online learning motivation in order to improve effectiveness of online learning and teaching delivery system.

Ever since the switch to remote learning, many undergraduates encounter difficulties adapting to the new norm, which leads to lower online learning motivation. Based on a survey conducted by the Education Ministry in 2020, 40% of the approximately 900,000 students affected by school closures were unable to follow lessons because they lack the necessary resources (Karupiah, 2021). Their inability to keep up with their studies and frustration from technical difficulties will lead to them losing motivation to learn.

Besides, many undergraduates are disheartened by the solitude and isolation. Ilias, Baidi, Ghani and Razali (2020) found that students' feeling of isolation affects their online learning motivation. The students felt disconnected as they are unable to interact directly with their friends and lecturers. Moreover, Kim and Frick (2011), found that students get demotivated from e-learning as they have to go through the course alone. In addition, students also find themselves having difficulties in keeping track with their studies (Sani, 2020). Al-Kumaim et. al. (2021) added that more than 62% of students felt stressed due to the pressure from having too many online tasks. The build-up of stress and anxiety, and cognitive overload will undoubtedly cause a decrease in students' learning motivation (Kim & Frick, 2011). Therefore, self-motivation is crucial for students to stay on top of their studies.

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As undergraduates are becoming increasingly bored and lost the learning motivation to attend online classes, their attendance and performance declined (Mahpar, 2021). Notably, the learning motivation was lower in online approach when compared to face-to-face (F2F) mode due to lacking of interaction with peers and lecturers. This phenomenon is described as 'home-based learning fatigue'. On that account, as of July 2021, the Ministry of Higher Education (MoHE) conducted a study on the effectiveness of online Learning and Teaching (PdPR) to improve the online learning process among local graduates (Bernama, 2021). The ministry also collaborated with the Counselling Council and Careers of Public Universities of Malaysia (Makuma) to develop a mental health module for higher education institution students to deal with home-based learning fatigue, stress, depression and anxiety issue and enhance their online learning motivation (Bernama, 2021).

Distance learning or online learning approach is very common as one of the routes for lifelong learning. Nonetheless, this is the first time in history where virtual learning is being executed simultaneously on a global basis due to the pandemic crisis and enforcement of lock down or MCO practices in different countries. Notably, there is a lack of rigorous research in the prior literature to investigate online learning motivation among undergraduates who are required to attend virtual classes due to the implementation of lock down or MCO. There is appears to be an empirical gap in the prior research. Locally, several studies merely researched on online learning readiness among university students (Chung, Noor & Matthew, 2020; Chung, Subramaniam & Dass, 2020). Al-Kumaim et. al. (2021) also only investigated the challenges faced by university students in online learning during the pandemic. These studies merely scratched the surface on the topic by studying students' readiness and challenges faced, in-depth research pertaining to the undergraduates' online learning motivation is still lacking. This unexplored research context appears to be important and worthy of investigation during the pandemic crisis as it is a rather new field of research context. Therefore, this study aims to investigate the relationship between the individual-related factors (i.e. internal and external locus of control, self-regulation and perceived task value) and online learning motivation among Malaysian undergraduate students.

LITERATURE REVIEW

Underpinning Theory: Self-determination Theory

In psychology, self-determination is a significant concept that refers to an individual's ability to make decisions and allows individuals to believe that they have control over their own lives (Cherry, 2019). Moreover, self-determined individuals are self-initiated, self-directed, and actualise their goals by making things happen in their lives (Hartnett, 2016).

Self-determination theory is built on the fundamental concept of learner autonomy (Hartnett, 2016). According to Ryan and Deci (2020), self-determination theory suggests that human motivation is driven by the following basic psychological needs – the needs for autonomy, competence, and relatedness. Autonomy indicates that people need to feel that their own behaviours and goals are within their control (Fowler, 2018). Secondly, competence refers to the believe that when people feel they have the skillset needed to succeed, they are more prone to take initiatives that will help them accomplish their tasks (Ryan & Deci, 2020). Whereas, relatedness implies that individuals need to feel a sense of belonging and have meaningful relationships with others (Velez et al., 2015). Ryan and Deci (2020) theorised that these three needs promote intrinsic motivation. On that account, students who fulfil the needs are more likely to have online learning motivation.

Specifically, this study focuses on the autonomy and competence aspects of self-determination theory. When learners are autonomous, they attribute the outcomes to an internal locus of causality and experience a sense of choice and freedom over their actions (Hartnett, 2016). This is highly associated with locus of control. Additionally, autonomy also refers to being able to set one's own judgment regarding the task and decide what one wants to attain from it, which relates to perceived task value (Velez et al., 2015). Studies have also reported that increased autonomy enhances intrinsic motivation to complete a task (Fowler, 2018). This can be linked to when learners feel that they are in control of the situation (internal locus of control) and have their personal perception of the worth of the task (perceived task value), their motivation for online learning increases. Meanwhile, as competence concerns one's capability to be responsible for and actively take part in their learning process, it involves self-regulation (Hartnett, 2016). When self-regulated learners have what it takes to self-initiate and keep themselves in check throughout their online learning process, they exhibit competency.

Online Learning Motivation

Motivation is the force that drives human actions. The impacts of motivation are usually extensive because it raises an individual's determination, strengthens the persistence in attaining their goals, and influences the thought process of a person (Ciccarelli & White, 2015). Motivation has also been described as the 'engine' of learning. It affects how students make decisions and how they perform tasks - whether with excitement or a

lackluster attitude (Hurst, 2012). In an online learning context, despite the limitations of a virtual environment, motivated students will still be engaged in their learning.

Moreover, Hui and Tsang (2012) stated that motivated students have higher perceived competence and adaptive learning attitude. In a new online learning environment, especially during a lockdown, motivation is even more important for students to stay focused. Meşe and Sevilen (2021) mentioned that motivation is worth exploring in an online learning context because students are prone to participate lesser. Moreover, Ilias et al. (2020), who conducted a local study on the issues of online learning among undergraduates, found that one of the main reasons for the resistance against distance learning is the low level of motivation towards change. On the contrary, motivated students will be able to persist longer in the face of changes and adversities (Hui & Tsang, 2012). With that said, clearly motivation is vital for

Internal Locus of Control

According to Rotter (1996), locus of control refers to the beliefs about the source of control over reinforcement. This concept is aimed at capturing the causality of behaviour (Lowes & Lin, 2015). It is the perception that the occurrence of an event is a result of an individual's own behaviours or as a consequence of external factors, such as, luck, fate, social structures, and so on (Gökçearsan & Alper, 2015). There are two types of locus of control – internal and external, can be placed along a continuum. In the context of online learning, locus of control influences many factors, like adaptation to the environment, participation in activities, student satisfaction, performance and so on (Gökçearsan & Alper, 2015). Nowicki and Strickland (1973, as cited in Min, 2012), found that “independent, striving, self-motivated” behaviour in academics was linked to a high internal locus of control. Strong internal control will lead to self-motivated behaviour and will subsequently have greater online learning motivation. Moreover, Rotter (1966) stated that internals tend to take initiatives to improve their environmental conditions. In the case of online learning, this type of students will not let the lack of resources, inconducive environment, etcetera, hamper their spirits. Therefore, when they take ownership to solve their environmental problems, they exhibit the autonomy component of the self-determination theory.

