Relationship between learning strategies and academic performance: a comparison between accreditation of prior experiential learning (APEL) and regular entry undergraduates

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Abstract

Purpose – The purpose of this study aims to compare the academic performance and types of learning strategies used by APEL and regular entry undergraduates. It also explored the relationship between the academic performance and the types of learning strategies utilised by these two groups of undergraduate.

Design/methodology/approach – This quantitative study involved 400 undergraduates from an open distance learning (ODL) institution. A correlational research design was used in this study. Data were collected through archival data and questionnaire. Independent *t*-test and Pearson's correlation analyses were performed using SPSS.

Findings – Regular entrants were found to perform slightly better than APEL entrants. There is no significant difference between the types of learning strategies used by APEL and regular entrants. For both groups, the higher performers adopted time and study environment management as well as effort regulation strategies. Besides this, there was no correlation between cognitive skills and peer learning with their academic performance. Meta-cognitive self-regulation and help-seeking which were found to affect the regular entrants' academic performance did not correlate with those of APEL entrants.

Research limitations/implications – This study was conducted within only one institution. The generalisation of findings may therefore be limited. Future studies could be conducted to include students from several institutions.

Practical implications – Time management training could be provided to students. Additional support, like foundation courses and supplementary readings, could be provided to APEL entrants to support their learning.

Originality/value – The findings would be beneficial to ODL institutions who offer APEL entry to understand the academic performance and learning strategies used by APEL entrants relative to regular entrants.

Keywords APEL (accreditation of prior experiential learning), Academic performance, Learning strategy, Undergraduate

Paper type Research paper

Introduction

The open distance learning (ODL) mode of study was introduced to allow Malaysians to develop themselves professionally while still working to contribute to the economy. It was created with the aim of upgrading and expanding the pool of Malaysia's human resources which was part of the 11th Malaysia Plan to develop its human capital through lifelong learning ([Economic Planning Unit, 2015](#)). The access to higher education via Accreditation of Prior Experiential Learning (APEL) was created through the collaboration between the Malaysian Ministry of Education and the Malaysian Qualification Agency (MQA). By leveraging on working experience or prior working experience, APEL allows learners to enrol into tertiary education, giving access to learners from diverse backgrounds to conventional higher education institutions or ODL institutions. There are three categories of APEL, namely, APEL-A (Admission), APEL-C (Credits) and the newly introduced APEL-Q (Qualifications) in 2020. All three categories and their assessment methods stem from Adult Learning Theory, Experiential Learning Theory and the Johari Window Concept ([Kaprawi, 2011](#)). For this study, we will be focusing on APEL-A only.

APEL-A offers an alternative route for admission into the university using a different approach to entry requirements as compared to the regular entry criteria. In this article, APEL entry students refer to students who enter the university through the APEL-A route. These students leverage on their prior learning acquired through formal/informal training, life and/or work experience to compensate for the lack in their academic qualifications. As outlined by [MQA \(2014\)](#), candidates who wish to pursue an undergraduate programme through APEL must be at least 21 years of age in the year of application and possess a minimum PMR/SRP/LCE (these refer to the lower secondary certification of completion) qualification or its equivalent. Candidates must also possess prior learning experience in the programme of interest as well as pass the APEL-A assessment conducted by the university. As a result, APEL entry students have a lower academic background as compared to their peers who are admitted into the university through the regular entry. Yet, both groups of students will receive the same learning services, inputs and assessment upon commencement of studies and up to completion.

Some researchers (e.g. [Awang *et al.*, 2014](#); [Latifah *et al.*, 2009](#)) have reported that APEL entrants do not perform as well as their regular peers. Hence, there is a need to explore the differences in personal traits, abilities or behaviours between these two groups of students to predict their academic performance so that the institutions of higher learning can provide them with the appropriate support. Learning strategies were studied instead of other learner variables (e.g. language skills, problem-solving skills and logical skills) in this study because: firstly, this study is carried out in the ODL context. Students are physically apart from their lecturers, tutors and peers. Thus, they need to be independent learners and have to be largely responsible for themselves about their own studies and outcomes in order to succeed in their studies ([Das, 2010](#)). So, learning strategies have become an important factor that affect their performance. Learning strategies are specific actions, behaviours or techniques that students consciously use to improve their own learning ([Zamora Menéndez *et al.*, 2020](#)). Several studies (e.g. [Lam and Hassan, 2015](#); [Lee and Mao, 2016](#); [Neroni *et al.*, 2019](#)) have reported that academic performance and learning strategies are interrelated. Secondly,

learning studies are not a fixed trait; it is a skill that can be developed via experience and practice (Zimmerman, 2015). By knowing the relationship between learning strategies and academic performance of these two groups of students, the institutions would be able to provide relevant training to assist the students to develop the skills they need to perform well academically.

