Validation of Training in Relation to Succession Planning: Exploratory Factor Analysis and Confirmatory Factor Analysis Approach

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ABSTRACT

This study examined the validity as well as reliability of a tool designed to examine training within the context of succession planning at public universities in Malaysia, using Exploratory Factor Analysis (EFA) as well as Confirmatory Factor Analysis (CFA) methods. Therefore, this study obtained fourteen training items from prior studies and different industries, and these were modified according to the higher education industry. The survey was distributed to 430 respondents, comprising administrators from 20 public universities. Note that EFA was conducted on the pilot study data (n = 102) to determine potential factor structures. Correspondingly, CFA utilised data from the field study (n = 328) to validate the construct measurement model. Here, the validation processes for both the EFA as well as CFA presented that only 13 modified items across 4 components remained for a better-fitting model: Training Effectiveness (TE), Training Needs (TN), Training Transfer (TT), as well as Trainee Characteristic (TC). All Composite Reliability (CR) measures concerning these four components surpassed the necessary threshold of 0.7. As these indices values lie in their corresponding cutoff ranges, the model satisfies the Goodness-of-Fit (GOF) criterion: Chisq/df of 1.969, RMSEA of 0.054, GFI of 0.953, CFI of 0.976, TLI of 0.968, and NFI of 0.952. The research indicates that the tool is both valid as well as reliable for evaluating the elements of the training model.

Keywords: Innovation Capability; Confirmatory factor analysis; higher education institution; succession planning; structural equation modelling; training.

INTRODUCTION

The continuity of a competent leadership transition can ensure the stability and improvement of an organization's performance (Abd Rahman et al., 2020; Geib & Boenigk, 2022; Rony et al., 2023). The transition process associated with leadership ability and performance shows an impact of up to 40 percent on the overall performance of the organization (Omar & Hassan, 2015). However, there are difficulties in the transition of leadership due to turnover that occurs, either voluntary turnover or involuntary turnover that affects the vacancy of strategic positions (Al Jahwari & Alwi, 2023; Ali & Mehreen, 2019; Farah et al., 2020). Thus the need to be filled by a competent replacement becomes the main focus.

However, there are difficulties in filling strategic positions due to the lack of suitable replacements to the point that resignations take a long time and are even likely to be carried out by incompetent replacements (Gabriel

et al., 2020; K. E. Hoque & Zheng, 2024; Mehrabani & Mohamad, 2011). This situation affects the smoothness of the organization to continue the strategic plan agenda with regards to the organization as well as can lead to the instability of the planned operation (Bano et al., 2022; Mokhber et al., 2017; Zafar & Khawaja Hummayun Akhtar, 2020). Therefore, focus should be given to the preparation of successors to develop and continue the continuity of future leadership. The development of competent leaders needs to go through a systematic and proactive process. Therefore, the succession plan is an accurate process of identifying, developing as well as retaining competent talent to fill the organization's strategic positions.

Meanwhile, the filling of positions by incompetent successors without sufficient knowledge, experience, and training exposes the organization to the risk of leadership transition and affects the prospects of organizational productivity (Barton, 2019; Philip, 2020). Therefore, training plays an important role in the succession plan (Brownson, 2023; C.-K. Chia, Ghavifekr, & Razak, 2021). In other words, the succession plan process must be equipped with a structured training program to improve competency and ability as well as overcome skill gaps in relation to the ability to do now and expected future work needs (Rothwell, 2010). In fact, many training programs are prone to establishing leaders who have good leadership qualities as well as competencies (Hargis et al., 2011). This is because, in general, the assumption is that good leaders will form good behavior, which in turn can improve performance in the organization.

According to Church et al. (2017), formal training planning and actions based on program objectives are able to impact behavior change. To achieve this goal, the institution needs a series of training, especially leadership programs, to bridge the competency gap of potential leaders (Brownson, 2023). However, all organizations, including higher education institutions, face challenges in implementing training programs (Bano, 2020), including the lack of mentoring programs (Kilian et al., 2005).

In relation to this issue, therefore, this study examined the relationship that exists between training with regard to the effectiveness of succession planning among administrative officers in Malaysia's public universities. Currently, the Ministry of Higher Education (MOHE) in Malaysia has identified 20 public universities (MOHE, 2022).

