Effect of Online Training Motivation on Online Training Effectiveness: A Pre-Experiment of *Kickstart Business Program* in Malaysia

Siti Fardaniah Abdul Aziz[1], Mohammad Zainuddin Rosly[2], Nik Hairi Omar[3], Mohd Nasir Selamat[4], & Rusyda Helma Mohd[5]

[1, 3, 5] Human Development Program, Psychology & Human Well-Being Research Centre, Faculty of Social Science & Humanities, Universiti Kebangsaan Malaysia, Malaysia, [2]Train Right Consultation, Kajang, Selangor, Malaysia
Corresponding Author Email: daniah@ukm.edu.my

Abstract
The effect of training motivation on training effectiveness in face-to-face training programs has been researched widely; in which, training motivation was found to be the most influential factor affecting most face-to-face training programs' effectiveness. However, research reporting the effect of online training motivation on online training effectiveness have received little attention especially studies involving experimental design. Therefore, the purpose of this study is to prove the effect of online training motivation on online training effectiveness using a pre-experimental design among 172 participants who attended an online training program named the Kickstart Business Program that was organized in Malaysia. Findings indicated that there was a significant increase of business startup learning among participants as measured before and after the completion of online training; in which, the online training motivation had almost a large effect size and explained 54.9% variance in the online training effectiveness. This has proven that online training motivation also has an influential effect on online training effectiveness as consistent as in most face-to-face training programs. Findings are important as a proof for training providers to organize online training programs especially when the numbers of online training programs have increased since pandemic COVID-19. Additionally, future researchers are recommended to study factors affecting online training motivation and online training effectiveness and to determine its similarity and dissimilarity with face-to-face training programs.
Keywords: Online Training Program, Online Training Motivation, Online Training Effectiveness, Business Training, Human Resource, Human Development, Malaysia

Introduction
Training motivation is found to be the most influential factor affecting training effectiveness in most face-to-face training programs (Aziz & Ibrahim, 2020; Silva & Pinto, 2024).

Understanding the role of training motivation as the most influential factor affecting training effectiveness is very important because it demonstrates the main reason why some training programs are effective and some are ineffective (Noe, 1986; Chung et al., 2022; Lathabhavan & Chidananda, 2024). With the information, practitioners and training providers can do some interventions to improve training effectiveness by stimulating trainees' training motivation.

However, despite the rise of online training programs since pandemic COVID-19, empirical research involving experimental design to prove the effect of online training motivation on online training effectiveness has received little attention (e.g., Aziz et al., 2022; Sung & Huang, 2024). Therefore, the purpose of this current research is to study the effect of online training motivation on online training effectiveness using a pre-experimental research design. Without this kind of study, the proven effect of online training motivation on online training effectiveness will remain vague although it is critically needed by training providers and practitioners. Additionally, future researchers could focus on studies related to factors affecting online training motivation if it is proven that online training motivation has significant effects on online training effectiveness.

Literature Review
Kirkpatrick (1996), suggested that training should be evaluated using four measurements to determine its effectiveness including trainees' reaction, learning acquisition, behavioural changes, and results to organizational effectiveness. However, different researchers have perceived training as effective using only one of these measurements. For example, Aziz (2016), and Albtoosh and Ngah (2024), perceived training effectiveness as the positive reaction of trainees' on training objective achievement. Meanwhile, Kraiger et al. (1993), and Schick et al. (2024) perceived training effectiveness as the learning acquisition in training. In addition, Kontoghiorghes (2004), and Gielnik and Bohlayer (2024), perceived training effectiveness as training transfer or the trainees' behavioural changes. Additionally, Al-Nuseirat and Biygautane (2014), and Ismael et al. (2021), perceived training effectiveness as results or the impact of training on organizational effectiveness. This is because it is understood that the majority of researchers and scholars have agreed that training effectiveness should be determined based on the main objective of that particular training program (Kirkpatrick & Kirkpatrick, 2010; Noe, 2023).

For example, if the objective of the training program is to improve learning acquisition, hence the learning acquisition should be perceived as training effectiveness. In fact, training effectiveness' scholars including Kirkpatrick and Kirkpatrick (2010), and Noe (2023) have suggested that the score of learning acquisition should be measured and compared before and after the completion of training to determine training effectiveness; in which, if there is a significant increase after the completion of training, it can be concluded that the training is effective. Hence, it is demonstrated that online training is considered as effective if there are increased scores of learning acquisition after the completion training, and it can be hypothesized that:

Ha1: There is a significant increase in scores of learning acquisition after the completion of online training at 0.05 level of significance.

