

RESEARCH ARTICLE

Relationship between lifelong learning characteristic and lifelong learning tendency among adult learners in Malaysia

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ABSTRACT

Adult learners, in particular, must possess lifelong learning (LLL) skills to prepare for their future endeavours. Knowing their strengths in LLL characteristics is crucial for them as it allows better understanding of their learning strengths. There are studies that suggest adult learners do not engage enough in LLL as their learning style. This may conflict with their characteristic of being independent learners, which involves a continual process of learning in order to be able to maintain themselves. It is therefore the purpose of this study to investigate the relationship between LLL characteristics and LLL tendency among adult learners in higher education institutions in Malaysia. It also aims to investigate any moderating effect from demographic data, gender and academic background. The data were collected through an online survey and analysed using SPSS with a 95% response rate. The statistical analysis used for the analysis includes descriptive and inferential analysis of multiple linear regression analysis and moderating analysis. The result indicates that there is a medium positive relationship between LLL characteristics and LLL tendency. In terms of the moderator, gender and academic background do not affect the relationship in any way. This study may benefit stakeholders, especially management, in ensuring that adult learners can maximize their potential to adopt continuous learning practices.

Keywords: lifelong learning; multiple linear regression; higher education institution; adult learners

1. Introduction

Society requires us to continuously developed to become a developed nation. One way to accomplish this is to keep learning throughout time. Learning, relearning, and unlearning is a skill of the new generation that contributes to self-improvement. The constant learning process requires them to compete with the ever-changing world, especially in the field of technology. Lifelong learning (LLL) has been the habit of successful people since the beginning of time. In higher education, LLL seeks to explore how universities and colleges can prepare learners for after-college life. It is not only through continuing education and specialised courses for adults, but also through traditional teaching programmes. Lifelong learning does not have to be limited to informal learning. It is usually understood as voluntary activities that are aimed at achieving personal fulfilment. It could be accomplished through informal or formal education, as well as non-formal education as part of its holistic perspective^[1]. This is further explained by UNESCO^[2] whereby LLL is rooted in the integration of learning and living, covering learning activities for people of all ages (children, young people, adults and the elderly, girls and boys, women and men) in all life-wide contexts (family, school, community,

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workplace and so on) and through a variety of modalities (formal, non-formal and informal) which together meet a wide range of learning needs and demands.

In Malaysia, the concept of LLL for adult learners in higher education institutions has been highlighted by the government through the development of the LLL blueprint. Through this document, LLL has been defined based on the national requirement as the development of human potential through a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will require throughout their lifetimes and to apply them with confidence, creativity and enjoyment in all roles, circumstances, and environments^[3]. LLL is also stated in the First Malaysia Plan. This focuses on producing a skilled workforce that is competent, disciplined, and has high moral and ethical values. This is to meet the needs of the workforce^[4]. Up until the current 12th Malaysia Plan, LLL elements were still promoted through training. The education sector has also been supported to provide skills training through the development of training institutions that provide training to learners and the community^[5]. The need for training of quality manpower promotes the LLL as learning is a continuous process. Since technology development is a never-ending and growing environment, learning to cope with it should also be a never-ending process.

As aforementioned, LLL is not an unfamiliar concept in the education system, especially in higher education. In the literature, it has been emphasized that higher education institutions are significant in raising individuals with the necessary knowledge and skills for LLL. It has been stated that LLL is an integral part of higher education^[6]. Being in the system for some time does not guarantee this concept is problem-free. Many studies reported on the adverse conditions associated with LLL. Previous research reported that LLL readiness among learners is moderate when it comes to entrepreneurial knowledge, though entrepreneurial knowledge itself is high^[7]. Learners are also found to have a low level of readiness for Industrial Revolution 4.0 mobile learning. This is imperative for LLL despite being technology-savvy learners. There are also reports on the low number of training opportunities to promote LLL skills in an education institution^[8]. Not only training, insufficient usage of a teaching approach that can enhance LLL including Moodle^[9] and implementation of outcome based learning^[10] were reported as well. These types of teaching approaches support the development of future education that encourages the learner to learn by themselves. This creates a student-centred learning approach which is one of the criteria for future education itself. Learners are also reported to lack advanced skills, innovative thinking and problem-solving skills in day-to-day challenges in the workplace^[11].

