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Demographic Variables Affecting Training Effectiveness: Sampling from Primary School Students

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Abstract

Demographic variables have often been researched among employees to increase training effectiveness by targeting specific group intervention. Nowadays, the organization of training has been widely spread; in which, training is also offered among other types of participants, such as school students, university students, and the society. However, research focusing on demographic variables affecting training effectiveness among school students is limited; hence the purpose of this research was to determine the effect of demographic variables on training effectiveness among school students. A face-to-face training related to communication competencies was organized among primary school students in a Malaysian government school using a pre-experimental study; in which, a total of 32 school students aged 10 to 12 years old were involved in this study. Data were analyzed using paired sample t-test, independent sample t-test, and one-way ANOVA. Findings indicated that only gender was a significant demographic variable affecting training effectiveness with large effect size; however, other demographic variables including age, race, religion, family income, and experience attending similar training were insignificant variables affecting training effectiveness. This implies that gender is an important demographic variable affecting training effectiveness among school students.

Keywords: Demographic Variable, Face-To-Face Training, Malaysian School Students, Training Effectiveness, Human Resource Development, Human Development, Pre-Experiment

Introduction

Training programs are organized by employers to develop employees' competencies in performing and achieving their job performance's goals (Noe, 2023). However, training programs are an expensive investment; therefore, a large amount of research was done to study factors affecting training effectiveness as an effort to ensure its effectiveness (Aziz,

2018; Shukla, Dash & Kumar, 2024). Interestingly, demographic variables were found to be one of important factors (Štrbac, Paunović & Pavlović, 2024). Understanding these demographic variables is important to enable organizations in designing relevant and effective training programs that could meet diverse needs among employees (Mofokeng, Amoa-Gyarteng & Dhliwayo, 2025).

However, the scope of training has widely spread; in which, training was not only organized among employees but also among other types of participants including school students, university students, unemployed citizens, and the society (Aziz & Selamat, 2018; Aziz, Hussein, Husin & Ibrahim, 2022). For example, the Malaysian government frequently offered and organized free training programs for unemployed and needy single mothers with entrepreneurship training to empower them with the ability to generate income and improve their living status (Aziz & Selamat, 2018).

Meanwhile, according to Aziz et al. (2022), study about training effectiveness among school students is important because previous researchers focused more on learning effectiveness as compared to training effectiveness although these two educational programs are different; in which, training among school students provide participants with knowledge, skills and attitude that are not taught in formal education, such as smart learning, leadership skills, communication competencies, etc. Hence, research related to demographic variables affecting training effectiveness among other types of participants, such as school students should be done. Therefore, the purpose of this current research is to study demographic variables affecting face-to-face training among school students attending training programs related to communication skills.

Literature Review

Cannon-Bowers, Salas, Tannenbaum and Mathieu (1995) develop a Comprehensive Model of Training Effectiveness to explain various factors affecting employees' training effectiveness; in which, the model was developed based on Expectancy Theory and Kirkpatrick's (1976) Model of Training Evaluation. One of factors affecting training effectiveness that explained by Cannon-Bowers et al. (1995) is demographic variables. Later, Aziz (2018) explains that various demographic variables not only affect training effectiveness directly but also participants' training motivation that later improves their training effectiveness. Hence, the effect of various demographic variables on training effectiveness in face-to-face training involving other types of participants, such as school students should be tested.

On the other hand, according to Noe (2023), and Kirkpatrick and Kirkpatrick (2010), one of the methods that can be used to determine training effectiveness is by comparing the participants' learning scores between before and after the completion of training; in which, the learning scores' measurement should be related with the training objectives' achievement. Meanwhile, various previous researchers, such as Štrbac et al. (2024) have studied the effect of various demographic variables affecting training effectiveness by proving that the training was effective due to achieving its training objective; in which, Aziz (2016) and Estevez et al. (2018) determined training effectiveness by comparing the learning scores as measured before and after the completion of training. Hence, training effectiveness should be proven first before testing demographic variables affecting the training effectiveness. Therefore, an alternative hypothesis is constructed to be tested as follow:

Ha1 = There is a significant increase of training effectiveness scores in post-training assessment of the face-to-face training among school students at 0.05 level of significance.

