

Influence of Extraversion, Agreeableness and Learning Motivation on Learning Performance

Siti Zuliana Md Zuki, Fatimah Wati Halim, Siti Fardaniah Abdul Aziz & Norshaffika Izzaty Zaiedy Nor

Psychology & Human Well-Being Research Centre, Faculty of Social Science & Humanities,
Universiti Kebangsaan Malaysia

Corresponding Author Email: atisha@ukm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i12/19930> DOI:10.6007/IJARBSS/v13-i12/19930

Published Date: 13 December 2023

Abstract

Evaluating the training effectiveness is a critical process. However, it is very important for the improvement process of a training. Training effectiveness can be measured based on the trainee's learning performance throughout the training. High learning performance is an important factor that encourages the transfer of training. A study was conducted to evaluate the learning performance of military officers who attended the G2 and G3 Staff and Tactics Courses at the Officers' College, Port Dickson. This study aims to examine the influence of individual factors such as extraversion and agreeableness personality factors and learning motivation on trainees' learning performance. The data was analysed using SEM-AMOS (Structural-Equation Modeling- Analysis of Moment Structures). The findings of the study found that the three individual factors have a significant influence on learning performance. This shows that individual factors also affect the training effectiveness. Therefore, the responsible parties need to take individual factors into account when planning and designing a training.

Keywords: Learning Performance, Extraversion, Agreeableness, Learning Motivation.

Introduction

In order to produce capable and trained military personnel, various training have been planned by the Malaysian Armed Forces (ATM). The training that must be followed by Malaysian military personnel involves tactical as well as physical training. In fulfilling ATM's vision to become a credible armed force, every personnel must follow the courses and training conducted. This course and training are designed according to the requirements of the field of work apart from the basic knowledge that every military must know. In addition, for the promotion process, one of the conditions that must be met by members is attendance at certain designated courses. To ensure that every course and training runs smoothly, the government has spent millions of ringgits a year. Therefore, they expect the results of the

training to make their members more credible and able to carry out their duties more efficiently. In this study, the researcher focused on military officers who attended training at the Officers' College, Segenting Camp, Port Dickson.

Literature Review

According to Gegenfurtner et al (2009), organizations will be able to manage training better if they care about the factors that influence motivation before training and the effectiveness of training. Next, the benefits from the training conducted will be increased, especially for the trainees and the organization (Laker & Powell, 2011). Many studies related to training are conducted, especially studies that focus on individual factors, training design, and situational factors in increasing motivation and training effectiveness (Tannenbaum et al., 1993; Facticeau et al., 1995; Colquitt et al., 2000).

Personality and Learning Performance

As a military officer, one must be equipped with good leadership qualities and also excel in terms of intellect, physicality, and personality. From an intellectual and physical point of view, the organization has provided a training design that can improve the knowledge and skills of the officers. Both are important elements that are the basic requirements for becoming a certified officer and have been passed by the officers. In terms of personality, it is something that exists within the individual. Personality is a dynamic and organized set owned by a person that affects thinking, motivation, and behavior in various situations (Deniz & Ortosun, 2010). A systematic study needs to be conducted to find out the extent to which personality factors are important in influencing the effectiveness of training.

When looking at training effectiveness models, most of them highlight individual aspects as determining elements of training efficacy. Personality traits influence learner motivation, involvement, attitude, and attention, and so define the amount to which an individual is competent in undergoing the learning process throughout training (Gully & Chen, 2010). Only two personality characteristics were studied in this study: extraversion and agreeableness. The majority of studies on personality and performance focus on students' academic achievement (Kamilah & Zurina, 2019; Begum et al., 2021; Wang et al., 2023). The findings of the study obtained by Zali and Surat (2022) which found that all the five factors of personality traits which is neuroticism, openness, conscientiousness, agreeableness and extraversion have different effects on the academic achievement of students.

Good academic accomplishment is a good indicator of how well the learning and teaching process is going. The researcher determined in the context of this study that academic success of students in the learning process can be equated with learning performance in the training conducted. This is due to the fact that both involve the same procedure. Studies related to personality are important in determining training performance. A study was conducted by Ngamal et al (2018) to determine the influence of personality on life satisfaction among middle-aged military personnel. The results indicate the extraversion and contribute to the life satisfaction of army veterans. Meanwhile, agreeableness does not significantly contribute to life satisfaction. The findings of this study are very important to help in the preparation of training programs that can attract the interest of this middle-aged group and subsequently improve their training performance.

