

THE EFFECTS OF STUDENT-CENTERED LEARNING APPROACHES
TOWARDS MOTIVATIONS IN ACHIEVING HIGH ACADEMIC
PERFORMANCE AMONGST GRAPHIC DESIGN STUDENTS IN A HIGHER
EDUCATION INSTITUTION

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Abstract

The objective of this research is to detect if graphic design students have the abilities of Self-Directed Learning Skills (SDLS). In the Malaysian education system, students have consistently adapted to teacher-centered learning methods and are unable to master the skills of independent learning. This situation is further exacerbated by the prevalence of local academics in higher education institutions, who constantly practice pedagogical methods of delivery while mistaking them to be andragogical methods. As a consequence of this phenomenon, it is found that most of the students are facing various difficulties in learning and are increasingly experiencing emotional stress in the pursuit of high academic achievement. This study utilises an analysis based on andragogy, incorporated with the Self-Directed Learning Readiness Scale (SDLRS) to investigate the effectiveness of self-directed learning abilities based on the Self-Determination Theory (SDT) in helping the students achieve high academic performances. This study uses a mixed-method enquiry for data collection and analysis. This combination of methods can successfully overcome the following deficiencies such as; providing an opportunity to pay attention to measurement error, discovering incomplete information, eliminating variables, and assessing the certainty of conclusions.

Keywords: *Pedagogy; self-determination theory; self-directed learning.*

Abstrak

Objektif kajian ini adalah untuk mengesan sama ada pelajar reka bentuk grafik mempunyai Kemahiran Pembelajaran Terarah Kendiri. Mengikuti sistem pendidikan di Malaysia, para pelajar dibiasakan dengan kaedah pembelajaran berpusatkan guru dan disebabkan itu, tidak dapat menguasai kemahiran pembelajaran sendiri. Keadaan ini semakin diburukkan oleh kelaziman di institusi pengajian tinggi tempatan yang sering mempraktikkan kaedah penyampaian pedagogi sambil menyalah anggap pendekatan itu sebagai kaedah andragogi. Akibat daripada fenomena ini, didapati bahawa sebahagian besar para pelajar menghadapi pelbagai kesukaran dalam pembelajaran dan semakin mengalami tekanan emosi dalam usaha mengejar pencapaian akademik yang tinggi. Kajian ini menggunakan analisis berdasarkan andragogi, yang digabungkan dengan Skala Kesiediaan Pembelajaran Terarah Kendiri (Self-Directed Learning Readiness Scale - SDLRS) untuk mengkaji keberkesanan terhadap kemampuan pembelajaran sendiri berdasarkan Teori Penentuan Kendiri (Self-Determination Theory - SDT) dalam membantu pelajar mencapai prestasi akademik yang tinggi. Kajian ini menggunakan kaedah inkuiri campuran untuk pengumpulan dan analisis data. Gabungan kaedah ini berjaya mengatasi beberapa kekurangan seperti berikut; memberi peluang untuk memperhatikan kesilapan pengukuran, menemui maklumat yang tidak lengkap, menghapuskan pemboleh ubah dan menilai ketepatan rumusan.

Kata kunci: Pedagogi; teori penentuan sendiri; pembelajaran terarah sendiri

1.0 INTRODUCTION

Culturally, Asian students in general are habitually used to relying on teachers when comes to study (Yasmin & Sohail, 2018; Cirocki et al. 2019; Yasmin et al. 2019; Lei & Medwell, 2021). Students often expect teachers to provide comprehensive notes and demand on tutors to help them answer all questions (Cirocki et al. 2019). In most Asian cultures, people do not encourage independence and autonomy in learning (Yasmin & Sohail, 2018; Borg & Alshumaimeri, 2019). As a result, students are usually depending on teachers to spoon-fed them with information. In fact, Malaysia education system is very exam- oriented and does not promote self-independent. Therefore, students are struggling with the new learning environment when they first experiencing the first semester of their tertiary education, as their primary and secondary school usually do not prepare them sufficiently for tertiary education (Davis, 2017). The Malaysia education system is focusing too much on memorizing technique and applying this technique in examinations has ultimately weakened students' communicative competence and self-

directed learning skills. Especially in design courses, students are required to learn independently and expected to have the self-directive and self-management skills; however, most of the time, students have failed to meet these requirements. Therefore, the objective of this research is to detect if graphic design students have the abilities of Self-Directed Learning Skills (SDLS).

