The Effect of Personality Traits Towards Self-directed Learning Skills Among University Students

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Abstract. Self-directed learning is deemed as a learning process of students that are willing to take initiative either with or without the help of others, in their learning needs, learning goals, learning strategies and learning outcomes. When it is first introduced, it was viewed as a threat to students' education establishment. The introduction of self-directed learning is formed to address the meaning, the importance of self-directed learning and the problem faced during students' study pathway. To date, self-directed is still not well implemented as the majority of the students were still not ready and does not display the right behavior or personality. Thus, this research was to examine the effect of students' personality traits towards self-directed learning among undergraduate students in Malaysia. Data was collected using a questionnaire to 375 respondents from undergraduate university students in Malaysia. Data collected was analyzed by using the IBM Statistical Package of Social Science (SPSS). Results found that openness to experience, conscientiousness and agreeableness have a positive and significant effect on self-directed learning.

Keywords: Adult Learning · Autonomy · Big Five Personality Traits · Self-Directed Learning · Undergraduate Students

1 Introduction

As society is constantly changing, students must always be updated with the latest information to develop and adapt the appropriate behavior to certain circumstances [1]. This is where self-directed learning comes into the role. In university, students should always be prepared for their lifelong and independent learning to set their future goals,

and motivation to learn, setting their learning objectives to their needs and continuously improving using self-directed learning guidelines. In the last three decades, self-directed learning has become a major research area where individuals are classified into three different categories to examine their reasons for participation in learning [2]. They can be classified into goal-oriented, where the individuals want to achieve a certain goal; activity-oriented, for socialising or fellowship purposes and learning-oriented, where one perceived learning as the goal. According to [3], students in universities who have access to their learning material such as Learning Management Systems enable to download learning resources at any time and anywhere. This allows them to be self-directed learners as it is crucial in creating a student-centered learning environment. Educators play an important role in the higher education sector and they must know how to design appropriate programs which enhance students' self-directed learning [4]. Students could not always rely on instructor guidance because when they did not do so, problems will be occurred in terms of student abilities to study, and how to study and failed to identify the critical area to be examined without the guidance of an instructor. However, not all Malaysian educators and institutions have accepted the new facilitators' learning roles as they still support traditional learning in which the students must be guided step by step [4]. Therefore, this study aims to study the effect of personality traits towards self-directed learning among undergraduate university students in Malaysia.

Self-directed learning has become one of the important aims in education factors as it is the basis of all learning. Self-directed learning is a process that individuals are willing to take, either with or without the help of others in terms of diagnosing their needs in the learning, overall goals, resources to learn, appropriate learning and implementing strategies and learning outcomes that are effective in learning [5]. However, in the degree of Big Five Personality traits such as openness to experience, conscientiousness, extraversion, agreeableness and neuroticism, self-directed learning can be varied over time as personality traits have a related connection between one's personality and self-direction [6, 7]. In Big Five Personality traits, [8] stated students that who are more open and always willing to try non-traditional learning usually score higher in learning new information compared to those students that are not willing to express themselves. Also, conscientiousness requires students to have better manners and be consistent, in other words, more reliable and trustworthy in doing their work and shows certain goal-directed behavior. There is a significant relationship between self-directed learning and conscientiousness for students, compared to those who are less independent and are not rule-following [8]. Not only that, students who have higher extraversion score levels are shown to be more helpful, cooperative and friendly compared to students that have a low level of extraversion in terms of participation and are active in self-directed learning [9]. This indicates that students who are willing to interact with others usually have better self-directed learning while doing a study group.

Even though online studies during COVID-19 make teaching and learning for both educators and students easier, the majority of the students that underwent personalized learning were not prepared to work independently after they graduate [6, 10]. 77 per cent of students stated that teaching methods in university are more in tune with their self-learning styles, yet they are not ready for employment. Not only that, self-directed learning is deemed effective learning and plays an important skill in 21st centuries

learning. However, it is still not widely implemented in Malaysian classrooms as students still prefer the traditional teachings way [11]. The result shows that most of the educators faced issues to monitor the progress of the students and the majority of the students were still passive in their problem-based learning [11]. At the cease of the study, Big Five Personality Traits were expected to give an impact on the students' self-directed learning implementation in the university. This research focuses on three traits under the Big Five Personality Traits theory labelled as openness to experience, conscientiousness and agreeableness. The chosen traits were based on supporting literature related to self-directed learning skills.

1.1 Research Objectives

The focus of this research is:

a) To determine the effect of students' openness towards self-directed learning among undergraduate students in Malaysia.
b) To determine the effect of students' conscientiousness towards self-directed learning among undergraduate students in Malaysia.
c) To determine the effect of students' agreeableness towards self-directed learning among undergraduate students in Malaysia.