Agreeableness

Individuals with high agreeableness have a prosocial orientation towards others. The agreeableness factor differs from extraversion because it refers more to relationships (kindness, empathy versus cynicism, hostility) compared to extraversion, which focuses more on the individual himself (McCrae & Allik, 2002). Individuals who have characteristics such as being easy to trust and help others, soft-hearted, easy to sympathize with, cooperative, and polite (Costa & McCrae, 1992) have a high level of agreeableness. Research by Komarraju et al (2011), found that personality and learning style are related and affect academic performance. In addition, Farsides and Woodfield (2003) said that agreeableness affects academic performance as a whole. This finding is also supported by Poropat (2009); Moulaye et al (2011); Kamilah and Zurina (2019); Chen et al (2021) who say agreeableness has a positive relationship with student performance. This is because normally agreeableness people are more cooperative, good-natured and trustful and this will help the students to get better performance. This result was supported by (Hakimi et al., 2011). Result of this study also shows that agreeableness, conscientiousness, and openness were positively related to CGPA.

A study by Diseth (2003) also involved examen philosophicum students, or exams related to philosophy and structured thinking in Norway. However, the findings of this study found that the personality factor and the agreeableness factor are negatively related to achievement. This finding is supported by Wang et al (2023), who said agreeableness does not have a significant relationship with learning performance, whether with the presence of self-efficacy as a mediator or not.

Extraversion

Individuals with high extraversion are aggressive, always forward, and loud (Goldberg, 1990), energetic, optimistic, sociable, impulsive, adventurous, and exuberant (Costa & McCrae, 1992). Individuals with high extraversion (extroverts) tend to talk a lot and be responsible in group situations, whereas those with low extraversion (introverts) tend to feel uncomfortable in social situations and keep their thoughts and feelings to themselves (Soto et al., 2016). Because of their gregarious disposition, persons with strong extraversion perform better in groups than alone (Furnham et al., 1999). Besides that, a study by Yusooff et al (2014) said that extraversion has a significant relationship with emotional intelligence (EQ). Individuals who are extroverted, have high emotional intelligence are tough minded, always active in their organization, have stable emotions and are good at socializing with everyone.

Payne et al (2007) discovered that extraversion variables influence student academic achievement. According to Komarraju et al (2011), extrovert personality has a good link with academic ability. However, the findings of the Kamilah and Zurina (2019) study contradict prior findings that demonstrate extraversion has a low meaningful negative connection with learning performance. Wang et al (2023) discovered that extraversion has a negative association with learning performance, but that these two variables have a positive relationship when self-efficacy is present as a mediator.

Learning motivation and learning performance in training

Various studies have found that personality is an important factor that affects learning performance. However, most focus on the influence of mediators in determining the

relationship between personality and learning performance (Harsha et al., 2015; Wang et al., 2023). In this study, the researcher focused on learning performance among individuals who have worked and followed training conducted by their work organization. The findings of this study can further develop the findings of the influence of personality on learning performance among different respondents. In studying learning motivation, several researchers, including Colquitt et al (2000); Medina (2016), have proven that learning motivation in training is the factor that most affects the effectiveness of training. Therefore, the influence of learning motivation on the effectiveness of training needs to be studied. Tziner et al. (2007) state that learning motivation give a high significant relationship and a huge effect on training performance.

A study on the influence of learning motivation on learning performance was also conducted on students. The results of a study by Asvio and Arpinus (2017) found that there is a significant influence of learning motivation on learning achievement among students in higher education institutions. A study by Siti Fardaniah (2013) on academic staff at Universiti Kebangsaan Malaysia found that training motivation is a significant mediator in the relationship between training program characteristics and overall training effectiveness.