LITERATURE REVIEW

The Concept of Succession Planning

The succession planning concept is examined from the perspective of the inconsistency of the use of terms and terms of succession plan which causes the issue of confusion about the concept of succession plan (Phillips, 2020). Previous studies have found three main terms that are often discussed and lead to different understandings in the use of the concept with regard to succession planning, namely talent management, leadership development, as well as replacement planning (Dahlan et al., 2021; Weisblat, 2018).

A term often used interchangeably with succession planning is leadership development (Buckway, 2020; Dalayga & Baskaran, 2019; Muslim et al., 2015). While succession planning as well as leadership development are interconnected concepts, they have distinct definitions. Leadership development emphasizes the training and growth of individuals currently in key roles. In contrast, succession planning is a forward-thinking strategy aimed at identifying talent in the talent pool and providing planning for assuming positions or roles in the future. The same view is presented by Wajidi et al. (2023), stating that there are organizations that do not use the term succession plan. Still, a more appropriate use is leadership development that emphasizes building administrative and leadership capabilities rather than simply providing replacements to fill positions.

In addition, succession planning must not be mixed up with replacement planning. Although both terms have the same objective, which is to facilitate a seamless leadership transition after the unexpected loss of a leader in a role, the activities carried out are different (Dahlan et al., 2021; Weisblat, 2018). In a more explicit context,

succession planning focuses on the development of individuals and not just naming them as successors. This means that talent pools are the best approach to producing more competent individuals. The talent pool refers to a group of high-performing individuals who have the potential to be promoted to the next level in the organization (Rothwell, 2016). In this approach, potential candidates are placed in talent pools for promotion through a structured development plan. However, it is not a guarantee or promise to the individual concerned for the promotion or appointment of a position (Diya & Mansor, 2019; Rothwell, 2016).

On the other hand, the replacement plan (replacement planning) is a process of identifying within a certain period of time so that the organization has individuals who can take on responsibility for key roles in emergencies or urgent replacement situations (Rothwell, 2016). The difference between succession planning as well as replacement planning is that replacement planning only meets the demand when there is an emergency for filling replacements. In contrast, succession planning emphasises on the systematic identification as well as the development with regard to talent pools that are consistently evaluated for strategic positions and promotions. All these terms have something in common, however, the goals and approaches differ from the succession plan. As a result, conceptual clarification is important because there are various succession plan terms used in certain studies

The influence of training on succession planning

A succession plan without development and training is a mistake that organizations often make (Mehrabani & Mohamad, 2021). Most organizations do not focus on investing in human resource development and often neglect succession planning (Sohu et al., 2020). The efficient succession plan implementation requires a successor with new knowledge and skills so that the trained successor can effectively perform duties after assuming the new position (Jackson & Allen, 2022; Rothwell, 2016).

Studies by Sohu et al. (2020) and Friday (2019) explain that training possessed a substantial impact with regard to succession planning. This is because the succession plan emphasizes the selection of competent employees to replace leaders who have or will leave the organization due to retirement, termination of service or other factors (González, 2010; Sholesi et al., 2022). A leader may establish failure or success with regard to the organization he leads through his knowledge, experience and personality (Sonmez Cakir & Adiguzel, 2020). According to Dessler (2020), employees who have been identified from the talent pool will be given concentration in training development, work rotation and external assignment. Employees who have undergone training are able to improve their knowledge and demonstrate their abilities in performing a task (Tews & Burke-Smalley, 2017; Zumrah et al., 2013).

The effectiveness of the training that is carried out is not only evaluated based on the number of programs carried out by the substitute, but the most important thing is how the training can bring about behavioral changes. In ensuring that training programs are systematically planned and have quality values that can meet the required objectives, there are two issues or challenges that need to be emphasized. The first is the effectiveness of the leadership program, and the second is how to implement a leadership program that can maximize its effectiveness based on four aspects, namely reaction, learning, transfer, and results based on Kirkpatrick's model (1975). All aspects are evaluated through training design, delivery, as well as implementation characteristics (Lacerenza et al., 2017).

In the meantime, focus should also be given to the process of evaluating the effectiveness of training for each substitute who has completed following a program. Substitutes who show increased knowledge and behavioral changes immediately following the program prove the program has been accurately designed based on the appropriate modules. In fact, it proves the results of a quality training program with replacement changes in line with the required competency requirements. Therefore, organizations need to ensure that the training program implemented coincides with the competency requirements based on appropriate program evaluation methods using the right instruments. Thus, based on the importance of training relationships, a suggested research model is demonstrated, as illustrated in Figure 1.