Possibly, this condition is due to learners' inability to understand what types of LLL characteristics they possess. Not knowing who they are may led to confusion that will not enhance LLL among learners. Furthermore, Stoter et al.^[12] stated that to address adult learners' needs, their distinctive characteristics need to be taken into account. This is because character traits can help learners make decisions that align with their values. Furthermore, developing a LLL mindset enhances both objective and subjective career success^[13]. There has been a thorough discussion of the importance of characters for learners. Among others, character traits have been attributed to promoting innovation among learners along with contextual aspects^[14]. Characteristics that are valued with positive traits also have the potential for development, depending on experiences and environments^[15]. Good or bad characteristics affect learners' development as this character builds values in the future. Strengthening learner characteristics is important to improve learning quality. This is equally significant for LLL characteristics. A learner who understands their LLL characteristic may enhance their LLL attribute in the future. Nevertheless, this ideal situation does not happen. Meanwhile, De La Harpe et al.^[16] reported the critical situation whereby teachers often ignore ways in which they could help their learners develop effective LLL characteristics and do not explicitly teach or assess these aspects of learning. Other research^[17] also stated that not much attention is paid towards character building in the education system

despite knowing the importance of learners' character in learning. Consequently, the full impact that cognitive, metacognitive, motivational and affective characteristics may have on learners with LLL was not discovered^[16]. Not only that, the roles that LLL characteristics might have on learners' study across the program were also neglected.

On the other hand, the benefit of learning about one's characteristics also impacts their tendencies since character strength may be driven by inner tendencies^[15]. This developed a connection between characteristics and tendencies, which may affect one another. The LLL characteristics and LLL tendencies are related in such a way that they can be studied together. Nevertheless, LLL tendencies among learners also have their own issues. Since LLL is a process that happens for a lifetime, a decreasing tendency may lead to more challenging challenges as LLL tendencies can contribute to sustainable development^[18]. The reason for this decrease however calls for further research and exploration. Since tendencies influence the decision-making process in reaching information^[19], information on tendencies itself is crucial. LLL tendencies is an essential requisite of the 21st century, and should be emphasized and conducted with a variety of variables^[20]. Based on an article journal search by the researcher from one search engine, Google Scholar, more than 80% (45) of the results show the LLL study only involves teachers or educators as respondents. Research focused on learners' LLL tendencies is scarce.

Overall, we have discussed several issues and challenges related to LLL characteristics and tendencies. We therefore aimed to investigate the relationship between these two variables to understand the relationship of LLL characteristics on LLL tendency as a contribution to the body of knowledge, especially with regards to LLL tendencies among learners. In addition to the study's aim, it is also interesting to investigate the influence of gender and academic background on this relationship. This is if it exists, to see if it acts as a moderator. This study will inform educational practitioners, policymakers, and researchers about LLL characteristics and tendencies that facilitate learning in this context. This knowledge can then be used to design effective strategies to support learners in achieving their learning goals.

1.1. Lifelong learning characteristic

Previously, Love^[21] had identified eight criteria for lifelong learning in his study, which specifies the precise characteristics lifelong learners should possess. It outlines the skills that the faculty believes lead to the development of lifelong learner characteristics, as well as how these skills were included in the curriculum. Meanwhile, five characteristics of lifelong learners that support their learning capacity were first introduced by Candy et al.^[22]. The first quality, an inquiring mind, is related to learning from depth and the capacity to engage in deep rather than surface learning. The second characteristic, helicopter vision, is a person's understanding of how knowledge is produced and its potential drawbacks. The third quality is a sense of personal efficacy, or assurance in one's capacity to gain knowledge considering one's objectives and academic standing. Information literacy, or how we access and interpret information, is the fourth characteristic. Learning how to learn or being aware of and using common skills and strategies for learning, is the last characteristic on the list.

Meanwhile, Broman et al.^[23] lists the following characteristics of a lifelong learner: learners who take ownership of their learning, learners who select activities to participate in the learning process, usually with assistance from others, and learners who are self-directed in their learning. Others include setting personal learning goals that benefit both the learner and society as a whole. They also include thinking about and evaluating one's learning, and using already acquired competencies as resources when choosing the right ones to pursue or try to master. Other factors include learners choosing the right person to assist them and resources to use while learning. In addition, learners are typically very motivated to learn, and prior learning is significant

in fostering or inhibiting upcoming learning. Other characteristics of successful learners consist of being open to self-criticism (they are self-corrective); creating and implementing learning plans; being able to find pertinent information when required; thinking critically, creatively, and decisively; and finally, developing the habit of self-reflection throughout the learning process.