2.0 MATERIALS AND METHODS

The Explanatory Sequential Design method was implemented in this research. The sequential mixed methods take place in two separate time-ordered phases and the collection and analysis of quantitative data followed by the collection and analysis of the qualitative data. Therefore, this research is divided into two phases, phase 1 is a cross-sectional questionnaire-based survey to collect data from students and facilitators Graphic Design & Multimedia programme in UTAR (Universiti Tunku Abdul Rahman) and then go through a preliminary analysis. The preliminary study aims to assess the reliability and validity of the instrument and as a method to confirm the existence of Student-Centered Learning (SCL) in this programme. After the result of the analysis, the findings will help to determine the selection of participants or groups for qualitative data collection. In Phase 2, after the survey, an overview of the pedagogy or andragogy and self-directed learning readiness level can be identified. An intervention of self-directed learning experiment will be conducted and participants will be selected from Year One & Year Two students who studied in the Graphic Design & Multimedia programme. After the experiment, a focus group will be selected for further investigation on how effective students have learned from self-directed learning. Both the results of the quantitative and qualitative phases will then be more fully integrated into the results and discussion sections (Gasiewski et al. 2012).

The questionnaire was structured into three parts: first questionnaire with a 5-point Likert-type magnitude measurement scale based on the Self-Determination Theory (Leal, et al. 2013) and the Self-Directed Learning Readiness Scale (SDLRS) to measure facilitators' teaching methodology as well as the expectation from facilitators towards students. This measurement tool determines the significance of using pedagogy and andragogy approaches and a better understanding of facilitators' expectations towards students.

The second questionnaire is adopted from Lucy Guglielmino's (1977) SDLRS by Stewart (2007), who used this instrument for final-year engineering undergraduates to diagnose students' attitudes, abilities and personality characteristics, necessary for self-directed learning. Basically, this instrument is developed to measure data based on three factors: self-management, desire for learning and self-control. Therefore, the scoring system in the scale is meant to determine the strength of the student's independent learning ability. Students who achieve a high score indicate a high level of independent learning ability. As a result, this measurement will help to detect the level of self-directed learning levels among the graphic design and multimedia students.

The third questionnaire is to detect motivation behavior. This questionnaire was adopted from the Self-Determination Theory (SDT). This theory has been commonly reflected in the field of education for learning and the notable strength mentioned by researchers this theory indicates six types of motivations as a measurement for self-determination; not only with a variety of qualitative but also has internalization of external rules of behaviour as a guideline (Leal et al. 2013).

2.1 Research Notes

There are three problem statements in this research paper; problem statement 1: The classroom environment is not practicing student-centered learning or just partially practicing student-centered learning activities which has been proposed by the Ministry of Education of Malaysia for years but have not been successful since then (Suriati & Nurahimah, 2016; Ismail et al. 2018; Yasmin & Sohail, 2018). Problem Statement 2: studio-based learning has discouraged students' creative process and generated lots of stress in this type of learning environment (Kumar, Silva & Prelath, 2020). The studio-based learning approach relies on a collective as well as individual approach where experiences, dialogue and critique of making processes, artworks, viewer experience and theoretical and conceptual concerns are the main focus of learning and teaching modes (Fitchett, 2016). Problem Statement 3: students might have different expectations of the andragogic method. Once they realize their expectations are different from the outcomes, some undesirable emotions might surface; such as fear of failure, etc. (Bailey & Phillips, 2015). Students often face conflicts of motivation with the contrast of making the choices between academic tasks and leisure activities in college life. Students are also experiencing their first separations from their parents and searching for independent decision-making and developing their identities (Feldman et al. 2015).

Based on the above problem statements, three research objectives have been developed. Research Objective 1: exploring the effectiveness of andragogy in producing high academic achievement in the teaching of design in a private university. Research Objective 2: to investigate the effectiveness of this self-directed learning ability based on the self-determination theory (SDT) in helping the design students achieve high academic performances. Research Objective 3: to uncover the interrelationship between expectation and motivation and explore the effectiveness of implementing motivation through pedagogy and or andragogy in order to help graphic design students to achieve high academic performance.

Proceeding from the above research objective, the following research questions need to be explored. Research Question 1: Are there any significant differences between pedagogy and andragogy approaches incorporate with the Self-Directed Learning Skills in graphic design classes in this private university? Research Question 2: What is the correlation between expectation and motivation in graphic design classes at this private university? Research Question 3: Is there any significant betterment in academic performance when students learn about Self-Directed Learning Skills while incorporating motivation in graphic design classes?

