

CONTRIBUTING FACTOR TO THE ATTRACTIVENESS OF A TRAINING PROGRAM

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ABSTRACT

Research purpose:

Studies show that as technology advances, the lifespan of skills is getting shorter due to automation and artificial intelligence. We should expect a greater need for training beyond the advantages it provides. However, demand for training seems to decrease not only for those who are out of work but also for workers. Therefore, a study is needed. The purpose of this study is to determine what factors contribute to the attractiveness of a training program and which factors contribute the most.

Research motivation:

This study is intended to solve a problem of decreasing demand in training faced by many training institutions. Thus, the motivation of doing this research is to invent a model or concept that can be used to solve this problem.

Research design, approach, and method:

This study made use of a qualitative and a quantitative approach. The qualitative approach is designed to identify inductively the items that relate to the attractiveness of a training program with the use of in-depth interviews. The interviews are recorded, transcribed, coded, and categorized to identify the items. Based on those items, a questionnaire is designed to collect quantitative data to confirm whether those items are related to the attractiveness of a training program or not in 85 respondents, and to discover the factors and their loading with the use of exploratory factor analysis with principal component analysis. The validity and reliability of the questionnaire have been assured, with a reliability of 0.81.

Main findings:

Three factors are confirmed as the main factors that contribute to the attractiveness of a training program. These three factors explain 70 percent of the variance. They are mandatory, job-related, and referenced. Training programs are attractive when they are assigned, when they relate to the work that supports a career, and when they are referred to by other people. The attractiveness of the training program is explained 35.8% by mandatory, 21.9% by job-related, and 12.3% by reference.

Practical/managerial implications:

Practical implication: This study introduces three new kinds of training: the mandatory training, the job-related training, and the reference training. *Managerial implication:* As we know the factors that contribute to the attractiveness of a training program, we could design a better training program that attracts more participants.

Keywords: Training, kinds of training, mandatory training, job-related training, reference training.

1. INTRODUCTION

The interest of people in taking training programs seems to decrease. Previous studies showed that more than half of workers who the company supported to take training participated (Turcotte, Leonard, & Montmarquette, 2003;

Zeytinoglu & Cooke, 2008; Cooke, Zeytinoglu, & Chowhan, 2009). Studies also show that fewer than half of the workers participate in employer-supported training (Cooke, Chowhan, & Brow, 2011). There are supposed to be more people participating in training since training is intended to improve the knowledge, skills, and abilities of the participants (Barney, 1991; Van Iddekinge, 2009; Kraimer et al., 2011). Besides, training may also improve social connection (Kudrna et al., 2024). Social connection was built through interpersonal skills, as interpersonal skills were also improved by training (Reed & Jones, 2021).

Training has some advantages. Training reduces employee turnover (Benson, Finegold & Mohrman, 2004; Ito & Brotheridge, 2005; Hausknecht & Trevor, 2011; Heavy, Holwerda & Hausknecht, 2013; Jun & Eckardt, 2025). High turnover leads to high costs to an organization. Lower employee turnover prevents high costs from occurring. As employee turnover increases, there will be more recruitment, selection, and replacement costs that organizations must carry (Shaw, Gupta & Delery, 2005; Jeong, 2008; Relly et al., 2014). Thus, it will deteriorate organizational performance (Shaw et al., 2013; Guan & Frenkel, 2019). Training was also found to relate to commitment (Frenkel & Bednall, 2016). This is because employees perceive training that is supported by the company as a reward, and then they become more committed to their company. Another advantage of training for an organization is that it increases the competency and motivation of the employee and thus work engagement (Alfes et al., 2013; Karatepe, 2013; Fletcher, 2016).

Studies show that as technology advances, the life span of skills is getting shorter due to automation and artificial intelligence (Gaskell, 2023). We should expect that there will be a higher need for training aside from the advantages that training provides. However, demand for training seems to decrease not only for those who are out of work but also for workers. Therefore, a qualitative in-depth interview with content analysis that is confirmed by a quantitative exploratory factor analysis is conducted. The aim of this study is to discover factors that attract training participants to take a training program. Specifically, to answer the following questions: (1) What are the factors that contribute to the attractiveness of a training program? And (2) Which factors contribute the most? As we know these factors, we could design a better training program that could attract more participants.

2. LITERATURE REVIEW

Important for a training institution to make sure that the participants attending the training program are satisfied with the service quality to drive repeat purchases or willingness to take the training again (Kountur, Hidayati & Suwanda, 2024). Since training benefits both the person and the organization, it is necessary to know what factors of the training program attract both the person who attends the training and the organizations that send their employees to attend training.