Bell and Ford (2007) found in their study that learning motivation can have an impact on learning performance. A study conducted on workers involved in a heavy vehicle driving course in the United States shows that learning motivation has a significant effect on improving the driving performance of the workers involved in the training. Besides that, learning motivation for adults is different from young people. For young people, they are more concerned with extrinsic motivation than intrinsic motivation (Chandran & Awang, 2023). Different from adults. From the learning aspect for adults, Abdul Razaq et al (2009) said that the goal of adult education is to improve self-achievement in terms of individual knowledge and skills to improve the quality of life. This goal is what drives them to increase their level of motivation in training.

Research Objectives

1. To identify the relationship between personality factors extraversion and agreeableness with learning motivation.
2. To identify the relationship between personality factors extraversion and agreeableness with learning performance.
3. To identify the mediator effect of learning motivation in the relationship between personality extraversion and agreeableness with learning performance.

Conceptual Framework

In this study, the researcher focused on two personality factors taken from the Five Factor Personality Model, namely extraversion and agreeableness, as independent variables. The selection of these two factors is due to the nature of the training, which requires each individual to work in a group. In addition, learning motivation in this study acts as a mediator for the relationship between personality and learning performance. The selection of learning motivation as a mediator is based on the Partially Mediated Version of an Integrative Theory of Training Motivation by Colquitt et al (2000) and the HRD Model by (Holton, 2005). While learning performance acts as a dependent variable.

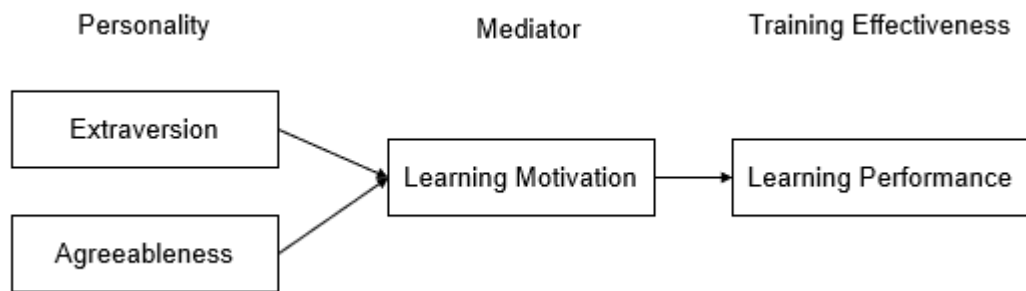


Diagram 1: Conceptual Framework

Methodology

This study is a survey study conducted as a longitudinal study. Data was collected using questionnaires before, during, and after training. Trainee personality data is collected before training, learning motivation data during training, and learning performance data after training. A total of 414 military officers who attended the G2 and G3 Staff and Tactics Course at the Officers' College, Port Dickson, were involved as respondents in this study.

To measure the personality factors of extraversion and agreeableness, the International Personality Item Pool (IPIP) questionnaire built by Goldberg (1998) was used. For training motivation, questionnaire used was adapted from (Noe and Schmitt, 1986). For the dependent variable, which is learning performance, the Training Effectiveness Scale by Siti Fardaniah (2013) was used.

All data was analyzed using SPSS (Statistical Package for the Social Science) Version 25 and AMOS (Analysis of Moment Structures) Version 25. In addition, the Structural Equation Modeling (SEM) method was used to determine the relationship between the variables of extraversion, agreeableness, learning motivation and also learning performance.

Results

Table 1

Cronbach's Alpha Reliability for Each Variable

	Extraversion	Agreeableness	Learning motivation	Learning performance
Number of original items	10	10	7	10
Number of final items	4	4	5	5
Cronbach's Alpha reliability of the final item	0.832	0.839	0.932	0.955

Before further analysis was conducted, AMOS was used to validate the construct through testing the measurement model. The table below shows the value of average variance extracted (AVE), construct reliability (CR) and correlation between variables.