3.0 RESULTS AND DISCUSSION

Using one-simple t-test (Table 1) with a hypothesized mean of 0.5 has disclosed the significant differences of Student-Centered (SC) and Teacher-Centered (TC) approaches from the faculty of the programme of Multimedia Design and Animation in this university. The SC approach showed a significant mean difference ($M = 4.00267$, 95% CI [3.8892, 4.1161]), with a high t-value ($t = 74.803$), whereas the TC approach exhibited a lower mean difference ($M = 2.60294$, 95% CI [2.3004, 2.9054]) with a t-value of 18.241. Both approaches revealed statistically significant variations from the test value, as indicated in Table 1 by p-value of .000. This indication suggests that an obvious favourite and existing of the SC approach among faculty members in this programme. Theoretically, their practice is possibly coherent with andragogical principles and self-directed learning techniques.

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Table 1. One-Sample t-test (student-centered approach versus teacher-centered approach)

Test Value = 0.5						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
SC	74.803	16	.000	4.00267	3.8892	4.1161
TC	18.241	16	.000	2.60294	2.3004	2.9054

Further investigation using Welch and Brown-Forsythe tests (Table 2) revealed no significant differences in SDLRS scores as well as the sub-factors of SDLRS (Self-Management, Self-Control and Desire of Learning among different student groups (Year1, Year 2, and Year 3), with significance levels of 0.811 and 0.812. This means, that irrespective of students' academic year in the programme, most of them have not much difference in the capability of self-directed learning skills and their average mean score in SDLRS also falls into the high range (3.21 – 4.20). In other words, all these three groups of students have a pretty high capability in self-directed learning skills. On the other hand, the Tukey post hoc test, (Table 3) showed minimal mean differences and confidence intervals including zero, indicating a similar self-directed learning readiness across various academic years. This consistency suggests that the duration of enrolment in the Multimedia Design and Animation programme does not significantly impact students' self-directed learning capabilities.

Table 2. Robust Test of Equality of Means

	Statistic ^a	df1	df2	Sig.
Welch	.212	2	23.016	.811
Brown-Forsythe	.209	2	37.727	.812

a. Asymptotically F distributed.

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Table 3. Tukey post hoc test for sub items of SDLRS

Dependent Variable	(I) Students' Enroll Period	(J) Students' Enroll Period	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SM	Year 1	Year 2	-.04065	.09881	.911	-.2752	.1939
		Year 3	-.06821	.18679	.929	-.5117	.3753
	Year 2	Year 1	.04065	.09881	.911	-.1939	.2752
		Year 3	-.02756	.18536	.988	-.4676	.4125
	Year 3	Year 1	.06821	.18679	.929	-.3753	.5117
		Year 2	.02756	.18536	.988	-.4125	.4676
DL	Year 1	Year 2	.03183	.08396	.924	-.1675	.2312
		Year 3	-.09972	.15872	.805	-.4765	.2771
	Year 2	Year 1	-.03183	.08396	.924	-.2312	.1675
		Year 3	-.13155	.15750	.682	-.5055	.2424
	Year 3	Year 1	.09972	.15872	.805	-.2771	.4765
		Year 2	.13155	.15750	.682	-.2424	.5055
SC	Year 1	Year 2	-.04531	.08044	.840	-.2363	.1457
		Year 3	-.10470	.15207	.771	-.4657	.2563
	Year 2	Year 1	.04531	.08044	.840	-.1457	.2363
		Year 3	-.05939	.15090	.918	-.4177	.2989
	Year 3	Year 1	.10470	.15207	.771	-.2563	.4657
		Year 2	.05939	.15090	.918	-.2989	.4177

On the other hand, in phase 2, to find out if there are any significant differences between pedagogy and andragogy approaches with the graphic design students' SDLR, Table 4 shows that when compared with Year One students with an experimental group versus control group, control group students with a high mean score in SDLR has slightly better performance in their project score than experimental group; also control group students with medium SDLR mean score did better than experimental group students. Therefore, although Year One students have increased their SDL capability after the intervention of self-directed learning practice, their performance did not improve instead, their project score has decreased.

