

MALAYSIAN EDUCATIONAL STRATEGIC LEADERSHIP PRACTICE INVENTORY (MESLPI): DEVELOPMENT AND EVALUATION OF ITS PSYCHOMETRIC PROPERTIES

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ABSTRACT

The main purpose of the study is to test and validate the strategic leadership measuring instruments originally contributed by Davies and Davies (2010) and Pisapia et al. (2009). The second purpose is to compare the psychometric properties of both instruments based on reliability, validity and its responsiveness. The study employed a survey method. The combined instrument of Davies and Davies and Pisapia et al. was administered among the aspiring principals (NPQEL) through online. The study managed to collect 199 (out of 250 respondents) returned online survey questionnaires. The data was screened for errors and multivariate and univariate outliers prior to further analysis of the data. Descriptive Statistics and Structural Equation Modeling (SEM) are employed for the testing the psychometric properties Davies and Davies and Pisapia et al. adapted instruments. The reliability estimates of both instruments are considered high from as low as 0.783 and as high as 0.896. The validity of the instruments is obviously demonstrated by the goodness of fit of the SEM models of Davies and Davies and Pisapia. The combination of both instruments led to the validity of Malaysian Educational Strategic Leadership Practice Inventory (MESLPI). Only a selected group of aspiring principals was used for this particular study. The other groups of the potential respondents did not take part in the study. The results from all three tests of psychometric properties of Davies and Davies, Pisapia et al. and the combination would contribute the indigenous body of knowledge in the area of strategic leadership in education in Malaysia. From the practical side, the valid MSLPI will be able to be used in profiling all aspiring principals for the benefit of high performance education sustainability in Malaysia. The result had considered fulfilled the novelty characteristics. Other than knowing which instrument is better in terms of psychometric properties, by combining and transforming both instruments into MESLPI is something very new in the context of Malaysian system of education.

Keywords: *Aspiring principals, structural equation modeling, psychometric, Malaysian Educational Strategic Leadership Practice Inventory (MESLPI).*

INTRODUCTION

Establishing a strategically focused schools (Davies & Davies, 2009), mobilizing others to want to struggle for shared aspirations (Kouzes & Posner, 2003) and focusing on effective schools (Everard, Morris & Wilson, 2004) are considered the main aim of every strategic educational leaders. No matter who are the educational leaders, whether they are incumbent principals or those are aspiring principals, the

most important task and responsibilities for them to handle will be to establish and sustain the strategically focused and effective schools. The big question mark is that whether the educational leaders concerned are fully ready with the challenges and hindrances they may face in future endeavors.

BACKGROUND OF THE STUDY

Although there are enormous studies conducted on educational leadership (Leithwood, Jantza & Steinbach, 1999; Hallinger & Heck, 1996), but the scholars admitted that in general, only a handful of study were conducted in the area of educational strategic leadership worldwide as well as in Malaysia in particular. Just to highlight a few, Davies (2004, 2006), Davies and Davies (2009), Pisapia et al. (2009) are considered as the prominent scholars in this area of study. While Davies and Davies (2009) are stressing on two aspects: Organizational capability (Strategic Alignment, Strategic Translation, Strategic Competence, Strategic Orientation and Strategic intervention) and Personal Characteristics (comprised of Restlessness, Absorptive capacity, Adaptive capacity and Wisdom). Pisapia et al. (2009) are stressing on Managing, Transforming, Bonding, Bridging, Bartering and Behavioral Agility. Therefore, the main purpose of the study is to transform both contributions into a newly defined area of study that will later contributes to the enhancement of the educational strategic leadership skills and knowledge among the aspiring principals and educational leaders for the sustainability of high performance education.

The issue or problem that triggered this particular study is that, presently, there is still no scientifically developed, valid and reliable Malaysian Educational Strategic Leadership Inventory (MESLPI) that able to measure and functioning in profiling the aspiring principals and aspiring educational leaders for the sustainability of high performance education in Malaysia.

CONCEPTUAL FRAMEWORK

As previously discussed, the study tries to transform the measuring instrument of Davies and Davies (2009) and Pisapia et al. (2009) into a newly defined area of study and profiling instruments. The study adopted and adapted all nine constructs of Davies and Davies (2009) particularly the Strategic Alignment, Strategic Translation, Strategic Competence, Strategic Orientation and Strategic intervention)

and Personal Characteristics (comprised of Restlessness, Absorptive capacity, Adaptive capacity and Wisdom). At the same time, the study also tries to adopt and adapt Pisapia et al. (2009) Managing, Transforming, Bonding, Bridging, Bartering and Behavioral Agility. By combining and merging the contributions of those two scholars hopefully the study will produce a scientifically new creation called MESLPI. Figure 1 below depicts the conceptual framework of the study. Based on the proposed conceptual framework, the objectives of the study are proposed in the next section of the paper.