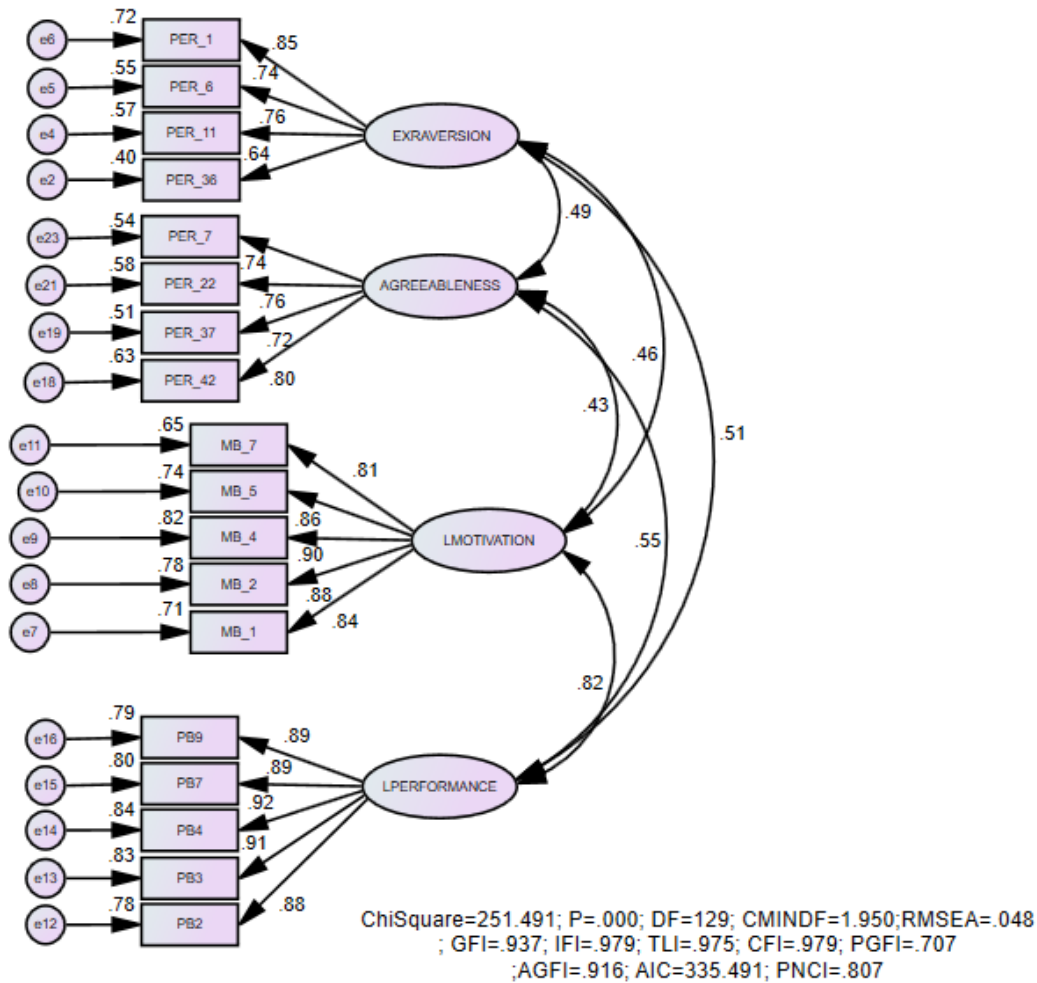


Diagram 2: Measurement model

Note: All regression, correlation and variance values are significant at the 0.05 level

Table 2

Level of Average Variance Extracted (AVE), Constructs Reliability (CR), Correlation and Squared Correlation for Each Variable Construct

AVE	CR	Number of items		Extraversion	Agreeableness	Learning motivation	Learning performance
.745	.881	4	Extraversion	-	.493	.462	.510
.754	.885	4	Agreeableness	.243	-	.430	.547
.858	.936	5	Learning motivation	.213	.185	-	.820
.899	.951	5	Learning performance	.260	.299	.672	-

Values above the diagonal are correlations as produced by SEM. The value below the diagonal is the square of the correlation. All covariances are significant at the 0.05 level.

Table 2 shows average variance extracted (AVE), reliability constructs (CR), correlation and squared correlation between variables. Based on the recommendations of Hair et al. (2013), table shows that each construct for the variables measured has sufficient AVE and CR values as well as acceptable levels of construct validity based on nomological validity, determinant validity and convergent validity.