Besides, Rotter (1975, as cited in Lowes & Lin, 2015), argued that locus of control is more predictive in new settings that are unfamiliar and ambiguous as compared to situations where the individual has more experience. This is exactly the situation that students who are new to virtual learning, like Malaysian undergraduates, are facing. In addition, Suretha and Stanz (2004) highlighted that students with an internal control prefer learning environments that provide them the most control over their learning, and a virtual learning environment may be just such an environment as they are in control of where, when, and how they want to attend their online classes.

External Locus of Control

Individuals with external locus of control believe that there is little one can do to influence the outcomes. Thus, it is no surprise that they are less likely to initiate and put in effort to maximise their learning (Joelson, 2017). They feel disheartened when they encounter challenges during online studies. For example, a local study by Al-Kumaim et al. (2021) found that more than 51% of students reported stress due to unfamiliarity with the study environment and the new normal. This is because students with external beliefs find it difficult to adapt to changes as they think they cannot exert control over their environment. In a similar manner, Wang (2005) highlighted that externals have low tolerance of uncertainty, hence, they felt overwhelmed with new online learning platforms that they knew little about. Al-Kumaim et al. (2021) seconded this by reporting that too many online tasks included in these platforms put more than 62% of students under pressure. Therefore, these students feel demotivated in online learning.

Furthermore, students with external locus of control require specific guidance and explicit information about their learning resources (Wang, 2005). However, the support that they are familiar with, especially the physical communications with their subject lecturers and peers, are absent in an online learning environment (Sani, 2020). Consequently, as externals lack the initiative to seek for help, they will lose the motivation to learn. Besides, lack of resources and unconducive environment at home can make distance learning difficult. Instead of taking it on themselves to resolve their issues, externally controlled students will find themselves helpless against their environment. Hence, their motivation level will be lowered.

Self-regulation

Self-regulation is a process where one manages and guides one's own thoughts, behaviours, and feelings to achieve their goals (Pelikan, Lüftenegger, Holzer, Korlat, Speil & Schober, 2021). Self-regulated learners are "metacognitively, motivationally, and behaviorally active participants in their own learning process" (Zimmerman, 1986, as cited in Lawanto et al., 2014). In an online learning context, self-regulation refers to a

student's ability to take control of their own learning processes in a virtual environment, such as, being able to maintain learning without being side-tracked by other online activities (Chung et al., 2020).

Since having autonomy is required for students to take an active role in their learning, self-regulation skills is essential in online learning (Lin, 2021). Tsai et al. (2013) found that self-regulation, which includes self-monitoring and goal setting, is positively correlated to online learning participation. As in-person teacher support is absent in online education, self-regulation is vital to ensure that one can stay on track with their studies. This is especially crucial in certain courses where classes are conducted purely by giving assignments and daily homework (Sani, 2020). Since there is no class schedule and the tasks are self-directed, self-regulation is important for a student to manage their own learning and enhance their motivation level. On top of that, as students are completing their studies by spending hours seated in front of their devices, they could easily lose focus (Mahpar, 2021). Subsequently, their online learning motivation will decrease. Additionally, students are learning from the comforts of their own home. Pintrich (2000, as cited in Min, 2012) noted that the features of a student's educational environment may facilitate or hinder their attempt at self-regulation. Students who instilled self-discipline and create the mood to stay focused will maintain their online learning motivation (Lin, 2021).

Perceived Task Value

Perceived task value refers to one's subjective perception of the value of a particular task (Lee, 2015). Eccles and Wigfield (2002), identified four primary components in task value - attainment value, intrinsic value, utility value, and cost. Attainment value is defined as how personally important it is to do well on the task. Next, intrinsic value refers to the enjoyment from performing the task or the interest one has in the subject (Lee, 2015). Meanwhile, utility value is determined by the task's perceived usefulness, and how it relates to current and future goals (Fowler, 2018). For instance, a task can be valuable to an individual because it facilitates future goals, even if they are not interested in the task itself (Lee, 2015). Finally, cost is defined as the perceived opportunity cost of engaging in the task, which includes the perceived resources invested and emotional cost (Lin, 2021). All in all, these four factors operate collectively to determine the perceived task value for an individual.

As perceived task value is associated with the autonomy factor of self-determination theory. For attainment value, Patall, Dent, Oyer and Wynn (2013) found that autonomy is experienced when a task is performed out of personal importance. Students are autonomous when they can consciously choose what is important to them instead of merely being told what they should do. Secondly, intrinsic value requires autonomy where one is internally driven to pursue their tasks, without desiring an external reward (Irvine, 2018). Next, as choosing a task which facilitates future goals is related to utility value, autonomy is shown when one is capable of setting their own goals and pursuing the tasks needed to reach their goals. Lastly, cost is the negative aspects from engaging in a task (Patall et al., 2013). By choosing to perform the task despite the negative setbacks, autonomy is portrayed.

Besides, perceived task value encourages student engagement in the task, resulting in a more in-depth approach to learning (Lee, 2015). As a result, their motivation to learn will increase. In addition, Sani (2020) found that motivation often dwindles when students fail to perceive the value of their learning. Consequently, boredom and distraction kick in. Sani (2020) suggested students to reflect on the goals they intend to pursue even if online classes do not feel as important currently. This is aligned with attainment value and utility value. Therefore, it is apparent that having high perceived task value will keep students motivated for online learning. On top of that, Vanslambrouck et al. (2018) reported that some students obtain enjoyment or intrinsic value when students and lecturers get to physically interact with one another. This aspect is lacking during online learning, which affects the perceived value of distance learning and subsequently, online learning motivation may decrease.

Hence, based on the review of existing literatures, four hypotheses are constructed for this study as per described below.

H1a: Internal locus of control has a positive impact on online learning motivation among Malaysian undergraduates.

H1b: External locus of control has a negative impact on online learning motivation among Malaysian undergraduates.

H2: Self-regulation has a positive impact on online learning motivation among Malaysian undergraduates.

H3: Perceived task value has a positive impact on online learning motivation among Malaysian undergraduates.