The term “training attractiveness” is still in public debate internationally (UNEVOC and Billett, 2018). From academic literature, we can see that the term “attractiveness” in training may refer to personal gain such as self-esteem or economic gain (Winch, 2013). Others refer to it as the quality of the training program (Lasonen & Manning, 2001; Aarkrog, 2020). Since our study refers to the attractiveness of training that will make a person willing to take the training, we can define “training attractiveness” as the quality of the training program that attracts people willing to pay to attend the training program.

Previous studies had indicated several reasons why people took training programs: to fulfill organizational needs; to increase employees’ engagement, knowledge, and skill; to improve competency; and to provide realistic experiences.

To fulfill Organizational Needs. People and organization have their own needs and wants. Most of their needs relate to the problems they are facing. In an entrepreneurial education, it was found that the primary antecedents of training are the organizational or institutional needs (Serpente, Bolzani, & Grimaldi, 2024). In other words, training that attracts an organization is the one that can fulfill the needs of the organization. When an organization has a problem and needs a solution, training is expected to provide ways to solve the problem. In another study, the other things that attract

training are when it links business practices with academic theory (Rideout & Gray, 2013). The effect of practices needs to be there in training, not only the theory.

To increase employees' engagement, Knowledge, and Skills. Training is expected to increase employees' engagement, knowledge retention, and skills improvement (Alhalabi, 2016; Christopoulos et al., 2022; Guerrero & Pugh, 2022; Leite & Vieira, 2025), and if possible, avoid the risk of accidents in the workplace (Bryson, 2016; Shi et al., 2019). It is also important that the participants in a training program actively participate during the training, where they can experience what they learn (Felicia, 2011), they can observe the cause and effect (Bandura, 2001).

To Improve Competency. Most of the training done by the organization is to improve the competency of the employee; therefore, most of the training participants from the organization are joined by low-qualified employees (Wang, Ma, & Ren, 2016; Haines, Jalette, & Larose, 2010). Training seems to attract organizations to improve their low-qualified employees.

To provide a realistic experience. Training needs to be attractive and engaging, and that can be done through virtual reality (Menin, Torchelsen, & Nedel, 2018; Leite & Vieira, 2025). The use of virtual reality not only engages simulation but also provides a realistic experience (Nedel et al., 2016; Schroeder, 2008). Therefore, many training make used of virtual reality particularly in healthcare, civil construction, education, police and military service, fire emergencies, loading, and aviation (Gamberini et al., 2003; Fernandes et al., 2006; Sack, Perlman, & Barak, 2013; Zaalberg & Midden, 2013; Bertram, Moskaliuk, & Cress, 2015; Chittaro & Buttussi, 2015; Lackey et al., 2016; Buttussi & Chittaro, 2017; Baxter & Hainey, 2019; Kwegyir-Afful, Hassan, & Kantola, 2021; Tortorella et al., 2022).

3. METHOD

This study made use of an exploratory sequential mixed-methods design. A qualitative in-depth interview was first done to generate items that relate to the attractiveness of a training program. From those items generated, a quantitative exploratory factor analysis was next conducted to confirm the items and to discover the factors that contribute to the attractiveness of a training program.

This research design is considered as the most appropriate considering that training environments are changing and are dynamic. What is considered as appropriate ten to twenty years ago might not be appropriate at this time due to some changing in training related technology and the effect of the previous pandemic upon training. Therefore, in discovering the contributing factors to training attractiveness, we are not based on previous training related theory but on discovering the existing experiences through in-depth interview that the results will be confirmed by a quantitative exploratory factor analysis.

3.1. Participants

There were two groups of participants: the first is the participants that are selected for in-depth interview of the qualitative approach, and the second group is the participants for the survey of the quantitative approach.

Group of In-Depth Interview

For the qualitative approach, respondents were selected purposively for an interview based on some criteria; they were adults aged 20 or above and had experience attending at least two professional training programs, either initiated by themselves or sent by their employer. Five people were selected. The number of persons selected was based on the saturation of the information. The saturation was achieved when there was no more new information. Saturation was noticed on the fourth person; however, to be sure, we added one more person to reach five people, and we were sure that no more new information was added.

The interview started with an introduction and a statement of consent. The participant has the right not to participate in the interview. Upon joining the interview, they still have the right to withdraw or not answer the questions if they feel reluctant. The interview was recorded to ensure the objectivity of the data.

Group of Survey

In selecting the respondents for the quantitative approach, the purposive sampling method was used in selecting participants. The criteria in selecting participants were based on the same criteria that were used when selecting participants for the interview. We made sure that they have attended more than once professional training to have enough training experiences and adult age of 20 or above. Ninety-nine respondents participated in this study. The distribution of questionnaires was done by paper-and-pencil directly to the participants and through social media. Based on the respondent consistency coefficient (Kountur, 2011). The respondent consistency coefficient is a measurement of how consistent the respondent answering the questionnaire. There are some people answering the questionnaire randomly without even reading the questions. Those people need to be removed from the study. We found that fourteen participants were not consistent in answering the questionnaire; they were considered biased. These 14 participants were then removed from the data. The remaining 85 participants were used in the analysis.