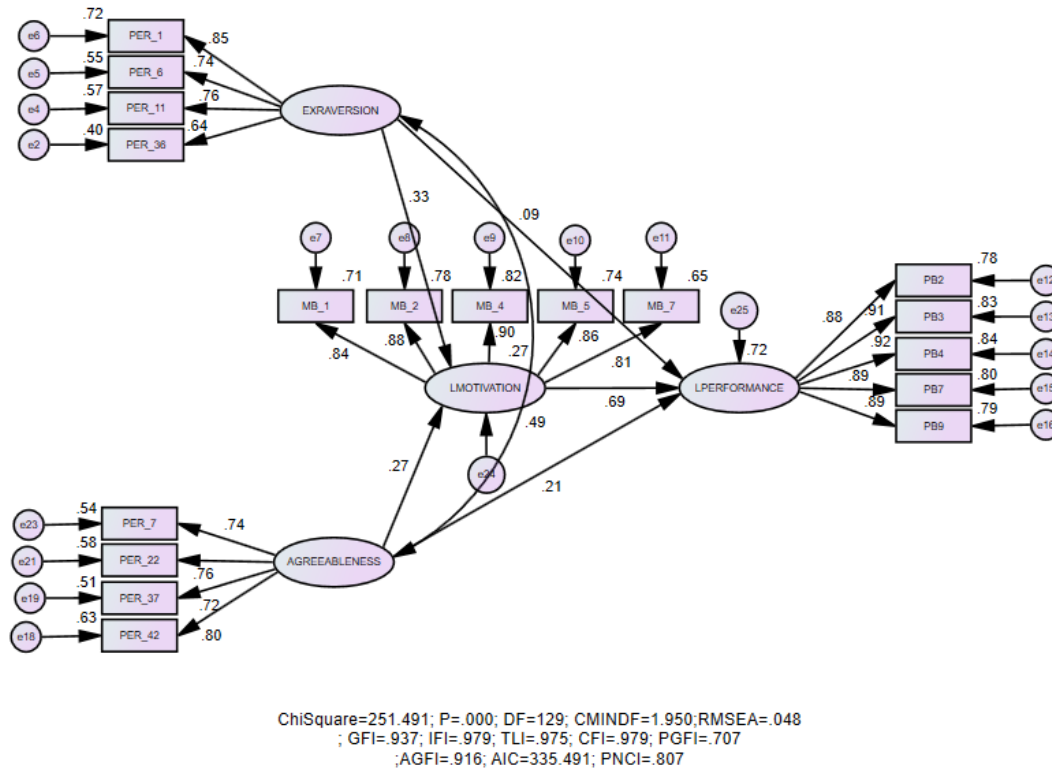


Diagram 3: Structural Model

Table 3

Regression, Standard Deviation (S.E.), Critical Ratio (C.R.), and Significance Level between Constructs/ Variables in Structural Model

Relationship between variables	Standardized regression values	S.E.	C.R.	p-value
Learning performance extraversion	<--- .090	.052	2.184	.029
Learning performance agreeableness	<--- .206	.039	4.980	***
Learning motivation extraversion	<--- .331	.071	5.444	***
Learning motivation agreeableness	<--- .267	.053	4.441	***
Learning performance learning motivation	<--- .690	.045	16.465	***

*All regression values are significant at 0.05 level

The diagram shows the structural model of the study, in which both extraversion and agreeableness variables are significant factors that stimulate learning motivation and

subsequently improve learning performance. This model has an acceptable model fit, which is $\chi^2(129) = 251.491$ with $p = .000$, $\chi^2/df = 1.950$, $GFI = .937$, $CFI = .979$, $TLI = .975$, and $RMSEA = .048$.

In this study, learning motivation is a significant mediator in the relationship between extraversion and agreeableness and learning performance. This is because there is a significant regression effect for extraversion on learning motivation ($\beta = .33$, $p = 0.05$) and agreeableness on learning motivation ($\beta = .27$, $p = 0.05$). The results of the analysis also show a significant regression effect in the direct relationship between extraversion and learning performance ($\beta = .09$, $p = 0.05$) and agreeableness with learning performance ($\beta = .21$, $p = 0.05$). Learning motivation, which acts as a mediator, also has a high regression effect to learning performance, which is ($\beta = .69$, $p = 0.05$).