Although there are many studies (e.g. Lam and Hassan, 2015; Lee and Mao, 2016; Neroni *et al.*, 2019) that relate academic performance to learning strategies, they were conducted overseas. Research in this area, specifically among APEL learners in Malaysia, remains under-researched. Therefore, this study can contribute to the field of knowledge by identifying and comparing the learning strategies used by both regular entry and APEL entry undergraduates and determine if there is a relationship between academic performance and learning strategies between these two groups of students. This study would be greatly beneficial to higher education providers, as they can better prepare to meet the demands of this growing group of APEL learners as the number of APEL learners will inadvertently increase in the future. Besides knowing which form of learning strategies is helpful for academic success for students, higher education providers should also be aware of them so that they may implement effective scaffolds in their curriculum to help their students achieve academic success.

Literature review

Students use various learning strategies to improve their learning. According to Stumm and Furnham (2012), learning strategies are a collection of cognitive and behavioural processes and abilities that influence how information is acquired, maintained and retrieved. They further stated that students could use strategies such as the rehearsal, organisation, elaboration, critical thinking, effort learning, time and environment management, help-seeking and peer learning (Stumm and Furnham, 2012). Learning strategies are skills that can be taught (Zeidner and Stoecker, 2019). Educators or instructors must understand students' learning strategies so that they use suitable teaching approaches to promote successful teaching and learning in the classroom. Students' learning processes and responses in different circumstances are affected by their learning strategies (Duff *et al.*, 2004; Stumm and Furnham, 2012).

With regard to academic performance, Narad and Abdullah (2016) define it as the knowledge acquired that is assessed by a teacher via grades or educational objectives set by students and instructors to be fulfilled over a defined period. Additionally, they said that these objectives are assessed regularly or via examinations. Similarly, Ward *et al.* (1996) claimed that academic performance measures educational outcomes. They emphasised that it shows and measures the degree to which an educational institution, its faculty and students achieve their educational goals. Narad and Abdullah (2016) further emphasised that the "academic performance of an individual is influenced by various factors such as personality, intellectual ability, environment, learning strategies and etc" (p. 2). To summarise, learning strategies play a crucial role in determining students' academic success.

There is extensive literature on investigations into the relationship between learning strategies and academic performance among on-campus students. However, not many studies have been done on this relationship among distance education (DE) students. According to Valle *et al.* (2008), students at a public university in Northern Spain used the organisational approach the most, with a mean score of 3.74 out of a potential maximum score of 5.00. Mean scores for metacognitive self-regulation, time and study environment management, effort regulation and elaboration were 3.45, 3.45, 3.41 and 3.37, respectively. Puzziferro (2008), in his research titled "Online Technologies Self-Efficacy and Self-Regulated Learning as Predictors of Final Grade and Satisfaction in College-Level Online Courses"