1.2. Lifelong learning tendencies

Interesting to note, that researches related to lifelong learning tendencies commonly use the same Lifelong Learning Tendencies Scale. This scale was developed by Coşkun^[24] with four dimensions, namely motivation, persistence, absence of organized learning and curiosity. Past research showed several demographic elements positively influence LLL tendencies. In terms of demographic factors related to LLL tendencies, gender is one of the most important ones. The majority of past research shows that females possess higher LLL tendencies than their male counterparts. Furthermore, Şentürk and Duran^[25] reported that there was a significant difference in the lack of regulation and lack of curiosity dimension in favor of females in terms of LLL tendencies. In contrast, Yüzbaşıoğlu et al.^[26] concluded that female undergraduates had a higher score average than males for motivation, persistence, lack of curiosity and general LLL tendency scores. Despite this, several studies have shown that LLL tendencies are not significantly different between men and women. This is reported by Munawar and Suryana^[27] whereby preservice teachers' tendencies toward LLL were found high but did not change according to gender. In all, Badak and Şene^[28] also found that there is no meaningful relationship between LLL tendencies and gender. This difference in outcome provides a potential gap to be tested in further research. As for the educational program, Matsumoto-Royo et al.^[29] reported that LLL tendencies are favored when programs offer learning activities that place pre-service teachers in authentic roles, where they solve real problems or create applicable products. However, Arslan^[30] reported that the type of education variable did not have a significant effect on learners' lifelong learning.

2. Research design

This study aims to investigate the relationship between LLL characteristics and LLL tendencies among the adult learners in Malaysia. This study involves two independent variables. For the characteristic of lifelong learning, the researcher referred to the lifelong learning instrument and dimension, lifelong learning questionnaire, proposed by Kirby et al.^[31]. The second independent variable in this study was lifelong learning tendencies. This study adapted the instrument from Coşkun^[24]. This instrument has been validated and verified on 2100 individuals as a mixture of 600 pilots and 1500 actual implementations. Furthermore, this study also aims to identify any moderator that influence the relationship of these two variables. The moderators involved are gender and academic background. **Figure 1** shows the research framework for this study.

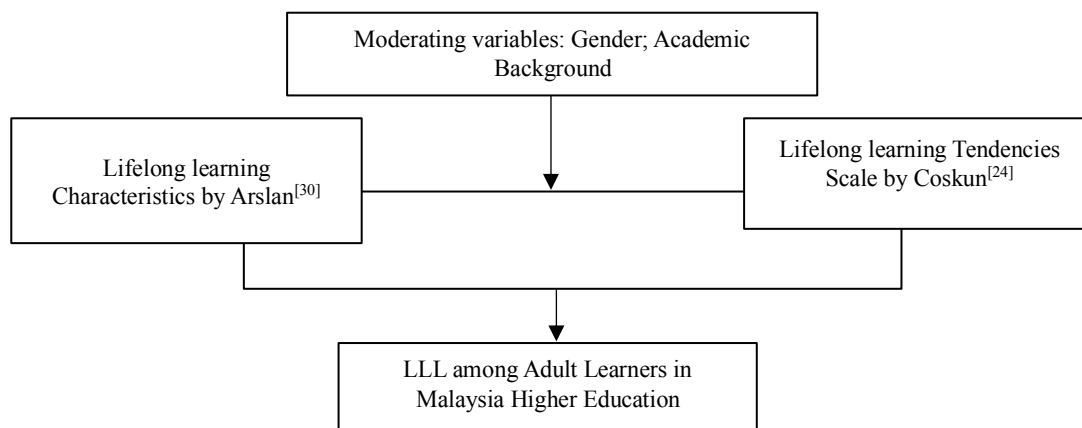


Figure 1. The research framework for this study.

This study was design to use a quantitative approach with survey method. The population studied consisted of all bachelor degree students from a Malaysian public university. Bachelor degree students were chosen as they fit with the adult learner definition as those who are socially accepted as an adult who is involved in a systematic learning process, whether it is formal education, informal learning, or corporate-sponsored learning as a fulltime or part time learner with Kapur^[32]. In this study, the random sampling technique was used since each individual in the population had an equal chance of being selected^[33]. The study population consists of 3060 students. For this Krejcie and Morgan^[34] recommended 341 students as a sample size for the study.