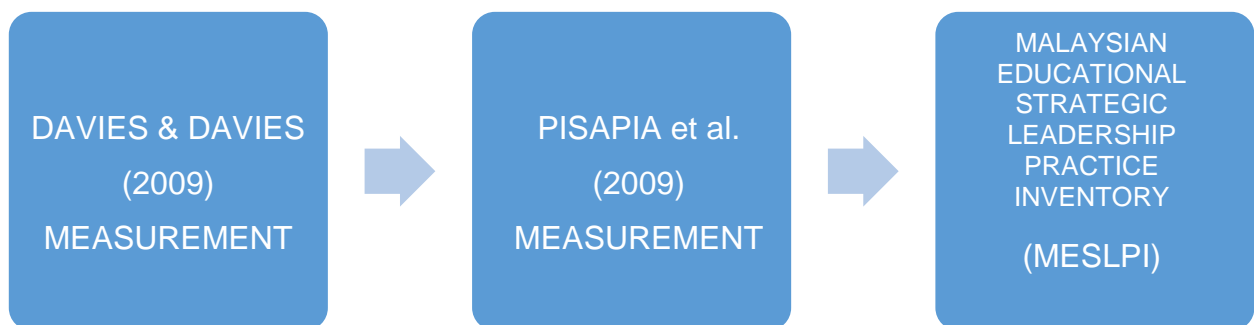


Figure 1: Conceptual Framework of the Study

OBJECTIVES AND RESEARCH QUESTIONS.

The detail objectives of the study are as follows:

1. To investigate the Validity of Malaysian Educational Strategic Leadership Practice Inventory (MESLPI) construct.
2. To determine the Reliability of Malaysian Educational Strategic Leadership Practice Inventory (MESLPI) construct.
3. To examine the Dimensionalities of the Malaysian Educational Strategic Leadership Practice Inventory (MESLPI) construct.
4. To test if the MESLPI model is possessing the Goodness of fit characteristics, valid and reliable.

While the detail research questions of the study are as follows:

1. Does MESLPI construct Valid?
2. Does MESLPI construct Reliable?
3. Does the MESLPI construct is exhibiting dimensionalities?
4. Does the MESLPI model is possessing the goodness of fit characteristics, valid and reliable?

Knowing About Educational Strategic Leadership (ESL)

Davies and Davies (2004, 2009) contributions

Research in the field of strategic leadership naturally progresses towards tabulating strategic leader competencies. Starting from the 1980s, social science researchers began to study leadership with more attention to the leadership of organizations rather than conventional leadership attributes. Different styles of leadership such as transformational leadership, visionary leadership and charismatic leadership terms emerge. Cheng (2000) defines "strategic leadership as determining where an organization was heading and how to get there". The process includes strategic and 'long-range' planning. Boal and Hooijberg (2000) list three factors of a strategic leader in their view relating to the essence of strategic leadership:

1. Creating and maintaining absorptive capacity (the ability to learn by acknowledging new information, processing it and applying it).
2. Creating and maintaining adaptive capacity (the ability to change based on a situation).
3. Obtaining managerial wisdom (consisting discernment and intuition).

Meanwhile, Weick (2001) states two attributes of strategic leaders and they are: Improvisation (making something new or good from experience, practice and knowledge) and lightness (the ability to drop anything that is no longer useful). Bolt (1996) focuses more on the leader and less on the environment. According to him, there are three dimensions of a leader: business, leadership, and personal effectiveness. The business aspect focuses on executive development including creating new forms of organizations, leading change and directing the organization. Covey (1996) states that strategic leaders have three primary functions: path finding, aligning and empowering. Path finding comprises the process of aligning the organization's value with the company's vision and mission. Aligning involves the process of ensuring the organizational structure, systems and operational procedures in-line with the organization's mission and vision. Furthermore, empowering ignites the talent, ingenuity and creativity of the followers to accomplish the mission. Quong and Walker (2010) emphasize seven principles a strategic leader should have:

1. Future-oriented and have future strategy (Davies & Ellison, 2003)
2. Evidence-based and research led (Groundwater-Smith, 2000; Davies & Ellison 2003)
3. Get things done (Robinson, 2007; Elmore, 2002)

4. Open new horizons.
5. Fit to lead (Elmore, 2002)
6. Make good partners (Robinson, 2007)
7. Do the 'next' right thing (Ramsey, 2003)