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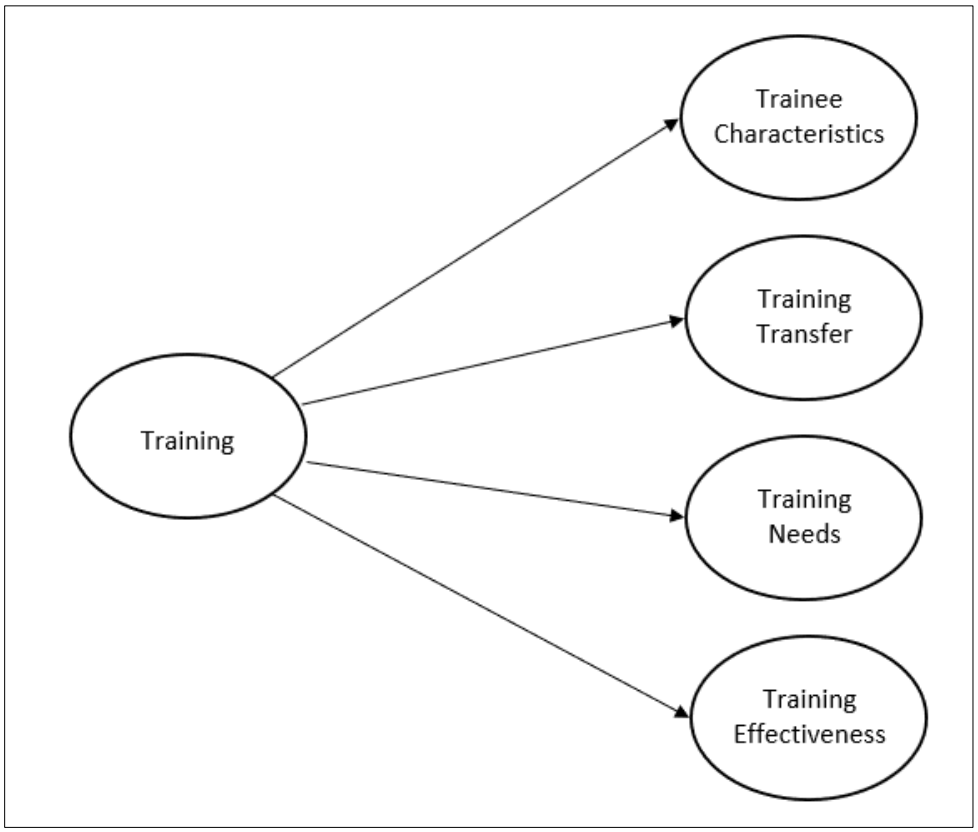

Figure 1 Source: Authors (2024), Conceptual Model

METHODOLOGY

In this research, the instruments used are adapted (adapted and modified) from previous studies and have been evaluated for the purpose of reliability as well as validity. Saunders et al. (2019) suggest researchers adopt and adapt questions from existing instruments. Therefore, some research questions have been amended to be relevant to the Research Objectives (ROs) as well as to answer the Research Questions (RQs) and hypotheses conducted with several things that should be considered, namely the design of the questionnaire, the validation of the instrument through pre-testing and the method of how the questionnaire is administered (Cooper & Schindler, 2014; Hair et al., 2020). The details of the research objectives and research questions are as follows

RO. Examining the influence of training on succession planning among university administrators in public universities?

RQ. Does the influence of training have a significant effect on succession planning among university administrators in public universities?

This study also conducted a pilot study to examine the reliability as well as validity with regard to the modified tools. During the pilot study, the respondents were chosen similar to the target population and administered the adapted instruments. Then, the pilot study results are analyzed to identify the instruments' reliability as well as validity. The findings of the pilot study allowed us to identify any potential issues or areas for improvement in the instruments. After making necessary revisions based on the pilot study, the research proceeded with data collection using the refined instruments.

This study involved multiple phases, such as adapting research instruments, validating through expert panels, implementing a sampling procedure, as well as collecting data. The gathered data underwent EFA to identify potential components. Subsequently, CFA was conducted to examine the data and evaluate the reliability as well as the validity of the constructs. This study's main highlight is to conduct EFA and CFA for the training construct

Research Instrument

The training instrument was adapted from two primary studies. First, the Training Transfer Questionnaire was developed by Tesluk et al. (1995). Meanwhile, the Training Motivation instrument was established by Bartlett (2001). This instrument has been used by several researchers, including Eko Hariyanto et al., 2013; Gegenfurtner et al., 2009. The reliability of this instrument was reported in a study (Eko Hariyanto et al., 2013) where Cronbach's Alpha (CA) value exceeded 0.77 for Training Transfer Questionnaire and 0.848 for Training Motivation. The entire instrument consists of 17 items, but only 14 items are used with four sub-constructs, namely trainer characteristics, training transfer, training needs, and training effectiveness.