Further, age was proven to affect training effectiveness by several researchers, including Colquitt, LePine and Noe (2000), Klein, Noe and Wang (2006), and Bertolino, Truxillo and Fraccaroli (2011). For example, research by Bertolino et al. (2011) was done among employees working with a municipal government in Northeast Italy attending various training organized by their employer; in which, age was found to be a significant factor affecting those employees' training effectiveness. However, the effect of age on face-to-face training effectiveness among school students is vague. Therefore, an alternative hypothesis is constructed to be tested as follow:
Ha2 = There is a significant difference of training effectiveness scores among different ages of school students attending the face-to-face training at 0.05 level of significance.

Furthermore, gender was also proven to affect training effectiveness by several researchers, including Tziner and Falbe (1993), and Aminudin (2013). For example, research by Aminudin (2013) was done among youths attending training programs organized by GIATMARA Malaysia; in which, training was found to be more effective among female participants. However, the effect of gender on face-to-face training effectiveness among school students is vague. Therefore, an alternative hypothesis is constructed to be tested as follow:
Ha3 = There is a significant difference of training effectiveness scores between different genders of school students attending the face-to-face training at 0.05 level of significance.

In addition, job experience was also proven to affect training effectiveness by several researchers, such as Štrbac et al. (2024); in which, their research was done among employees in Serbia's public administration attending various training organized by their employer. However, job experience can be seen as experience attending similar training among school students since children's experience is limited. However, the effect of experience of attending similar training on face-to-face training effectiveness among school students is vague. Therefore, an alternative hypothesis is constructed to be tested as follow:
Ha4 = There is a significant difference of training effectiveness scores between different groups of experience attending similar training among school students in the face-to-face training at 0.05 level of significance.

Additionally, Punksungka, Yamashita, Helsinger, Karam, Cummins, and Kramer (2022) did a research to determine the involvement of various demographic variables including race in educational and training programs among employees; in which, their research find that the involvement of non-White race including the Black, Hispanic, and other minority in the United States of America (U.S.) population were higher than the White race. However, according to Punksungka et al. (2022), research related to the effect of race diversity on training effectiveness was not explored yet; in which, this also demonstrated the need to study different religion groups affecting training effectiveness since Malaysia has more diversity in race and religion as compared to U.S. Hence, the effect of race and religion groups on face-to-face training effectiveness among school students is vague. Therefore, alternative hypotheses are constructed to be tested as follow:
Ha5 = There is a significant difference of training effectiveness scores among different races of school students in face-to-face training at 0.05 level of significance.

Ha6 = There is a significant difference of training effectiveness scores among different religions of school students in face-to-face training at 0.05 level of significance.

According to Caputo and Cianni (1997), a lot of women among Black and White in the U.S. have attended training between 1970 to 1991 to earn better pay; in which, their research demonstrated that family income can also affect training effectiveness. Hence, another demographic variable that could affect training effectiveness is the level of family income. However, the effect of family income on face-to-face training effectiveness among school students is vague. Therefore, an alternative hypothesis is constructed to be tested as follow:
Ha7 = There is a significant difference of training effectiveness scores among different groups of family income levels of school students in face-to-face training at 0.05 level of significance.

Methodology

To achieve the research purpose, a face-to-face training among 32 primary school students aged 10 to 12 years old from a government school in Port Dickson, Malaysia was organized as a community program; in which, the program was used as the pre-experimental study. The program was organized on 31st January 2023 in a collaboration between UKM and the school with an objective to improve communication competencies among the participants. To make sure trainers can understand participants well, two undergraduate students that have experience as temporary school teachers were appointed as trainers in the program. The training program was also managed by a group of undergraduate students registered for SKPM2093 subject (Training Management and Behavior Modification) with lecturer's supervision; in which, the program was registered with UKM's formal portal for university student activities named i-star with code C-SKPM2093-2022-310.

The procedure of organizing the pre-experiment was started with designing a training program, followed by making collaboration with the involved school to organize the program, and collecting data before and after the completion of one day training program. During training design, the training related to communication competencies was carefully designed by the undergraduate students and their lecturer that have PhD. in Human Resource Development; appropriate communication knowledge, skills, and attitude for primary school students were provided in the training module as well as training tentative. Then, the organization of a training program was made between UKM and the school; in which, it was held at the school wherein the school provided participants, food, equipment, and hall for the training. Next, participants answer questionnaires using a given link of Google Form before and after the completion of training. Questionnaires related to demographic variables and pre-training assessment of communication competencies were assessed before the training was started; questionnaire related to post-training assessment of communication competencies was assessed after the completion of training. The training program as well as questionnaires were delivered in Malay language.

