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Discovering the Dimensions of Self-Regulated Learning and Their Impact on the Academic Performance of Undergraduate Accounting Students

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Abstract

In light of the current technological advancements, this study seeks to investigate the underlying factors influencing self-regulated learning and its correlation with students' academic achievements. To address this gap, the study evaluates the self-regulated learning of respondents across five dimensions: computer self-efficacy, goal setting, environmental structuring, social dimension, and learning motivation. The research focuses on accounting students at UiTM Tapah, utilizing questionnaires administered via the Google Form platform for data collection. 252 valid responses were accepted. The findings reveal a significant positive impact on accounting students' academic performance concerning certain aspects of self-regulated learning, including environmental structuring, learning motivation, and social dimension. Conversely, no substantial relationship is observed between computer self-efficacy, goal setting, and academic performance. These results establish a groundwork for refining instruments to gauge students' self-regulated learning contributions, offering insights to enhance academic performance, particularly within the realm of accounting education.

Keywords

Computer Self-Efficacy, Goal Setting, Environment Structuring, Social Dimension, Learning Motivation, Self-regulated Learning, Academic Performance

1. Introduction

The rise of online learning in recent years has transformed the learning environment for students, granting them an increase in self-regulated learning (SRL) over their educational journey (Jansen et al., 2020). SRL encompasses cognitive, metacognitive, and motivational tactics that learners utilize to oversee their learning process (Panadero, 2017). Specifically, metacognitive strategies aid learners in employing cognitive methods to accomplish their objectives, encompassing activities such as goal setting, progress monitoring, seeking assistance, and reflecting on the efficacy of the strategies employed to attain their goals (Zimmerman, 2008). In both traditional and online learning environments, the importance of self-regulated learning has been acknowledged for academic performance and motivation (Lawrence & Saileella, 2019).

Goal setting and managing time are seen as even more crucial in technology advancement learning than they are in traditional learning environments (Dabbagh & Kitsantas, 2004). These techniques include monitoring and evaluating progress, modifying learning strategies as needed, mobilizing personal and environmental resources, and monitoring and evaluating the progress of others. Okechukwu and Madu (2022) further highlighted that goal setting is a crucial learning approach for all educational processes and that's why students should learn how to adopt it.

Goal orientations are interesting to educators because they emphasize the personal accountability of each student. Additionally, it has been demonstrated that a key element that promotes academic achievement and leads to higher grades is learning motivation (Froiland & Oros, 2014). According to Deci and Ryan (2000), while adopting a goal orientation to learning, it is crucial to create and support learning environments that take affective learning factors like learner motivation into account.

Kaplan and Maehr (2007) assert that if the learning environment encourages learner's acts, they can take charge of their engagement and success.

In light of the above, this study seeks to explore the factors that influence self-regulated learning in submitting better academic performance. SRL is considered a pivotal factor in forecasting learning outcomes, with individuals possessing strong self-regulation skills demonstrating heightened engagement in learning endeavors and subsequently achieving higher academic success (Jansen, et al., 2019). This study seeks to add to the existing literature for higher education settings in terms of dimensions of SRL towards students' academic performance from a sample of the largest university in Malaysia, University Teknologi MARA (UiTM). There is an abundance of studies and empirical data on learners' independence in learning within traditional-based environments as well as a clear correlation between SRL and academic performance. Nevertheless, research on the influence of learners' SRL through a specific dimension within accounting learning environments is quite limited especially during the period of technological advancement. Recognizing the crucial role of actively involving students in the learning process, this study expands upon prior research by exploring the correlations between students' motivation to learn, and their academic performance within the domain of accounting education.

2. Literature Review

Recent research has extensively explored the relationship between academic achievement and self-regulation. For instance, Dradeka (2018) reported significant differences in self-regulation of university students in Saudi Arabia, favoring students with high academic achievement, and male students tend to report higher levels of academic self-regulation than female students. Moreover, Annalakshmi (2019) found that self-regulation significantly predicted resilience and academic achievement of adolescents from low-income rural families in Tamil Nadu, while Zhou and Wang (2019) revealed positive correlations among academic achievement, self-regulation, and motivated learning strategies for Chinese students. In general, self-regulation is widely recognized as an essential component of student learning in various educational settings. To accurately represent SRL, this study has identified and selected several factors and facets, including goal setting, environment structuring, computer self-efficacy, social dimension and learning motivation.