Data Collection

The distribution of the questionnaire involved 500 administrators from 20 public universities. The selection of respondents is based on a total of 1533 population among university administrators grades 48 to 54 using a simple random sampling method. The distribution of questionnaires to respondents received permission from the university and the MOHE to clarify the objectives and inform about the ongoing study. Note that a total of 348 questionnaires were obtained, meeting the necessary sample size, with a response rate of 70%.

The researcher obtained research approval from the universities as well as the Malaysian MOHE before distributing the questionnaire. The chosen participants were sent an email along with a self-administered questionnaire to collect their responses. Other than that, data for both the field as well as pilot studies were gathered utilising a cross-sectional design. The participants in this research comprised administrative officers (Grades 48 to 54) from 20 Malaysian public universities. Furthermore, the sampling framework as well as data were attained from the personnel directories available on the website with regard to the Department of Human Resources and each university. Data collection occurred in two phases utilizing a systematic sampling method.

DATA ANALYSIS

Phase 1: Exploratory Factor Analysis (EFA)

The training construct was measured using 14 items in a survey study. Each item statement is measured utilizing an interval scale that varies from 1 (strongly disagree) to 7 (strongly agree). At the initial stage of the survey conducted, there was no classification of sub-constructs in the prepared instrument. Table 2 indicates the mean range of items with regard to the training construct is between 5.6569 and 5.9412, while the standard deviation is between 0.57861 to 0.81554.

EFA was conducted utilising the Principal Component Analysis (PCA) technique possessing a varimax rotation on 14 items examining the training construct. As presented in Table 1, the Kaiser-Meyer-Olkin (KMO) measure with regard to sample adequacy is 0.790, exceeding the minimum threshold of 0.6 (Awang, 2018; Hoque & Awang, 2016). In contrast, Bartlett's Test shows a significant value (Chi-square=727.350, P-value <0.000), which meets the required significant value, which is less than 0.05 (Hair et al., 2019). Therefore, the training construct with 14 items is eligible to continue the factor analysis with a KMO value approaching 1.0 and a significant value of Bartlett's Test approaching 0.0 (Awang et al., 2018).

Table 1 KMO Value as well as Bartlett’s test- Training

KMO dan Ujian Bartlett		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.780
Bartlett's Test of Sphericity	Approx. Chi-Square	727.350
	df	91
	Sig.	.000

After applying varimax rotation to minimize the number of extracted factors, the analysis identified four factors (see Table 2). Factor 1 possesses a CA of 0.838 (refer to Table 3), indicating satisfactory reliability for its three components (items D5, D6, and D7). The factor loadings with regard to these items ranged between 0.751 and 0.870. This factor is labeled Trainee Characteristic (TC). Factor 2 includes three components (items D12, D13, and D14), has a CA of 0.781, and is designated as Training Transfer (TT). Factor 3, referred to as Training Needs (TN), consists of three items (D1, D2, and D3) and has a CA of 0.846. The factor loadings for these items vary between 0.674 and 0.916. Factor 4 includes four items (D8, D9, D10, and D11) with a CA of 0.714, which is quite satisfactory. This factor is labeled Training Effectiveness (TE), with item loadings ranging between 0.664 and 0.741.

Table 2 The Rotated Component Matrix for Training Construct

	Rotated component matrix[a]				
Item label	Item statement	Factor loading			
		1	2	3	4
D1	I believe I learn more from training programs in comparison to others.			0.868	
D2	I am inclined to be motivated to learn the skills highlighted in education/training programs.			0.916	
D3	I am prepared to put significant effort into training programs to enhance my skills.	0.418		0.674	
D4	I think I can enhance my skills by participating training programs.	0.573		0.449	
D5	I am able to learn the materials introduced in a lot of training programs.	0.751			
D6	I am committed to putting in the effort to improve my skills and abilities relevant to my current role.	0.870			
D7	I am committed to putting in the effort to improve my skills as well as abilities for the sake of learning.	0.843			
D8	I am committed to putting in the effort to improve my skills as well as abilities in order to advance my career.				0.690
D9	After training, I can do the job better with better results.				0.693
D10	Following the training, I was able to handle work-related issues as efficiently as possible.				0.741
D11	After completing the training, I gained additional skills and expertise to perform the tasks effectively.		0.491		0.664
D12	I follow training in accordance with my work.		0.712		
D13	The training that I follow is very helpful in improving my performance.		0.808		
D14	I used the skills I gained while training for the daily work.		0.770		