2 Literature Review

2.1 Self-directed Learning

Self-directed learning plays an important role in lifelong learning as well as for students that have different types of learning. Not only that, but students' personality traits also come into play in their life-long learning and affect their level of motivation to study, self-efficacy, esteem, conscientiousness, openness to experience, agreeableness and other factors that also will be affected [7, 12]. Students that can set their own goals have a high level of self-efficacy and have an appropriate strategy that helps them to achieve their intended goals. This is called a successful self-directed learner. According to [8], personality traits under the Big Five personality traits are strongly connected with the development of students' self-directed learning. It is also supported by [13] that stated a lot of studies had shown that personality traits are connected with students' learning styles and influence the way the students perform their daily tasks. It also helps students to perform efficiently and achieve their intended goals. When it comes to openness to experience, it indicates the student's broad-mindedness when exploring something fresh or new to them. Conscientiousness refers to the accountability of students in performing a task. Agreeableness refers to the interpersonal relationships of students working in a group. While extroversion is referring to the student's relationship with others. Neuroticism is referring to the students' emotional stability in dealing with any issues. Therefore, it is strongly believed that each of these big five personalities is related to a student's academic performance in university as self-directed learning is known as the individual's initiative to diagnose their learnings without the help of others.

2.2   Openness to Experience

Openness to experience represents the proactive of students to continue seeking and appreciating the experience for their own, as well as to explore the task or any situation that is unfamiliar to them. Usually, students who are more open to experience have a higher interest in exploring, better imagination and insightful than those who have low openness, they are an inartistic and low sign of interest. According to [7, 14], they stated that openness to experience is associated with the development of students' self-directed learning as learners are concentrated on meaningful, possibilities and are willing to constantly change when they meet difficulties. Valuable meanings and new understanding can be created through self-motivated and self-directed learning as they can shift from traditional or teacher-centered towards their learning approaches.

According to [15], intrinsic motivation is a must element in self-directed learning as students will not give up easily when difficulties are met but the ability to keep them trying is their openness to experience. To shape a high level of self-directed learning, students will be willing to move from their comfort zone or the old traditional way to increase and enhance knowledge in learnings [15, 16]. During the student's learning process, they will meet difficulties which are not covered by the educators, but with a high level of openness to experience, students will take risks and try to seek the hidden patterns as they tend to be not conventional in behaviour. They dare to try new things differently, without giving up or even native-like ways of self-expression in pursuing more knowledge. Lastly, based on the research done by [13], openness to experience is necessary for university students to be equipped so that they constantly improving in their self-directed learning skills.

2.3   Conscientiousness

Besides, openness to experience, conscientiousness is one of the factors that will also lead to better self-directed learning in students' academic achievement in general. Conscientious is characterized as students that are more independent, hard-working and higher level of self-discipline. Students that have a high level of conscientiousness value their tasks and are achievement-oriented, the same goes for self-directed learners, as it requires students to have a specific level of self-discipline where they are willing to take more effort to fulfil their intended goals [8]. The need for students to become self-directed learner, require them to be responsible and accountable for their learning progress and able to develop problem-solving skill as well as make appropriate decision-making skill in any circumstances. For example, when the assessment submission is nearby the corner, and the student failed to see it as their responsibility to do it, it might result in getting a low score in academics as they failed to make a responsible decision. Students that have high conscientiousness, have a higher sense of their duties and obligations of their work, able to differentiate what should be done within a timeframe and think about what can be done to have better performance in university [8, 13]. Thus, students will be able to differentiate and prioritize the importance of certain tasks that bring them benefits to their learning needs.

According to [17], there are two types of students; spontaneous students, who pursue many goals but are unfocused along the way; and conscientious students that have a clear

understanding of intended goals as well as a more controlled structured way. It shows that self-directed learning is correlated with one's conscientiousness where students are challenged to their full responsibility for their learnings, so they will be able to make their own decisions and choices regarding their studies [18, 19]. Under the big five personality traits theory, conscientiousness has been demonstrated as a key factor affecting self-directed learning. As self-directed learners in university, students must always be aware of their sense of duty and obligation to deliver better performance and be goal-oriented. Students that have a high level of conscientiousness is characterized as an individual who is hardworking and achievement-oriented. They are more precise in doing their assessment or any kind of task that is given by their instructors. Students with a high level of conscientiousness will view the task as their responsibility to complete it and deliver a high standard of performance.