On the other hand, training motivation is referred to as many terms by previous researchers including motivation to learn (e.g., Colquitt's et al., 2000; Chung et al., 2022), motivation to transfer (Kontoghiorghes, 2004; Andoh et al., 2024), motivation to attend (Cannon-Bowers et al., 1995; Matiba, 2024), and motivation to maintain acquired knowledge and skills (Cannon-Bowers et al., 1995). Hence, Aziz (2018), has redefined training motivation into essential training motivation that includes the motivation to learn and motivation to transfer since the main purpose of attending training is to learn and finally to use or transfer what is learned from that training. Consistently, most of previous researchers have also used these two terms to investigate the effects of training motivation including Cannon-Bowers et al. (1995), Wen and Lin (2014), and Sharif et al. (2023). Hence, training motivation is a term that should comprise the combination terms of motivation to learn and motivation to transfer in training; in which, the effect of online training motivation on training effectiveness should also be studied.

Furthermore, Chung et al. (2022), developed a framework to explain factors affecting training effectiveness and highlight the importance of training motivation on training effectiveness; the framework was developed to update Colquitt's et al. (2000), theory of training motivation. Chung's et al. (2022), framework explains that training motivation could affect training effectiveness by increasing trainees' competencies including affective-, work attitudes-, cognitive-, and skill-based competency; in which, the training motivation is referred to as motivation to learn in training. Chung's et al. (2022), framework also explains that there are many factors affecting trainees' training motivation including trainees' individual characteristics and organizational characteristics; however, training motivation is the most important factor. Hence, it is demonstrated that trainees' online training motivation can also affect online training effectiveness, and it can be hypothesized that:

Ha2: Online training motivation has a significant effect on online training effectiveness at 0.05 level of significance.

Methodology
To determine the effect of online training motivation on online training effectiveness, a pre-experimental research was organized among 172 participants who attended an online training program in Malaysia named *Kickstart Business Program*. The online training was organized by a group of undergraduate students registered with subject SKPM2093 at the National University of Malaysia's (Universiti Kebangsaan Malaysia/ UKM) and registered with the formal portal for student activities named "i-star" with registration code C-SKPM2093-2022-225. The online training program was also supervised thoroughly by lecturer's supervision, was based on voluntary participation, organized in a day, and free of charge. The online training was advertised via social media and attended by undergraduate students from various higher learning institutions in Malaysia. The online training was also organized on 17th December 2022 as the pre-experimental research with an objective to increase participants or trainees' learning in business startups. All trainees that participated in this online training program were treated as the subject of pre-experimental research.

Hence, the online training is considered as effective if it can increase trainees' learning acquisition in business startups. According to Kraiger et al. (1993), to determine trainees' learning in training, three components should be measured including the cognitive, affective,

and skill-based acquisitions. Therefore, 4 items measuring learning performance by Aziz (2015), were adapted to measure trainees' cognitive or knowledge acquisition; sample item was "I learn to start a business as something new". In addition, 3 items measuring job performance by Aziz (2015), were adapted to measure trainees' skill-based acquisition; sample item was "I know how to solve certain business problems using the skills of a business startup". Additionally, 15 items measuring academic motivation developed by Aziz et al. (2022), were adapted to measure trainees' affective; sample item was "I am thinking to be a successful entrepreneur". In sum, there were 22 items in the first version of learning acquisition for business startup to determine training effectiveness evaluation. However, after reliability analysis, only 17 items out of 22 items remained in the final analysis for the online training effectiveness; the reliability Alpha Cronbach value for questionnaire measuring the 17 items of online training effectiveness was 0.971.

Further, training motivation was measured using 3 items measuring motivation to learn in training and 3 items measuring motivation to transfer in training by Aziz (2018). Sample item was "I try to learn as much as I can from this online training" and "I will look for opportunities to apply the skills that I have learned in this online training". The 6 items of online training motivation remained in this study after reliability analysis. The reliability Alpha Cronbach value for questionnaire measuring the 6 items of online training motivation was 0.969. All items for questionnaire measuring training motivation and training effectiveness were in positive statements and using the 10 scores scale; in which, trainees need to answer by giving their agreement based on score 1 (Strongly Disagree) and score 10 (Strongly Agree) with a statement given as the questionnaire item.