Source: Data developed by the author (2024)

Table 3 The Rotated Component Matrix for Training Construct

Component	**No. of items**	**Cronbach's alpha (CA)**
Trainee Characteristic (TC)	3	0.838
Training Transfer (TT)	3	0.781
Training Needs (TN))	3	0.846
Training Effectiveness (TE)	4	0.714
All items	13	

The eigenvalues calculated fell between 1.349 and 5.224 (all greater than 1.0; see Table 4), with the following variance clarified by each factor: component 1 accounts for 20.04%, component 2 for 37.74%, component 3 for 55.33%, as well as component 4 for 70.75%. The cumulative variance explained with regard to this construct is 70.75%, which is deemed acceptable as it exceeds the minimum threshold of 60% (Awang, 2023). Furthermore, the total variance explained is over 60%, and the eigenvalue of each component exceeds 1.0, demonstrating that the overall explained variance is satisfactory (Bahkia et al., 2019; Baistaman et al., 2020). Furthermore, items possessing factor loadings above 0.6 were included in the analysis, as they effectively measure the specific construct. Here, those with lower loadings need to be excluded from the actual study instruments (Awang, 2018; 2023). To retain a factor, there must be a minimum of three items per factor (Hair et al., 2019). Moreover, since 13 out of the 14 items possess a factor loading exceeding 0.6, as presented by the rotated component matrix, all 13 items were included in the subsequent analysis based on the four components of the construct, while one item (D4) was removed.

Table 4: Total Variance Explained - Training

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	5.224	37.313	37.313	5.224	37.313	37.313	2.806	20.041	20.041
2	1.855	13.252	50.565	1.855	13.252	50.565	2.478	17.699	37.740
3	1.477	10.553	61.118	1.477	10.553	61.118	2.463	17.590	55.331
4	1.349	9.634	70.752	1.349	9.634	70.752	2.159	15.421	70.752
Extraction method: Principal component analysis. Source: data processed by the author (2024)									

Phase 2: Confirmatory Factor Analysis (CFA)

The EFA played a crucial role in identifying the underlying factors that most effectively represented the dataset and its associated measured values, ensuring that the factors extracted were meaningful and statistically significant. Following this, the CFA was rigorously performed to further validate the measurement model for each construct, thoroughly assessing its unidimensionality, validity, and reliability. This comprehensive approach aimed to confirm that the constructs were well-defined and that the measurement model provided a robust representation of the data's structure (Hair et al., 2019). This analysis aimed to evaluate the fit with regard to the variables utilised in the research. To enhance the model fit, one item was removed from the CFA model, resulting in a final model with 13 items across four components.

Construct validity - The goodness of fit indexes

According to established guidelines, standardized loading estimates with regard to each factor should ideally fall between 0.5 and 0.7 or higher to indicate strong associations with their respective constructs (Hair et al., 2019). Higher loadings signify that items are closely related to their constructs, whereas lower values suggest that those items may need to be removed. The unidimensionality of a construct is deemed acceptable if it aligns consistently with the factor loadings, as indicated (Awang, 2018). Note that the fitness indices with regard to the training measurement model are listed in Table 5. To examine the model's goodness of fit, various statistical indices are applied and categorized into parsimonious fit, incremental fit, as well as absolute fit (Hair et al., 2019). Absolute fit is typically assessed by utilizing indicators like the Root Mean Square Error of Approximation (RMSEA), having an acceptable threshold of less than 0.08. Consequently, incremental fit is measured through indices such as the Comparative Fit Index (CFI) as well as the Tucker-Lewis Index (TLI), both of which should ideally exceed 0.90. For parsimonious fit, the normalized chi-square value is used, with a recommended cutoff of less than 5.0, indicating a well-fitting model (Angel et al., 2019).