found that self-efficacy scores for online technologies were not correlated with student performance. However, it was found that time, study environment and effort control were all substantially linked to performance. Students who scored better on these subscales got higher overall scores. In contrast to [Valle et al. \(2008\)](#), [Al-Alwan \(2008\)](#) obtained the opposite result in his study. His study showed that students utilised the metacognitive self-regulation technique the most (mean score = 4.21). The average scores for time and study environment management, peer learning, effort control and assistance seeking were 3.96, 3.60, 2.50 and 2.36, respectively. [Credé and Phillips \(2011\)](#) conducted similar research with on-campus students. They investigated the relationship between the use of learning strategies and grades in individual courses. The findings revealed that the strongest relationships between reported strategy use and individual grades (i.e. sample size weighted mean correlation, $r+$) were effort regulation ($r+ = 0.27$), time and study environment management ($r+ = 0.22$) and metacognitive self-regulation ($r+ = 0.18$). When it comes to the relationship between learning strategies and grade point average (GPA), they found comparable findings, albeit the impact sizes were generally lower. The strongest were effort control ($r+ = 0.16$), time and study environment management ($r+ = 0.17$) and metacognitive segregation ($r+ = 0.18$). The remaining learning strategies were found to have no relationship with academic achievement. In addition, [Richardson et al. \(2012\)](#) conducted a systematic examination and meta-analysis of the relationship between learning strategies and GPA for students at a campus-based college. They investigated the correlations between learning strategies and GPA and a model with learning strategies as predictors of GPA. They discovered that effort regulation is the most important academic learning strategy, followed by time and study environment, management and metacognitive self-regulation. In another study conducted by [Yip \(2021\)](#), which involved Japanese students, learning strategies and academic performances were found to be related closely, and that those strategies were good predictors of academic performance. From the previously mixed findings, there seems to be uncertainty in the relationship between both variables. [Lee and Mao \(2016\)](#) used various learning strategies to examine the relationship between self-efficacy, preferred learning strategies and academic performance in a unique hospitality course environment. The findings showed that hospitality management students prefer a “learn by doing” approach to that of computer-based learning and lecturing. The findings suggested that self-efficacy has an impact on academic performance.

Within the DE sector, [Radovan \(2011\)](#), in his research, explored potential correlations between self-regulated learning characteristics and students’ success in a distance-learning program. He found that effort regulation had a positive impact on course grades among university undergraduates. In the following year, [Agricola et al. \(2012\)](#) discovered significant differences in learning regulation and efficiency between traditional (under the age of 24) and non-traditional (24 years of age and above) students in a distance institution; traditional students performed significantly better on the rehearsal scale than non-traditional students. In cognition, motivation, behaviour and context, non-traditional students’ capacity to control their learning was shown to be superior to traditional students. In addition, [Neroni et al. \(2019\)](#) conducted their research on learning strategies and academic performance at a DE institution in The Netherlands. Their results showed that time and effort management was the most significant factor and a good predictor of academic success. In a recent study by [Zhou and Wang \(2019\)](#), which involved Chinese adult students in an ODL setting, there was a significant and positive indirect relationship between mastery goal orientation and academic performance through self-regulated learning strategies. They also further emphasised that the performance-approach goal orientation had a positive indirect influence on academic performance, with the effort-regulation strategy fully mediating this relationship. There have not been many studies that compare the relationship between learning strategies and academic performance between regular and non-regular

entry students. This research aims to examine the relationship between both variables among regular and APEL students in DE.

Comparable studies in the Malaysian context include that of [Kosnin \(2007\)](#) which used the Motivated Strategies for Learning Questionnaires (MSLQ) to study the ability of self-regulated learning (SRL) to predict academic performance among Malaysian students. A total of 460 second-year engineering students from Universiti Teknologi Malaysia participated in the research. Self-regulated learning accounted for 35.2% of the variation in cumulative grade point average (CGPA) among Electrical Engineering students. Furthermore, resource management and meta-cognitive learning strategies were shown to be significant predictors of academic performance ($r = 0.40$; $r^2 = 0.28$, $p = .01$).

For studies that compared the relationship between regular and APEL entry students, [Latifah *et al.* \(2009\)](#) found that regular entrance students outscored APEL entry students. [Awang *et al.* \(2014\)](#) performed similar research that supported the results of [Latifah *et al.* \(2009\)](#). On the other hand, [Cheng and Siow \(2018\)](#) found no statistically significant difference in academic performance between regular and APEL-routed entrants. [Lam and Hassan \(2015\)](#) suggested that future educators in Malaysia should use more cognitive and meta-cognitive strategies than resource management strategies. To sum up, even though a few studies have been carried out in Malaysia to examine the relationship between learning strategies and academic performance, research on the learning strategies used by regular and APEL entrance students is still limited. Previous studies conducted in Malaysian distance learning institutions yielded inconsistent results regarding the differences in academic performance of APEL and regular entrants. Therefore, there is a research gap that has to be addressed.