To assess training effectiveness, the 30 items measuring communication competencies developed by Rubin and Martin (1994) were adapted in Malay language; in which the same questionnaire were answered by participants in the pre- and post-training assessment. Sample item was "I tell others that I understand what they are saying". However, due to Alpha Cronbach reliability analysis for the post-training assessment among the 32 participants, only 29 items were included in the actual analysis with Alpha Cronbach value of 0.987; this is to

make sure that the value of reliability cut-off point is more than 0.7 and consistent as suggested by Pallant (2020). Participants need to answer the questionnaire based on 10 scales; in which, scale 1 represents strongly disagreed, and scale 10 represents strongly agreed.

Further, to measure demographic variables, appropriate facts were asked with option to choose only one answer as follows:

(i) Age (in years old for the current year)
- 10
- 11
- 12

(ii) Gender
- Male
- Female

(iii) Race
- Malay
- Chinese
- Indian
- Other

(iv) Religion
- Islam
- Christian
- Hindu
- Buddha
- Other

(v) Family Income Level
- Less than RM5251 (B40)
- RM5252 to RM11819 (M40)
- More than RM11820 (T20)

(vi) Have you attended similar training?
- Yes
- No

The SPSS (Statistical Package for Social Sciences) version 26 was used to analyze the data. A paired sample t-test was used to test hypothesis Ha1. Meanwhile, to test for Ha2, Ha5, Ha6, and Ha7, the one-way ANOVA was used. In addition, to test for Ha3 and Ha4, the independent sample t-test was used.

Findings and Discussion

Findings indicated that the face-to-face training attended by primary school students is effective. However, only gender is proven to be a significant demographic variable affecting the training effectiveness; interestingly, other demographic variables including age, race, religion, experience attending similar training, and family income level were insignificant demographic variables. Findings partially supported the Comprehensive Model of Training Effectiveness proposed by Cannon-Bowers et al. (1995).

The online training effectiveness was determined by comparing the scores between pre- and post-training assessment of participants' communication competencies using a paired sample

t-test. Figure 1 shows the mean scores for pre- and post-training assessment of participants' communication competencies. Meanwhile, the results of paired sample t-tests are shown in Table 1a and Table 1b. Findings indicated that there was a significant increase of participants' training effectiveness scores after the completion of the online training program; hence Ha1 (there is a significant increase of training effectiveness scores in post-training assessment of the face-to-face training among school students at 0.05 level of significance) is failed to be rejected.

Table 1a
Paired Sample Statistics

		Mean	N	Standard Deviation	Standard Deviation Error
Pair 1	Post	8.4159	32	1.53471	.27130
	Pre	7.2371	32	1.49426	.26415

Table 1b
Paired Samples Test

			Std. Error	95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1 Post - Pre	1.17888	1.04974	.18557	.80041	1.55735	6.353	31	.000

