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Readiness for Self-Directed Learning Among Undergraduate Students at Asia Metropolitan University in Johor Bahru, Malaysia

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ABSTRACT

Self-directed learning (SDL) plays a pivotal role in facilitating adult learning, especially in developing an individual's education and upgrading his/her learning skills independently. SDL can have far-reaching implications on the students' lifelong learning skills. In particular, SDL readiness (SDLR) can assist in developing a well-structured student-centered curriculum. The study aims to assess the level of readiness for SDL among undergraduate students of the Asia Metropolitan University (AMU). This descriptive, cross-sectional study surveyed the level of readiness using the SDLR scale comprised of 40 questions. A total of 320 AMU undergraduate students from various academic programmes, including MBBS, Nursing, Foundation in Science, Diploma in Health Care Management, and Business were enrolled through convenience sampling. The total mean scores for SDLR was 157.9 ± 20.5, whereas mean scores for self-management, desire for learning, and self-control were 57.6 ± 7.9, 48.5 ± 6.4, and 51.9 ± 7.8, respectively. About two-thirds of both age groups (≤ 20 and > 20) and females were found to be ready for SDL methods. Although there was no statistically significant difference between the different age groups, genders, and programmes, logistic regressions revealed that females > 20 years of age group were more receptive and ready for SDL. The majority of the AMU undergraduate students were ready for SDL, with female and older age groups being more receptive and ready for SDL. This reflects that SDL is directly related to maturity and is also influenced by gender, although it was not proven to be statistically significant.

Keywords: *Readiness of self-directed learning, Curriculum development, Modern method of learning*

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INTRODUCTION

Background

The concept of self-directed learning (SDL) serves as a key component in developing the students' adult education and lifelong learning skills. For SDL to be successfully implemented, it is crucial for students to be independently receptive and ready for SDL. Readiness of SDL means that the learners are responsible for their

own learning through a student-centered learning method (1). The students-centered learning approach is widely introduced worldwide nowadays. Every student should be trained independently by SDL as it will be highly beneficial for their lifelong learning endeavours in the future. The SDL strategies facilitate students to handle their studies well and adapt to difficult circumstances. Learning composes of knowledge, skills, and attitude. Teachers, instructors, facilitators and/or educators usually help to supervise students in the learning process. In the SDL method, students take their own responsibility to prepare their lesson plans, the learning objectives, and the course of action to conduct their studies systematically. So, SDL is considered a modern, student-centered, independent, self-directed and self-educated learning approach. Nowadays, SDL is popularly used as an adult lifelong learning tool, whereof, the learners can gain potential benefits for their future in comparison to the traditional teacher-centered teaching style (2).

SDL is defined as "a process in which individuals take the initiative with or without the help of others, in diagnosing their learning needs, in formulating goals, in identifying human and material resources for learning, in choosing and implementing appropriate learning strategies and in evaluating learning outcomes" (3). Readiness of SDL means "the degree to which the individual possesses the attitudes, abilities, and personality characteristics which are necessary for self-directed learning" (4). SDL is a naturally occurring phenomenon that helps equalise and develop self-desire for learning in an individual. To achieve the planned goals, one should know how to implement this desire for the learning process wisely and strategically (5). A self-directed learning readiness scale (SDLRS) has been widely used in modern education to determine the readiness among both medical and non-medical fields of adult learning (6–7). The Garrison Model of SDL (Figure 1), highlights the three main domains, including self-management, desire for learning, and self-control (8–9).