Research questions

The research questions of this study are:

- (1) Is there a significant difference in academic performance between APEL and regular entry students?
- (2) Is there a significant difference in learning strategies used between APEL and regular entry students?
- (3) What is the relationship between the learning strategies used and the academic performance of APEL entry students?
- (4) What is the relationship between the learning strategies used and the academic performance of regular entry students?

Methodology

This study used the quantitative methodology approach. The comparative design was used to examine the difference in academic performance and learning strategies used by APEL and regular entry undergraduates. Then, a correlational design was used to explore the relationship between the learning strategies used and the academic performance of these students. The data was collected from archival data and a questionnaire. The archival data included the intake of students, the type of entry and CGPA, which were obtained from the Registry of the university. The instrument, as appended in this article, was adapted from the MSLQ. MSLQ is a self-report instrument developed by [Pintrich *et al.* \(1991\)](#). It is comprised of motivational scales and learning strategies scales. This study only focused on the learning strategies scales. Two of these learning strategies scales are cognitive and metacognitive strategies and resource management strategies. Cognitive and metacognitive strategies refer

to the strategies used by the students to process information from learning resources and classroom activities while resource management refers to the students' regulatory strategies in controlling other resources besides their own cognitive strategies. Table 1 lists the nine subscales of learning strategies.

Some changes were made in the questionnaire to suit the context of the university. Two stages of preliminary studies were conducted on the questionnaire to confirm that the modified version of MSLQ was a reliable instrument. Firstly, a debriefing interview was conducted with four students. The questionnaire was revised based on the feedback collected from the interview. Then, the questionnaire was administered to 40 students as the pilot study. The alpha coefficient obtained was 0.857. The results of the pilot study revealed that the questionnaire was reliable as the alpha value was within the acceptable range. The university started APEL entry in the January 2016 semester. The list of students from January 2016 to January 2019 was obtained from the Registry. There were 4,452 undergraduates, 2,706 regular entrants and 1,746 APEL entrants, enrolled during this period. The questionnaire was administered to 4,452 undergraduates using SurveyMonkey. Informed consent was obtained through the questionnaire. Seven hundred students, 410 regular entrants and 290 APEL entrants, completed the questionnaire. The CGPA of these students was then obtained from the Registry of the university. The data were imported into SPSS for data analysis. Independent *t*-tests were conducted to compare the difference in academic performance and learning strategies used between APEL and regular entry undergraduates. Then, Pearson correlation was carried out to explore the relationship between academic performance and learning strategies used for both groups of students.

Findings

An independent sample *t*-test was conducted to compare the academic performance of APEL and regular entry students. There was a significant difference in the scores for regular [$M:2.38$, $SD: 1.23$] and APEL entry students [$M:2.12$, $SD:1.35$; $t(700) = 4.587$, $p = 0.000$]. The magnitude of the differences in the means was small (eta squared = 0.03). An independent sample *t*-test was also conducted to compare the learning strategies used by the APEL and regular entry students. Table 2 shows the results of the independent sample *t*-test. It was found that there is no significant difference in the types of learning strategies used by these two groups of students.

Pearson correlation was conducted to explore the relationship between the learning strategies and academic performance of regular entrants. As shown in Table 3, meta-cognitive self-regulation, time and study environment management, effort regulation and

Scale	Subscale
Learning strategies	(1) Cognitive and metacognitive strategies (a) Rehearsal (b) Elaboration (c) Organisation (d) Critical thinking (e) Meta-cognitive self-regulation (2) Resource management strategies (a) Time and study environment (b) Effort regulation (c) Peer learning (d) Help-seeking

Table 1.
Learning strategies
scales in MSLQ

Table 2.
Independent sample *t*-
test of the learning
strategies for regular
and APEL entrants