METHODOLOGY

Sampling Method and Sample Size

The target population is Malaysian undergraduates who are from both public and private institutions. Non-probability sampling - purposive sampling was employed in this research. Purposive sampling is where participants are deliberately chosen based on the qualities they possess (Etikan, Musa & Alkassim, 2015). Thus, the researchers personally reached out to participants who fit the criteria of the study. Green's (1991) rule of thumb was employed to determine an appropriate sample size. The formula, $N \geq 50 + 8m$, where N indicates the total number of participants and m refers to the sum of independent variables used in the study. As this study consist of four independent variables, the equation would be $N \geq 50 + 8(4)$, that is, a minimum of 82 participants is recommended. In this research, a total of 200 students participated which satisfactorily exceeds the minimum number.

The respondents consist of 43.5% males and 56.5% females. Most participants are in their third year (32%), followed by second year (24%), then first year (18.5%), 4th year (16.5%) and lastly, Diploma/Higher Diploma (9%). Among these participants, 57.5% study in private universities whereas 42.5% were from public universities. As for the faculties, majority of them majored in the field of business, economics, and accounting (26%), followed by health and medical sciences (11%) and arts and social sciences (11%), behavioural sciences (10%) and others (10%), engineering (8%) and education (8%), law (6.5%), hospitality and culinary arts (4%), computer science and information technology (3.5%) and lastly, languages and linguistics (2%).

Instrumentation

Research data was gathered through Google Forms. The questionnaire forms were distributed through undergraduate student groups on social media such as Facebook, Telegram and WhatsApp. The researchers also personally reached out to respondents via students' emails. An informed consent form was included in order to make it clear that the survey is voluntary and confidential that no individual results would be made available. The questionnaire was adapted from previous studies to ensure high validity and reliability. A 5-point Likert scale was used. Participants were to rate how much they agree with the statements provided. 1 indicated 'strongly disagree', 2 signified 'agree', 3 indicated 'neither agree or disagree', 4 implied 'agreed' and 5 signified 'strongly agree'. To ensure respondents do not answer carelessly, three reverse worded questions and three marker variables were included. The participants were also required to fill up a demographic data form to ensure they are eligible to participate in the study.

Schepers (2004)'s Locus of Control Inventory (LCI) was used to measure internal locus of control whereby one of the items is, "I am convinced that success is mainly related to a person's ability and dedication". To measure external locus of control, Trice (1985)'s Academic Locus of Control scale (ALCS) was adapted; an example is, "Some people have a knack for online learning, while others will never do well in online learning no matter how hard they try". Thirdly, Online Self-Regulated Learning Questionnaire (OSLQ) by Barnard-Brak, Lan and Paton (2010) was employed to measure self-regulation construct. An example of the questions is, "I set standards for my assignments in online classes". Next, perceived task value was examined through Lin (2021)'s Covid-19 Online Learning Motivation (COLM) questionnaire; one of the items is, "I think online learning is interesting". Lastly, Motivated Strategies for Learning Questionnaire (MSLQ) by Pintrich and DeGroot (1990) was adapted to measure online learning motivation, where an example question is, "In online classes, I prefer course material that arouses my curiosity, even if it is difficult to learn". Also, employing marker variables is a technique used to control method bias. In this study, three marker variables questions were adopted from Oreg's (2003) Cognitive Rigidity scale. An example is, "I don't change my mind easily".

DATA ANALYSIS

Smart PLS version 3.3.3 software and Partial Least Square Structural Equation Modelling (PLS-SEM) were used to perform data analysis. PLS-SEM is suitable if the context is relatively new, and prediction is more important than parameter estimation (Hair, Hult, Ringle & Sarstedt, 2017). The current study is the case of an incremental study, which is initially based on a prior model (e.g., Self-Determination Theory) but new measures/variables and structural paths are then introduced into it in order to predict the relationship between the independent variables (i.e., locus of control, self-regulation and perceived task values) and dependent variable (i.e., online learning motivation).

Common Method Variance

Common method variance (CMV) is a systemic error variance that is a possible concern when data is collected from the same source or method. In this case, a self-administered questionnaire and the predictor and criterion

variables were obtained from the same individual (Podsakoff, MacKenzie & Podsakoff, 2016). Thus, marker variable is introduced to control method bias. Based on Table 1, there is minimal difference between both original samples' values, with differences ranging from -0.002 to 0.010. Moreover, the change in R2 was only 0.002 as well. Thus, this shows that CMV is not an issue in this study.

TABLE 1
Comparison of Original Samples between Baseline Model and Marker Variable Included in the Model

	Original Samples		Difference
	Without Marker Variable	With Marker Variable	
ELOC -> OLM	-0.068	-0.066	-0.002
ILOC -> OLM	0.185	0.179	0.006
PTV -> OLM	0.450	0.447	0.003
SR -> OLM	0.259	0.249	0.010

Note: ELOC = External Locus Control, ILOC = Internal Locus of Control, OLM = Online Learning Motivation, PTV = Perceived Task Value, SR = Self-regulation.

Reflective Measurement Model

Convergent Validity

Table 2 presents the results of the reflective measurement model. For internal consistency, which is the composite reliability (Cronbach's Alpha) value, the constructs ranged from 0.789 to 0.909, hence, they exceeded the desirable value of 0.7 (Hair et al., 2017). Therefore, signifying that the study has achieved high internal consistency reliability. Next, factor loadings are used to determine how consistent a set of indicators is with what it is supposed to measure (Ramayah et al., 2018). Loading values of 0.708 or higher is recommended. This criterion was met by most of the indicators. Moreover, an average variance extracted (AVE) value that is equal to or greater than 0.50 implies that the construct explains more than 50 percent of its indicators' variance on average. In this study, all constructs exceeded the recommended value. Hence, convergent validity is ensured.

TABLE 2
Reflective Measurement Model

Construct	Items	Loadings	AVE	Composite Reliability (CR)
External Locus of Control	ELOC_11	0.789	0.562	0.806
	ELOC_12_R	0.673		
	ELOC_7	0.716		
	ELOC_8	0.820		
	ELOC_9	0.742		
Internal Locus of Control	ILOC_1	0.840	0.688	0.909
	ILOC_2	0.831		
	ILOC_3	0.766		
	ILOC_4	0.869		
	ILOC_5	0.873		
	ILOC_6	0.791		
Online Learning Motivation	OLM_32	0.758	0.577	0.817
	OLM_33	0.803		
	OLM_34	0.816		
	OLM_35	0.695		
	OLM_36	0.718		
Perceived Task Value	PTV_20	0.780	0.506	0.891
	PTV_21	0.799		

	PTV_22	0.839		
	PTV_23	0.814		
	PTV_24	0.824		
	PTV_25	0.848		
	PTV_26	0.779		
	PTV_27	0.825		
	PTV_28	0.809		
	PTV_29	0.230		
	PTV_30	0.174		
	PTV_31	0.183		
Self-regulation	SR_13	0.741	0.543	0.789
	SR_14	0.682		
	SR_15	0.726		
	SR_16	0.786		
	SR_17	0.744		

Note: ELOC_10_R, SR_18 and OLM_37_R were deleted due to low loadings.