Figure 2 portrays that the fit indices of the CFA model do not entirely align with the evaluated data. Here, the chi-square value (CMIN/DF) is 3.160, which satisfies the criterion of being less than 5.0. The RMSEA is 0.081, meeting the acceptable threshold of less than 0.1. Additionally, the fit indices GFI (0.923), CFI (0.938), and TLI (0.921) all exceed the recommended threshold of 0.90. Given these results, it was decided to remove one item (D10) given its low factor loading. On the other hand, the remaining 13 items were grouped into four categories, as suggested by the research, to minimize further measurement error. After the removal of the item, the training construct demonstrated a good fit, as depicted in Figure 3. The fit indices achieved were as follows: a chi-square/df of 1.969 (meeting the acceptable threshold of ≤ 5.0), an RMSEA of 0.054 (falling below the target of < 0.1), a GFI of 0.953 (exceeding the standard of ≥ 0.90), a CFI of 0.976 (surpassing the threshold of ≥ 0.90), a TLI of 0.968 (meeting the criterion of ≥ 0.90), and an NFI of 0.952 (also reaching the required level of ≥ 0.90). These fitness index results, as summarized in Figure 3, are detailed in Table 5.

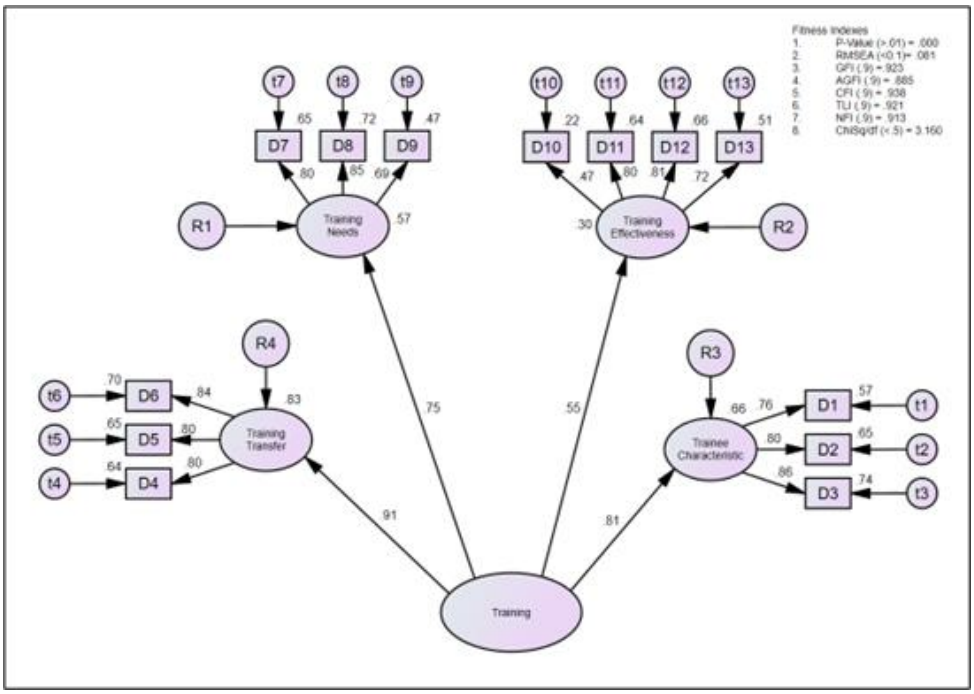

Figure 2 Source: Authors (2024), Initial CFA procedure with regard to training construct