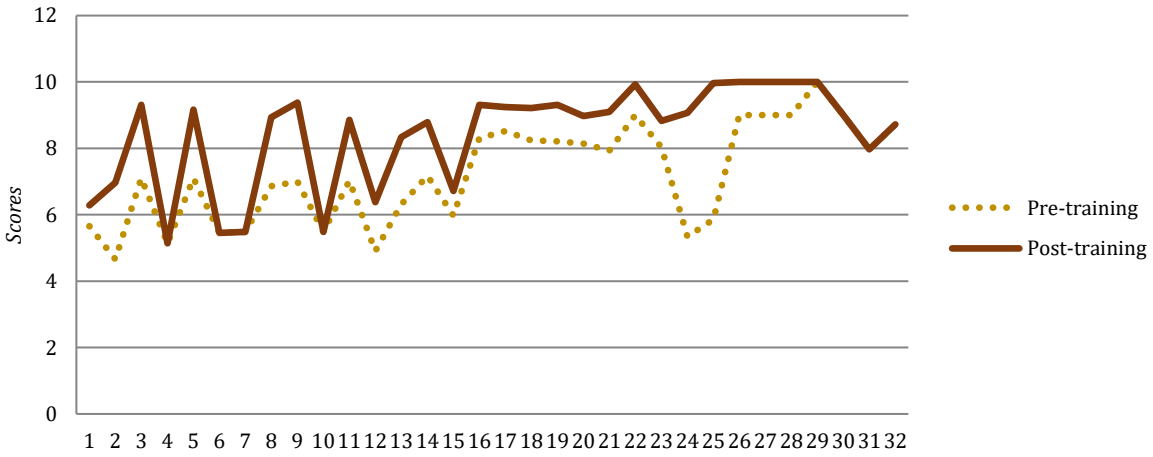

Figure 1: Mean scores for participants' communication competencies as assessed in pre- and post-training

There was a significant increase of communication competencies as measured before (M = 7.2371, SD = 1.49426) and after the completion of online training (M = 8.4159, SD = 1.53471) with the change of t(31) = 6.353, p = 0.0001 (two-way). The increase in mean scores was 1.17888 with 95% confidence interval for the difference between 0.80041 and 1.55735. Using the formula explained by Pallant (2020), the eta-squared statistic shows a large effect size (1.123). Finding is consistent with previous research comparing the scores of pre- and post-training assessment to determine training effectiveness, including those by Aziz (2016) and Estevez et al. (2018). Hence, findings indicated that the face-to-face training among school students is effective.

Further, Table 2 shows the one-way ANOVA results to determine significant differences among age groups including those in 10, 11, and 12 years old. Findings indicated that there is no significant difference between age groups as determined by one-way ANOVA [F(2,29) = 1.682, *p* = .204). Hence, Ha2 (there is a significant difference of training effectiveness scores among different ages of school students attending the face-to-face training at 0.05 level of significance) is rejected. Finding is inconsistent with previous research findings that found age to affect training effectiveness among employees including those by Colquitt et al. (2000), Klein et al. (2006), and Bertolino et al. (2011).

However, some researchers, such as Aziz, Rosly, Omar, Selamat and Mohd (2024) also found that age had no effect on training effectiveness using samples among youths aged 19 to 26 years old attending online training related to entrepreneurship. It can be seen that Aziz's et al. (2024) research samples were teenagers; meanwhile, the current research's samples were primary school students aged 10 to 12 years old. Hence, it is believed that age was found to have no significant effect on training effectiveness in the current research because the sample was taken using a similar category of age. In contrast, research by Bertolino et al. (2011) used samples from a wide range of age from 21 to 60 years old. Hence, it can be concluded that age will not affect training effectiveness among participants with similar age categories.

Table 2
ANOVA Results for Age Differences

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.588	2	3.794	1.682	.204
Within Groups	65.427	29	2.256		
Total	73.015	31			

Furthermore, Table 3a and Table 3b show the results of independent sample t-test to determine significant difference of training effectiveness between female and male in gender group; in which, male was code as "1" and female was code as "2". Findings indicated a significant difference of training effectiveness for male (M = 9.0862, SD = 0.89964) and female (M = 7.7457, SD = 1.76066) with the difference of t(30) = 2.712, *p* = 0.011 (two-way). The difference in mean scores was 1.34052 with 95% confidence interval for the difference between 0.33103 and 2.35001. Using the formula explained by Pallant (2020), the eta-squared statistic shows a large effect size (0.9588). Additionally, the positive t value demonstrated that training effectiveness among females are higher than males. Hence, Ha3 (there is a significant difference of training effectiveness scores between different genders of school students attending the face-to-face training at 0.05 level of significance) is failed to be rejected.

Finding is consistent with previous researchers that study gender differences in training effectiveness including Tziner and Falbe (1993) and Aminudin (2013). Tziner and Falbe (1993) used samples among employees, while Aminudin (2013) used samples among youth attending skills training. Hence, it can be concluded that gender is a significant variable affecting training effectiveness among school students.