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Table 4. Comparison of experimental and control groups with SDLRS

Dependent Variable: Result of intervention					
Groups of intervention	SDLRS intervention	Mean	Std. Deviation	N	
Year One Students_E	2.61-3.20_Medium	61.0000	10.74709	5	
	3.21-4.20_High	63.3684	8.99513	19	
	4.21-5.00_Vey High	59.3333	7.76745	3	
	Total	62.4815	8.97591	27	
Year Two Students_E	1.81-2.60_Low	79.0000	.	1	
	2.61-3.20_Medium	74.0000	.	1	
	3.21-4.20_High	82.5000	7.54983	4	
	4.21-5.00_Vey High	82.0000	2.82843	2	
Total	Total	80.8750	5.89037	8	
	1.81-2.60_Low	79.0000	.	1	
	2.61-3.20_Medium	63.1667	10.98029	6	
	3.21-4.20_High	66.6957	11.35555	23	
	4.21-5.00_Vey High	68.4000	13.64918	5	
Total	Total	66.6857	11.40890	35	
	Groups without intervention		SDLRS Mean Score	Std.	
		Range	Mean	Deviation	N
	Year One Students_C	1.81-2.60_Low	70.0000	.	1
		2.61-3.20_Medium	66.8333	3.54495	6
3.21-4.20_High		64.0250	5.24524	20	
Total		64.8704	4.99729	27	
Year Two Students_C	2.61-3.20_Medium	70.6667	3.05505	3	
	3.21-4.20_High	69.6000	6.58027	5	
	Total	70.0000	5.26444	8	
Total	1.81-2.60_Low	70.0000	.	1	
	2.61-3.20_Medium	68.1111	3.72305	9	
	3.21-4.20_High	65.1400	5.84615	25	
	Total	66.0429	5.43866	35	

In contrast, for Year Two students, the experimental group with high mean scores has the better scores in their project than the control group students. This means, Year Two students who obtain a higher capability of SDL are more likely to perform better than the students who are not capable of SDL. Furthermore, as observed from Figure 1, a visual inspection of the line graph, three slopes were approximately similar and parallel. This means, there is a positive correlation between SDLR mean scores with Students' Project scores. As explained earlier, Year One students were new to the programme as well as to the course; therefore, they did not have enough confidence and sufficient knowledge to verify and give evaluations to other students. As a result, in terms of capability and rectifying of their projects, Year One students might not be as skilful or knowledgeable as compared with Year Two students.