Using a pre-experimental design, questionnaires were distributed to be answered by trainees in three different times including before the online training started (Time 1), during break time in the online training (Time 2), and after the completion of training (Time 3). At time 1, trainees' were asked to answer questionnaires measuring training effectiveness. At time 2, trainees' were asked to answer questionnaires measuring training motivation. At time 3, trainees' were asked to answer the same questionnaire measuring training effectiveness. Data were collected using online Google Form and analysed using SPSS version 26 to test the research hypotheses. To determine the online training effectiveness, trainees' score of training effectiveness as measured before and after the completion of training was compared using a paired sample t-test. Meanwhile, to determine the effect of training motivation on training effectiveness, a Multiple Linear Regression was used. Additionally, descriptive analysis was used to present trainees' demographic backgrounds; independent t-test and one-way ANOVA were also used as additional analysis to make sure these demographic variables did not have significant effect on either online training motivation or online training effectiveness.

Findings and Discussion
Overall, findings indicated that respondents (trainees of Kickstart Business Program) have various demographic variables; however, the various demographic variables did not affect either online training motivation or online training effectiveness. In addition, there is a significant increase of learning acquisition after the completion of training demonstrating the online training effectiveness. Additionally, online training motivation is found to be a significant factor affecting online training effectiveness.

Table 1 shows various demographic variables among respondents, in which, majority of respondents were females (76.2%), aged between 20 to 22 years old (77.9%), Malay race (82.5%), Islam religion (84.3%), came from B40 background with family income less than RM5251 per month, have not attended similar training before (68.6%), have not attended online training before (86%), and have never owned their own business or currently did not run any business (77.9%). These can be seen as the characteristics of participants (trainees) that are interested in learning to starting-up their own businesses.

Table 1

Demographic Variables of Respondents

Demographic	Group	Frequency	Percentage
Gender	Male	41	23.8
	Female	131	76.2
		172	100
Age	19	18	10.5
	20	43	25.0
	21	54	31.4
	22	37	21.5
	23	11	6.4
	24	7	4.1
	25	1	0.6
	26	1	0.6
		172	100
Race	Malay	142	82.6
	Chinese	12	7.0
	Indian	13	7.6
	Other	5	2.9
		172	100
Religion	Islam	145	84.3
	Christian	4	2.3
	Hindu	10	5.8
	Buddha	12	7.0
	Other	1	0.6
		172	100
Family Income	Less than RM5251 (B40)	67	39.0
	RM5252 to RM11819 (M40)	46	26.7
	More than RM11820 (T20)	59	34.3
		172	100
Attended similar training before	Yes	118	68.6
	No	54	31.4
		172	100
Attended online training before	Yes	148	86.0
	No	24	14.0
		172	100
Status of Business Ownership	Yes	7	4.1
	No	134	77.9
	Used to have	31	18.0
		172	100

Since, there are various demographic variables, an independent sample t-test and one-way ANOVA were tested to make sure these demographic variables did not have significant effect on either online training motivation or online training effectiveness. Findings indicated that there were no significant differences in different groups of those demographic variables demonstrating that gender, age, race, religion, family income, experience of attending online training, experience of attending similar business training, and experience of having their own business were not affecting either online training motivation or online training effectiveness. However, the results are not shown as all of the analysis were not significant and were not part of research objectives or hypotheses.