Table 3a
Group Statistics for Gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Post	Male	16	9.0862	.89964	.22491
	Female	16	7.7457	1.76066	.44017

Table 3b
Independent Samples Test Results for Differences in Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post	Equal variances assumed	18.941	.000	2.712	30	.011	1.34052	.49430	.33103	2.35001
	Equal variances not assumed			2.712	22.333	.013	1.34052	.49430	.31629	2.36474

However, Aziz (2018) explains that the effect of gender on training motivation and effectiveness varies; in which, some researchers found gender to be a significant variable affecting training effectiveness, but some found inconsistent findings. Meanwhile, Bakry, Saleh and Nashaat (2022) found that men and women benefit differently from training depending on the content of training. Research by Bakry et al. (2022) also demonstrated that women prefer to learn as much as they can in training but might not want to use it practically; however, men prefer to learn intensively if they want to practice what they learned in training. Therefore, it is believed that the current research shows significant differences among genders in training effectiveness among school students because the female participants prefer to learn but the male participants have lower level of training effectiveness because they do not have high motivation to use what they learned in real life.

In addition, Table 4a and Table 4b show the results of independent sample t-test to determine significant difference of training effectiveness between experience attending similar training; in which, the participants' answer of "Yes" was code as "1" and "No" was code as "2". Findings indicated an insignificant different of training effectiveness for "Yes" (M = 7.9741, SD = 2.10697) and "No" (M = 8.6810, SD = 1.03707) with the difference of t(30) = -1.274, p = 0.212 (two-way). The different in mean scores was -.70690 with 95% confidence interval for the difference between -1.84005 and 0.42625. Hence, Ha4 (there is a significant difference of training effectiveness scores between different groups of experience attending similar training among school students in the face-to-face training at 0.05 level of significance) is rejected.

Table 4a
Group Statistics for Experience Attending Similar Training

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Post	Yes	12	7.9741	2.10697	.60823
	No	20	8.6810	1.03707	.23190

Table 4b
Independent Samples Test Results for Differences in Experience Attending Similar Training

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post	Equal variances assumed	23.791	.000	-1.274	30	.212	-.70690	.55485	-1.84005	.42625
	Equal variances not assumed			-1.086	14.256	.296	-.70690	.65094	-2.10067	.68688

Finding is inconsistent with previous researchers, such as Štrbac et al. (2024) that found job experience as a significant demographic variable affecting training effectiveness among government employees in Serbia. However, a study by Aziz et al. (2024) found that experience attending similar training had no effect on training effectiveness using samples among youths in online training, which is consistent with the current research findings. Meanwhile, findings by Štrbac et al. (2024) have demonstrated that training participants' age is in line with their job experience and job status that developed by time and could affect training effectiveness. These imply that the increased age, job experience, and job status will affect training effectiveness. However, since the current research used samples among primary school students that were in the same age category (10 to 12 years old), it is believed that their experience of attending similar training was not affecting training effectiveness since their age also did not have significant effect on the training effectiveness.

On the other hand, Table 5 shows the one-way ANOVA results to determine significant differences among race groups since there is diversity of races in Malaysia. Findings indicated that there is no significant difference between race groups as determined by one-way ANOVA [$F(3,28) = 0.256$, $p = .856$). Hence, Ha5 (there is a significant difference of training effectiveness scores among different races of school students in face-to-face training at 0.05 level of significance) is rejected. Finding is inconsistent with previous research findings that found race to affect training effectiveness among employees, such as by Punksungka et al. (2022). However, some researchers, such as Aziz et al. (2024) found that race had no effect on training effectiveness among youths attending online training related to entrepreneurship; which is consistent with the current research findings. Hence, it is believed that race might have different effects on training effectiveness when the races have different background including education, social acceptance, and culture as demonstrated by a study by Newton, Steele, Jaber and Pace (2024).

Table 5
ANOVA Results for Race Differences

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.952	3	.651	.256	.856
Within Groups	71.063	28	2.538		
Total	73.015	31			

The study by Newton et al. (2024) was done to explain how cross-racial training should be done; however, the study demonstrated that this type of training is needed when the background of different races were different. For example, it was demonstrated that the educational background among the White and Black or Hispanic race was different, impacting different ways of living among these races. Hence, training effectiveness will be affected by the different races. This explained why Punksungka et al. (2022) found that race groups involving the White, Black, Hispanic, and other minority races affect training effectiveness when samples were taken from U.S. However, in Malaysia, different races including Malay, Chinese, Indian, and minority races are given similar and equal education that is controlled by the government, which is making the different races to have similar education and information. This explained why a study by Aziz et al. (2024) and the current research found that race groups had no significant effect on training effectiveness because the races studied as samples were taken from Malaysia.