	Regular entrants		APEL entrants			
	Mean	Standard deviation	Mean	Standard deviation	<i>t</i>	Sig
<i>Cognitive and metacognitive strategies</i>						
Rehearsal	2.95	0.40	2.94	0.40	0.516	0.606
Elaboration	3.05	0.45	3.00	0.44	1.134	0.257
Organization	3.01	0.53	2.98	0.53	0.837	0.403
Critical thinking	2.93	0.49	2.91	0.48	0.487	0.627
Meta-cognitive self-regulation	2.82	0.40	2.85	0.44	−0.868	0.386
<i>Resource management and strategies</i>						
Time and study environment management	2.65	0.41	2.67	0.45	−0.498	0.625
Effort regulation	2.97	0.43	2.99	0.46	−0.655	0.513
Peer learning	2.39	0.61	2.34	0.61	1.009	0.313
Help seeking	2.69	0.63	2.67	0.59	0.331	0.741

Table 3.
Coefficients of the
relationship between
learning strategies and
academic achievement
of Regular entrants

Learning strategies		Academic achievement (<i>r</i>)	
Rehearsal	Pearson correlation	0.550	0.030
	Sig. (2-tailed)		
Elaboration	Pearson correlation	0.259	0.056
	Sig. (2-tailed)		
Organization	Pearson correlation	0.866	0.008
	Sig. (2-tailed)		
Critical thinking	Pearson correlation	0.645	-0.023
	Sig. (2-tailed)		
Meta-cognitive self-regulation	Pearson correlation	0.043	0.072
	Sig. (2-tailed)		
Time and study environment management	Pearson correlation	0.002	0.152**
	Sig. (2-tailed)		
Effort regulation	Pearson correlation	0.000	0.174**
	Sig. (2-tailed)		
Peer learning	Pearson correlation	0.080	0.087
	Sig. (2-tailed)		
Help-seeking	Pearson correlation	0.001	0.161
	Sig. (2-tailed)		

Note(s): **. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)

help-seeking are positively correlated with academic performance. The magnitude of the relationship is small (Cohen, 1988).

Pearson correlation was also conducted to explore the relationship between the learning strategies and academic performance of APEL entrants. As shown in Table 4, only time and study environment management and effort regulation are positively correlated with academic performance. The magnitude of the relationship is also small (Cohen, 1988).

Discussion

The findings of this study showed that there is a significant difference in academic performance between the regular and APEL undergraduates. It is aligned with the findings

Learning strategies		Academic achievement (<i>r</i>)		APEL performance and learning strategy
Rehearsal	Pearson correlation		−0.079	233
	Sig. (2-tailed)	0.177		
Elaboration	Pearson correlation		−0.067	
	Sig. (2-tailed)	0.255		
Organization	Pearson correlation		−0.046	
	Sig. (2-tailed)	0.437		
Critical thinking	Pearson correlation		−0.098	
	Sig. (2-tailed)	0.096		
Meta-cognitive self-regulation	Pearson correlation		−0.060	
	Sig. (2-tailed)	0.306		
Time and study environment management	Pearson correlation		0.197**	
	Sig. (2-tailed)	0.001		
Effort regulation	Pearson correlation		0.172**	
	Sig. (2-tailed)	0.003		
Peer learning	Pearson correlation		−0.076	
	Sig. (2-tailed)	0.198		
Help-seeking	Pearson correlation		0.023	
	Sig. (2-tailed)	0.694		
Note(s): **. Correlation is significant at the 0.01 level (2-tailed)				Table 4. Coefficients of the relationship between learning strategies and academic achievement of APEL entrants
*. Correlation is significant at the 0.05 level (2-tailed)				

Table 4.
Coefficients of the
relationship between
learning strategies and
academic achievement
of APEL entrants

reported by [Awang *et al.* \(2014\)](#) and [Latifah *et al.* \(2009\)](#). However, [Cheng and Siow \(2018\)](#) reported that there was no significant difference in performance between these two groups of students. The inconsistency in the findings from the above studies and the current study could be caused by institutional factors, such as support provided by the university, quality of the programme, competence of teaching staff, relationship between students and lecturers/tutors amongst others. All these studies including the current study only focused on students from one ODL institution. Some institutions may have a better support system that enables their APEL entry students to perform equally well as regular entry students. Future studies can be conducted by comparing the academic performance of these two groups of students from several ODL institutions.