Table 3

Indirect Effects Using Two-Tailed Significance of Bias-Corrected Bootstrapping for Structural Models

	Standardized Indirect Effect		Two Tailed Significance	
	Extraversion	Agreeableness	Extraversion	Agreeableness
Learning Motivation
Learning Performance	.228	.184	.000	.000

Mediator effect was confirmed using direct effects model analyses. Table 2 shows that there is a significant indirect effect between extraversion and learning performance ($\beta = .228$, $p = .000$). Agreeableness also has a significant indirect effect on learning performance ($\beta = .184$, $p = .000$). This indirect effect was tested using the two-tailed significance of bias-corrected bootstrapping. This is consistent with Table 1, which shows that extraversion and agreeableness have a significant effect on learning motivation. The same is true between learning motivation and learning performance, which have a significant effect. Therefore, learning motivation is a mediator in the relationship between personality and training performance.

Discussion

According to Blumberg and Pringle (1982), characteristics including aptitude, accessibility to opportunities, and desire to act are what influence performance in both the workplace and the classroom. In this study, one of the elements that influences people's willingness to act is their personality. Research findings that demonstrate that extraversion and agreeableness have a favorable impact on learning motivation confirm this sentence. In addition, according to McCrae and Löckenhoff (2010), individuals with high agreeableness are easy to control. They will easily follow something that has been set and will try to adapt to the environment. As we know, in the army, the nature of agreeableness plays an important role. This is because the army is a uniformed body that uses a very strict hierarchical system. High agreeableness will help them accept and follow the instructions given. In terms of academic achievement, McAbee and Oswald (2013); Vedel (2014) say that there is a positive, albeit small, relationship between agreeableness and academic performance for older college students.

According to Wang et al (2023), agreeableness that is excessively high is better suited for subordinates and is not helpful for enhancing professionals' work performance. Professionals place more value on an individual's skills than a groups. High agreeableness people are trustworthy, pleasant to deal with, and always willing to lend a helping hand. As for extraversion, it greatly affects learning performance because the fact that the training programs tested were highly involved and needed a high energy level among trainees explains the considerable association between extraversion and training performance. This statement is supported by Dean et al (2006) who conducted a study on the influence of personality on training performance among 370 marines at Marine Corps' Recruiters School. But the findings of this study contradict the findings of a study by Surat and Yun (2023) who found that there is no significant relationship between extrovert personality and academic performance of a student.

Learning motivation also has a positive relationship with learning performance. Dweck (2008) says that students who think that intelligence is fixed, will avoid doing things that challenge their abilities. They think that they are not smart enough to accept the challenge. However, for students who believe that the mind is always growing, they will understand the concept of hard work and always look for ways to improve themselves. Those from this group are always motivated to improve their performance. On average, trainees who attend training at the Officers' College are middle-aged. They always need motivation to do something. In this regard, to improve their learning performance, learning motivation should be at a high level. Seger and Graylee (2013) say that even if a person has a high ability to learn, if his motivation is at a low level, it will thwart the learning process.

As we all know, the nature of work in a uniformed body necessitates each member working in a group and interacting directly with one another. They are trained to always have a brotherly spirit. Because of the nature of the instruction, they must always work in groups. Individuals with a high level of extraversion and agreeableness are easy to get along with and feel at ease in large groups. As a result, they will find it easier to adhere to the training. When students are satisfied with the activities they do, their enthusiasm to learn new things grows, as does their learning performance.

Conclusion and Recommendation

This study supports the findings of previous studies, which say that there is a significant relationship between individual factors such as personality extraversion and agreeableness towards learning performance. In addition, the presence of learning motivation as a mediator also has an indirect effect on both variables. However, there are limitations to this study. In the future, studies that use all five personality factors can be conducted. In addition, for the effectiveness of the training, the researcher only selected the effectiveness of the training according to the Cognitive, Skill, and Affective Output Model by Kraiger et al. (1993), who only focus on learning performance. Studies that emphasize other factors in determining the effectiveness of training, such as return on investment, individual performance, and organizational performance, need to be conducted.

Acknowledgement

This research report is a part of PhD. result by Siti Zuliana binti Md Zuki, a PhD candidate at the Psychology and Human Well-Being Research Centre, Faculty of Social Science and Humanities, Universiti Kebangsaan Malaysia.