2.1. Research hypothesis

There are three hypotheses tested in this study. One hypothesis focusses on the relationship between LLL characteristic and LLL tendency. In order to test this hypothesis, an inferential analysis method was used. The Ho will not be rejected if the p -value is lower than the conventional 5% ($p < 0.005$). The hypothesis is:

1) Ha: There is relationship between LLL characteristic and LLL tendency.

Ho: There is no relationship between LLL characteristic and LLL tendency.

Meanwhile, another two-hypothesis were developed focusing on the moderating effect of the relationship, if existed. In the case the Ho of the previous hypothesis is not rejected, the relationship will be tested for the moderating effect of two possible variables. The effect will be deemed to be significant with p -value lower than conventional 5% ($p < 0.005$). The hypotheses are:

2) Ha: Gender does moderate the relationship between LLL characteristic and LLL tendency.

Ho: Gender does not moderate the relationship between LLL characteristic and LLL tendency.

3) Ha: Academic background does moderate the relationship between LLL characteristic and LLL tendency.

Ho: Academic background does not moderate the relationship between LLL characteristic and LLL tendency.

2.2. Research instrument

The research instrument is an important component in collecting data to answer the research questions that have been established. We developed research instruments in this study by adapting two sets of questionnaires from the previous study, which are the lifelong learning questionnaire^[31] and the lifelong learning tendency scale^[35]. The section of the questionnaire is shown in **Table 1**:

Table 1. Section in the questionnaire.

Section	Domain	Item	No of item
A	Demographic	i. Gender ii. Faculty	3
B	Characteristics of lifelong learner ^[31]	i. Goal setting ii. Application of knowledge and skills iii. Self-direction and evaluation iv. Locating information v. Adaptable learning strategies	14
C	Lifelong learning tendency scale ^[35]	i. Motivation ii. Persistence iii. Lack of organization in learning iv. Lack of interest	27
Total			44

2.3. Data collection

Data collection is a process of gathering and measuring information about variables of interest. Data collection in this study was done through questionnaire distribution. Once the population was identified, we asked permission to conduct research. Following permission granted, we approached the respondents. The questionnaire was distributed via physical and online distribution. To remind respondents to fill out the questionnaire, we set a time frame. It was collected two weeks after distribution. After all, 430 copies of questionnaires were collected within the timeframe. Upon receiving the questionnaire, data analysis began.

2.4. Data analysis

All data gained from the data collection process was evaluated to answer the research questions. The survey data was analysed with the SPSS software. Questionnaire data were analysed using descriptive and inferential analyses. The descriptive analysis provides the researcher with basic data output which is the mean and standard deviation. Furthermore, inferential analysis provides the researcher with an overview of the significance of the difference between the mean and the influence of the variables. The predictor was determined with multiple linear regression analysis. This analysis method was used because the multiple regression method allows the researcher to predict the dependent variable based on the independent variables^[36].

3. Result

This study took two weeks to complete the data collection phase. A total of 450 copies of questionnaires were distributed to Malaysian public university bachelor degree students. All respondents met the study criteria and were included in the study. After the given time frame, 430 copies of questionnaires return within time. This resulted in the response rate for the survey to be 95%. According to Fincham^[37], response rates approaching 60% for most research should be researchers' goal. Data from 37 respondents were removed because they answered the Likert scale incorrectly. There were 25 respondents who ticked the same scale for all items, 7 respondents who submitted incomplete questionnaires, and 5 respondents who checked more than one answer for one item. Thus, all of these 37 outliers were removed from the analysis resulting in a total of 393 copies of questionnaires eligible for analysis. The questionnaires collected were then analysed and the results were presented in the following subpoints.

3.1. Descriptive analysis

According to descriptive analysis, 64.6% (254) of respondents were male and 35.4% (139) were female. The majority of respondents are from the Faculty of Defence Studies and Management, which is 50.4% (198). The least respondent is from the Faculty of Medicine and Health Sciences with only 1 (0.3%) respondent taking part in this research. In total, 393 respondents participated in this study. **Table 2** shows the descriptive analysis of demographic data.

The analysis of each subdomain showed that application of knowledge and skills ($M = 3.90$, $SD = 0.59$) is the dominant LLL characteristic among students; goal setting ($M = 2.80$, $SD = 0.37$) is the weakest. On the other hand, the dominant LLL tendency is motivation ($M = 4.01$, $SD = 0.57$) and the weakest is locating information ($M = 2.49$, $SD = 0.71$). **Table 3** shows the mean and standard deviation for each sub domain in LLL characteristic and LLL tendency.