Similar to race groups, findings also indicated that there is no significant difference among religion groups as determined by one-way ANOVA [F(3,28) = 0.504, p = .683); this is shown in Table 6. Hence, Ha6 (there is a significant difference of training effectiveness scores among different religions of school students in face-to-face training at 0.05 level of significance) is rejected. As discussed previously, samples used in the current research involved Malaysian participants; in which, although different races have different religions, their education background and information were similar and equal as well as controlled by the government. Hence, as similar as race, participants' religion also did not affect their training effectiveness.

Table 6
ANOVA Results for Religion Differences

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.740	3	1.247	.504	.683
Within Groups	69.275	28	2.474		
Total	73.015	31			

Finally, Table 7 shows the one-way ANOVA results to determine significant differences in training effectiveness among different levels of family income. Findings indicated that there is no significant difference among different income levels as determined by one-way ANOVA [F(2,29) = 0.954, p = .397). Hence, Ha7 (there is a significant difference of training effectiveness scores among different groups of family income levels of school students in face-to-face training at 0.05 level of significance) is rejected. Finding is inconsistent with previous research findings by Caputo and Cianni (1997) that demonstrated training effectiveness to have inter-linkages with family income levels.

However, some researchers, such as Aziz et al. (2024) found that family income levels had no effect on training effectiveness among youths attending online training related to entrepreneurship; which is consistent with the current research findings. Hence, it is believed that research by Caputo and Cianni (1997) was done long ago in the U.S. involving data collected between 1970 to 1991; in which, nowadays, income levels differences were not significant demographic variables affecting training effectiveness anymore. This can be explained through research findings by Zhao, Ye and Shao (2025) that found the internet use nowadays has positive impact to improve income inequality among the society; in which, the large gap of income inequality among the society has been improved and will not affect many aspects if compared to the years before internet was widely used.

Table 7
ANOVA Results for Family Income Level Differences

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.508	2	2.254	.954	.397
Within Groups	68.507	29	2.362		
Total	73.015	31			

Research Implications, Limitations and Future Research

The current research has empirically proven that only gender was a significant demographic variable affecting the face-to-face training effectiveness among primary school students in Malaysia. However, other demographic variables including age, experience attending similar training, race, religion, and family income levels were not significant demographic variables affecting training effectiveness among these primary school students. Hence, research findings partially supported the Comprehensive Model of Training Effectiveness proposed by Cannon-Bowers et al. (1995). Consistently, Aziz (2018) explains that the effect of various demographic variables on training effectiveness in different training that involves different types of participants might differ as demonstrated by previous researchers' findings. Hence, various demographic variables might not be important variables that should be prioritized to improve training effectiveness.

Nonetheless, the current research found that there is a large effect of differences in gender group affecting training effectiveness among primary school students. As an implication, the Human Development and Human Resource Development practitioners might want to consider a cross-gender training approach if training is organized among primary school students to increase the training effectiveness. However, the current research has limitations, in which it was done using a pre-experimental approach. Hence findings cannot explain further the inconsistent findings of demographic variables affecting training effectiveness. Therefore, it is suggested for future research to use qualitative study or mixed methods that can explain further how demographic variables can affect or cannot affect training effectiveness in various types of training involving various types of participants.

Conclusion

In conclusion, the purpose of this research was to study demographic variables affecting face-to-face training among school students attending training programs related to communication competencies. Using a pre-experimental research design, data were collected among 32 primary school students aged 10 to 12 years old from a Malaysian government school. Findings indicated that the face-to-face training attended by primary

school students was effective; however, only gender was proven to be a significant demographic variable affecting the training effectiveness. However, other demographic variables including age, race, religion, experience attending similar training, and family income levels were insignificant demographic variables. Findings partially consistent and inconsistent with previous research due to various possibilities. Research implications, limitations, and future research were also discussed.

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References

Aminudin N. (2013). Gender variations across trainee motivation, social support and goal orientation. *Actual Problems of Economics*, 2 (3), pp. 127 - 135.