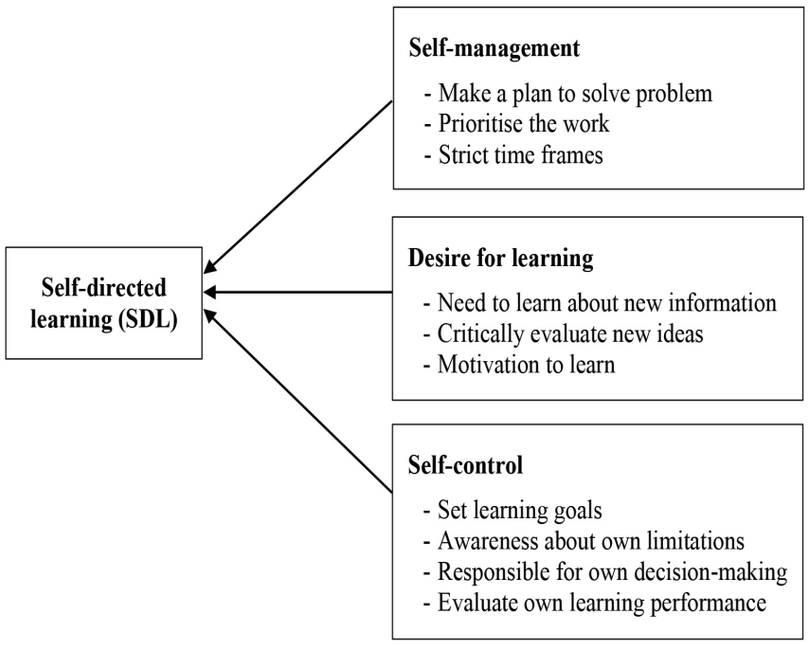

Figure 1: SDL Garrison model (9).

Long back, SDL has been focused on building a positive change among nursing students and enhancing their profession. The self-directed learning readiness (SDLR) represents a positive trend in an educational setting (10). In fact, SDL is no longer limited to the nursing profession and has been widely administered in doctors' training programmes like MBBS to produce long-lasting competent, confident, qualified, and updated doctors throughout their medical careers. The introduction of SDL can mitigate the proportion of outdated doctors who stop learning in their professional life (11). One study stated that college students need to consistently practice SDL methods to pursue their lifelong learning processes (12). Since the world is upgrading very fast in education, people should strategise their learning methods to become active, lifelong learners. Researchers believe that SDL can help students become more competent and updated as they tend to work autonomously and confidently (13).

At the Asia Metropolitan University (AMU) in Johor Bahru, Malaysia, it is perceived that students tend to learn better when they are actively engaged. Supporting this belief, the Kaizen principle has been incorporated in their teaching and learning approaches for consistent improvement and greater student engagement quality. Fundamentally, AMU follows a student-centric teaching and learning-based model as they recognise that the students have diverse learning styles. The university strives to develop the most effective teaching methodology to optimise its learning process to ensure an alignment between curriculum requirements and actual delivery (14).

Problem Statement

SDLR among undergraduate students is an area that has not been previously explored at the AMU. Existing literature indicates that students' demographic, educational background, and academic discipline are important factors in investigating SDLR as they might influence the students' SDL score (15). Nevertheless, no prior study has been conducted to target the AMU students and evaluate their learning preferences based on these specific study variables. This addresses the literature gap and highlights the importance of investigating the current readiness level among AMU students to promote a better quality of tertiary education. Furthermore, it is also important to know the SDLR among undergraduate students because the current trend of learning has changed from a traditional teaching method to a student-centered learning approach. Simultaneously, there is an evident need to train students as lifelong learners and upgrade their abilities in their relevant careers through effective SDL methods.

Significance of Study

Assessing the level of readiness towards SDL among undergraduate students will help to introduce the modern method of student-centered teaching approach in the AMU and facilitate a better quality of education. The findings from this study will assist the university higher management in developing the student-centered curriculum, enhancing the organisational prestige and students' academic performance. Furthermore, it may also help or encourage the students who are not ready enough or less confident in SDL in different ways of teaching methods to improve their lifelong learning skills during their university time and beyond. At the same time, necessary education interventions could be strategised based on the study findings and differences in SDLR outcomes. Keeping the significance of SDL in mind, this study aimed to assess the level of readiness for SDL activities among the AMU undergraduate students, as well as interpret their level of self-management, desire for self-learning, and self-control. The study also helped to analyse and compare the SDLR among the AMU undergraduate students based on their age, gender, and academic programme.