Table 2. Descriptive analysis of the demographical data.

Demography	Frequency	Percentage
Gender		
Male	254	64.6
Female	139	35.4
Faculty		
Faculty of Defence Studies and Management	198	50.4
Faculty of Defence Science and Technology	37	9.4
Faculty of Engineering	41	10.4
Faculty of Medicine and Health Sciences	1	0.3
Defense fitness academy	92	23.4
Language center	24	6.1

Table 3. Mean and descriptive analysis of each domain.

Domain	Sub domain	Mean	Standard deviation
Characteristics of lifelong learner	i. Goal setting	2.80	0.37
	ii. Application of knowledge and skills	3.90	0.59
	iii. Self-direction and evaluation	3.22	0.58
	iv. Locating information	2.49	0.94
	v. Adaptable learning strategies	3.44	0.48
Lifelong learning tendency scale	i. Motivation	4.02	0.57
	ii. Persistence	3.51	0.48
	iii. Lack of organization in learning	2.49	0.71
	iv. Lack of interest	3.17	0.65

3.2. Relationship between LLL characteristics and LLL tendency

In this study, the first hypothesis examined the relationship between LLL characteristics and LLL tendency. In order to ensure the correctness of the hypothesis, an inference analysis of Pearson product-moment correlation was run to determine this relationship. As a result, there was a moderate, positive correlation between LLL characteristic and LLL tendency. This correlation was statistically significant $r(391) = 0.50, p = 0.000$. This indicates that the two variables are moving in the same direction, with an increase in one variable resulting in an increase in the other. Therefore, H_0 is rejected. **Table 4** shows the analysis output.

Table 4. The output of Pearson product-moment correlation.

<i>r</i>	<i>df</i>	<i>p</i>
0.50	391	0.000

Since there is relationship between the two variables, the next hypotheses were tested, which is regarding the influence of a third party between the two variables has been studied. Two variables have been chosen to be the moderator of the relationship, namely gender and faculty or academic background. To test the correctness of the hypothesis, moderator analysis was used which is the moderated multiple regression. **Table 5** shows the output of the analysis.

Table 5. The output of moderator analysis.

Variable		R square change	F change	Df2	Significant F change
Gender	LLL	0.001	0.384	389	0.536
Faculty		0.002	0.784	389	0.376

The “R square change” column shows the increase in variation explained by the addition of the interaction term. The analysis shows that R² change is only 1% of the variation explained by the interaction term. This increase is not statistically significant ($p > 0.005$); thus, gender does not moderate the relationship between LLL characteristic and LLL tendency. Another variable also indicates the same result whereby faculty does not moderate the relationship between the independent variable and dependent variable ($p > 0.005$) with R² only 2%. As a result, neither Ho for the moderator can be rejected.

4. Discussion

Adults learn best at their own pace, so independent study should be encouraged. Learners take initiative or self-direct to solve novel problems. Finding shows that the dominant LLL characteristic of the learner is applications of knowledge and skills. Learners who can transfer their skills and knowledge from one environment to another will continue learning throughout their lives^[38]. Some of the abilities related to this include the ability to comprehend one’s role as a learner or worker with the potential to have an impact on the world, the capacity to analyze professional work, the improvement of communication, teamwork, and management abilities, and an understanding of how knowledge can be applied in contexts other than its theoretical applications. Application of information and skills was also encouraged by the course delivery techniques. Learners were encouraged to use prior information and apply it to various situations through case studies, community-based learning, and problem-based learning activities in the classroom. Exams comprised open-book and essay-style questions that assumed students would use prior knowledge in an assessment setting.

The lifelong learning tendencies in this research refer to the four domains proposed by Coşkun^[24] which include motivation, persistence, the absence of organized learning and the absence of curiosity. In this study, the lifelong learning tendency level of the students was found to be high. This result is in line with previous studies^[19,39,40]. A high level of lifelong learning tendencies indicates that learners are prone to lifelong learning in their life. Thus, the aim of improving lifelong learning among Malaysian adult learners is on track, as indicated by this finding. It also supports the effort of the 4th goals in Sustainable Development Goals programs and events to get back on track after the wreck of Covid-19 that hit the entire world population^[41].