As explained above, various scholars have provided multiple definitions and strategic leadership characteristics. Some authors look at it from the individual characteristics of a leader's point of view and others define strategic elements in the organization. Thus, for the purpose of this research, strategic leadership concept by Davies (2006) and Davies and Davies (2004; 2009) are brought forward. Davies (2006) and Davies and Davies (2004; 2009) combined five individual characteristics and four organizational capabilities for a strategic leader. They highlight nine characteristics of a strategic leader:

1. Restlessness - 'creative tension' which emerges from seeing clearly where one wishes to be, one's vision, and facing the truth about one's current reality (Senge, 1990).
2. Absorptive - the ability to absorb new information, assimilate it and learn from it and most importantly, apply it to new ends (Cohen & Levinthal, 1990).
3. Adaptive - the ability to change (Black & Boal, 1996; Hambrick, 1989).
4. Wisdom - the capacity to take the right action at the right time (Davies & Davies, 2004).
5. Strategic orientation – the ability to consider both long-term futures (Stacey, 1992; Boisot, 1995; Beare, 2001; Adair, 2002), seeing the bigger picture, as well as understanding the current contextual setting of the organization (Davies & Davies, 2004).
6. Strategic translation – the need to translate strategy into action by converting it into operational terms (Davies & Davies, 2004).
7. Strategic alignment - This ability of aligning individuals, or the school as a whole, to a future organizational state or position (Gioia & Thomas, 1996; Gratton, 2000; Davies, 2003).
8. Strategic intervention - the key moment for strategic change in organizations (Burgelman & Grove, 1996).
9. Strategic competence - the ability to develop strategic capabilities (Prahalad & Hamel, 1990).

Pisapia et al (2009) contributions

Pisapia et al. (2009) examined the employment of three tools developed to support the all echelons brand of strategic leadership. The tools which build off the work of earlier leadership scholars are the Strategic Thinking Questionnaire (STQ) and the Strategic Leadership Questionnaire (SLQ), and the Strategic Leader Method (SLM). The STQ measures use of three thinking skills: Reframing, Reflection, and Systems Thinking (Pisapia, Reyes-Guerra, and Coukos-Semmel, 2004, Pisapia, Morris, Toussaint, & Ellington, 2011). The SLQ measures five leader influence actions: Transforming, Managing, Bonding, Ridging, and Bartering (Pisapia, 2009; Yasin, 2006). The SLM establishes a generative protocol that organizations and teams can follow to create a Statement of Intent to guide the actions (Pisapia, 2009; Pisapia & Robinson, 2010). The tools are currently being used for training purposes in Graduate Education Programs such as the MBA Programs at University of Charleston, USA; University of Ottawa, Canada; University of Turku, Finland; MED programs for Aspiring School Leaders; Florida Atlantic University USA, and in Corporate Training at Trust Bridge Health, USA; Noble Training, KSA; Discovery Team, Poland; Peter Hess Associates, USA. The working hypothesis underlying the all echelons brand of strategic leadership is that in times of complexity leaders who are cognitively and behaviorally agile produce better results than those less cognitively and behaviorally complex. This hypothesis or parts of it have been tested in the Croatia, Hong Kong, India, Iran, Mainland China, Malaysia, Shanghai, Turkey, and the USA. Only SLQ was considered in this study.

Malaysian Educational Strategic Leadership Practice Inventory (MESLPI)

To our knowledge, there are categories of measuring instruments and inventories created and established by the scholars in educational leadership such as Leadership Skills Inventory (LSI), Least Preferred Coworker (LPC), Leader-Member Exchange (LMX-7) and Multifactor Leadership Questionnaire (MLQ), and Leadership Practice Inventory (LPI) pioneered by Kouzes and Posner (2003). Therefore, it was the main aim of this study to synthesize and transform Davies (2006) and Davies and Davies (2009) and Pisapia et al. (2009) into a MESLPI which might be more suitable with Malaysian context.

Research Design and Path of the Study

This study decided to employ full quantitative procedure (Creswell, 2009). The study followed strictly the path proposed (Figure 2) in developing the MESLPI. The research team members firstly carried out the critical review of the both current educational strategic leadership measuring instrument (Davies & Davies, 2009;

Pisapia et al., 2009). The items of the respective measurement were put side by side to investigate and scanning if there are redundancies and overlapping of items and statements. The researchers needed to be very vigilant so that the principal concepts are not left out during the process of merging.