Further, both Table 2 and Table 3 show the results of a paired sample t-test to determine training effectiveness by comparing trainees' learning acquisition as measured before (Time 1) and after (Time 2) the completion of the online training program. Findings indicated that there was a significant increase of trainees' scores of learning acquisition in pre-learning acquisition as measured before (M = 109.77, SD = 32.93) and in post- learning acquisition as measured after (M = 137.67, SD = 26.29) online training completion indicating the effectiveness of the online training. Meanwhile, Figure 1 shows the increase of mean score of trainees' learning acquisition from pre-learning acquisition to post-learning acquisition demonstrating the effectiveness of online training completion. Hence, hypothesis Ha1 is accepted.
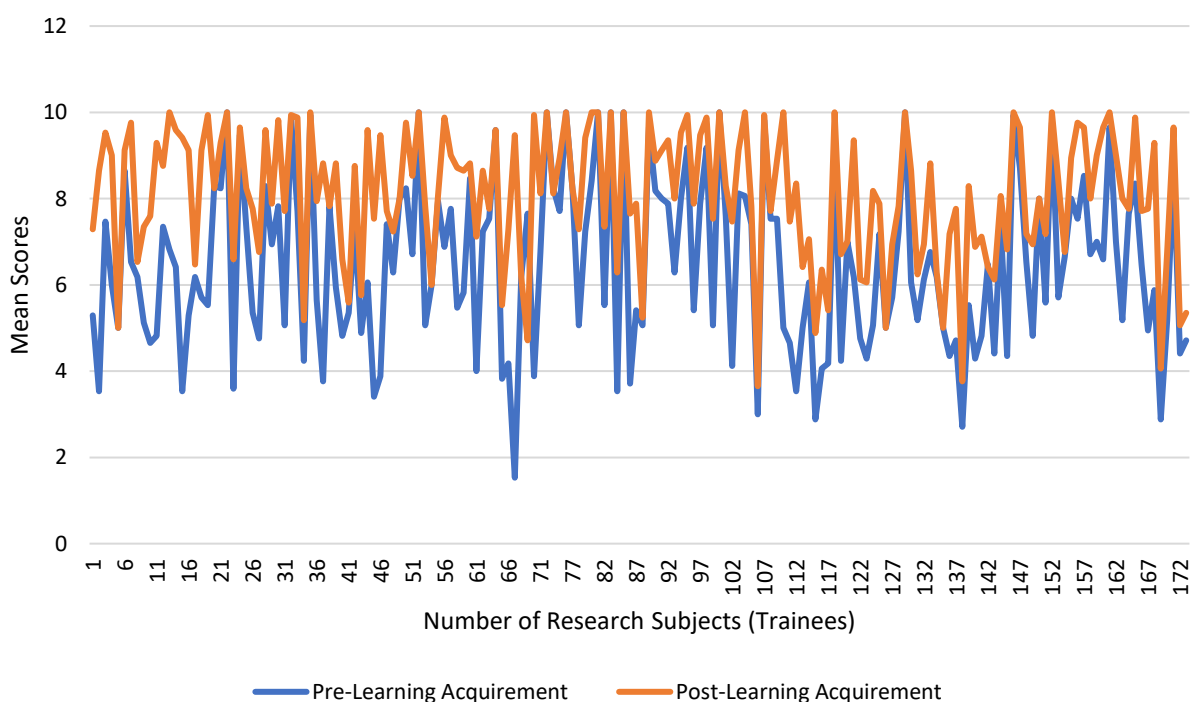

Figure 1: Mean scores of trainees' learning acquisition as measured before and after online training completion

Table 2
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-Learning Acquisition	137.6744	172	26.29453	2.00494
	Pre-Learning Acquisition	109.7791	172	32.93300	2.51112

Table 3
Paired Samples Test

Pair 1 Post -Pre (Learning Acquisition)	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
	27.89535	25.51689	1.94564	24.05477	31.73592	14.337	171	.000

Findings are consistent with previous research related to face-to-face training effectiveness including those by Kraiger et al. (1993), and Schick et al. (2024), wherein learning acquisition in training was found to increase after the completion of training and was considered as training effectiveness. Therefore, it can be concluded that training will increase trainees' learning acquisition regardless of if it is organized face-to-face or online. However, several researchers, such as Benlahcene et al. (2022), find that some face-to-face employee training were not effective; meanwhile, some researchers, such as Muzdalifah and Hartono (2024), find that some online employee training were not effective. Hence, future research investigating factors affecting effective and ineffective online training programs should be done.

Furthermore, Table 4, Table 5, and Table 6 show the results of multiple linear regression to determine the effect of online training motivation on online training effectiveness; in which, the score of post-learning acquisition was taken as online training effectiveness. Findings indicated that online training motivation has a significant effect on online training effectiveness (β = 0.742, p = 0.000); in which, according to Ferguson (2009), the effect is moderate but almost strong (strong effect should be β = 0.8 and above). Additionally, online training motivation also explained 54.9% of variance in online training effectiveness (R^2 = 0.549, p = 0.000). Hence, hypothesis Ha2 is also accepted.