Discriminant Validity

According to Hair et al., (2017), discriminant validity refers to how distinct the constructs are from one another by evaluating the correlations between possibly overlapping measurements. Two approaches are used to assess discriminant validity. Fornell-Lacker criterion (Fornell and Lacker, 1981) was assessed where the square root of each construct's AVE should be higher than any other construct's higher correlation to prove sufficient discriminant validity. Secondly, heterotrait-monotrait ratio (HTMT) refers to the ratio of correlations between-traits to correlations within-traits. HTMT value should be lesser than 0.90 to demonstrate discriminant validity (Gold et al., 2001). Based on results presented in Table 3 and Table 4, sufficient discriminant validity is achieved in this study.

TABLE 3
Fornell-Lacker Criterion

	ELOC	ILOC	OLM	PTV	SR
ELOC	0.750				
ILOC	-0.489	0.829			
OLM	-0.492	0.687	0.759		
PTV	-0.464	0.610	0.767	0.711	
SR	-0.482	0.736	0.734	0.678	0.737

Note: Diagonals represent the square root of the AVE while the off-diagonals represent the correlations. ELOC = External Locus Control, ILOC = Internal Locus of Control, OLM = Online Learning Motivation, PTV = Perceived Task Value, SR = Self-regulation.

TABLE 4
Heterotrait-Monotrait Ratio (HTMT)

	ELOC	ILOC	OLM	PTV	SR
ELOC					
ILOC	0.549				
OLM	0.576	0.780			
PTV	0.503	0.678	0.875		
SR	0.585	0.863	0.896	0.782	

Note: ELOC = External Locus Control, ILOC = Internal Locus of Control, OLM = Online Learning Motivation, PTV = Perceived Task Value, SR = Self-regulation.

Assessment of Formative Second Order Construct

To validate the formative measures, convergent validity is assessed. Path coefficient equal to or greater than 0.8 shows a high satisfactory level (Ramayah et al., 2018). Nonetheless, the convergent validity was 0.666 for present study. Hair et al. (2017) stated that path coefficient of 0.6 and above is acceptable for exploratory studies in nature.

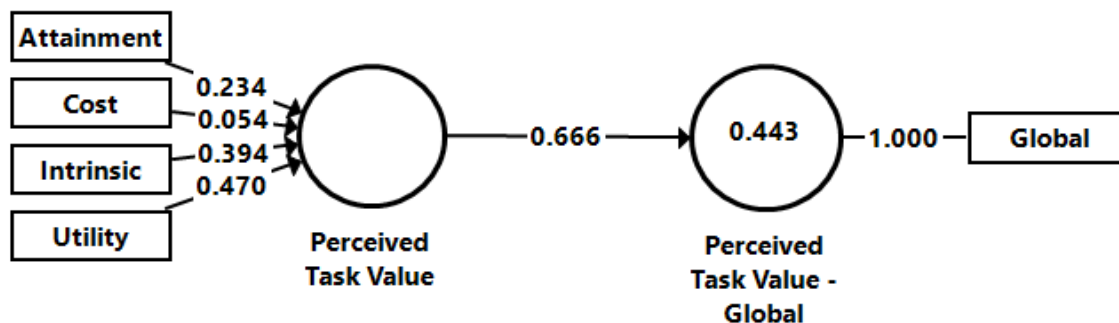


Figure 1: Redundancy Analysis

Next, multi-collinearity between indicators is assessed. Based on Table 5, all VIF values are consistently below the cut-off value of 5 (Hair et al., 2017). Thus, there is no potential collinearity problem and subsequently, not an issue to estimate the PLS path model. In addition, Table 6 shown that outer weight values from every formative indicator is significant. Utility ($p = 0.001$), cost ($p = 0.005$), and attainment ($p = 0.000$) are significant at 99% confidence interval, whereas intrinsic indicator ($p = 0.012$) is significant at 95% confidence interval. Therefore, verifying that the formative indicators are relevant.

Assessment of Structural Model

Ensuring that there is no lateral collinearity issue is crucial and must be completed prior to evaluating the structural model. In Table 7, all independent variables met the criteria as their inner VIF values are less than 5, hence, lateral multicollinearity is not a concern.

Based on Table 8, path coefficients were measured to examine the significance levels of hypothetical relationships. The findings have shown that all four hypotheses are supported. Internal locus of control ($p = 0.001$, t -value = 3.156), self-regulation ($p = 0.000$, t -value = 3.794), and perceived task value ($p = 0.000$, t -value = 7.688) have significant positive relationships with online learning motivation. This is because their p -values are less than 0.01, and t -values are greater than 2.33 at a 1% significant level (Hair et al., 2017). Meanwhile, external locus of control ($p = 0.036$, t -value = 1.796) has a significant negative correlation with online learning motivation at a 5% level of significance ($p < 0.05$, t -value > 1.645).

Secondly, the R^2 value of the dependent variable is 0.698, hence, indicating that 69.8% of the variance in online learning motivation can be explained by the variation in all four independent variables. The remaining 30.2% is due to other factors. Consequently, implying a moderate predictive accuracy. This is because Hair et al. (2017) mentioned that R^2 value of 0.5 and higher signifies moderate predictive power.

Meanwhile, f^2 value shows the effect sizes of the independent variables on the dependent variable. Hair et al. (2017) found that f^2 value of 0.25 and above refers to a small effect size. This explains why internal locus of control ($f^2 = 0.047$), and self-regulation ($f^2 = 0.083$) have small effect sizes. However, perceived task value ($f^2 = 0.333$) has medium effect size on online learning motivation where $f^2 > 0.15$. Lastly, external locus of control ($f^2 = 0.011$) has no effect size.

Next, to demonstrate predictive relevance of the exogenous constructs on the endogenous construct, Q^2 value must be larger than zero (Stone, 1974; Geiser, 1974, as cited in Ramayah et al., 2018). This study has a Q^2 value of 0.383. As a result, proving predictive relevance of the independent variables on online learning motivation. As for q^2 value, Hair et al. (2017) explained that a q^2 value greater than 0.02 indicates weak effect size. Based on the calculation, self-regulation ($q^2 = 0.021$) and perceived task value ($q^2 = 0.088$) shown weak effect size on the dependent variable. Unfortunately, both internal locus of control ($q^2 = 0.013$) and external locus of control ($q^2 = 0.002$) did not meet the minimum value of 0.02, hence, exhibiting extremely weak effect size on the exogenous construct.