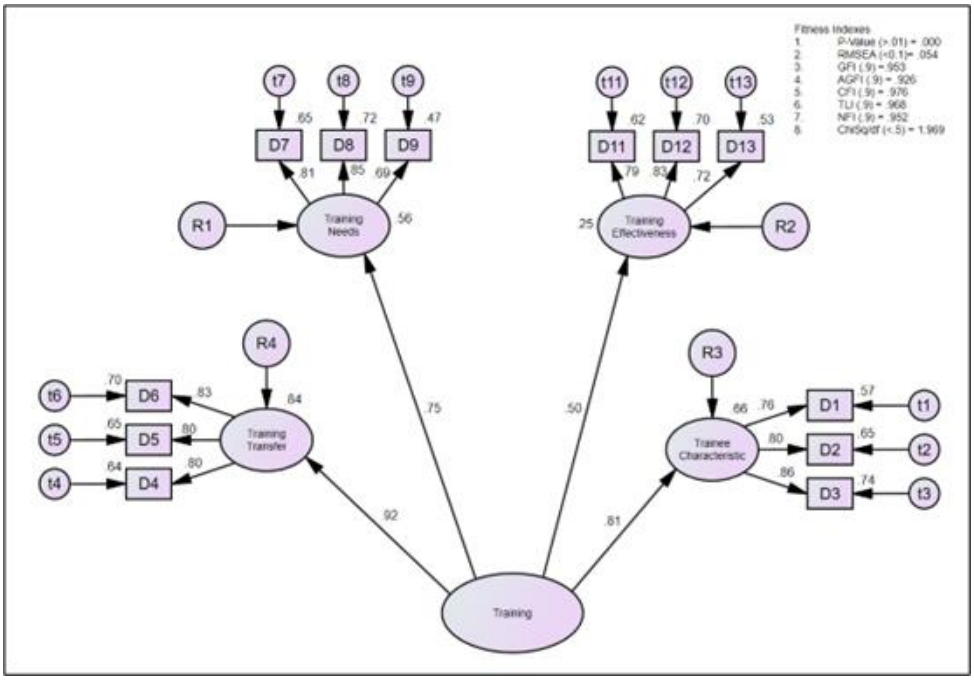

Figure 3 Source: Authors (2024), Final CFA procedure with regard to training construct- after deletion

Table 5 Comparison with regard to the model fit and its acceptance level of initial as well as final measurement models concerning the training construct.

Category Name	Index Name	*Acceptance Level	Initial generated value	Final generated value	Construct validity
(1) Absolute fit	RMSEA	RMSEA < 1.0 acceptable, < 0.08 good	0.081	0.054	Achieved
	GFI	GFI> 0.9	0.923	0.953	Achieved
(2) Incremental fit	CFI	CFI > 0.9	0.938	0.976	Achieved
	TLI	TLI > 0.9	0.921	0.968	Achieved
(3) Parsimonious fit	chi-sq/*df*	chi-square/*df* < 5.0	3.160	1.969	Achieved

*Hair et al. (2014), Source: data processed by the author 2024

Convergent validity and discriminant validity

The assessment of attenuated inter-variable correlations was undertaken to appraise the convergent and discriminant validity of the comprehensive measurement model. Notably, discriminant validity was substantiated via Average Variance Extracted (AVE) metrics, affirming both forms of validity. Specifically, each construct's AVE surpassed the critical threshold of 0.50, while the inter-construct correlations remained below the square root of their respective AVEs, adhering to the methodological guidelines established by Fornell and Larcker (1981) and Henseler et al. (2014). According to Awang et al. (2018), for discriminant validity to be attained, the diagonal values (square roots of the AVE) must be higher compared to any other values in their row or column.

The emboldened diagonal elements denote the square roots of the AVE with regard to each respective construct, whereas the off-diagonal values indicate the correlation coefficients established between construct pairs. The findings indicated that all four components of the training construct were substantially correlated, with r-values ranging from 0.39 to 0.82, confirming convergent validity. Furthermore, none of the correlations were excessively high (all r-values ≤ 0.85), indicating good discriminant validity of the scale (Kline, 2011). The discriminant validity assessment with regard to the constructs is presented in Table 6.

Table 6 The Discriminant Validity with regard to training construct

Component	Trainee Characteristic (TC)	Training Transfer (TT)	Training Needs (TN)	Training Effectiveness (TE)
Trainee Characteristic (TC)	**0.80**			
Training Transfer (TT)	0.76	**0.81**		
Training Needs (TN)	0.58	0.68	**0.82**	
Training Effectiveness (TE)	0.39	0.43	0.46	**0.78**

Source: data processed by the author (2024)

The AVE values with regard to all four model components, known as Trainee Characteristic, Training Transfer, Training Needs, and Training Effectiveness, exceeded 0.5, indicating strong convergent validity (Hair et al., 2019). This result suggests that the constructs possess sufficient convergent validity.

Convergent validity was further evaluated utilizing both Composite Reliability (CR) as well as AVE, where a CR of at least 0.60 and an AVE of at least 0.5 are needed to determine adequate reliability (Hair et al., 2019; Awang, 2023). These criteria ensure that the constructs are consistently measured. As shown in Table 7, all components of the model achieved CR values higher than 0.60, confirming that the constructs employed in

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this research met the reliability threshold. Thus, both CR and AVE supported the reliability as well as validity with regard to the measurement model.