Findings are consistent with findings by previous researchers, including those that investigate the effect of motivation to learn (Colquitt's et al., 2000; Chung et al., 2022) and motivation to transfer (Kontoghiorghes, 2004; Andoh et al., 2024) on face-to-face training effectiveness; in which, the current research found that online training motivation (the combination of motivation to learn and motivation to transfer) also has significant effect on online training effectiveness. Those previous researchers found that training motivation could have from small to large effect size on face-to-face training effectiveness; however, the current research found that online training motivation could have almost large effect size on online training effectiveness. Hence, future researchers should investigate factors affecting online training effectiveness.

Table 4
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.742[a]	.551	.549	17.66826	2.080

a. Predictors: (Constant), Online Training Motivation
b. Dependent Variable: Post-Learning Acquisition (Online Training Effectiveness)

Table 5
ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65161.289	1	65161.289	208.738	.000[b]
	Residual	53068.478	170	312.168		
	Total	118229.767	171			

a. Dependent Variable: Post-Learning Acquisition (Online Training Effectiveness)
b. Predictors: (Constant), Online Training Motivation

Table 6
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	37.388	7.071		5.288	.000		
	Online Training Motivation	2.053	.142	.742	14.448	.000	1.000	1.000

a. Dependent Variable: Post-Learning Acquisition (Online Training Effectiveness)

Conclusion

In conclusion, the purpose of this article was to report about a pre-experimental research done to determine the effect of online training motivation on online training effectiveness. Hence, 172 participants attending an online training named the *Kickstart Business Program* organized in Malaysia were taken as research subjects. Findings indicated a significant increase of post- learning acquisition indicating the effectiveness of online training. In addition, online training motivation had an almost large effect size and explained 54.9% variance in the online training effectiveness. This has proven that online training motivation also has an influential effect on online training effectiveness as consistent as in most face-to-face training programs. Findings are important as a proof for training providers to organize online training programs especially when the numbers of online training programs have increased since pandemic COVID-19. Additionally, future researchers are recommended to study factors affecting online training motivation and online training effectiveness and to determine its similarity and dissimilarity with face-to-face training programs.

Acknowledgement

References

Albtoosh, Q. A. A., & Ngah, A. H. (2024). Testing the expectation confirmation theory on the training satisfaction context: the mediation role of mind wandering. *International Journal of Public Administration*, 47(1), 26-40.

Al-Nuseirat, A., & Biygautane, M. (2014). The impact of effective training on organizational performance in Dubai's public sector. *Policy Brief,* 37 (February), 1-12.

Andoh, R. P. K., Annan-Prah, E. C., Boampong, G. N., Jehu-Appiah, J., Korsah, A. M., & Owusu, E. A. (2024). Examination of the influence of transfer opportunity, assimilation of training content and motivation to transfer in the training transfer process. *European Journal of Training and Development,* 48(3/4), 281-297.

Aziz, S. F. A. (2015). Developing General Training Effectiveness Scale for the Malaysian Workplace Learning. *Mediterranean Journal of Social Sciences,* 6(4), 47-56.

Aziz, S. F. A. (2016). Evaluating training effectiveness using the Malaysian sample: Tracing the mediation effect of training motivation using SEM-AMOS. *International Journal of Economics and Financial Issues,* 6(S6), 94-100.

Aziz, S. F. A. (2018). Redefining Training Motivation: Determining the Booster Effect of Training Motivation on Training Effectiveness Using the Malaysian Sample. *Indian Journal of Public Health Research & Development,* 9(12), 2642-2646.

Aziz, S. F. A., & Ibrahim, A. (2020). Training characteristics that stimulate essential training motivation and individual effectiveness: Analysing the Sample of Malaysian Public Sector using SEM-AMOS. *International Journal of Psychosocial Rehabilitation,* 24(6), 7995-8006.

Aziz, S. F. A., Hussein, N., Husin, N. A., Ibrahim, M. A. (2022). Trainers' Characteristics Affecting Online Training Effectiveness: A Pre-Experiment among Students in a Malaysian Secondary School. *Sustainability,* 14, 11047.