TABLE 5
Collinearity among Indicators (Inner VIF Values)

Variables	Online Learning Motivation
Attainment	2.633
Cost	1.047
ELOC_11	1.777
ELOC_12_R	1.223
ELOC_7	1.596
ELOC_8	2.167
ELOC_9	1.761
ILOC_1	2.521
ILOC_2	2.445
ILOC_3	1.797
ILOC_4	2.866
ILOC_5	2.994
ILOC_6	2.187
Intrinsic	2.676
OLM_32	1.691
OLM_33	1.87
OLM_34	2.015
OLM_35	1.539
OLM_36	1.623
SR_13	1.491
SR_14	1.474
SR_15	1.479
SR_16	1.912
SR_17	1.744
Utility	2.396

TABLE 6
Significance and Relevance of Outer Weights

	T Statistics	P Values
Utility -> PTV	3.347**	0.001
Intrinsic -> PTV	2.515*	0.012
Cost -> PTV	2.820**	0.005
Attainment -> PTV	5.202**	0.000

Note: **p< 0.01, *p<0.05

TABLE 7
Lateral Collinearity

Constructs	ELOC	ILOC	OLM	PTV	SR
ELOC			1.412		
ILOC			2.397		
OLM					
PTV				2.017	
SR					2.695

Note: ELOC = External Locus Control, ILOC = Internal Locus of Control, OLM = Online Learning Motivation, PTV = Perceived Task Value, SR = Self-regulation.

TABLE 8
Hypothesis Testing

Hypothesis		Std. Beta	Std. Error	t-value	Decision	R ²	f ²	Q ²	q ²
H1.a	ILOC -> OLM	0.185	0.059	3.156**	Supported	0.698	0.047	0.383	0.013
H1.b	ELOC -> OLM	0.068	0.038	1.796*	Supported		0.011		0.002
H2	SR -> OLM	0.259	0.068	3.794**	Supported		0.083		0.021
H3	PTV -> OLM	0.450	0.059	7.688**	Supported		0.333		0.088

Note: **p<0.01, *p<0.05 (one-tailed)

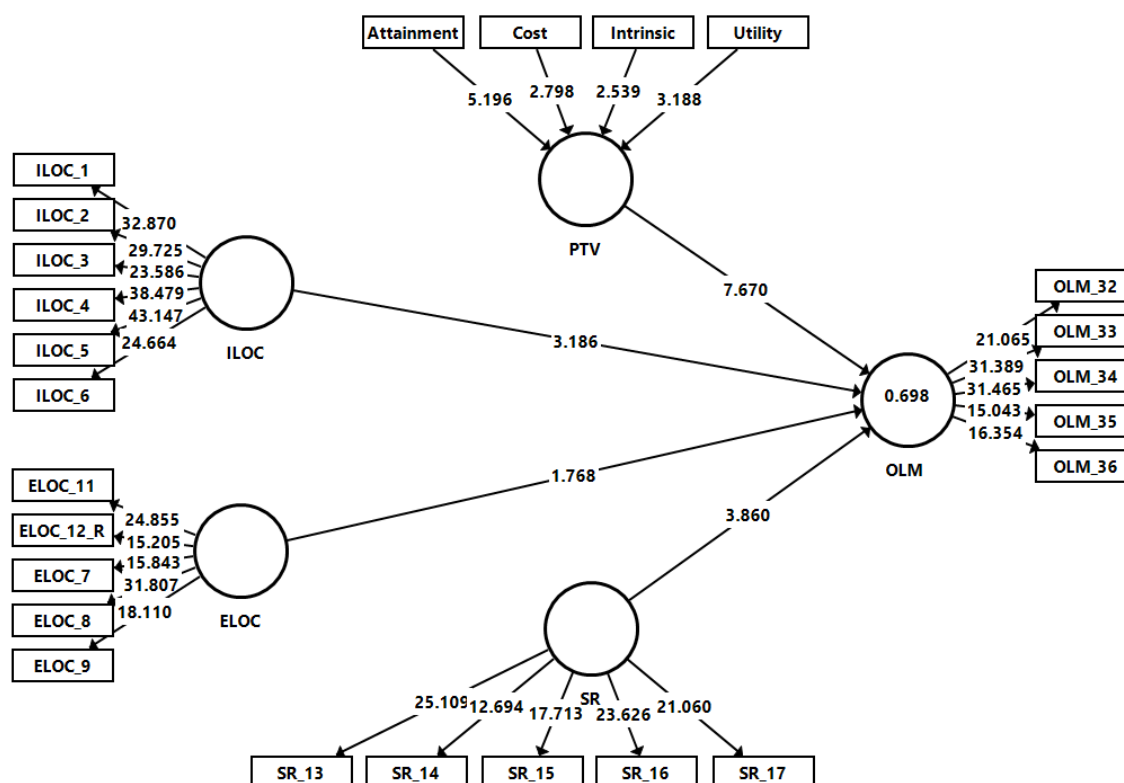


Figure 2: Structural Model

DISCUSSION AND IMPLICATIONS

Previous literature has concurred that the impact of locus of control on online learning motivation is evident (Gökçearslan & Alper, 2015; Lowes & Lin, 2015). Gandhimathi and Devi (2016) found that when a learner has more control over their learning process; enhanced motivation will develop. In present study, most of the undergraduates would have better understanding of the online learning motivation issues after attending one and half years of the online classes. They perceived that they have confidence and control over their own learning (i.e., high internal locus of control) and thus, improve their online learning motivation. Past studies have also found that internal locus of control is positively related to strategic learning (Kader, 2014). Hence, signifying that internals take ownership for their studies by coming up with their own learning strategies despite the obstacles faced in distance learning. Gandhimathi & Devi (2016) added that autonomous learners are more likely to acknowledge negative outcomes. When they do, it is easier for them to become more motivated in their online learning (Lowes & Lin, 2015).

Contradictory, students with external locus of control will more likely have lower online learning motivation. This is in line with previous studies where Barzegar (2011) found that externals have higher tendency to experience anxiety because they believe that they have no control over their lives. In recent times, local studies

have reported that there is an increase in anxiety and stress amidst the sudden adaptation to online learning during the lockdown (Al-Kumaim et al., 2020). Some sources of the stress include too many online tasks, unfamiliarity with the new online environment and inadequate resources - which are all external factors. It can be inferred that these students who felt helpless against these external factors have high external locus of control and consequently, low online learning motivation. Moreover, past literature has stated that externals have difficulty dealing with distractions. They find it harder to ignore distracting sounds, stimuli, or other extraneous factors (Hair, Renaud & Ramsay, 2007). Distractions are more prevalent in an online learning context compared to physical learning. For instance, students could possibly scroll other websites while on their devices and engage in other activities as no one is monitoring them (Sani, 2020). Besides, numerous students are not privileged enough to have their own conducive space to undergo distance learning (Solhi, 2021). Therefore, externals will find it challenging to stay focused on their online studies, and hence, they have lesser motivation in learning online.