2.4 Agreeableness

Under Big Five Personality Traits, agreeableness also plays an as important factor in building a successful self-directed learner towards academic achievement in undergraduate studies [18–20]. Agreeableness is referring to students that are very sociable, willing to help and person-oriented. It is also referring to students that are willing to interact with others to get useful information for their studies. Students that show a high level of agreeableness have a better interpretation to internalize the interest of others and help in assisting their friends to learn more effectively in groups. A high level of agreeableness shows that students have better time-management and independent habits that could potentially result in better academic performance as they do not have to rely on others [21]. According to [22], agreeableness is related to self-directed learning as the ability of an individual to form a positive relationship with others. So, it is easier for the students to exchange the information on hand when they are outside of the university. Besides that, students with high agreeableness tend to make extra efforts outside of traditional formal teaching. Research done by [23] stated that self-directed learners score higher levels in agreeableness because each of the students often strives for cooperation in a group setting which leads to facilitated self-directed learning and shows a positive correlation between self-directed learning and agreeableness.

2.5 Conceptual Framework

In this research, the personality traits of self-directed learners are shaped under the theory of the Big Five Personality Traits model. The theory is characterized by openness to experience, conscientiousness, extraversion, agreeableness and neuroticism [13, 24]. This model is described as a strong framework for the connection between the types of personalities and one's behavior in life-long learning progress [7]. This model defined the ability of students to explore or interact with new information. According to [25], openness to experience is defined as a student that is very creative and able to think outside of the box to seek information. In previous research, it is shown that openness to experience has an inverse relationship between attitude and knowledge sharing [26]. Openness to experience also refers to curious students, moving out of their comfort zone and innovative. Conscientiousness is referring to students that are socially acceptable

and goal-oriented. Extraversion is defined as friendly behavior; agreeableness is having a high level of trustworthiness and being friendly. According to [27], it is assumed that students that have a high level of conscientiousness are more responsible and have a high sense of achievement orientation. Agreeableness is referring to students that are friendly and socially conformity. This also refers to the students that are usually good-natured, helpful and person-oriented. They are willing to share their knowledge with students around them or interact with others to make achievements [28, 29].

This theory is to contrast how individuals learn and respond to different kinds of learning environments. All students have different kinds of learning styles and different intellectual abilities. Students do not only rely on their personalities but also their learning styles to achieve good academic performance [30]. According to [31], students' behaviors will have an impact on their knowledge-sharing and academic performance. Research done on personality types with learning styles, leadership and job performance is well-documented but personality types between knowledge performance were not known. Students that have positive personalities such as having high openness to experience will be influenced by anxiety which results in decreasing in information-sharing behavior because they fear being criticized by others [32]. Therefore, it is obvious that personality types do play an important role in knowledge sharing. The big five personality traits emerged decades, and to understand how it affects students' behaviors, researchers have to understand how each of the dimensions will affect it. The big five personality traits might be able to shape students' strengths, and could also be complex in students' learning process.

3 Methodology

The philosophy that had been used in this research is positivism. Therefore, the researcher distributes the questionnaires to the selected sample frame in order the measure and prove the relationship between variables. A total number of 375 students be selected in this study based on the sample size technique [32]. For the current research, the primary data was collected by distributing online survey questionnaires. An online questionnaire is a data collection in which the respondents will answer a set of questions in a predetermined order set by researchers. In this research, the survey questionnaire is being used. The data collected is non-probability sampling.

There are eight questions for openness to experience, six questions for conscientiousness, seven questions for agreeableness and 21 questions for self-directed learning. Then the results were analyzed by using IBM Statistical Package for Social Science (SPSS) version 26. SPSS then developed the results in the form of a statistics table and then tested them by using multiple regression and ANOVA analysis.

4 Results and Discussion

4.1 Reliability Test

From Table 1, the Cronbach value for agreeableness is 0.706 which is the highest among variables, while openness to experience is 0.701. Both are considered as good reliability while conscientiousness is only considered fair reliability which is 0.631. For

Table 1. Cronbach's Alpha Value

Factor	Cronbach's Alpha
Independent variable- Openness to Experience	0.701
Independent variable- Conscientiousness	0.631
Independent variable- Agreeableness	0.706
Dependent Variable-Self-directed Learning	0.711
Overall	0.763

Table 2. Normality Test

Variables		Skewness		Kurtosis	
			Std. Error		Std. Error
Independent Variables	Openness to experience	-0.323	0.241	0.305	0.478
	Conscientiousness	0.072	0.241	-0.284	0.478
	Agreeableness	0.012	0.241	0.358	0.478
Dependent Variable	Self-directed Learning	-0.357	0.241	-0.428	0.478

self-directed learning, it has the highest value which is 0.711. Thus, the reliability for all variables was achieved.

4.2   Normality Test

Based on Table 2, the skewness and kurtosis of openness to experience are -0.323 and 0.305 while conscientiousness is 0.072 and -0.284. For agreeableness is 0.012 on skewness and 0.358 on kurtosis. While the skewness for self-directed learning is -0.357 and kurtosis is -0.428. Any value that falls between -1.96 to +1.96 will be considered reliable.