The profile of participants is shown in Table 1. Most of the participants (70%) are employees of private companies. Very few are government employees (5%) and students (5%). In terms of education, most of the participants have a graduate degree (49%) and an undergraduate degree (49%), and very few have a high school degree (3%). In terms of gender, most participants are male (52%), while less female (48%). In terms of age, most of them are in the age of 20 to 29 (36%), and very few in the age of 70 to 79 (4%).

Table 1. Participants profile.

Variables	Frequency	Percentage
OCCUPATION:		
Government Employee	5	5
Private Employee	69	70
Students	5	5
Entrepreneur	14	
Retiree	6	6
Total	99	100
EDUCATION:		
Graduate Degree	48	49
Undergraduate Degree	48	49
High School Degree	3	3
Total	99	100
GENDER:		
Male	51	52
Female	48	48
Total	99	100
AGE (Years):		
20 – 29	35	36
30 – 39	20	20
40 – 49	16	16
50 – 59	12	12
60 – 69	12	12
70 – 79	4	4
Total	99	100

3.2. Procedure

There is a different procedure used for in-depth interviews and for surveys.

Procedure for In-depth Interview

In collecting qualitative data, an in-depth interview was used. An in-depth interview is a process of asking the main question, and if the answer is not enough, it will be followed by one or more follow-up questions in order to get a wider answer. There were two parts of the interview questions. The first part is the screening questions, such as: How old? And, how many times have you attended a professional training program? When the answer did not meet the criteria, then there would be no further questions. When the answer meets the criteria, then it will be continued with the next questions, that is, about the main questions, which are: Who decides to attend the seminar? What makes you (or them) decide to attend a training program? What do you like about the training program? What made you hate and decide not to attend the training program?

The interview was recorded and transcribed. In order to ensure the validity or truthfulness of the transcription, the transcription was given back to the participant or the interviewee for them to correct and approve before they were analyzed. Triangulation is needed to ensure the consistency and agreement of the analysis. Triangulation was done by having two different persons analyze the data. To measure the consistency or agreement of the analysis, a Cohen-Kappa was used. The result indicated substantial agreement among the analysts.

To ensure the ethics of the research, these interview questions were reviewed and approved by the research committee of a higher educational institution in Indonesia. Also, before the interview was conducted, consent was obtained by explaining the purpose of the interview verbally, and they were informed that their identity would not be indicated in the research report, and they had the right not to answer the questions if they felt uneasy or they could withdraw anytime from the interview. We also indicated that the interview was recorded and will be transcribed. The transcription was given to them for them to check. They can delete any information that they feel is inappropriate, and they are allowed to add any missing information. Upon agreement, they return the transcription to us, indicating that they had agreed to the content and giving permission for further analysis.

Procedure for Survey

For the quantitative approach, a survey research design was used. Data were taken using the questionnaire that had been developed. The content validity of the questionnaire had been assured since the items were derived from a thorough in-depth interview using a qualitative approach. Forty-nine items were constructed from an in-depth interview. These items were tested for their construct validity and reliability. Table 2 shows the items of the questionnaire.

Table 2. Items of Questionnaire

No.	Items	Stated in Positive (P)/Negative (N)
1.	I only attend company-sponsored training.	P
2.	Offline training are good for networking.	N
3.	I'm forced to attend training because I'm assigned to.	P
4.	Paid training are a company obligation.	P
5.	An interesting seminar isn't about the price, but the content.	N
6.	Trainings don't require theory; the important thing is practice.	N
7.	The training topic is important, not the speaker.	N
8.	The speaker is what attracts me to participate in training, not the topic or material.	N
9.	I don't care who the speaker is; as long as the material aligns with my needs.	N
10.	The benefit of attending a training is what's important, not who the speaker is.	N
11.	The benefit of attending a training is what's important, not the material.	N
12.	I personally funded the training.	N
13.	A good training is recommended by a friend.	P