Nonetheless, self-regulated learners are active participants who efficiently control their own learning processes in many ways, such as managing their time, monitoring their progress, and seeking help when needed (Pelikan et al., 2021). These qualities are more essential in virtual learning as it is less structured, and thus it is entirely within a student's control to self-regulate and maintain their motivation levels. (Sansone, Fraughton, Zachary, Butner & Heiner, 2011). Therefore, as proven in the current study, when a learner's self-regulation increases, their online learning motivation also increases. Several studies have found that self-regulation strategies vary with age where younger students require more support (Pelikan et al., 2021). As the participants of this study are undergraduate students, they may be mature enough to self-regulate their online learning process. Besides, Cho and Shen (2013) stated that one of the types of self-regulation is effort regulation, which refers to a learner's commitment to managing tasks and challenges in their studies. Moreover, students with self-regulation skills are more behaviourally active and consequently, would not shy away from seeking help when necessary (Sansone et al., 2011). This is part of a metacognitive strategy, where one will evaluate their progress and take steps to improve to ensure their motivation levels stay high (Cho & Shen, 2013). Notably, self-regulation is aligned with the competence aspect of self-determination theory. Pelikan et al (2021) stated that while online learning can increase motivation, it is only possible if the learners view themselves as competent enough to handle the challenges involved. Self-regulation skills mentioned earlier like time and environment management, and using metacognitive strategies require competency to execute them.

Noteworthy to highlight that when an individual understands the value of the task, they are more likely to engage in their learning, and therefore maintain their online learning motivation (Quesada-Pallarès, Sánchez-Martí, Ciraso-Calí, & Pineda-Herrero, 2019). Vanslambrouck et al. (2018) reported that learners who attributed low value to online learning could indicate that the student is sceptical of online learning's efficacy and hence, perceive the task as not important (attainment value). This leads to lower motivation to learn. Secondly, Berweger, Born and Dietrich (2021) has found that task value positively correlates with positive emotions, like joy, and negatively correlates with negative emotions like boredom. This finding is related to intrinsic value (Fowler, 2018). Students feeling bored in their online studies is a sign of low online learning motivation. Particularly, when students were given realistic job-related tasks that allowed them to apply what they had learned, their task value increased. The undergraduates are more likely to perceive their tasks are more valuable when they are provided with the useful learning contents (utility value) (Quesada-Pallarès et al., 2019). Lastly, the isolation may take a toll on students' wellbeing, as engaging and interacting with others are essential parts of a student's learning (cost) (Vanslambrouck et al., 2018). Not only peer-to-peer contact is limited, but student-lecturer interactions as well. Sadeghi (2019) noted that learners could easily reach out to their instructors before or after physical classes if they have questions. However, there are more difficulties getting in touch through distance learning. It is incomparable to the immediate response they would get if they could sit down with their lecturers (Hutt, 2017, as cited in Sadeghi, 2019). The perceived task values is associated with autonomy dimension of self-determination theory. When an individual can think for themselves and make their own judgments on how highly they value a task, they portray autonomy (Patall et al., 2013). Autonomy is shown when a student can actively determine what they value and why they are motivated to pursue it. For instance, if an individual personally values their online studies because it facilitates their future career goals (utility value), they will remain motivated throughout their online course to fulfil their ambitions. Exercising their own judgments of what is important to them, in this case, their future goals, instead of merely doing things for the sake of it, is a sign of autonomy.

This research aimed to provide useful insights on how to help students stay motivated in their distance learning. Relevant parties should play their parts in providing the support needed for online learning motivation to be ensured. Firstly, educators have a significant role in shaping a learner's mindset and attitude. Lecturers can foster self-regulation skills by helping students set goals and providing clear and comprehensive instructions. Helping students to set and reach attainable goals, allows them to experience competence, which promotes online learning motivation (Cho & Shen, 2013). Moreover, Wisniewski, Zierer and Hattie (2020, as cited in Pelikan et al., 2021) reported that providing timely feedback can support students' online learning motivation

and strengthen lecturer-student relationship. Thus, lecturers can enhance their social interactions through the group work, forum discussions, and others, in order to boost online learning motivation and benefit learners' overall well-being (Pelikan et al., 2021).

Likewise, university managements should also provide accessible counselling services to the undergraduates, where students, especially those with external locus of control, can seek assistance if needed. As many students face difficulties undergoing distance learning, institutional counselling support will be beneficial to them. On a national level, this research has contributed to the Malaysian Education Blueprint of Higher Education 2015-2025. Shift 9 of the blueprint outlined the globalised online learning movement, where one of the Ministry's key initiatives is to make online learning an integral component of higher education (Ministry of Education Malaysia, 2015). With that in mind, this study's findings can facilitate the conversion to online learning by recognising the factors that help learners stay motivated during their virtual learning. Besides, the MoHE is also in the process of developing a Mental Health module for tertiary education students (Bernama, 2021). By understanding which factors influence online learning motivation, the module can be used as a guideline by university managements to deal with students' mental health cases.

LIMITATIONS AND FUTURE RESEARCH RECOMMENDATIONS

This study aims to be as objective as possible, however, it is still bounded by certain limitations. First, the self-reported Google Forms were utilised in this study. Some participants may have opted for socially desirable responses which may influence the validity of the research (Paulhus, 2017). Hence, the future research can consider having larger, more diverse samples as the research topic focuses on Malaysian undergraduates. In addition, other important actors, such as, lecturers, parents, and university management, should be approached to gain a wider understanding on online learning motivation from different perspectives (Pelikan et al., 2021). Other than that, to the researcher's knowledge, the association between perceived task value and autonomy of the self-determination theory is a newly explored area. Therefore, more in-depth research, like qualitative data can be considered to further understand the link between the two factors.

CONCLUSION

In summary, this study's objective which is to investigate the influence of locus of control, self-regulation and perceived task value on online learning motivation among Malaysian undergraduates was fulfilled. Results of this research revealed that all independent variables have a significant relationship with the dependent variable. Specifically, internal locus of control, self-regulation and perceived task value have a positive impact on online learning motivation, whereas external locus of control negatively affects online learning motivation. All in all, understanding the influence of these factors is essential to help students stay motivated and reach their fullest potential in their online education.