When a *t*-test was conducted to compare the learning strategies used by these two groups of undergraduates, it was found that there was no significant difference between these two groups of students. For both regular and APEL entry students, time and study environment management and effort regulation were positively correlated with academic performance. Time and study environment management includes scheduling, planning, allocation of study time as well as regulating the general study environment. Effort regulation is the management of academic tasks. It reflects the level of commitment the students maintained when they faced difficulties or obstacles ([Pintrich *et al.*, 1991](#)). In this study, students who scored high in these two sub-scales had higher CGPA scores. Similar results were reported by [Agricola *et al.* \(2012\)](#), who studied non-traditional learners (students who are 24 years old and above); as well as [Neroni *et al.* \(2019\)](#), [Radovan \(2011\)](#) and [Puzziferro \(2008\)](#), who studied distance learners. The adult ODL learners faced many challenges in their studies like studying off-campus and having both work and family obligations ([Ronning, 2009](#)). Therefore, it is crucial for them to acquire a high level of self-regulated behaviour. Students who can regulate and influence their study environment are more capable of resisting distraction ([Pintrich, 2004](#)) as well as of maintaining concentration and ultimately being able to perform well in their studies.

For both regular and APEL entrants, there was no significant relationship found between peer learning and academic performance. Similar to the findings reported by [Puzziferro \(2008\)](#), the mean score of peer learning in this study was the lowest compared with the mean score of all the learning strategies. Like [Puzziferro \(2008\)](#), it is recommended that more research can be conducted to better understand the lack of peer learning amongst ODL learners, regardless of regular or APEL entrants, as this phenomenon can be influenced by various factors which were not addressed in this study. Meta-cognitive self-regulation involves planning, monitoring their own learning and regulating ([Duncan and McKeachie, 2005](#)). Some researchers ([Agricola et al., 2012](#); [Neroni et al., 2019](#)) have also reported that meta-cognitive self-regulation is a positive predictor of academic performance for distance learners. [Neroni et al. \(2019\)](#) further explained that meta-cognitive self-regulation is important for ODL learners because they are busy with work and family. In this study, only the meta-cognitive self-regulation scores of regular entrants were positively correlated with their academic performance while there is no significant relationship between the APEL entrants' meta-cognitive self-regulation scores and their academic performance. Further study is needed to study why meta-cognitive self-regulation is not correlated with the academic performance of APEL entrants.

The same goes for help-seeking where it is positively correlated with regular entrants' academic performance but not correlated with APEL entrants. Inconsistent findings can be found in the literature. [Neroni et al. \(2019\)](#) reported that help-seeking is a negative predictor of academic performance, whereas [Credé and Phillips \(2011\)](#) reported that these two variables are not interrelated. In this study, regular entrants who have experienced conventional studies did not shy away to seek help from others when they faced difficulties as they were taught to always seek assistance and clarification when they do not understand the subject matter. Comparatively, APEL entrants may not be used to seeking help from others, as they may have experiences that view help-seeking as a sign of weakness and, therefore, were more inclined to help themselves.

It was surprising to find that there is no significant relationship between cognitive strategies (which included rehearsal, elaboration, organization and critical thinking) and academic performance. These findings contradict the findings reported by [Neroni et al. \(2019\)](#), where some of the cognitive skills were positive predictors of academic performance. They reported that complex cognitive skills were positive predictors of academic performance, whereas simple cognitive skills and academic thinking were not related to academic performance. The inconsistency in findings could be caused by the difference in the participants selected. The participants of the study conducted by [Neroni et al. \(2019\)](#) were students who were 14 months after they first joined the university whereas the participants in the current study were all undergraduates in a university, regardless of whether they were in the first year, mid-way through their studies or in the final year. When the students are still new to their study in the university, some students might not equip themselves with the cognitive strategies yet. As a result, students who were able to apply the cognitive strategies outperformed their peers who were yet to acquire the cognitive strategies. In the current study, the participants comprised of all the undergraduates who were at different stages of their studies. Some students might have acquired the learning strategies as they progress through their studies. This might be the reason causing that no significant correlation was found between the cognitive skills and academic performance. Therefore, further research is needed to explore the relationship between the learning strategies and academic performance of students who are at different stages of their studies.