Next was the merging process and the development of new educational strategic leadership measuring instrument. It was the instrumentation processes where principal component analysis (PCA) and exploratory factor analysis (EFA) were employed to examine the dimensionalities of the construct. The validity and reliability of the items (and constructs) were examined through the indices as exhibited by average variance extracted (AVE), composite reliability index (CRI), Cronbach's Alpha (α) and the loadings of items on the respective factors ($.50 \geq$). Series of items testing were conducted before refinement and finalization (Tabachnick & Fidell, 2007).

Fieldwork of administrating the newly developed educational strategic leadership measuring instruments was the next phase. Due to certain limitations, the study embarked on purposive sampling (Creswell, 2009) whereby the sample size of was finally determined at 250 respondents with confidence interval of 95% and margin of error $\pm 5-6\%$ (Ferguson, 1981; Vockell & Asher, 1995) of aspiring principals who were following an NPQEL course at Institut Aminuddin Baki (IAB) sometime in the month of August and September 2016. The survey questionnaire was administered through on-line.

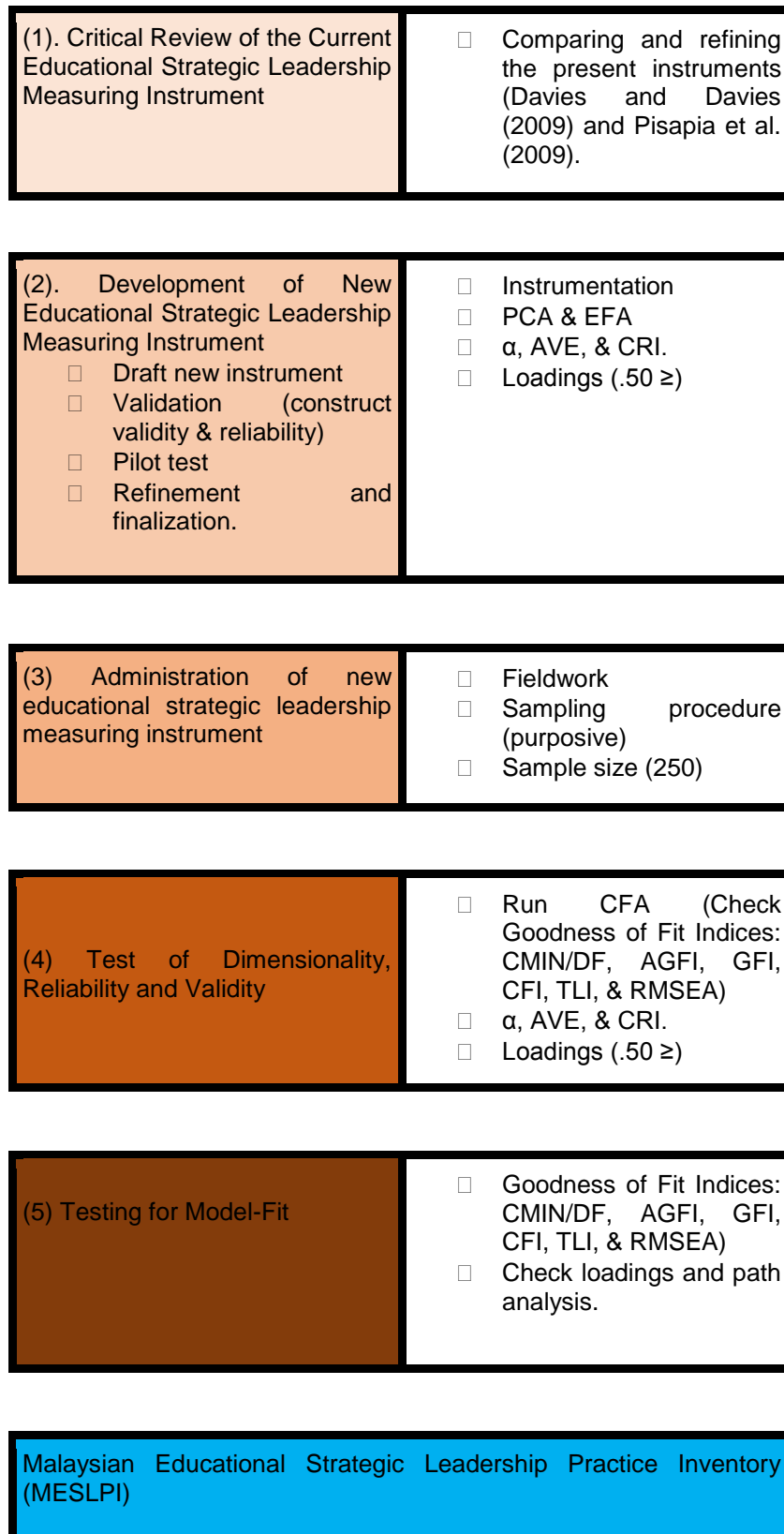


Figure 2: The Path of the Development of MESLPI

One of the stringent process of the study was the data collection process. Besides the challenges of the truthfulness and sincerity of the respondents in responding to the questionnaires, the study team members were very much aware of the willingness and cooperativeness of every respondent in this particular study. Every possible step that might motivate and pushed the respondents to take part in the survey were employed. All the collected data needed to be “normalized” through several steps of data screening prior to any further analyses. The CFA was carried out to check the dimensionalities of the constructs. Examining the goodness of fit indices such as CMIN/DF, AGFI, CFI, TLI and RMSEA (Hair et al., 2010) were obviously pertinent. Besides that, the threshold values of α , AVE, CRI and significant loadings were determined to justify the validity and reliability of the items and constructs.

Finally, the study seek to test and examine if the SEM model of the study was fit and therefore able to represent as the Malaysian Educational Strategic Leadership Practice Inventory (MESLPI) Model. To justify this, the study needed to examine the indices such as CMIN/DF, AGFI, GFI, CFI, TLI, and RMSEA (Hair et al. 2010). The loadings of the items for every factors that measured the latent variables were also examined.

DATA COLLECTION AND TREATMENT OF OUTLIERS