14. I personally decide whether or not to attend a training.	P
15. Attending a training is the company's decision.	P
16. The idea to attend a training came to me after receiving a brochure.	P
17. I will only attend trainings that have been planned well in advance.	P
18. I only attend trainings related to my job.	P
19. I attend a training because it is mandatory.	P
20. Attending training is because of professional obligation.	P
21. I personally search for trainings that suit my interests.	P
22. The assignment to attend the training is determined by my direct supervisor.	P
23. Attending the training is determined by the human resources division.	P
24. I attend the training to find out if this is the type of training I will be taking.	P
25. A short training is needed to provide a feel for the topic discussed, which is then used to decide whether to attend training on that topic.	N
26. Before registering, I make sure I'm truly interested in the training material.	P
27. Interaction between speakers and participants is essential.	P
28. There should be a workshop session in a training.	P
29. Applying a concept is crucial to a training, not just understanding it.	P
30. Two-way interaction is essential in a training.	P
31. Before attending a training, I have expectations about the material to be presented.	P
32. The speaker's background is important in determining whether the training is worth attending.	P
33. I refuse to attend online trainings.	N
34. I'm willing to pay for offline trainings.	P
35. I'm disappointed if I find out a training is just for selling products.	N
36. I've canceled many trainings because of the hassle of registering.	P
37. The competence of the speaker determines whether I'll attend a training.	P
38. I'll study the speaker's profile online before attending a training.	P
39. When I see a training flyer, the first thing I want to know is the title and the material to be presented.	P
40. I attend trainings to fill my free time.	P
41. I will attend free trainings.	P
42. The training fee determines whether I will attend or not.	N
43. I will not attend a one-day training that costs Rp 2 million. That's too expensive.	N
44. As long as the training costs up to Rp 1.5 million per day, I can still afford to attend.	N
45. I will be more serious about attending paid trainings than free ones.	N
46. I only want to attend free trainings.	P
47. I will not attend trainings that conflict with my work schedule.	P
48. I only attend trainings if they support my work.	P
49. Recommendations from friends play an important role in deciding which trainings I will attend.	P

As one of the techniques of assuring the construct validity of the questionnaire, the items that reduce the reliability of the questionnaire were then removed. Using the SPSS Statistics software for item reliability, twenty-five items were removed. The remaining 24 items are considered reliable (Cronbach $\alpha = 80.9$), and meet the construct validity requirement since all the items that lower the reliability have been removed. The 24 remaining items are item numbers: 1, 3, 4, 7, 9, 10, 13, 15, 16, 17, 18, 19, 20, 22, 23, 33, 35, 40, 41, 42, 43, 46, 48, and 49.

3.3. Data Analysis

Analysing Qualitative Data

The qualitative data were analysed using the content analysis technique. The interview was recorded and transcribed. Respondent checks were done to assure for the truthfulness of the data, where the transcript was approved by the participant. The transcript was then coded per statement and was given a theme for each statement. A similar theme was categorized. One or two items will be taken from each category. The items are the variables that will be used as items in the questionnaire.

Analyzing Quantitative Data

The quantitative data were collected using a questionnaire that had been developed through a qualitative approach. Exploratory factor analysis with principal factor extraction was used to answer the research questions. The Kaiser-Meyer-Olkin test with a minimum of .5 sampling adequacy was used, and also the Bartlett's Test of Sphericity with chi-square statistic at a 0.05 level of significance.

4. RESULT

In finding the result, the following questions need to be answered. Can all the selected variables or items be used in the analysis? How many factors can be used to explain the attractiveness of a training program? And, what are the names of those factors?

4.1. Variables to be Included

There are 49 variables or items selected from qualitative research. Twenty-five variables are invalid and removed, leaving the remaining 24 variables. These remaining variables are analysed. It was found that out of 24 variables, fifteen variables have low communalities, that is, the variance of each variable that can be explained by its factor (Communality $\leq$ 0.50). These fifteen variables are then removed, leaving the remaining nine variables. These nine variables can be further analysed (KMO = 0.689, Bartlett's test of sphericity $p = 0.00$) as shown in Table 3.

Table 3. KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.689
Bartlett's Test of Sphericity	Approx. Chi-Square	257.537
Bartlett's Test of Sphericity	df	36
Bartlett's Test of Sphericity	Sig.	.000

The variables that were included in the analysis are, paid training is a company obligation; attending training is a company decision; I only attend training that is related to my job; I attend a training because it is mandatory; attending training is because professional obligation; assignment to attend training is determined by my direct supervisor; attending training is determined by the human resources division; I only attend training if it supports my job; and recommendations from friends play an important role in determining which training I will attend.

4.2. Number of Factors

It was found that three factors can be used to explain the attractiveness of a training program. As shown in Figure 1, the first three factors have eigenvalues greater than 1.0, while the fourth factor has an eigenvalue lower than required, which is 1.0.