References

- Abdul Razaq, A., Norhasni, Z. A., & Wan Hasmah, W. A. (2009). Participant's assessment towards human development adult education program in Malaysia. *The Journal of International Social Research*. Volume 2/6, Winter 200.
- Asvio, N., & Arpinus, S. (2017). The influence of learning motivation and learning environment on undergraduate students' learning achievement of management of islamic education study program of IAIN Batusangkar in 2016. *Noble International Journal of Social Sciences Research*.
- Begum, S., Goud, B. K. M., Hameed, N. A., Dileep, N., & Santhosh, S. G. (2021). Relation between personality traits and academic performance among university students of RAKMHSU, UAE- using a big five model. *Biomed Pharmacol J*; 14(4).
- Bell, B. S., & Ford, J. K. (2007). Reactions to skill assessment: The forgotten factor in explaining motivation to learn. *Human Resource Development Quarterly*, 18(1), 33–62.
- Blumberg, M., & Pringle, C. D. (1982). The missing opportunity in organizational research: some implications for a theory of work performance. *Acad Manag Rev.*, 7(4): 560e569.
- Chandran, P. A., & Awang, M. M. (2023). Factors that make pupils have high motivation in learning history: pupils' perspectives. *International Journal of Academic Research in Business and Social Sciences*, 12(2), 292–303.
- Chen-Jung, K., Lau, Y., Hamid, R., Krishnan, A., Amin, H., Nasir, M. S., & Ghazali, M. F. (2021). Big five personality traits and motivation in learning mandarin as foreign language. *Asian Journal of University Education*, 17(4).
- Colquitt, J. A., Lepine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology*, 85(5), 678-707.
- Costa, P. T., & McCrae, R. R. (1992). The five-factor model of personality and its relevance to personality disorders. *Journal of Personality Disorders*, 6(4), 343–359.
- Dean, M. A., Conte, J. M., & Blankenhorn, T. R. (2006). Examination of the predictive validity of big five personality dimensions across training performance criteria. *Personality and Individual Differences*, 41(7), 1229–1239.
- Deniz, N., & Ertosun, O. G. (2010). The relationship between personality and being exposed to workplace bullying or mobbing. *Journal of Global Strategic Management* 7: 129.
- Diseth, A. (2003). Personality and Approaches to Learning as Predictors of Academic Achievement. *European Journal of Personality*, 17, 143-155.
- Dweck, C. S. (2008). Mindsets and Math/ Science achievement. Paper prepared for the carnegie-ias commission on Mathematics and Science education.
- Facteau, J. D., Dobbins, G. H., Russell, J. A., Ladd, R. T., & Kudisch, J. D. (1995). The influence of general perceptions the training environment of pretraining motivation and perceived training transfer. *Journal Of Management*, 21, 1-25.
- Furnham, A., Trew, S., & Sneade, I. (1999). The distracting effects of vocal and instrumental music on the cognitive test performance of introverts and extraverts. *Personality and Individual Differences*, 27(2), 381–392.