Conclusion

From the discussion above, we can come to a few conclusions. Firstly, although regular entrants performed slightly better than the APEL entry students, there was no significant

difference between the types of learning strategies used by both of them. For both regular and APEL entry students, both time and study environment management, as well as effort regulation, were positively correlated with their academic performance. Help-seeking and meta-cognitive self-regulation were positively correlated with regular entrants' academic performance but have no significant relationship with APEL entrants' academic performance. The cognitive skills (rehearsal, elaboration, organisation and critical thinking) and peer learning were not correlated with the academic performance for both regular and APEL entry students.

Recommendations

Based on the results of this study, the following recommendations are made to support the students learning.

Learning strategies are skills that can be developed. These skills can be improved when instructional methods and environmental conditions support the students to use these skills. Being able to manage time well is crucial for both regular and APEL entry students for them to perform well in their studies. The institution may provide the students with guidelines on time management skills when they commence their studies to prepare them to manage their time judiciously. In doing so, students will be able to allocate more time for their studies.

Meta-cognitive self-regulation was found to be correlated with regular entrants' academic performance. Explicit training could be provided to the students during the face-to-face tutorial session on how to plan, monitor and regulate their own learning. The lecturers or tutors can guide the students by asking them to:

- (1) Identify the requirement of the task given;
- (2) Self-assess their current knowledge related to the requirement of the task;
- (3) Determine any discrepancies between their current knowledge and the task requirement;
- (4) Plan how to acquire the additional knowledge needed to complete the task;
- (5) Implement strategies to complete the task and monitor their progress from time to time.

The institution could organise social events or in-person sessions for the students to meet up with their peers, tutors and lecturers from time to time throughout the semester. During the sessions, the students can share their challenges and how they cope with their study life with each other. They would be able to learn from their peers how to manage their time and effort in order to learn well. Besides, the sessions would create an opportunity for the APEL entrants to develop closer relationships with others and ultimately be more comfortable seeking help from others whenever they are in need.

Suggestion for future studies

Like studies conducted by [Awang *et al.* \(2014\)](#), [Cheng and Siow \(2018\)](#) and [Latifah *et al.* \(2009\)](#), this study involved students from only one institution. The sample size is not big enough to be generalised to a larger population. The results may have been affected by the institutional factors. Hence, future studies can be conducted by including more students from several distance learning institutions. Larger and multi-institutional samples would provide a broader and clearer picture of how well APEL students perform as compared with their regular entry peers. Furthermore, the current study only explored the learning strategies used by the students. Future studies could investigate other personal traits of these students, for example, self-efficacy, motivation and so forth.

In this study, the APEL entrants performed slightly lower than the regular entrants and there was no significant difference in terms of the learning strategies they used. The analysis was done at a general level regardless of the context, for example, the stages of study and the programme enrolled by the students were discounted. It could be that there was no significant difference in learning strategies used between these two groups of students because the students have picked up the learning strategies as they progress in their study path. The difference in terms of academic performance between these two groups of students might vary at different stages of their study path. Therefore, future studies could compare the academic performance and learning strategies of these two groups of students who are in the first year, mid-way through their studies and in their final year. The findings of such a study would be able to identify the needs of students at different stages, especially first year students as the dropout rate is highest in the first year. Consequently, institutions would be able to provide appropriate support at different stages of a student's studies.

The comparison of learning strategies and academic performance between these two groups of students can also be done on students enrolled in different programmes. The learning strategies used might be different in a different programme. Besides, the foundation knowledge needed in different disciplines is not the same. Some programmes might need a formal and highly structured educational background for the students to study well at a higher level, while for some programmes, additional independent readings might be enough for the APEL entry students to study as well as the regular entrants. The findings of such a study would enable educational institutions to provide specific support for APEL students enrolled in a different programme.

As argued by Meijs *et al.* (2018), the modified questionnaire adapted from MSLQ (Pintch *et al.*, 1993) is more applicable to DE learners as the educational system and living and study circumstances they experience are different from those of campus-based college students. MSLQ which was designed for on-campus college students in traditional education settings might not be able to measure the learning strategies used by DE learners accurately. To date, not many researchers have used this questionnaire to study the DE learners' learning strategies. Future studies should be conducted using the modified questionnaire to explore the learning strategies of DE learners to enhance the validity and reliability of the questionnaire so that we have a better instrument to study the DE learners' learning strategies.

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