METHODOLOGY

Study Design and Sample

This descriptive, cross-sectional study surveyed the level of readiness using the SDLRS comprised of 40 questions. A total of 320 AMU undergraduate students from various academic programmes, including first to third year of MBBS (n = 175), Nursing (n = 38), Foundation in Science (n = 39), Diploma in Health Care Management (n = 25), and Business (n = 43) were enrolled through convenience sampling method.

Instrument

SDLRS was first developed and tested by Murray Fisher, Jennifer King, and Grace Tague from the Faculty of Nursing at the University of Sydney in New South Wales, Australia (1). It is the modified version of Guglielmino's SDRLS (16). The questionnaire consists of 40 items divided into three subscales of the self-management scale (15 questions), level of desire for learning (12 questions), and level of self-control (13 questions). Subjects were asked to provide the most appropriate answer using a 5-point Likert scoring system (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). The total scores ranged from 40 to 200. Scores below 150 indicate a low level of SDLR, but the total scores ≥ 150 indicate a high level of SDLR. The content validity of the questionnaire was ensured in a joint meeting with lecturers from the Faculty of Medicine at AMU, and face-to-face validity of the questionnaire was done with nine students from fourth-year MBBS programme who were involved in a pilot test. The SDLR questionnaire was validated, and the reliability test was determined by Cronbach's alpha which is 0.945, and the Cronbach's alpha value of subscales for self-management, desire for learning and self-control questionnaires were 0.837, 0.809, and 0.890, respectively (17). The questionnaire comprises two sections: the sociodemographic data such as age, gender, year of study, and programme of study. Secondly, the level of SDLR using the three subscales (self-management, desire for learning, and self-control) of total 40 items.

Statistical Analysis

The Statistical Package for Social Sciences version 21.0 was used for statistical analysis. In addition, the negative questions (3, 22, 30, and 40) were reversed and scored into the system. Independent sample t-test, ANOVA tests, and logistic regression were performed in this study. Furthermore, mean and standard deviation were used to describe the overall mean values of total and subscale scores.

RESULTS

Most of the 320 respondents were female (70%) with ≤ 20 years of age (67%). The distribution of students from different faculties was MBBS (54.7%), Nursing (11.9%), Foundation in Science (12.2%), Diploma in Health Care Management (7.8%), and Business (13.4%), as described in the Table 1.

The SDLR scores summed up to 150. This indicated that the students who achieved 150 scores or above were ready for SDL (1). By using this score as a cut-off point for readiness, 65% of the AMU students were ready for the SDL method, whereas only 35% of the students were not ready for SDL.

With respect to age and gender, it was found that two-thirds of both age groups and genders were ready for SDL. Among the five different programmes, nursing students (74%) were well-prepared for SDL, followed by Diploma in Health Care Management students (68%), MBBS students (65%), and Foundation in Science students (62%).

Table 1: Demographics of study participants and their readiness for SDL

Demographics area	*n* (%)	READY: total score > 150 (%)	NOT READY: total score ≤ 150 (%)
Age			
≤20	213 (66.6)	138 (65)	75 (35)
>20	107 (33.4)	70 (65)	37 (35)
Gender			
Male	96 (30.0)	60 (62)	36 (38)
Female	224 (70.0)	148 (66)	76 (34)
Programmes			
Medicine (MBBS)	175 (54.7)	114 (65)	61 (35)
Nursing	3 (11.9)	28 (74)	10 (26)
Foundation in Science	39 (12.2)	24 (62)	15 (38)
Diploma in Health Care Management	25 (7.8)	17 (68)	8 (32)
Business	43 (13.4)	25 (58)	18 (42)
Total	320 (100.0)	208 (65)	112 (35)

However, in the Business programme, only 58% were ready, and the remaining 42% were not ready for SDL. In the other three programmes, such as MBBS, Foundation in Science, and Health Care Management, most of the students were ready (around 65%), and some were not ready for SDL (about 35%).