Aziz, S. F. A. (2016). Lecturer quality as teaching and learning intervention. In R. M. K. Nambiar, N. F. M. Nor & M. Z. Sulaiman (Eds.), *Action Research: A window to new experiences in teaching and learning*. Bangi, Selangor: Penerbit UKM.

Aziz, S. F. A. (2018). *Keberkesanan latihan dan pembangunan sumber manusia.* Bangi, Selangor: Penerbit UKM.

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. https://doi.org/10.3390/su141711047

Aziz, S. F. A., Rosly, M. Z., Omar, N. H., Selamat, M. N., & Mohd, R. H. (2024). Effect of online training motivation on online training effectiveness: A pre-experiment of Kickstart Business Program in Malaysia. *International Journal of Academic Research in Accounting, Finance and Management Sciences,* 14(4): 1160-1168.

Aziz, S. F. A., & Selamat, M. N. (2018). Latihan dalam pembangunan dan pemerkasaan komuniti. In N. Tambi, J. Manap & S. F. A. Aziz (Eds.), *Pemerkasaan Komuniti di Malaysia.* Bangi, Selangor: Penerbit UKM.

Bakry, H. E. S., Saleh, I. M. & Nashaat, I. H. (2022). Gender and training: a comparative study between the impact of undergoing training on male and female employees and the degree of their career growth. المجلة العلمية للدراسات التجارية والبيئية., 13(2):616-644.

Bertolino, M., Truxillo, D. M., & Fraccaroli, F. (2011). Age as moderator of the relationship of proactive personality with training motivation, perceived career development from training, and training behavioral intentions. *Journal of Organizational Behavior,* 32: 248-263.

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.

Caputo R.K., Cianni M. (1997). The job training experiences of Black and White women, 1970–1991. *Human Resource Development Quarterly*, 8 (3): 197-217.

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.

Estevez, A. G., Roche, J. R. F., Espinosa, A. H. R., & Rodríguez, D. L. (2018). Social skills training program to prevent alcohol consumption in university students. *International Journal of Health Sciences,* 2(3): 43-54.

Kirkpatrick, D. L. (1976). Evaluation of training. In R. L Craig (Ed.), *Training and development handbook* (2nd ed.). New York: McGraw-Hill.

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

Klein, H. J., Noe, R. A., & Wang, C. W. (2006). Motivation to learn and course outcomes: The impact of delivery mode, learning goal orientation, and perceived barriers and enablers. *Personnel Psychology,* 59: 665-702.

Mofokeng, T. J., Amoa-Gyarteng, K., & Dhliwayo, S. (2025). Demographic influences on employee perceptions: Performance management, motivation, and career advancement. *Cogent Business & Management*, 12(1). https://doi.org/10.1080/23311975.2025.2480242

Newton, C., Steele, J. M., Jaber, N., & Pace, A. (2024). The cross-racial training approach: A practical training framework. *Training and Education in Professional Psychology.* https://dx.doi.org/10.1037/tep0000497

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

Pallant, J. (2020). *SPSS survival manual* (7 ed.). England: McGraw-Hill Education.

Punksungka W., Yamashita T., Helsinger A., Karam R., Cummins P., Kramer J. (2022). Re-examining adult education and training participation by education, literacy, gender, and race/ethnicity in the U.S. *Journal of Adult and Continuing Education,* 28 (2): 634 - 657.

Rubin, R. B., & Martin, M. M. (1994). Development of a measure of interpersonal communication competence. *Communication Research Reports*, 11(1): 33-44.

Shukla, A., Dash, S., & Kumar, A. (2023). Factors affecting transfer of online training: A systematic literature review and proposed taxonomy. *Human Resource Development Quarterly*, 35(3): 363-390. https://doi.org/10.1002/hrdq.21518.

Štrbac, D., Paunović, M., & Pavlović, D. (2024). The influence of demographic characteristics on the effectiveness of public administration training programs. *Stanovnistvo*, 62(2): 251-266.

Tziner, A., & Falbe, C. M. (1993). Training-related variables, gender and training outcomes: a field investigation. *International Journal of Psychology,* 28(2): 203-221.

Zhao, L., Ye, J., & Shao, K. (2025). Digital empowerment and economic equity: Exploring the impact of household digital capability on income inequality. *Telecommunications Policy*, 103038. https://doi.org/10.1016/j.telpol.2025.103038