2.1 Computer Self-Efficacy

Research on computer and internet self-efficacy demonstrates a strong impact on learners' performance (Bolt, Killough & Koh, 2001; Tsai & Tsai, 2003). For instance, Thompson, Meriac and Cope (2002) conducted an experiment showing that learners with higher internet self-efficacy performed better than those with lower self-efficacy in finding materials efficiently, thus highlighting the importance of learners' awareness of their computer skills and

abilities. According to Alqurashi (2016), computer self-efficacy is an individual's level of confidence to use computers to do a task or handle a challenge. If university students believe that they have the required computer knowledge and skill to achieve the intended results, they will take the necessary steps to get the results. These students do not consider working with computers as a hurdle to avoid. Instead, they approach computers as a facilitating tool to do learning tasks efficiently and quickly (Wolverton et al., 2020). This leads to the formulation of the following hypothesis:

H1. Computer self-efficacy has a positive influence on academic performance of accounting students.

2.2 Environment Structuring

When engaging in self-regulated learning, environment structuring is a key component of the forethought phase (Mosharraf & Taghiyareh, 2013), which involves assessing how physical environments can be adjusted to improve learning outcomes and reduce distractions. Learners generally make an effort to create a comfortable study space, minimize interruptions, and organize their surroundings to facilitate goal attainment without disturbances (Corno, 1993). According to research conducted by Barnard-Brak et al. (2010), effective environment management skills are positively associated with successful self-regulation in blended learning environments. Similarly, Zimmerman and Martinez-Pons (1986) found that better utilization of environment management skills has a positive impact on performance. Environment structuring is also indicative of the autonomy and independence of online learners, who must independently structure their physical learning environment, whether at home or elsewhere, as they do not have the benefit of a structured classroom environment (Lynch & Dembo, 2004). This study examines the potential impact of a comfortable physical environment and distractions on the learning process. This inquiry leads to the formulation of the following hypothesis:

H2. Environment structuring has a positive influence on academic performance of the accounting students.

2.3 Goal Setting

Goal setting serves as the guiding principle that directs an individual's actions. As articulated by Marzano, Pickering and Pollock (2019), it is the process of defining an outcome, commonly known as a goal, which serves as the purpose behind one's actions. These goals can range from simple objectives like achieving a high grade on an exam to more comprehensive aspirations such as gaining a profound understanding of a subject matter. For instance, if an adult learner sets a long-term goal to excel in an exam, they may establish achievable sub-goals, such as dedicating a specific amount of time to studying and implementing specific study techniques to enhance their chances of success. Zimmerman (2008) contends that learners should establish short-term goals to monitor their progress effectively. Goal setting plays a vital role in assessing a learner's academic performance, which refers to an individual's attainment of objectives related to various types of knowledge and skills. As defined by Allsoand, Ahmed and Qazi (2019), academic performance involves the observable demonstration of a person's comprehension of concepts, skills, ideas, and knowledge. They emphasize that when learners adeptly employ goal setting as a self-regulated learning strategy, it significantly enhances their learning performance. This leads to the following hypothesis:

H3. Goal setting has a positive influence on academic performance of accounting students.

2.4 Learning Motivation

Factors like motivation can impact a learner's self-regulated learning (Kizilcec et al., 2017). Motivation refers to a student's inclination to participate actively in the learning environment and is indispensable in encouraging students to exert effort towards their studies and achieve better academic results (Di Serio, Ibáñez & Kloos, 2013). Effective learning strategies have been identified as a significant factor in fostering student motivation and promoting success in the learning process (Budiman, 2016). Therefore, the use of effective learning strategies is a critical element in enhancing student motivation (Chiang, Yang & Hwang, 2014). Motivation plays a vital role in supporting and maintaining self-regulated learning, which frequently leads to better academic outcomes. Students who are highly motivated tend to be more involved, determined, and diligent in completing tasks compared to their less motivated counterparts. Conversely, a lack of motivation can significantly hinder student achievement, underscoring the crucial need to cultivate and maintain motivation in the learning process (Di Serio, Ibáñez & Kloos, 2013). This leads to the formulation of the following hypothesis:

H4. Learning motivation has a positive influence on academic performance of accounting students.

2.5 Social Dimension

Some SRL studies (Alvi & Gilles, 2015; Hadwin, Järvelä & Miller; 2011) have shifted their focus from individual constructivist to social constructivist perspectives. Pressley (1995) maintains that social factors play a crucial role in self-regulation and knowledge is constructed through social interactions. Consequently, self-regulation mediated through social practice often leads to internalized independent self-regulation. In online learning, online communities can facilitate a learner's experience and develop SRL strategies that improve their learning (Dell, Hobbs & Miller, 2008). Learners who build relationships, share knowledge and ideas form learning communities generally foster SRL (Ausburn, 2004). According to Bandura (1997), the support and encouragement learners receive through social interaction with other learners and subsequent success can influence them to be more self-regulated and achieve a higher level of self-efficacy. This study investigated how peer-aided help in learning through communication and discussions and the satisfaction of interactions with other users may impact learners. This leads to the formulation of the following hypothesis:

H5. Social dimension has a positive influence on academic performance of accounting students.