REFERENCES

- Al-Kumaim, N. H. et al. (2021). Exploring the impact of the COVID-19 pandemic on university students' learning life: An integrated conceptual motivational model for sustainable and healthy online learning. *Sustainability*, 13(5), 1-20. <https://doi.org/10.3390/su13052546>
- Barnard-Brak, L., Paton, V. O., & Lan, W. Y. (2010). Profiles in self-regulated learning in the online learning environment. *International Review of Research in Open and Distributed Learning*, 11(1), 61-80. <https://doi.org/10.19173/irrodl.v11i1.769>
- Barzegar, M. (2011). The relationship between learning style, locus of control and academic achievement in Iranian students. *2nd International Conference on Education and Management Technology*, 13, 195-199. <http://www.ipedr.com/vol13/38-T00067.pdf>
- Baxter, K., Courage, C., & Caine, K. (2015). Choosing a user experience research activity. In Baxter, K., Courage, C., & Caine, K. (Ed.), *Understanding your users* (2nd ed., 96-112), Morgan Kaufmann. <https://doi.org/10.1016/B978-0-12-800232-2.00005-5>
- Bernama (2021, July 13). Higher Education Ministry conducting study on effectiveness of online learning. *News Straits Times*. <https://www.nst.com.my/news/nation/2021/07/707893/higher-education-ministry-conducting-study-effectiveness-online-learning>
- Berweger, B., Born, S., & Dietrich, J. (2021). Expectancy-value appraisals and achievement emotions in an online learning environment: Within- and between-person relationships. *Learning and Instruction*, 10(1), 1-35. <https://doi.org/10.1016/j.learninstruc.2021.101546>
- Cherry, K. (2019). Self-determination theory: Basic psychological needs in motivation. *Very Well Mind*. <https://www.verywellmind.com/what-is-self-determination-theory-2795387>
- Cho, M.-H., & Shen, D. (2013). Self-regulation in online learning. *Distance Education*, 34(3), 290-301. <https://doi.org/10.1080/01587919.2013.835770>

- Chung, E., Noor, N. M., & Mathew, V. N. (2020). Are you ready? An assessment of online learning readiness among university students. *International Journal of Academic Research in Progressive Education and Development*, 9(1), 301-317. <https://doi.org/10.6007/IJARPED/v9-i1/7128>
- Chung, E., Subramaniam, G., & Dass, L. C. (2020). Online learning readiness among university students in Malaysia amidst COVID-19. *Asian Journal of University Education*, 16(2), 46-58. <https://doi.org/10.24191/ajue.v16i2.10294>
- Ciccarelli, S. K., & White, J. N. (2015). *Psychology* (4th ed.). Pearson Education.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53(1), 109-132. <https://doi.org/10.1146/annurev.psych.53.100901.135153>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Fowler, S. (2018). The motivation to learn online questionnaire. [Doctoral Dissertation, The University of Georgia]. https://getd.libs.uga.edu/pdfs/fowler_kevin_s_201805_phd.pdf
- Gandhimathi, S. N. S. & Devi, A. V. (2016). Learner autonomy and motivation - A literature review. *Research on Humanities and Social Sciences*, 6(3), 80-83. <https://core.ac.uk/download/pdf/234674899.pdf>
- Gökçearsan, Ş., & Alper, A. (2015). The effect of locus of control on learners' sense of community and academic success in the context of online learning communities. *The Internet and Higher Education*, 27, 64-73. <https://doi.org/10.1016/j.iheduc.2015.06.003>
- Gold, A. H., Malhotra, A., & Segars, A.H. (2001). Knowledge management: An organizational capabilities Perspectives. *Journal Management*, 18(1), 185-214.
- Green, S. B. (1991). How many subjects does it take to do a regression analysis. *Multivariate Behavioral Research*, 26(3), 499-510.
- Hair, M., Renaud, K. V., & Ramsay, J. (2007). The influence of self-esteem and locus of control on perceived email-related stress. *Computers in Human Behavior*, 23(6), 2791-2803. <https://doi.org/10.1016/j.chb.2006.05.005>
- Hair, J. F., Hult, G. T. M, Ringle, C. M., & Sarstedt, Marko. (2017). *A primer on Partial Least Squares Structural Equation Modeling* (2nd ed.). SAGE Publications.
- Hartnett, M. K. (2016). *Motivation in online education*. Springer. <http://doi.org/10.1007/978-981-10-0700->
- Hui, E. K. P., & Tsang, S. K. M. (2012). Self-determination as a psychological and positive youth development construct. *The Scientific World Journal*, 22(4), 1-7. <https://doi.org/10.1100/2012/759358>
- Hurst, M. (2012, September 14). The importance of motivation in an educational environment. Study.com. <https://study.com/academy/lesson/the-importance-of-motivation-in-an-educational-environment.html>
- Ilias, A., Baidi, N., Ghani, E.K., & Razali, F. M. (2020). Issues on the use of online learning: An exploratory study among university students during the COVID-19 pandemic. *Universal Journal of Educational Research*, 8(11), 5092-5105. <https://doi.org/10.13189/ujer.2020.081109>
- Irvine, J. (2018). A framework for comparing theories related to motivation in education. *Research in Higher Education Journal*, 35, 1-30. <https://eric.ed.gov/?id=EJ1194268>
- Joelson, R. B. (2017, August 2). Locus of control. *Psychology Today*. Retrieved from <https://www.psychologytoday.com/us/blog/moments-matter/201708/locus-control>
- Kader, A. (2014). Locus of control, student motivation, and achievement in principles of microeconomics. *American International Journal of Contemporary Research*, 4(9), 1-11. <https://doi.org/10.2139/ssrn.2404768>
- Karupiah, S. M. (2021, April 20). Online learning is here to stay. *News Strait Times*. <https://www.nst.com.my/opinion/letters/2021/04/683668/online-learning-here-stay>
- Kim, K. J., & Frick, T. W. (2011). Changes in student motivation during online learning. *Journal of Educational Computing Research*, 44(1), 1-23. <https://doi.org/10.2190/EC.44.1.a>
- Lawanto, O., Goodridge, W. H., Santoso, H., & Lawanto, K. (2014). Task-value, self-regulated learning, and performance in a web-intensive undergraduate engineering course: How are they related? *Journal of Online Learning and Teaching*, 10(1), 97-111. https://jolt.merlot.org/vol10no1/lawanto_0314.pdf
- Lee, C.-Y. (2015). Changes in self-efficacy and task value in online learning. *Distance Education*, 36(1), 59-79. <https://doi.org/10.1080/01587919.2015.1019967>
- Li, L.-Y., & Tsai, C.-C. (2017). Accessing online learning material: Quantitative behavior patterns and their effects on motivation and learning performance. *Computers & Education*, 114, 286-297. <https://doi.org/10.1016/j.compedu.2017.07.007>
- Lin, T. J. (2021). Exploring the differences in Taiwanese university students' online learning task value, goal orientation, and self-efficacy before and after the COVID-19 outbreak. *Asia-Pacific Education Researcher*, 30, 191-203 <https://doi.org/10.1007/s40299-021-00553-1>
- Lowes, S., & Lin, P. (2015). Learning to learn online: Using locus of control to help students become successful online learners. *Journal of Online Learning Research*, 1(1), 17-48. <https://www.semanticscholar.org/paper/Learning-to-Learn-Online%3A-Using-Locus-of-Control-to-Lowes-Lin/0b081d71874446d21b6995cc2f6ca238e0d74c77>