- Gegenfurtner, A., Veermans, K., Festner, D., & Gruber, H. (2009). Motivation to transfer training: an integrative literature review. *Human Resource Development Review, 8*(3), 403–423.
- Goldberg, L. R. (1990). An alternative "description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology, 59*(6), 1216–1229.
- Gully, S., & Chen, G. (2010). Individual differences, attribute-treatment interactions, and training outcomes. In S.W.J. Kozlowski & E. Salas (Eds.), *Learning, Training, and Development in Organizations* (pp. 3-22). Routledge/Taylor & Francis Group.
- Hakimi, S., Hejazi, E., & Lavasani, M. G. (2011). The relationships between personality traits and students' academic achievement. *Procedia - Social and Behavioral Sciences, 29*, 836 – 845.
- Harsha, N. P., Iveen, P., & Oliver, M. E. (2015). The mediating roles of coping and adjustment in the relationship between personality and academic achievement. *Br. J. Educ. Psychol. 85*, 440–457.
- Holton, E. F. III. (2005). Holton's evaluation model: New evidence and construct elaborations. *Advances in Developing Human Resources, 7*(1), 37-54.
- Kamilah, S., & Zurina, I. (2019). Big Five personality traits on academic performance among foundation students. *Asean Social Science and Humanities Research Journal, 1*(2), 26-33.
- Komarraju, M., Karau, S. J., Schmeck, R. R., & Avdic, A. (2011). The Big Five personality traits, learning styles, and academic achievement. *Personality and Individual Differences, 51*(4), 472–477.
- Kraiger, K., Ford, J. K., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal Of Applied Psychology, 78*(2), 311-328.
- Laker, D. R., & Powell, J. L. (2011). The differences between hard and soft skills and the relative impact on training transfer. *Human Resource Development Quarterly, 22*(1), 111–122.
- McAbee, S. T., & Oswald, F. L. (2013). The criterion-related validity of personality measures for predicting GPA: A meta-analytic validity competition. *Psychological Assessment, 25*, 523-544.
- McCrae, R. R., & Allik, J. (2002). *The Five-Factor model of personality across cultures*. Kluwer Academic/Plenum Publishers.
- McCrae, R. R., & Lockenhoff, C. E. (2010). Self-regulation and the five-factor model of personality traits. In R. H. Hoyle (Ed.), *Handbook of personality and self-regulation* (pp. 145–168). Wiley Blackwell.
- Medina, M. N. (2016). Conflict, individual satisfaction with team, and training motivation. *Team Performance Management, 22*(3/4), 223-239.
- Moulaye, M. T., Chen, J., & Yao, W. (2011). Key predictors of creative MBA students' performance. *Journal of Technology Management in China, 6*(1), 43–68.
- Ngamal, A., Amir, R., Kutty, F., Mastor, K., Raja Hisham, R. R. I., Rahman, Z., & Harun, H. (2018). Personality as predictor of life satisfaction at middle-age retirement among army veteran post-resettlement training in Malaysia. *Indian Journal of Public Health Research and Development, 9*, 1269-1276.
- Noe, R. A. (1986). Trainees' attributes and attitudes: neglected influences on training effectiveness. *The Academy of Management Review, 11*(4), 736-749.
- Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology, 92*(1), 128–150.

- Seger, A., & Graylee, A. (2013). Employee motivation to attend voluntary technical training in high-tech companies in Sweden. *Master's thesis*. Malardalen University.
- Siti Fardaniah, A. A. (2013). Mediation effect of training motivation on the relationships between trainee, training, organizational characteristic support and overall training effectiveness. *Unpublished Doctoral Dissertation*, Universiti Putra Malaysia, Serdang, Selangor, Malaysia.
- Soto, C. J., Kronauer, A., & Liang, J. K. (2016). Five-factor model of personality. In S. K. Whitbourne (Ed.), *Encyclopedia Of Adulthood And Aging*, 2, 506-510.
- Surat, S., & Yun, P. W. (2023). The relationship between introvert and extrovert personality towards students' academic achievement in primary school. *International Journal of Academic Research in Progressive Education and Development*, 12(1), 1161–1177.
- Tannenbaum, S. I., Cannon-Bowers, J. A., & Salas, E. (1993). Factors that influence training effectiveness: A conceptual model and longitudinal analysis. Orlando, Florida: Naval Training Systems Center.
- Tziner, A., Fisher, M., Senior, T., & Weisberg, J. (2007). Effects of Trainee Characteristics on Training Effectiveness. *International Journal of Selection and Assessment*, 15(2), 168-174.
- Vedel, A. (2014). The Big Five and tertiary academic performance: A systematic review and meta-analysis. *Personality and Individual Differences*, 71, 66-76.
- Wang, H., Liu, Y., Wang, Z., & Wang, T. (2023). The influences of the Big Five personality traits on academic achievements: Chain mediating effect based on major identity and self-efficacy. *Front. Psychol.* 14:1065554.
- Yusooff, F., Desa, A., Ibrahim, N., Kadir, N. B. A., & Rahman, R. M. A. (2014). A study of the relationship between EQ and personality among lecturers at a research university. *Procedia - Social and Behavioral Sciences*, 114, 351–354.
- Zali, Z., & Surat, S. (2022). Mengenal pasti faktor personaliti 'Big Five' terhadap prestasi pembelajaran: Satu kajian sistematik. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7(2), e001271.