4.3   Regression Analysis

From Table 3, values of R and R2 are analyzed and shown so that R2 which is adjusted of the model can be found. It is also an indicator to indicate the values of the total variation in self-directed learning concerning an openness to experience, conscientiousness and agreeableness. The result of R Square is 0.197 with the value of R2 being 0.119, which provides the meaning of when linear regression is 19.7% on the variation data, 11.9% can be explained. Therefore, this study indicates and assumes that the data does not exist in this first order of auto-correction multiple regression. Also, the R represented that the simple correlation is 0.444 in the first R column. It means that this analysis shows a moderate correlation between the relationship of variables.

Table 3. Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.444[a]	.197	.119	2.57346

Table 4. Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	8.068	1.436		7.205	.000
Openness To experience	.065	.038	.086	1.716	.000
Agreeableness	.024	.052	-0.118	.507	.000
Conscientiousness	.347	.053	.158	6.248	.000

4.4 Regression Coefficient

Based on Table 4, it showed the largest beta coefficient which is 0.158 (conscientiousness), which makes it the strongest point in explaining the relationship with self-directed learning. The beta that can be deemed as the lowest (-0.118), referring to the agreeableness variable, makes it the weakest and less unique compared to the other two independent variables. All variables with a significant p, showing less than 0.05 has a significant contribution to the dependent variable prediction. This shows that openness to experience, agreeableness and conscientiousness have a positive and strong relationship with self-directed learning.

4.5 ANOVA

From Table 5, it can be concluded that the significant value is 0.000 when (o = .000), below the significant value where (p < .05). It showed that there is a significant difference between the mean score on self-directed learning and groups under the analysis of one-way AVONA where {f (4,067) = 18.295, p = 000}.

Table 5. Regression Coefficient

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	524.625	5	102.35	18.295	.000
Residual	2035.27	98	6.475		
Total	2559.895	103			

4.6 Final Regression Model

$$Y = a + B1X1 + B2X2 + B3X3 + \varepsilon$$

Following the model includes the factors that will significantly affect self-directed learning.

Y = Self-directed Learning, a = constant, B1, B2, B3 = Regression coefficients, X1 = Openness To experience, X2 = Agreeableness, X3 = Conscientiousness and ε is the Error.

The model will be tested under two circumstances; where the first one is the condition where all individuals are very satisfied (5) in terms of personality traits affected by self-directed learning; where another one will have to be based on, then they are very unsatisfied (1).

i) $Y = a + B1X1 + B2X2 + B3X3 +$ (very unsatisfied)
$= 8.068 + 0.065(1) + 0.024(1) + 0.347(1) + 1.436 = 9.968$

Based on the calculation, it shows that the research dependent variable, self-directed learning can be explained by a total of 9.968% from the value of the independent variable. Therefore, a decrease in the level of self-directed learning will result decrease in 9.968% of useful indication.

ii) $Y = a + B1X1 + B2X2 + B3X3 +$ (very satisfied)
$= 8.068 + 0.065(5) + 0.024(5) + 0.347(5) + 1.436 = 11.684$

Based on the calculation above, it shows that the research dependent variable, self-directed learning can be affected by a total of 11.684% from the value of the independent variable, where they are satisfied with personality traits affected by self-directed learning.

Thus, from the result, the hypothesis was supported.

H1: There is a positive and significant relationship between individuals' openness to experience and self-directed learning among university students.
H2: There is a positive and significant relationship between individuals' conscientiousness and self-directed learning among university students.
H3: There is a positive and significant relationship between individuals' agreeableness and self-directed learning among university students.

5 Conclusion

The majority of the students are lacking awareness and knowledge about self-directed learning in university. The skills is depending on students' personality traits and whether they are willing to take initiative with or without the help of others. Therefore, it is important to examine carefully in terms of any initiatives that could motivate or change the behaviour of students in their learning pathway. Conscientiousness, agreeableness and openness to experience often interact with each other, relative to self-directed learning in which, each of the factors stands on its own. Among all the variables tested, conscientiousness stands out as the main important criterion where the personality traits

were found to have a unique and significant relationship with self-directed learning skills. Based on the data analysis, agreeableness shows the lowest significance as in the questionnaire asking that "I'm not interested in other people's problem" has the highest score. This indicates that students are not willing to interact with others to get additional information. On the other hand, self-directed learning and openness to experience hold up well in this study. It appears to demonstrate a significant but not so unique relationship in these findings. This research shows that the Big Five personality traits, strongly increase the willingness and potentially shape the behaviour of students' readiness to learn on their own. If the university implemented well self-directed learning skills among students, it will strongly enhance society's knowledge, well-being and lifelong learning. Therefore, from these results, hypotheses were supported.

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