The total mean SDLR scores from different age groups, genders, and programmes were above 150 points, which means that the students from different programmes of AMU were ready for SDL teaching method (Table 2). The total scores ≥ 150 represent higher degree of SDLR. The total mean scores of 40 items in this study were 157.9 ± 20.5; in contrast, the mean scores of self-management, desire for learning, and self-control were 57.6 ± 7.9, 48.5 ± 6.4, and 51.9 ± 7.8, respectively. It was also noted that age, gender, and programmes were not statistically significant with regard to SDLR.

We found out that among the five different programmes conducted in this study (Table 2), Diploma in Health Care Management had the highest readiness mean score (160.8 ± 16.5) for the SDL method among all programmes, whereas Foundation in Science had the lowest mean score (152.7 ± 16.9). However, when we compared the SDLR among the five different programmes, there were some differences in the mean scores, although it was not statistically significant.

Furthermore, it was also found that the three questions from the self-management scale ("I have good management skills, I set strict time frame, and I am systemic in my learning") showed the lowest mean scores (3.55 ± 0.80, 3.14 ± 1.03, 3.54 ± 0.92). At the same time, one question from the self-management category ("I learn from my mistakes") and the other two questions from the desire for learning scale ("I want to learn new information and I enjoy learning new information") showed the highest mean scores (4.36 ± 0.76, 4.43 ± 0.72, 4.42 ± 0.74) (Table 3).

Logistic regression on gender and age (Table 4) revealed that females of more than 20 years of age group were most ready for SDL, whereas male gender and less than or equal to 20 years of students were not confident enough for SDL. This indicates that although age and gender may have some influence on the level of SDLR, but it was not statistically significant.

Table 2: Mean and standard deviation scores for the SDLR

Demographic area	SDLR total score	Self-management	Desire for learning	Self-control
Total number of students	157.9 ± 20.5	57.6 ± 7.9	48.5 ± 6.4	51.9 ± 7.8
Age				
≤20	157.9 ± 19.6	57.7 ± 7.6	48.4 ± 6.1	51.9 ± 7.6
>20	158.2 ± 19.9	57.3 ± 7.8	48.7 ± 6.2	52.0 ± 7.4
Gender				
Male	155.6 ± 21.2	56.7 ± 8.4	48.1 ± 6.7	50.7 ± 7.7
Female	158.9 ± 20.2	57.9 ± 7.6	48.6 ± 6.3	52.4 ± 7.8
Programmes				
Medicine (MBBS)	158.9 ± 23.3	58.0 ± 8.9	48.8 ± 7.0	52.1 ± 8.7
Nursing	158.1 ± 14.5	58.1 ± 5.6	48.4 ± 4.4	51.5 ± 5.8
Foundation in Science	152.7 ± 16.9	54.6 ± 5.7	46.7 ± 6.6	51.3 ± 6.6
Health Care Management	160.8 ± 16.5	59.3 ± 7.2	49.2 ± 5.1	52.4 ± 6.9
Business	156.7 ± 17.8	57.0 ± 6.6	48.3 ± 6.1	51.4 ± 6.8
ANOVA	F = 0.909, P = 0.459	F = 1.902, P = 0.110	F = 903, P = 0.463	F = 0.192, P = 0.943