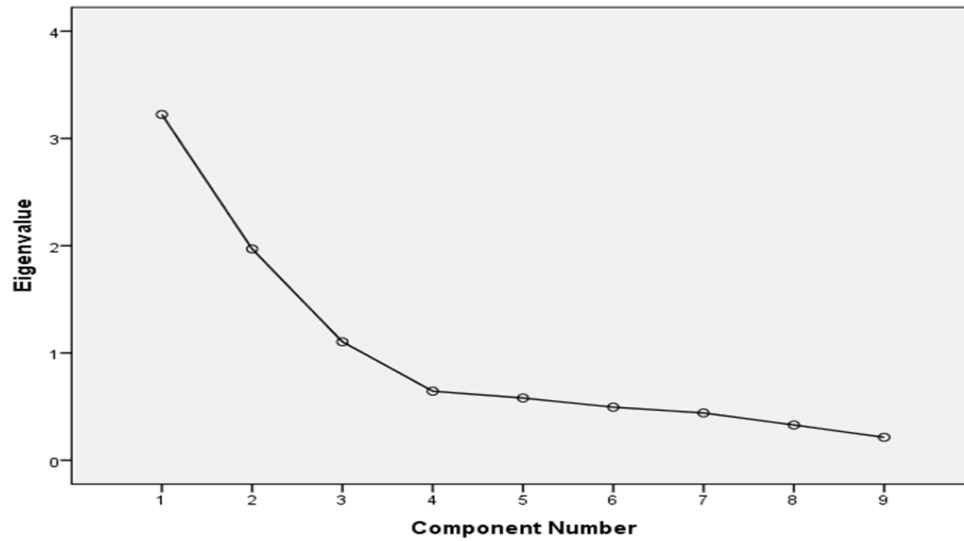


Figure 1. Number of Factors or Component

The first factor has a rotation sums of squared loading of 26.01%, which indicate 26.01 percent of training attractiveness can be explained by the first factor. The second and third factors have rotation sums of squared loadings of 23.71% and 20.24%. The total variance that can be explained by the three factors is 69.97%, as shown in Table 4. In other words, 69.97 or 70 percent of training attractiveness can be explained by these three factors.

Table 4. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.22	35.81	35.81	3.22	35.81	35.81	2.34	26.01	26.01
2	1.97	21.89	57.70	1.97	21.89	57.70	2.13	23.71	49.73
3	1.10	12.27	69.97	1.10	12.27	69.97	1.82	20.24	69.97

The Rotated Component Matrix indicates that the loading of each variable on its factor for the first factor ranges from 0.765 to 0.837, as shown in Table 5. The second factor has variables loading range from 0.636 to 0.904. The third factor has variables loading range from 0.624 to 0.861.

Table 5. Rotated Component Matrix

	Component		
	1	2	3
Q23	.837	.004	-.077
Q22	.815	.106	.131
Q15	.765	-.075	.219
Q18	-.125	.904	-.054
Q48	-.025	.792	.294
Q19	.447	.636	.222
Q49	-.071	.083	.861
Q04	.381	.103	.693
Q20	.159	.500	.624

4.3. Name of Factors

As shown in Table 3, the first factor, composed of Q23 - Attending training, is determined by the human resources division; Q22 - Assignment to attend training is determined by my direct supervisor; Q15 - Attending training is a company decision. The second factor is composed of variable Q18 - I only attend training that is related to my job; Q48 - I only attend training if it supports my job; and Q19 - I attend a training because it is required. And the third factor is composed of variable Q49 - Recommendations from friends play an important role in determining which training I will attend; Q04 - Paid training is a company obligation; Q20 - Attending training is a professional obligation.

The first and second variables that have the highest loading for factor one is Q23 and Q22, which indicate that training will be attractive when it is mandated by the company. Therefore, the first factor may be named as **MANDATORY**, since it is mandatory training. The first and second variables that have the highest loading for the second factor are Q18 and Q48. These variables indicate that training is attractive when it is related to the job of the person. Therefore, the second factor may be called **JOB-RELATED**, since it is a job-related training. In the third factor, Q49 and Q04 are the variables that have the first and second highest loading. These variables indicate that training will be attractive when it is recommended by another person. That person will become the reference. Therefore, the third factor may be named **REFERENCE**, since it is a referenced training.

4.4. Validity of Factors

A confirmatory factor analysis was performed to test the validity of the factors. Two kinds of validity are tested: convergent validity and discriminant validity. Convergent validity indicates how strongly the variables in a construct or in a factor relate to each other. They should have a strong relationship among themselves. In this study, the composite reliability score is used to indicate convergent validity. All four factors have acceptable composite reliability. Mandatory (0.861), Job-Related (0.849), and Reference (0.837).

Discriminant validity indicates that no variables in a factor have a strong relationship with other factors than their own factor. It is measured by the average variance extracted, which is greater than the shared variance between constructs, as shown in Table 6. The average variance extracted for Mandatory is 0.821, higher than the relationship with other factors. Job-Related is 0.808 higher than the relationship with other factors, and Reference is 0.795 higher than the relationship with other factors.