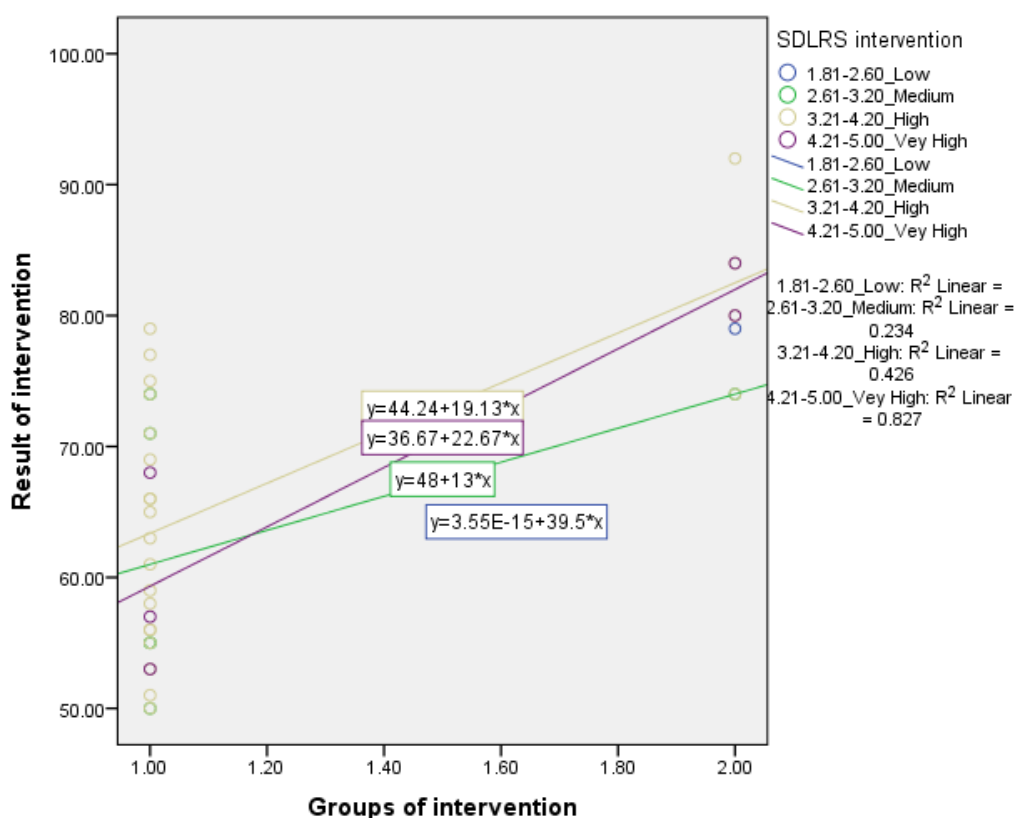


Figure 1. Experimental Group SDLRs versus Project Score Intervention Graph

Moreover, there is also a statistically significant, positive correlation between “ES” (Students’ Expectation) and “SDT” (Self-Determination) ($r(44) = 0.463$, $n = 46$, $p = .001$). In the meantime, it is also suggested that “intake” had very little influence in controlling for the relationship between “ES” and “SDT”. This means that students who have higher scores in SDT, tend to have higher scores in ES of 0.488 (mean score) and have no or little influence on the years of study in this course.

To further find out the reason for Year One students decreased in their project scores, interpreting the transcript from the interview has helped the researcher understand better the reason for Year One students’ lower project scores after the intervention. Year One students are not used to Self-Directed Learning practice and since they are new to the courses, they do not have sufficient knowledge and capabilities to utilise Self-Directed Learning skills in their studies. Therefore, even though the intervention did improve their readiness for SDL, students lacked the confidence and capabilities to practice SDL and that did not help them improve their performance instead has increased their anxiety and affected their performance.

Nevertheless, Year Two students do agree that critique sessions (Self-Directed Learning) did help them improve their learning. After all, not only after the intervention, Year Two students have increased their capability of SDL but also at the meantime improved their performance.

Through the interviews with students, they also indicated that participating in critique sessions (SDL) was intellectually challenging and this connected with other researchers finding that high academic achievers often need to clarify and describe the learning content to the other members of the group, particularly when group members challenge each other’s opinion (Mentz & Van Zyl, 2016).

In summary, it can be stated that the high SDL group agreed and accepted SDL as part of their learning activities and felt intellectually challenged even though it might not be their ideal learning strategy. Moreover, to answer the second research question, the correlation between expectation and motivation in graphic design classes of this private university, the finding has shown that there is a positive correlation between expectation and motivation. Using the Self-Determination Scale, the result of the

analysis has shown that student who has higher scores in SDT (Self-Determination), tend to have higher scores in ES (Students' Expectation). In contrast, students who have low scores in SDT tend to confidence and low motivation eventually affects their self-expectations because lacking of enthusiasm. According to Guido (2018), if students have low motivation to participate in class, most of the time students will get bored and lose focus in the class and unable to connect themselves with their studies in school as well as in their real life.

After all, by just taking quantitative data for analysis might not be able to see more in depth of how exactly SDL affect students' learning. Thus, one of the reasons for using a mixed method approach was to help enlighten the reason that SDL affects students' learning performance. During phase 2, interviews were conducted after the intervention. The interviews with students, have provided a clearer indication of students' perception towards critique sessions (SDL). Students overall are accepting critique sessions (SDL), in addition, the SDLRS measurement has shown the raised of SDL capability after the intervention. Although some students indicated that they are afraid of offending or criticising their classmates, they do agree the intervention was very positive and helped them on practicing on SDL and improve their studies.

From the themes identified and the quotes abstract from the interview scripts, it is clear that the intervention somehow let students understand the advantage of practicing SDL in class (Table 5). In another aspect, Table 5 indicates the characteristics and examples of quotes from students which related to Self-Directed learning. To review back from Table 4, both Year One and Year Two students have increased their SDLR scores into the "Very High" range of mean score, which showed that after the intervention, students have perceived Self-Directed Readiness as well as their perception of SDL as their learning strategy and therefore contributed to their higher perception of their Self-Directed Readiness.

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Table 5. Code definition table

Code Label	Definition	Description	Qualifications or exclusions	Examples
Accepting Critique	An individual who takes his	A design critique	An individual eager to	<i>we can learn from each other</i>
Approach (stimulate SDL)	or her own initiative, with or without the help of others to accomplish his or her own learning goals and learning strategy.	usually manifests as a group conversation with the ultimate goal of improving a design. It does not mean simply judging a design.	receive different perspective of opinions, able to use analytical skills and cognitive thinking,	<i>and be inspired each other with our own individual ideas, the more feedback the better, appreciate all the feedback,</i>
	In addition, able to access his or her own learning outcomes through critique session. A design critique refers to analysing a design, and giving feedback on whether it meets its objectives	An individual who is willing to take the effort or opportunity to learn about this type of learning method.	accept and appreciate feedback from others and had become attentive.	<i>it helps me notice all the things that I didn't see in my work, I realized that there's more space to learn new things, we are also able to help our friends, I am more attentive now...</i>
Not Ready for Critique Approach (stimulate SDL)	An individual who is lack of confident and feels inferior, highly relies on others or facilitators to guide them in learning. In addition, unable to	Consistently relying on others or facilitator to decide for them. Dare not make any commitment or decision without the	Not ready for the practice of critique session	An individual who is lack of confident and feels inferiority, highly relying on others or facilitator to guide them from learning. In addition, unable to