3. Methodology

3.1 Data Selection

Current research employs descriptive analysis and quantitative methodology approaches. The population of this study is accounting students in UiTM Tapah which represent a large population of accountancy diploma students as compared to other Private Finance Initiative (PFI) campuses. The structured questionnaires were disseminated to the Part 2 until Part 5 students with a different background with Diploma in Accountancy (DIA) and Diploma in Accounting Information Systems (DAIS) starting from 1st April 2023 till 30th June 2023. Part 1 is excluded in this study because they did not receive their current grades to measure their academic performance. The students were selected during the March to August 2023 academic session where the total population number of students was 968 students. For data collection, survey questionnaires were utilised as a medium to examine the dimensions of self-regulated learning influencing students' academic performance.

The full set of questionnaires were circulated through an online survey using Google Form. In terms of selection of accounting students to be included as a sample of this study, a simple random sampling technique was used. As the respondents are randomly selected from the sampling frame, all students have an equivalent chance to be participated in the study. Overall, 252 valid responses were accepted which represented a response rate of 26%. According to Aaker, Kumar and Day (2001), the effective response rate was approximately 24%. Thus, the response rate of this study is sufficient.

3.2 Measurement of Variables

All the questions in the survey were ordinarily adapted after the prior research obtained through an in-depth analysis of literature which is revised suitably in the environment of UiTM Tapah accounting students. This study uses questionnaire surveys that consist of two parts. Section A needs the respondents to fulfill their demographic information for instance gender, course of study, current semester, locality, socioeconomic indicators (occupation sector of the head of family, household's monthly total net income, education level of household) and CGPA range.

Section B consists of 24 questions, asks about the respondents' self-regulated learning (20 questions) and academic performance (4 questions). A five-point interval scale ranging from: (1) strongly disagree to (5) strongly agree was used to measure all the variables. Academic performance (4 questions) was adapted from Ifeanyi and Chukwuere (2018). Self-regulated learning is measured by using five dimensions which consist of environment structuring, goal setting, computer self-efficacy, social dimension and learning motivation were adapted from well-established instruments and fairly tested for validity and reliability which presented as Table 1 follows:

Table 1: Self-Regulated Learning Measurement

Factor	No. of questions	Source
Computer self-efficacy (CSE)	5	Ratten (2013)
Social dimension (SD)	4	Ophus and Abbitt (2009); Shea and Bidjerano (2010)

Goal setting (GS)	3	Barnard-Brak et al. (2010); Zheng et al. (2016)
Environment structuring (ES)	3	Barnard-Brak et al. (2010); Zheng et al. (2016)
Learning Motivation (M)	5	Grob and Maag Merki (2001); Maag Merki (2002).

4. Data Analysis

4.1 Demographic Information

Based on the analysis of demographic and preferences information in Table 2, most of the respondents are female students (76.2%) whereas the remainder of the population are among male students. Majority of the respondents are among semester 4 students. In respect of locality, students mostly stayed in urban areas (72.2%) with 3-5 siblings per family (72.6%). For household's monthly net income, majority of students came from family with total income RM4,000 and above which head of family mostly worked in private sector (34.5%). In terms of education level, most of the student's household hold bachelor's degree qualification (35.7%).

Table 2. Summary of Demographic Characteristics

Variables	Sub	Frequency	Percent
Gender	Male	60	23.8
	Female	192	76.2
Semester	2	45	17.9
	3	31	12.3
	4	168	66.7
	5	8	3.2
Locality	Rural area	70	27.8
	Urban area	182	72.2
Level of the education of the household	High school	30	11.9
	Certificate	14	5.6
	Diploma	76	30.2
	Bachelor's degree	90	35.7
	Master's degree	37	14.7
	Doctorate	5	2
Occupation sector of the head of family	Government sector	74	29.4
	Private sector	87	34.5
	Self-employed	53	21
	Unemployed	18	7.1
	Others	20	7.9
Household's monthly net income	Less than RM4,000	110	43.7
	RM4,000-RM9,000	112	44.4
	More than RM9,000	30	11.9
Number of siblings per family	Less than 2 siblings	28	11.1
	3-5 siblings	183	72.6
	More than siblings	41	16.3