Furthermore, the analysis shows that the highest lifelong learning tendencies are motivation, followed by persistence, lack of interest and finally the lowest is lack of learning organization. Similarly, Arslan^[30] reported that the motivation level of students from different faculties and vocational schools is high. Based on the analysis, students show the highest level of agreement with having a passion for discovering new things all the time. It supports the idea that motivation is a crucial attribute that influences professional development^[42]. Meanwhile, the least agreed upon motivation activities among the respondents are learning new things and acquiring additional skills in different areas for self-improvement. Despite easy access to new information and knowledge in the modern age, students still do not explore ways to improve themselves. As a technology-savvy generation, students need the skills to navigate information to find reliable and valid information. They must have information literacy skills that will help them become competent students. This includes information literacy, as well as advanced critical thinking methodologies and thinking skills, such as making inquiries and looking for answers, discovering data, determining hypotheses, evaluating sources and settling on choices^[43]. This low interest in information literacy is in line with Safdar^[44] whereby results of the study revealed that the

majority of the respondents were not much familiar with the concept of information literacy with the majority (88%) of the participants had not received any training on information literacy despite being students in this technology led world.

The analysis indicated a medium positive relationship between LLL characteristics and LLL tendency. This indicates the stronger LLL characteristics they possessed, the more tendency they have towards LLL indicating the influence of characteristic on the tendency. The influence of characteristics and personalities on motivation has been confirmed in several past researches. Motivation, as part of the tendency, is attributed to stable traits rooted in an individual's personality. These traits distinguish people across situations and, to a certain extent, over time^[45]. This personality affects people through emotional stability, aggression, and extrovert or introvert characteristics. Additionally, it can affect people at work by influencing their organizational tolerance, work environment, and work ethics^[46]. Thus, knowing that characteristics do influence people's tendency, management should consider enhancing any characteristic of people that can contribute towards the improvement of their performance quality^[47]. This can be at an educational institution or work place^[47].

In Malaysia, LLL skills are already emphasized in national and international educational plans, including the Malaysia Strategy Blueprint document on enculturation of lifelong learning for Malaysia 2011–2020. There is no doubt that establishing a nation of lifelong learners is imperative, as these people value knowledge and are always looking for new things to learn. For people to become lifelong learners, they need vision; they need to not be afraid of change; they have to see change as an opportunity rather than an obstacle; they must be able to see solutions to their problems through continuous learning, and they ought to be information literate. A person like this realizes that no matter how educated or intelligent they are, they still require refuelling now and then.

This positive relationship is in line with several previous studies that gave the same results. One of the variables that repeatedly influences lifelong learning tendencies is information technology literacy. The computational thinking self-efficacy scale (CoT) for instance directly explains lifelong learning at a rate of 59%^[6] and information literacy practices contribute positively and strongly to lifelong learning tendencies. The literacy includes how to use library resources for learning needs in the future^[48]. A continuous improvement of technological competencies such as information literacy are important in order to prevent a decline in learners' eagerness to learn^[49]. Nevertheless, in addition to previous research findings, this study provided extensive information regarding students' tendency towards LLL. This is in addition to findings from previous research.

Tendencies come with certain stimulus conditions^[50]. Stimulus may enhance tendencies and facilitate relationships. Interestingly, despite having a positive relationship, the moderator analysis showed negative results. The chosen variables, gender and academic background had no moderating effect on the relationship between LLL characteristics and LLL tendency. This is despite past research showing significant differences from a gender perspective in LLL tendency^[25,26]. Even so, this provides new opportunities for further research to identify other moderating variables in this relationship. The newly obtained information will help build a stronger relationship between the two variables.

5. Conclusion

The practice of lifelong learning among adult learners has become a wise strategy for any education institution especially those in a higher education institution. It is a skill set required in a future setting where changes happen constantly. Those who refuse to reskill and upskill will become obsolete and will never be able to keep up. This study had three hypotheses, the first focused on the relationship between LLL

characteristics and tendency. The result supported this hypothesis as each characteristic influences the tendency. Nevertheless, the results did not support the last two hypotheses about the moderating effect of the relationship. This indicates more research is needed to identify other moderating factors in this relationship. The findings of this study may contribute to the development of LLL for higher education institutions and the improvement of LLL management plans for other institutions. It is important to note that the influence of characteristics towards tendencies also occurs at the workplace. Thus, by manipulating learners' characteristics at an early stage, management will be able to train learners to produce better results by increasing their tendency. This will benefit many including the learners and the institutions.

Conflict of interest

The author declares no conflict of interest.

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