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	access his or her learning outcomes.	consent or approval from facilitator.		access his or her own learning outcomes.
High Expectation	Individuals are motivated when they perceived they will do well; which is an expectation of efficacy.	A high expectation either from themselves or towards others. The expectation of value is determined by self-efficacy or relying on 3rd party expectancy.	An individual who bases on certain presumption to determine of self-value. Someone relies on others' assumption to evaluate on their performance.	I have the expectation that I can get the high marks...
Low Expectation	Individuals are being demotivated when they perceived they will not do well; which is an expectation of inefficacy.	A low expectation either from themselves or perceive by others. The expectation of value is low due to lack of confidence in themselves or relying on 3rd party expectancy.	An individual who lacks of confident and might due to poor time management which affects their performance. Therefore, they assume that they are unable to reach a certain expectation of what they supposed to be or to meet someone expectation.	they(facilitators) won't really put expectation (on us) because we are all started our study, we are still new, to be honest, an average mark is fine for me, as long as I can pass, but better to have higher grade...

On the other hand, Year One students even if they have high and very high scores in SDLRS, their project score did not seem to be better than those who were not involved in the intervention. It can be argued that the high perceived SDL readiness group did not perceive SDL intervention to help them in their study when only looking at

the quantitative results. From another perspective, Year One students who obtained high scores on the SDLRS before the intervention indicated that they do preferred the SDL learning method. After the intervention, Year One students continued to score high in the SLDRS, however, their project scores were not as good as the control group. As such, this could indicate that Year One students even though has high SDL Readiness might not be knowledgeable or capable enough to handle their study in SDL strategy.

Consequently, although ~~from~~ the quantitative analysis shows that there is no statistical significance of the Year of intake and SDLRS, the qualitative has helped the researcher to understand better that Year of intake has influenced students' capability to practice SDL to improve their learning.

Thus, the qualitative interviews highlighted the fact that most of the students had a positive attitude towards the SDL learning strategy after the intervention. Very minor negative comments were made by students regarding the SDL learning strategy intervention. The only fall back of this intervention was only their moral consciousness which they cannot overcome with the guilt of criticising their classmates. During the interviews, it was confirmed that students with high or moderate SDL scores did not have much negativity towards SDL but they had a willingness to learn more. They were more motivated to engage in class and they realized that they could have more different perspectives from others to learn about the subject. They indicated positive responses and agreed upon the advantages of the SDL learning method.

At this point of discussion has shown that the advantage of sequential Quan → Qual design has helped compensated for giving the primary result of quantitative a more detailed exploration; especially when the researcher found out the reason of Year One students decreased their project scores, interpreted the transcript from the interview helped the researcher understand better the reason for Year One students' lower project score even after the intervention. Also, the quantitative analysis shows that there is no statistically significant of the Year of intake and SDLRS, from the qualitative has helped the researcher to understand better that the Year of intake has influenced students' capability to practice SDL to improve their learning.

4.0 CONCLUSION

According to the Year One and Year Two students in the programme of Multimedia Design and Digital Animation, the SDL intervention fostered a positive attitude towards learning. The quantitative and qualitative results confirm that students had a more positive attitude towards the SDL learning method after the three-month intervention, which may be attributed to the SDL strategy applied in the classes. From a theoretical perspective, the relationship between SDL and their academic performance was indicated. Through the qualitative interviews, it was evident that the positive attitudes towards learning also contribute to students' SDL skills. Although the results of the quantitative research for both groups show no significant between SDL scores and Project scores, there was a significant improvement in Year Two students' project scores after the intervention. More research should be done to determine why students' SDL scores in the high SDL category but their project scores decreased after the intervention. Especially research done by Siddiqui et al. (2021) indicated that SDL has a positive correlation with academic performance. Nevertheless, quantitative research has shown a significant correlation between students' expectations versus STD. Students' motivation is closely related to their expectations of their academic performance. For this reason, we can conclude that self-expectation has a significant influence on students' performance.

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