Table 3: Mean SDLRS scores and their standard deviation

	Questions	Mean	SD
1	I solve problems using a plan	3.80	0.900
2	I prioritise my work	3.99	0.780
3	I do not manage my time well	3.45	1.104
4	I have good management skills	3.55	0.806
5	I set strict time frame	3.14	1.039
6	I prefer to plan my own learning	3.92	0.879
7	I am systemic in my learning	3.54	0.926
8	I am able to focus on a problem	3.72	0.884
9	I need to know why	3.92	0.953
10	I critically evaluate new ideas	3.80	0.839
11	I prefer to set my own learning goals	4.06	0.836
12	I learn from my mistakes	4.36	0.762
13	I am open to new ideas	4.26	0.791
14	When presented with a problem I cannot resolve I will ask for assistance	3.93	1.041
15	I am responsible	4.14	0.793
16	I like to evaluate what I do	3.97	0.847
17	I have high personal expectations	3.83	0.861
18	I have high personal standards	3.69	0.882
19	I have high beliefs in my abilities	3.91	0.881
20	I am aware of my own limitations	4.06	0.807
21	I am confident in my ability to search out information	3.96	0.810

(*Continued on next page*)

Table 3: (*Continued*)

	Questions	Mean	SD
22	I do not enjoy studying	4.06	1.069
23	I have a need to learn	4.39	0.772
24	I enjoy a challenge	4.13	0.815
25	I want to learn new information	4.43	0.727
26	I enjoy learning new information	4.42	0.743
27	I set specific time for my study	3.58	1.059
28	I am self-disciplined	3.91	0.895
29	I like to gather the facts before I make a decision	4.12	0.763
30	I am disorganised	3.89	1.032
31	I am logical	3.98	0.841
32	I am methodical	3.76	0.851
33	I evaluate my own performance	3.95	0.836
34	I prefer to set my own criteria on which to evaluate my performance	3.87	0.840
35	I am responsible for my own decisions/actions	4.26	0.794
36	I can be trusted to pursue my own learning	4.06	0.866
37	I can find out information for myself	4.07	0.848
38	I like to make decision for myself	3.95	0.899
39	I prefer to set my own goals	4.18	0.814
40	I am not in control of my life	3.89	1.199

Among the five different programmes, nursing students demonstrated the highest readiness among all programmes compared to MBBS, Foundation in Science, Diploma in Health Care Management, and Business. In logistic regression of the Business programme versus remaining health-related programmes, all programmes demonstrated higher SDLR compared to the Business programme, the Nursing programme demonstrated the highest level of readiness. However, in all analyses, *p*-values were > 0.05, which was not statistically significant.

Table 4: Logistic regression of gender, age, and programmes

Predictors	β	SEβ	Wald's x^2	df	*p*	Eβ (Odd's ratio)
Gender						
Female (vs Male)	0.156	0.254	0.376	1	0.540	1.168
Age						
> 20 years (vs ≤ 20 years)	0.028	0.249	0.012	1	0.911	1.028
Programmes						
Business (vs MBBS)	0.297	0.347	0.730	1	0.393	1.346
Business (vs Nursing)	0.701	0.481	2.125	1	0.145	2.016
Business (vs Foundation in Science)	0.141	0.452	0.098	1	0.754	1.152
Business (vs Health Care Management)	0.425	0.529	0.647	1	0.421	1.530

Note: **p*-value < 0.05 = significant

DISCUSSION

This study revealed that most AMU undergraduate students (65%) were ready for SDL. On the other hand, only 35% were not ready for SDL. The total mean scores of 40 items in this SDLRS were 157.9 ± 20.5, whereas the mean scores of self-management, desire for learning, and self-control were 57.6 ± 7.9, 48.5 ± 6.4, and 51.9 ± 7.8, respectively. This suggests that most undergraduate students at AMU preferred SDL over the traditional learning method and demonstrated high readiness to learn their respective subjects through effective self-management. In Melaka's Manipal Medical College, 60.2% of first-year undergraduate MBBS students' SDLR mean score for Physiology was 151.4, which showed that the students had higher readiness for learning this subject (18). Hence, it can be suggested that the choice or content of the subject could be an influencing factor. Inversely with our study findings, one study from an Indian medical school mentioned that only 38% of their students were ready for SDL (19). This could be attributable to the cultural differences and teaching practices in the Indian educational system.