Table 7 Standardized factor loadings, CR, as well as AVE with regard to training construct

Component	Items	Factor loading	Average Variance Extracted (AVE)	Composite Reliability (CR)
Trainee Characteristic (TC)	D1	0.76	0.652	0.849
	D2	0.80		
	D3	0.86		
Training Transfer (TT)	D4	0.80	0.656	0.851
	D5	0.80		
	D6	0.83		
Training Needs (TN)	D7	0.81	0.618	0.828
	D8	0.85		
	D9	0.69		
Training Effectiveness (TE)	D11	0.79	0.610	0.824
	D12	0.83		
	D13	0.72		

DISCUSSION

The research's findings present the high level of validity as well as reliability of the scale utilized to evaluate the measuring of training in the succession planning context at Malaysia's public universities. Based on descriptive statistical analysis, it was also shown that the data employed in this study were adequate for conducting a valid EFA. The sample size of 102 administrative officers was sufficient for the EFA (Hair et al., 2019; Saunders et al., 2019). Experts in academia and practice established the validity of the scale by offering their professional opinions on 14 items that evaluate the training construct.

Furthermore, the componential architecture of the comprehensive construct measurement tool, as established by the EFA results, explained 70.752% of the variance in inter-item associations. The four extracted components demonstrated robust reliability, with Cronbach's alpha coefficients ranging from 0.719 to 0.856. This study's EFA approach provided a thorough validation of the training construct. Based on the EFA findings, three items having a factor loading below 0.6 were discarded, resulting in a final questionnaire of 12 items, as presented in Table 5.

Consequently, this research has developed a training instrument consisting of four components. This tool can assist academics, higher education administrators, or human resource managers in assessing training related to succession planning aimed at enhancing performance as well as commitment among administrative staff by evaluating the constructs identified in this study. However, as suggested by Hair, Jr. et al. (2019) and Yu & Richardson (2015), further research is needed to explore the correlations that exist between the latent variables via a CFA.

The CFA analysis results demonstrated a strong level of validity as well as reliability for the scale measuring employee competency. Thus, the findings imply that the measurement model, comprising 10 items within a four-factor framework, is robustly calibrated and demonstrates an acceptable fit within the CFA of the training measurement model. Furthermore, the fit indices suggest that all models attained an adequate level of overall fit, as evidenced by RMSEA = 0.070, GFI = 0.955, CFI = 0.953, TLI = 0.926, and a normalized chi-square of 2.605 (refer to Table 5). Accordingly, the study has effectively developed and validated measurement instruments relevant to the training construct, ensuring suitability for practical application. The outcomes substantiate the items' relevance, underscored by the statistical results. Hence, this methodology is recommended for adoption in subsequent research endeavors.

CONCLUSION

This study examined a wide range of items from several components for measuring training constructs, including TC, TF, TN, as well as TE, notably in the succession planning context among administrative officers at public universities in Malaysia. The modified and updated items were pre-tested with expert verification and pilot testing before the EFA technique was used to filter the items. Pre-testing has enabled the instruments to meet the requirements for face validity, content validity, as well as criterion validity.

The measurement items that were taken from the literature and analyzed using EFA were found to be divided into four components from 14 items having factor loadings that were more than 0.6. The results also demonstrated that the construct could be effectively examined utilising 14 items, resulting in an explained variance exceeding 60%. The 0.780 KMO value greater than 0.70 met the requirements of the Bartlett test. These findings collectively suggest that the data utilized in this study were sufficient.

Considering that all of the CA values exceed the acceptable threshold of 0.7, the items in every measurable component examining the construct indicate strong internal reliability. The adapted training instrument's internal consistency and reliability have been proven by the current study's measurement development as well as validation processes. Thus, the study was successful in creating and establishing the measurement tools with regard to the training construct that may be employed in practical application. This research's findings present that the examined items were suitable, as reflected in the results. Therefore, it is recommended that this approach be employed in future research. Other than that, the empirical evidence from this study provides a foundation for developing and validating an instrument to assess the training construct effectively.

The validated scale from this study can be a valuable tool for human resource managers at public universities to gain deeper insights into the belief systems of their staff. This understanding can support data-driven decision-making, aiding in the selection and development of competent administrators for succession planning. Additionally, the study's outcomes will guide administrators and policymakers in public universities in identifying key factors that contribute to effective executive succession planning. By forming the creation with regard to relevant policies, these findings will help implement best practices in this field. Ultimately, this research supports professionals in applying innovative models to enhance their strategic planning efforts

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