Table 6.Discriminant Validity

	Mandatory	Job-Related	Reference
Mandatory	0.821		
Job-Related	0.373	0.808	
Reference	0.397	0.641	0.795

5. DISCUSSION

Three factors were found to contribute to the attractiveness of a training program: mandatory, job-related, and reference training. People will attend training when it is a mandatory by their superior, or by the company where they work. This finding is supported by previous studies, which found that organization train their employee to fulfil organizational needs (Serpente, Bolzani, & Grimaldi, 2024; Rideout & Gray, 2013). Since most organizations train their employee, there will be many trainings that are mandated by the organization. The second factor that contributes to the attractiveness of a training is job-related training, training that is made to support the work that a person is doing. This finding is consistent with the previous study that people take training to increase knowledge, skill, and competency (Alhalabi, 2016; Christopoulos et al., 2022; Guerrero & Pugh, 2022; Leite & Vieira, 2025; Wang, Ma, & Ren, 2016; Haines, Jalette, & Larose, 2010) that will be used in their work. While the third factor is reference training, training that is based on other references, they are recommended by other people.

There are different kinds of training, such as non-formal and formal training, short and long courses, training that is differentiated by functions such as financial, marketing, or operational training, and other kinds of training. The result of this study introduces three new kinds of training: mandatory training, job-related training, and reference training. Three characteristics of mandatory training are based on the three items or variables that are significant components of the mandatory factor. It is mandatory when it is determined by the Human Resource division, the direct supervisor, or the company's policies. Three characteristics of job-related training: related to the existing job, supporting the existing job, and they are required by the existing job. The third factor, which is reference training, also has three items: they are recommended by friends, the company is willing to pay, and required by the profession.

There are ways of increasing the demand for training programs by knowing what makes a training program attractive. As the training provider knows the factors that contribute to the attractiveness of a training program, the training provider could design a better training program that attracts more participants. The problem of declining training enrolment may be solved. Some limitation of the study such as the small qualitative sample, limited quantitative sample, and preliminary nature of the measurement instrument. Further study can be done to cover the limitations of this study and further more to know which variable is independent, moderating, or mediating in the demand for the training program.

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7. REFERENCES

Aarkrog, V. (2020), "The standing and status of vocational education and training in Denmark", *Journal of Vocational Education and Training*, Vol. 72 No. 2, pp. 170-188, doi: 10.1080/13636820.2020.1717586.

- Alfes, K., Shantz, A. D., Truss, C., & Soane, E. C. (2013). The link between perceived human resource management practices, engagement and employee behaviour: A moderated mediation model. *International Journal of Human Resource Management*, 24(2), 330–351. <https://doi.org/10.1080/09585192.2012.679950>
- Alhalabi W (2016) Virtual reality systems enhance students' achievements in engineering education. *Behav Inf Technol* 35(11):919–925
- Bandura A (2001) Social cognitive theory: An agentic perspective. *Annu Rev Psychol* 52(1):1–26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Baxter G, Hainey T (2019) Student perceptions of virtual reality use in higher education. *J Appl Res High Educ*. <https://doi.org/10.1108/JARHE-06-2018-0106>
- Benson, G. S., Finegold, D., & Mohrman, S. A. (2004). You paid for the skills, now keep them: Tuition reimbursement and voluntary turnover. *Academy of Management Journal*, 47(3), 315–331. <https://doi.org/10.5465/20159584>
- Bertram J, Moskaliuk J, Cress U (2015) Virtual training: Making reality work? *Comput Hum Behav* 43:284–292. <https://doi.org/10.1016/j.chb.2014.10.032>
- Bryson A (2016) Health and safety risks in Britain's workplaces: where are they and who controls them? *Ind Relat J* 47(5–6):547–566. <https://doi.org/10.1111/irj.12162>
- Buttussi F, Chittaro L (2017) Effects of different types of virtual reality display on presence and learning in a safety training scenario. *IEEE Trans Visual Comput Graphics* 24(2):1063–1076. <https://doi.org/10.1109/TVCG.2017.2653117>
- Chittaro L, Buttussi F (2015) Assessing knowledge retention of an immersive serious game vs. a traditional education method in aviation safety. *IEEE Trans vis Comput Graphics* 21(4):529–538. <https://doi.org/10.1109/TVCG.2015.239185>
- Christopoulos A, Mystakidis S, Cachafeiro E, Laakso MJ (2022) Escaping the cell: virtual reality escape rooms in biology education. *Behav Inf Technol* 42(9):1434–14
- Cooke, G.B., Chowhan, J., & Brow, T. (2011). Declining versus participating in employer-supported training in Canada. *International Journal of Training and Development*, 15(4), 271–289. doi: 10.1111/j.1468-2419.2011.00386.x
- Cooke, G. B., Zeytinoglu, I. U. and Chowhan, J. (2009), Barriers to training access. *Perspectives on Labour and Income*, 10, 7, 14–25. Statistics Canada.
- Felicia P (2011) Handbook of research on improving learning and motivation through educational games: multidisciplinary approaches. Information Science Reference, iGi Global, Hershey, PA
- Fernandes KJ, Raja V, White A, Tsinopoulos CD (2006) Adoption of virtual reality within construction processes: a factor analysis approach. *Technovation* 26(1):111–120
- Fletcher, L. (2016). Training perceptions, engagement, and performance: Comparing work engagement and personal role engagement. *Human Resource Development International*, 19(1), 4–26. <https://doi.org/10.1080/13678868.2015.1067855>