Among the nursing community, there were many studies of SDLR in different countries such as Australia, China, Pakistan, Saudi Arabia, and India. The research by Smedley (20) on first-year Bachelor of Nursing students in Australia, the total mean score was 151.09, and subscales were 44.26, 47.31, and 58.98 on self-management, desire for learning, and self-control, respectively. According to Said et al. (17), about 60% of second-year nursing students from four different institutions of Pakistan were ready for SDL and their total mean score for SDLR was 153 ± 25, the mean scores on self-management subscale was 48 ± 8.4, and self-control subscale was 58.2 ± 11 whereas learning subscale was 47 ± 8. According to El-Gilany and Abusaad (10), about 77% of students have had high level of SDLR in their research which was conducted in Saudi Arabia. The total mean scores of three subscales such as self-management, desire for learning, self-control, and the overall mean scores of SDLR were 51.3 ± 5.9, 48.4 ± 5.5, 59.9 ± 6.7, and 159.6 ± 13.8, respectively. Previous literature is in accordance with our study findings as an increased SDLR in the total mean score and subscales were also observed in our nursing students, and most (74%) of them readily accepted SDL. This attributes to a good model of instruction regarding SDLR that might have led to better learning engagement in this particular group of students.

However, some dissimilarity in findings were reported in one Chinese study (21), where the mean SDLR score of the nursing students from three different universities in China was 148.55 ± 18.46, and desire for learning subscale had the highest mean score of 45.40 ± 6.52, and the self-management subscale had the lowest mean score of 46.60 ± 6.86. One study conducted on the MBBS students' SDLR in one of the medical institutions in South India found that only 30% of the students were ready for SDL, whereas 70% of students had a total SDLR mean scores of 140.4 ± 24.4, and other mean scores in the three domains of SDLR were 38.8 ± 9.8, 47.3 ± 6.9, and 54.3 ± 10.4, respectively (22). On the contrary, our study found increased SDLR total mean score (158.9 ± 23.3) and higher self-management subscale (58.0 ± 8.9) among MBBS students, which suggests that these students possess independent learning skills that enabled them to adapt to their course structure. Nevertheless, no year-wise comparison was performed to evaluate the SDLR score regarding the MBBS students' academic year of study, as only first- to third-year students were enrolled. Therefore, this may contribute to the differences in SDLR, most likely due to the preclinical versus clinical course structure.

Some researchers conducted SDLR study in India and Nepal's medical colleges and universities. Regarding gender, in contrast to

our study, studies conducted in Uttarakhand state of India and South India found that male students from Indian medical schools demonstrated more SDLR than female students (22–23). The study from Pakistan nursing university showed male students presented higher mean scores than female students (156.7 ± 19.6 and 151 ± 28.5, respectively). However, similar to the findings to our study, one study in Nepal's medical college revealed that 72.7% of the students scored more than 150, and females had higher SDLR scores than males (24, 17). Another study from a medical college in Nepal found that the mean scores of females and males were not statistically significantly different even though 72% of the female students were ready for SDL (25). While another study in Turkey (26) conducted on nursing and midwifery students revealed that the total mean SDLR scores of all students were 156.65 ± 20.74, in which females had higher scores (158.25) than males (149.74). Most of these studies above found that female students showed higher readiness than males, similar to our study findings. This represents greater motivation, cognitive control, and willingness to put effort into independent learning methods across the female gender.