- Memon, M., Ting, H., Hwa, C., Ramayah, T., Chuah, F. & Cham, T. H. (2020). Sample size for survey research: Review and recommendations. *Journal of Applied Structural Equation Modelling*, 4(2). 1-20. [https://doi.org/10.47263/JASEM.4\(2\)01](https://doi.org/10.47263/JASEM.4(2)01).
- Meşe, E. & Sevilen, Ç. (2021). Factors influencing EFL students' motivation in online learning: A qualitative case study. *Journal of Educational Technology & Online Learning*, 4(1), 11-22. <http://doi.org/10.31681/jetol.817680>
- Min, S-H. (2012). Investigation of preservice teachers' perceptions of locus of control, self-regulation, and motivation in online learning [Doctoral dissertations, University of Northern Colorado]. <https://digscholarship.unco.edu/cgi/viewcontent.cgi?article=1213&context=dissertations>
- Ministry of Education Malaysia (2015). Malaysia Education Blueprint 2015 - 2025 (Higher Education). Ministry of Higher Education. <https://www.mohe.gov.my/muat-turun/penerbitan-jurnal-dan-laporan/pppm-2015-2025-pt/102-malaysia-education-blueprint-2015-2025-higher-education/file>
- Ministry of Higher Education (2020). Makro institusi pendidikan tinggi. <https://www.mohe.gov.my/muat-turun/statistik/2020/492-statistik-pendidikan-tinggi-2020-03-bab-1-makro-institusi-pendidikan-tinggi/file>
- Oreg, S. (2003). Resistance to change: Developing an individual differences measure. *Journal of Applied Psychology*, 88(4), 680–693. <https://doi.org/10.1037/0021-9010.88.4.680>
- Patall, E.A., Dent, A.L., Oyer, M. et al. (2013). Student autonomy and course value: The unique and cumulative roles of various teacher practices. *Motivation and Emotion*, 37(1), 14–32. <https://doi.org/10.1007/s11031-012-9305-6>
- Paulhus D. L. (2017) Socially desirable responding on self-reports. In Zeigler-Hill V., & Shackelford T. (Ed.), *Encyclopedia of personality and individual differences* (pp. 1-5). Springer. https://doi.org/10.1007/978-3-319-28099-8_1349-1
- Pelikan, E.R., Lüftenegger, M., Holzer, J. et al. Learning during COVID-19: The role of self-regulated learning, motivation, and procrastination for perceived competence. *Zeitschrift für Erziehungswissenschaft*, 24(2), 393-418. <https://doi.org/10.1007/s11618-021-01002-x>
- Pintrich, R. R., & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance, *Journal of Educational Psychology*, 82, 33-40. <https://doi.org/10.1037/0022-0663.82.1.33>
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, 539-569. <https://doi.org/10.1146/annurev-psych-120710-100452>
- Quesada-Pallarès, C., Sánchez-Martí, A., Ciraso-Calí, A., & Pineda-Herrero, P. (2019). Online vs. classroom learning: Examining motivational and self-regulated learning strategies among vocational education and training students. *Frontiers in Psychology*, 10, 2795. <https://doi.org/10.3389/fpsyg.2019.02795>
- Ramayah, T., Cheah, J., Chuah, F., Ting, H., & Memon, M. A. (2018). *Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0: An updated guide and practical guide to statistical analysis* (2nd ed.). Pearson.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 1-11. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Sadeghi, M. (2019). A shift from classroom to distance learning: Advantages and limitations. *International Journal of Research in English Education*, 4(1), 80-88. <https://doi.org/10.29252/ijree.4.1.80>
- Sani, R. (2020, July 1). Staying motivated with online learning. *News Straits Times*. <https://www.nst.com.my/education/2020/07/605116/staying-motivated-online-learning>
- Sansone, C., Fraughton, T., Zachary, J. L., Butner, J., & Heiner, C. (2011). Self-regulation of motivation when learning online: The importance of who, why and how. *Education Technology Research and Development*, 59(2), 199–212. <https://doi.org/10.1007/s11423-011-9193-6>
- Schepers, J. (2004). Overcoming the effects of differential skewness of test items in scale construction. *South African Journal of Industrial Psychology*, 30(4), 27-43. <https://doi.org/10.4102/sajip.v30i4.170>
- Solhi, F. (2021, September 23). Distractions at home, weak relationships - challenge for educators, students. *News Straits Times*. <https://www.nst.com.my/news/nation/2021/09/730089/distractions-home-weak-relationships-challenge-educators-students>
- Suretha, E. & Stanz, K. (2004). Locus of control and online learning. *South African Journal of Industrial Psychology*, 30(1), 63-71. <https://doi.org/10.4102/sajip.v30i1.139>
- Toussi, M. T. M., & Ghanizadeh, A. (2012). A study of EFL teachers' locus of control and self-regulation and the moderating role of self-efficacy. *Theory & Practice in Language Studies*, 2(11), 2363-2371, <https://doi.org/10.4304/TPLS.2.11.2363-2371>
- Trice, A. D. (1985). An Academic Locus of Control Scale for college students. *Perceptual and Motor Skills*, 61(3), 1043–1046 <http://doi.org/10.2466/pms.1985.61.3f.1043>
- Vanslambrouck, S., Zhu, C., Lombaerts, K., Philipsen, B., & Tondeur, J. (2018). Students' motivation and subjective task value of participating in online and blended learning environments. *The Internet and Higher Education*, 36, 33–40. <https://doi.org/10.1016/j.iheduc.2017.09.002>

- Velayutham, S., & Aldridge, J. M. (2012). Influence of psychosocial classroom environment on students' motivation and self-regulation in science learning: A structural equation modeling approach. *Research in Science Education*, 43(2), 507–527. <https://doi.org/10.1007/s11165-011-9273-y>
- Velez, J. J., Lambert, M. D., & Elliott, K. M. (2015). Perceptions of critical thinking, task value, autonomy and science lab self-efficacy: A longitudinal examination of students' CASE experience. *Journal of Agricultural Education*, 56(2), 204-216. <https://doi.org/10.5032/jae.2015.02204>
- Wang, D. (2005). Students' learning and locus of control in web-supplemental instruction. *Innovative Higher Education*, 30(1), 67–82. <https://doi.org/10.1007/s10755-005-3299-x>