- Frenkel, S. J., & Bednall, T. (2016). How training and promotion opportunities, career expectations, and two dimensions of organizational justice explain discretionary work effort. *Human Performance*, 29(1), 16–32. <https://doi.org/10.1080/08959285.2015.1120306>
- Gamberini L, Cottone P, Spagnoli A, Varotto D, Mantovani G (2003) Responding to a fire emergency in a virtual environment: different patterns of action for different situations. *Ergonomics* 46(8):842–858. <https://doi.org/10.1080/0014013031000111266>
- Gaskell, Adi (2023). The Decline in Workplace Training. *Forbes*, May 02, 2023. Taken from <https://www.forbes.com/sites/adigaskell/2023/05/02/the-decline-in-workplace-training/>
- Guan, X., & Frenkel, S. (2019). How perceptions of training impact employee performance: Evidence from two Chinese manufacturing firms. *Personnel Review*, 48(1), 163–183. <https://doi.org/10.1108/PR-05-2017-0141>
- Guerrero M, Pugh R (2022). Entrepreneurial universities’ metamorphosis: encountering technological and emotional disruptions in the COVID-19 ERA. *Technovation* 118:102584
- Haines, V. Y., Jalette, P., & Larose, K. (2010). The influence of human resource management practices on employee voluntary turnover rates in the Canadian non-governmental sector. *Industrial and Labor Relations Review*, 63(2), 228–246. <https://doi.org/10.1177/001979391006300203>
- Hausknecht, J. P., & Trevor, C. O. (2011). Collective turnover at the group, unit, and organizational levels: Evidence, issues, and implications. *Journal of Management*, 37(1), 352–388.
- Heavey, A. L., Holwerda, J. A., & Hausknecht, J. P. (2013). Causes and consequences of collective turnover: A meta-analytic review. *Journal of Applied Psychology*, 98(3), 412–453. <https://doi.org/10.1037/a0032380>
- Ito, J. K., & Brotheridge, C. M. (2005). Does supporting employees’ career adaptability lead to commitment, turnover, or both? *Human Resource Management*, 44(1), 5–19. <https://doi.org/10.1002/hrm.20037>
- Jeong, J. (2008). Moderating effect of employee turnover rate on the relationship between investment in HRD and organizational performance: A case of manufacturing industry in the Republic of Korea. *A Study on the Development of Vocational Competency*, 11(2), 193–214.
- Jun, M., & Eckardt, R. (2025). Training and employee turnover: A social exchange perspective. *Business Research Quarterly*, 28(1), 304–323.
- Karatepe, O. M. (2013). High-performance work practices and hotel employee performance: The mediation of work engagement. *International Journal of Hospitality Management*, 32, 132–140. <https://doi.org/10.1016/j.ijhm.2012.05.003>
- Kountur, R. (2016). Detecting Careless Responses to self-reported questionnaires. *Eurasian Journal of Educational Research*, 16(64), 307–318.
- Kountur, R., Hidayati, A., & Suwanda, S.N. (2024). Structural model of repeating purchase in training institute: the effect of satisfaction, price, and service quality. *Cogent Business & Management*, 11(1), 2414863. <https://doi.org/10.1080/23311975.2024.2414863>
- Kraimer, M. L., Seibert, S. E., Wayne, S. J., Liden, R. C., & Bravo, J. (2011). Antecedents and outcomes of organizational support for development: The critical role of career opportunities. *Journal of Applied Psychology*, 96(3), 485–500. <https://doi.org/10.1037/a0021452>
- Kudrna, R., Tiemann, S., Swoboda, M., & Hanrahan, T. (2024). Fostering social connectedness in first-year seminar students: A pilot study. *InSight: A Journal of Scholarly Teaching*, 19(4), 1–12. Doi: 10.46504/19202404ku