4.2 Assessment of the Measurement Model

The questionnaire data analysed using a two-step approach of Smart PLS namely, an assessment of the measurement model and an assessment of the structural model. A measurement model shows the relationships between the items and constructs, while a structural model provides the relationships between the exogenous and endogenous constructs in the research model. Table 3 illustrates the measurement model. For the measurement model, the criteria for convergent validity and discriminant validity must be fulfilled. Convergent validity is a test that is used to measure the degree to which multiple items that measure the same concept are in agreement. To determine whether the measurement model has convergent validity, the loadings, composite reliability (CR) and average variance explained (AVE) were assessed. Hair et al. (2017) recommended that the loading, AVE and CR values must reach a minimum of 0.6, 0.5 and 0.7 respectively to ensure that convergent validity is present in the model. From Table 2, it can be seen that the convergent validity of the construct was adequate because the loading, AVE and CR values

surpassed the recommended values. Specifically, the loading ranged from 0.711 to 0.918, AVE ranged from 0.528 to 0.772, and CR ranged from 0.848 to 0.925. Hence, these results indicated that convergent validity was achieved.

After the requirements of the convergent validity test had been fulfilled, the discriminant validity of the model was tested. Discriminant validity was assessed using the heterotrait monotrait (HTMT) ratio of correlations criterion to determine whether all the constructs differed from the other constructs in the established model, and thus implied that each construct was unique and not represented by other constructs in the model (Hair et al., 2017). As shown in Table 4, all the HTMT values were lower than the threshold value of 0.90 (Hair et al., 2017). Besides, Table 5 describes discriminant validity as assessed using the Fornell and Larcker criterion to determine whether all the constructs observed in this study are free from unidimensionality. The results indicate that the square value of AVE was higher than the correlation between the constructs. Hence, these results indicated that the model met the recommended requirements and discriminant validity was confirmed for all the constructs of the study.

Table 3. The Measurement Model Assessment

Constructs	Measurement items	Loadings	Cronbach's α	CR	AVE
Academic Performance	AP1	0.918	0.892	0.925	0.756
	AP2	0.885			
	AP3	0.857			
	AP4	0.814			
Computer Self-Efficacy	CSE1	0.8	0.887	0.917	0.688
	CSE2	0.87			
	CSE3	0.82			
	CSE4	0.848			
	CSE5	0.807			
Environment Structuring	ES1	0.897	0.852	0.91	0.772
	ES2	0.911			
	ES3	0.825			
Goal Setting	GS1	0.853	0.84	0.903	0.757
	GS2	0.889			
	GS3	0.868			
Learning Motivation	M1	0.735	0.781	0.848	0.528
	M2	0.718			
	M3	0.721			
	M4	0.746			
	M5	0.711			
Social Dimension	SD1	0.828	0.857	0.903	0.7
	SD2	0.842			
	SD3	0.83			
	SD4	0.846			

Table 4. Discriminant Validity of Measurement Model Using HTMT

Constructs	Academic Performance	Computer Self-Efficacy	Environment Structuring	Goal Setting	Learning Motivation	Social Dimension
AP						
CSE	0.58					
ES	0.605	0.65				
GS	0.448	0.552	0.511			
M	0.663	0.737	0.697	0.755		
SD	0.684	0.614	0.563	0.529	0.623	

Table 5. Discriminant Validity of Measurement Model Using Fornell and Larcker

Constructs	Academic Performance	Computer Self-Efficacy	Environment Structuring	Goal Setting	Learning Motivation	Social Dimension
AP	0.869					
CSE	0.521	0.829				
ES	0.529	0.57	0.878			
GS	0.388	0.483	0.429	0.87		
M	0.578	0.619	0.578	0.613	0.726	
SD	0.601	0.54	0.487	0.452	0.523	0.837

4.3 Assessment of the Structural Model

After the measurement model had been validated, a structural model analysis was conducted to test the five hypotheses. In the assessment of the structural model, the direction of the beta value, the significance level of the t-values and p-value were examined, as suggested by Hair et al. (2017). Table 6 provides the results of hypotheses testing. Specifically, in *H1* it was hypothesized that computer sell-efficacy would have a positive influence on academic performance of the students. The results showed no significant influence of computer self-efficacy on academic performance (β= 0.092, t = 1.311, p > 0.05). Therefore, *H1* was not supported. As regards *H2* in which it was posited that environment structuring would positively influence academic performance of the students, the beta result showed positive and statistically significant influence on academic performance (β= 0.173, t = 2.33, p < 0.05). Thus, *H2* was supported. As for *H3*, in which it was hypothesized that goal setting would have a positive influence on academic performance of the students, the results showed a negative and insignificant relationship (β=-0.055, t = 0.826, p > 0.05). Therefore, *H3* was not supported. As regards H4 in which it was predicted that learning motivation would positively influence academic performance of the students, the results supported this relationship (β= 0.272, t = 3.371, p < 0.05). Finally, in regards to H5, in which it was hypothesized that social dimensions would positively influence academic performance of the students, the results showed that personal social dimensions had a positive influence on the dependent variable (β= 0.35, t = 5.018, p < 0.01), and thus *H5* was also supported.