Although no statistically significant differences were observed while comparing the SDL readiness among the different age groups and genders, our study found that most of the AMU undergraduate students were ready for SDL, with females and older age groups being more receptive and ready for SDL. This indicates that SDL readiness is directly related to the advancing age, cognitive control development, and maturity and can also be influenced by the student's gender. Previously, it has also been reported that higher age was mostly associated with increasing levels of SDLR. However, the association between gender and SDLR has not been well established as the study samples had predominantly female participants, just like our own study, which may be accountable for this ambiguous relationship (15). Smedley (20) conducted one study of SDLR among nursing students in Sydney, Australia, and found that the younger age group (18 and 19 years) were less ready than the older age group. In contrast, one study conducted in Pakistan nursing institution showed younger age group of 18–20 years had higher SDLR scores than the older age group (17). In another study in a medical school in Nepal, 18 years old students had higher SDLR methods than other older age groups (24). These differences in SDLR pattern could be due to an individualised set of skills and learning modalities, environment structure, and guidance from the educators.

One experimental study conducted on educational technology undergraduates in Iran stated that SDLR kills were better in the group under project-based learning strategy than those under conventional teaching strategy (27). However, one study conducted among nursing students of Bachelor of Science in Nursing and Bachelor Nursing Science from Chitwan medical college in Nepal showed an almost equal level of readiness, and 70% were ready for SDL of those programmes (25). Some findings were supported by a previous study (26), whereby two different programmes, midwife and nursing, were compared, and it was revealed that students from the midwife programme were more ready for SDL than those studying the nursing programme. The mean scores of midwife and nursing programmes were 160.98 ± 18.06 and 154 ± 21.4, respectively. Such inconsistency in results indicates the differences in institutional curriculum and delivery of structural components (theoretical and practical) in academic programmes.

Discipline has received limited research attention, as most studies evaluated single-discipline samples involving students from medicine, nursing, physiotherapy, pharmacy, and dentistry programmes (15). While in the case of our study, five different programmes were evaluated and analysed, of which Health Care Management programme had the highest

readiness mean score (160.8 ± 16.5) for SDL among all programmes, whereas Foundation in Science programme had the lowest mean score (152.7 ± 16.9). When analysing logistic regression between the Business programme and others, Nursing had the highest readiness among all five programmes, followed by Diploma in Health Care Management, MBBS, and Foundation in Science. It may be due to the differences in their overall curriculum, learning methods, and the learning environments in their respective programmes. Overall, this study made a significant contribution to the body of scientific knowledge by assessing the current level of SDLR among AMU students and addressing the differences in SDLR scores across the different genders, ages and academic disciplines or programmes. Even though existing literature highlighted the importance of SDLR in the long-term establishment of students' careers, its association with the demographic variables and academic discipline remains understudied. Thus, our study helped address that research gap and determined undergraduate students' readiness to promote better education quality. Furthermore, it guided the university stakeholders and lecturers to foster specific or individualised student-centric learning approaches and incorporate effective SDL methods to overcome the variations in SDLR levels.

LIMITATIONS AND RECOMMENDATIONS

The research participants were recruited from one university by convenience sampling, which can be considered as a study limitation. Hence, performing the study on a larger scale involving more than one educational institution and using a random sampling technique is highly advisable. It is recommended that to further analyse the issue of SDL among students in AMU across the different academic programmes, a pilot project can be executed universally across the entire student population from all five programmes for a specified period of time, like six months to one year. At the end of this project, the students should be analysed again with the SDLRS instrument to see whether their readiness and receptive level changed over time, and the contributing factors.

CONCLUSION

This study helped to assess the readiness level for SDL among AMU's undergraduate students across five programmes ranging from Business, MBBS, Nursing, and Allied Health programmes. The Nursing students demonstrated the highest readiness scores for SDL. However, across the board, 65% of AMU students generally demonstrated readiness for SDL. There were no significant differences among the different age groups and genders as significant determinants for SDLR, although logistic regression analysis showed that females aged 20 years and above were readiest towards SDL.

ETHICAL APPROVAL

Ethical clearance was obtained from the authority of the Medical Research Council, AMU to undertake the present study. All respondents have given written informed consent, which was read and signed by the students before answering the questionnaire. In the consent form, we stated the study's objectives, the confidentiality of participants and the right to withdraw. We also informed students that this study would not affect the studies they are currently engaged.

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