- Kwegyir-Afful E, Hassan TO, Kantola JI (2021) Simulation-based assessments of fire emergency preparedness and response in virtual reality. *Int J Occup Saf Ergon*. <https://doi.org/10.1080/10803548.2021.1891395>
- Lackey SJ, Salcedo JN, Szalma JL, Hancock PA (2016) The stress and workload of virtual reality training: the effects of presence, immersion and flow. *Ergonomics* 59(8):1060–1072
- Lasonen, J. and Manning, S. (2001), “How to improve the standing of vocational compared to general education”, in Descy, P. and Tessaring, M. (Eds), *Training in Europe, Second Report on Vocational Training Research in Europe 2000 – Background Report Volume I* (CEDEFOP), Office for Official Publications of the European Communities, Luxembourg, pp. 115-167.
- Leite, H. & Vieira, LR. (2025). The use of virtual reality in human training: trends and a research agenda. *Virtual Reality*, 29(25), 1-25
- Menin A, Torchelsen R, Nedel L (2018) An analysis of VR technology used in immersive simulations with a serious game perspective. *IEEE Comput Graphics Appl* 38(2):57–73. <https://doi.org/10.1109/MCG.2018.021951633>
- Nedel L, De Souza VC, Menin A, Sebben L, Oliveira J, Faria F, Maciel A (2016) Using immersive virtual reality to reduce work accidents in developing countries. *IEEE Comput Graphics Appl* 36(2):36–46. <https://doi.org/10.1109/MCG.2016.19>
- Reed, D. E., & Jones, G. Z. (2021). The importance of first semester seminars for at-risk first-year students: Analysis of student skills and time spent on class preparation. *Education Sciences*, 11(9), 1-10. <https://doi.org/10.3390/educsci11090510>
- Reilly, G., Nyberg, A. J., Maltarich, M., & Weller, I. (2014). Human capital flows: Using context-emergent turnover (CET) theory to explore the process by which turnover, hiring, and job demands affect patient satisfaction. *Academy of Management Journal*, 57(3), 766–790. <https://doi.org/10.5465/amj.2012.0132>
- Rideout, E. C., & Gray, D. O. (2013). Does Entrepreneurship Education really work? A review and methodological critique of the empirical literature on the effects of University-based Entrepreneurship Education. *Journal of Small Business Management*, 51(3), 329–351. <https://doi.org/10.1111/jsbm.1202>
- Sacks R, Perlman A, Barak R (2013) Construction safety training using immersive virtual reality. *Constr Manag Econ* 31(9):1005–1017
- Schroeder R (2008) Defining virtual worlds and virtual environments. *J Virtual Worlds Res*. <https://doi.org/10.4101/jvwr.v1i1.294>
- Serpente, G., Bolzani, D., & Grimaldi, R. (2024). Entrepreneurial support organizations as providers of entrepreneurial education and training. *The Journal of Technology Transfer*, 13 Jan 2025. <https://doi.org/10.1007/s10961-024-10177-4>
- Shaw, J. D., Gupta, N., & Delery, J. E. (2005). Alternative conceptualizations of the relationship between voluntary turnover and organizational performance. *Academy of Management Journal*, 48(1), 50–68. <https://doi.org/10.5465/amj.2005.15993112>
- Shaw, J. D., Park, T.-Y., & Kim, E. (2013). A resource-based perspective on human capital losses, HRM investments, and organizational performance. *Strategic Management Journal*, 34(5), 572–589. <https://doi.org/10.1002/smj.2025>
- Shi Y, Du J, Ahn CR, Ragan E (2019) Impact assessment of reinforced learning methods on construction workers' fall risk behavior using virtual reality. *Autom Constr* 104:197–214. <https://doi.org/10.1016/j.autcon.2019.04.015>

- Tortorella GL, Fogliatto FS, Saurin TA, Tonetto LM, McFarlane D (2022) Contributions of healthcare 4.0 digital applications to the resilience of healthcare organizations during the COVID-19 outbreak. *Technovation* 111:102379
- Turcotte, J. A., Léonard, A. and Montmarquette, C. (2003), *New Evidence on the Determinants of Training in Canadian Business Locations, The Evolving Workplace Series* (Ottawa: Statistics Canada and Human Resources Development Canada).
- UNEVOC and Billett, S. (2018), *Improving the Image of TVET: Virtual Conference Report*, UNEVOC, Bonn.
- Van Iddekinge, C. H., Ferris, G. R., Perrewé, P. L., Perryman, A. A., Blass, F. R., & Heetderks, T. D. (2009). Effects of selection and training on unit-level performance over time: A latent growth modeling approach. *Journal of Applied Psychology*, 94(4), 829–843. <https://doi.org/10.1037/a0014453>
- Wang, Y., Ma, J., & Ren, H. (2016). Research on the relationship between competency and job qualification. *Joint International Conference on Economics and Management Engineering (ICEME 2016) and International Conference on Economics and Business Management (EBM2016)*.<https://www.scribd.com/document/359851572/ICEMEEBM-2016-Proceedings>.
- Winch, C. (2013), “The attractiveness of TVET”, in *World TVET Report*, UNESCO, Paris, pp. 86-122.
- Zaalberg R, Midden CJ (2013) Living behind dikes: mimicking flooding experiences. *Risk Anal* 33(5):866–876. <https://doi.org/10.1111/j.1539-6924.2012.01868.x>
- Zeytinoglu, I. U. and Cooke, G. B. (2008), Non-standard employment and promotions: a within-gender analysis, *Journal of Industrial Relations*, 50, 2, 319–37.