Table 6. Structural Model Assessment and Hypothesis Testing

	Beta	Standard deviation	t values	p values	Decision
Computer Self-Efficacy -> Academic Performance	0.092	0.07	1.311	0.19	Rejected
Enviroment Structuring -> Academic Performance	0.173	0.074	2.33	0.02	Supported
Goal Setting -> Academic Performance	-0.055	0.067	0.826	0.409	Rejected
Learning Motivation -> Academic Performance	0.272	0.081	3.371	0.001	Supported
Social Dimension -> Academic Performance	0.35	0.07	5.018	0	Supported

5. Results and Discussion

The study found that no significant relationship of computer self-efficacy on academic performance. Although computer self-efficacy is crucial as it will embark on mastering more difficult tasks in learning, but it does not play a role for accounting students to achieve better results. The reason for that could be that students encounter self-regulated learning environment drastically and may not fully exposed to the computer technology that could potentially make them dissatisfied so that they miss on achieving good academic results. Secondly, environment structuring shows a positive and statistically significant influence on academic performance. This finding

consistently with the study conducted by Barnard-Brak et al. (2010). In that respect it has been proved that learning needs to be conducted in the environment that stimulated active learning (Bakir, 2014). Due to widespread use of information technologies, students feel comfortable in self-regulated learning environment (Parkes, Stein & Reading, 2015) and due to that, this variable significantly influences their satisfaction and academic performance.

Thirdly, an insignificant influence of goal setting on academic performance which is parallel with Ejubovic and Puška (2019). This has shown that even though setting goals is important as it helps students to focus on studying and achieve better results (Bruhn et al., 2017) it does not play a role for accounting students in UiTM Tapah. The reason for that could be that students encounter self-regulated learning environment drastically and may set unrealistic goals that could potentially make them dissatisfied so that they miss on achieving good academic results. Fourthly, learning motivation shows a positive and statistically significant influence on academic performance. Learners who are highly motivated are more attentive to their learning process, implement learning strategies more effectively, establish a more productive environment, provide greater effort, persist longer at tasks, and show higher metacognitive skills (Meneghetti & De Beni, 2010).

Finally, social dimension shows a positive and statistically significant influence on academic performance. The support and encouragement learners receive through social interaction with other learners and subsequent success influence them to be more self-regulated, and they attain a high level of self-efficacy (Bandura, 1997). In order for students to be more satisfied and achieve better results they should make social interactions in learning environment, as proved by the study. Through social dimension students establish interactions and gain necessary information from other students that help them in learning. In that way, students are motivated to use communication tools in the learning environment, which increases the social interaction (Cidral et al., 2018). Overall, recent research has documented the importance of dimensions of self-regulation in student learning across accounting educational settings.

6. Conclusion

This study explored the implementation of SRL in higher education particularly among undergraduates accounting students in UiTM Tapah. Establishments of dimensions of SRL are crucial to enhance the students' academic performance. Our findings suggest that SRL dimensions which represented by environment structuring, learning motivation and social dimensions was discovered to be substantial with students' academic performance which is consistent with the findings in the previous studies. However, not all dimensions of SRL exhibit a positive and significant influence of this sort. The dimension of computer self-efficacy and goal setting proved to have no influence on academic performance. Cazan (2012) received a similar result with her SRL dimensions and their influence on academic performance, but not all dimensions showed a positive influence. Overall, all the hypotheses are supported except for the computer self-efficacy and goal setting. This study contributes useful insights to previous findings especially from the perspectives of accounting education. The significance level of each variable emphasized in this research will offer recommendation to administrators, instructors and practitioners as for factors to be considered when realising new learning developments inside their institutions in the future. Some limitations were found in this study. Firstly, the selection of students particularly in accounting courses in UiTM Tapah may restrict the generalization of the results. Upcoming research should widen the opportunity of the sample selection outside the sample of UiTM students or can conduct study on other higher learning institutions to create a true representative of the overall population. Secondly, it is recommended that potential research studies consider other contributing variables such as issues of parenting style, culture and digital wealthy that could affect adoption of self-regulated learning among students with the aim to generate more comprehension of this new approach of education.

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