Benlahcene, A., Saoula, O., Jaganathan, M., Ramdani, A., & AlQershi, N. A. (2022). The dark side of leadership: How ineffective training and poor ethics education trigger unethical behavior? *Frontiers in psychology*, 13, 1063735. https://doi.org/10.3389/fpsyg.2022.1063735

Cannon-Bowers, J. A., Salas, E., Tannenbaum, S. I., & Mathieu, J. E. (1995). Toward theoretically based principles of training effectiveness: A model and initial empirical investigation. *Military Psychology*, 7(3), 141-164.

Chung, S., Zhan, Y., Noe, R. A., & Jiang, K. (2022). Is it time to update and expand training motivation theory? A meta-analytic review of training motivation research in the 21st century. *Journal of Applied Psychology*, 107(7), 1150.

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.

Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice,* 40(5), 532-538.

Gielnik, M. M., & Bohlayer, C. (2024). Maintaining the impact of action-oriented entrepreneurship training: The role of error mastery orientation for training transfer in an active learning setting. *European Journal of Work and Organizational Psychology,* 1-13. https://doi.org/10.1080/1359432X.2024.2383424

Ismael, N. B., Othman, B. J., Gardi, B., Hamza, P. A., Sorguli, S., Aziz, H. M., Ahmed, S.A., Sabir, BY, Ali, BJ, Anwar, G.(2021). The Role of Training and Development on Organizational

effectiveness. *International Journal of Engineering, Business and Management,* 5(3), 15-24.

Kirkpatrick, D. (1996). Great ideas revisited: revisiting Kirkpatrick's four-level model. *Training and Development*, 50, 54-57.

Kirkpatrick, D. L., & Kirkpatrick, J. D. (2010). *Evaluating training programs: The four levels* (3 ed.). USA: Berrett-Koehler Publishers.

Kontoghiorghes, C. (2004). Reconceptualizing the learning transfer conceptual framework: empirical validation of a new systemic model. *International Journal of Training and Development,* 8(3), 210-221.

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(311-328).

Lathabhavan, R., & Chidananda, H. L. (2024). The mediating effects of work conditions on the relationship between intrinsic motivators and training transfer. *The Learning Organization,* 31(5), 693-708.

Matiba, F. M. (2024). Motivational factors and barriers to participation in professional development programmes: perspectives from Tanzania higher education faculties. *Current Psychology,* 43(1), 437-448.

Muzdalifah, A. F., & Hartono, A. (2024). The Process Evaluating Training & Development of Post Covid-19 Employees at PT. Indocement Tunggal Prakarsa TBK.(Plant-12) Kalsel. *Indonesian Journal of Economics, Business, Accounting, and Management*, 2(5), 1-12.

Noe, R. A. (1986). Trainees' attributes and attitudes: Neglected influences on training effectiveness. *Academy of management review*, 11(4), 736-749.

Noe, R. A. (2023). *Employee training and development* (9 ed.). Boston: McGraw Hill.

Silva, A. J., and Pinto, D. (2024). Training under an extreme context: the role of organizational support and adaptability on the motivation transfer and performance after training. *Personnel Review,* 53(3), 743-770. https://doi.org/10.1108/PR-09-2022-0629

Saputro, K., & Syaebani, M. I. (2024). The Influence of Pre-Training Factors on Training Effectiveness Mediated by Motivation to Learn, Motivation to Transfer, and Self-Efficacy–Case Study on Non-Ministerial Government Institutions. *Quantitative Economics and Management Studies,* 5(3), 658-669.

Sharif, S., Braimah, M., & Dogbey, A. E. (2023). Academic supports, motivation to learn, motivation to transfer and transfer of training: A comparative analysis of public and private universities. *European Journal of Training and Development,* 47(5/6), 507-532.

Schick, K., Reiser, S., Janssen, L., Schacht, L., Pittroff, S. I. D., Dörfler, E., et al. (2024). Training in medical communication competence through video-based e-learning: How effective are video modeling and video reflection? P*atient Education and Counseling,* 121: 108132. https://doi.org/10.1016/j.pec.2023.108132

Sung, J. S., & Huang, W. H. D. (2024). Motivational Design for Inclusive Digital Learning: Women College Engineering Students' Motivation for Online STEM Learning. *Contemporary Educational Technology,* 16(1). https://doi.org/10.30935/cedtech/14047

Wen, M. L. Y., & Lin, D. Y. C. (2014). Trainees' characteristics in training transfer: The relationship among self-efficacy, motivation to learn, motivation to transfer and training transfer. *International Journal of Human Resource Studies,* 4(1), 114-129.