The survey questionnaires that were created by using Google Form were administered for around 30 days (in between the months of August and September 2016). The targeted respondents were urged and persuaded from time to time to login and participated in the survey. This multiple effort is considered pertinent to ensure that the study had adequate number of respondents for SEM to be employed (Hair et al., 2010). Successively, the study managed to collect 199 returned survey questionnaires, however, three returned survey questionnaires were unusable. The data was later stored in SPSS file for missing responses, univariate and multivariate outliers' treatment processes prior to further data analyses. The main purpose was to ensure that the data gathered would be a normal data (Tabachnick & Fidell, 2007).

RESULTS AND DISCUSSIONS

Demographic information of the respondents

Table 1 exhibits the demographic profiles of the respondents. In terms of gender, fascinatingly the percentage of female respondents is almost 15% larger than the males, while in terms of age groups, almost 80% were from 45-59 years old age group (45-49 years old =33.2%, 50-55 years old =39.8% & 55-59 years old = 7.7%). Since the retiring age for the public servants is 60 years old, more than half of this age group would be out of the system within ten years' time.

In terms of academic qualifications, almost 82% were university graduates whereby 70.9% were holding at least a bachelor degree while around 11.2 % were holding a master degree. As for the years of service item, majority of the respondents were serving for almost 20-24 years (41.8%) and the years of service between 25-29 years (29.6%) were the second largest. However, there were 14.3% of the respondents who served for more than 30 years. For further analyses of demographic characteristics of the respondents, please refer to the lower part of Table 1.

Table 1: Demographic Profiles of the Respondents

Variable	n	%
<i>Gender</i>		
Male	84	42.9
Female	112	57.1
<i>Age</i>		
30-34 years old	1	0.4
35-39 years old	10	5.1
40-44 years old	27	13.8
45-49 years old	65	33.2
50-54 years old	78	39.8
55-59 years old	15	7.7
<i>Academic Qualification</i>		
Masters	22	11.2
Bachelor Degree	139	70.9

Variable	n	%
Diploma	27	13.8
Others	8	4.1
<i>Years of Service</i>		
10-14 years	5	2.6
15-19 years	23	11.7
20-24 years	82	41.8
25-29 years	58	29.6
30-34 years	27	13.8
35-39 years	1	0.5
<i>Current Leadership Position</i>		
GPK HEM	31	15.8
GPK Pentadbiran	100	51.0
GPK KO-KO	32	16.3
Guru Besar	4	2.0
Penyelia Petang	4	2.0
GPK Tingkatan 6	2	1.0
Pegawai PPD / JPN	22	11.5
Guru Akademik Tingkatan 6	1	0.5
<i>Grade at Current Leadership Position</i>		
DG29	1	0.5
DGA32	8	4.1
DG32	34	17.3
DGA34	11	5.6
DG 34	35	17.9
DG 41	21	10.7
DG 42	5	2.6
DG 44	24	12.2
DG 48	54	27.6
DG 52	3	1.5
<i>Years in Current Leadership Position</i>		

Variable	n	%
< 1 year	14	7.2
1-4 years	72	36.7
5-9 years	89	45.4
10-14 years	16	8.2
15-19 years	4	2.0
20-24 years	-	-
25-29 years	1	0.5

Note: $N = 196$ (minus 3 unusable returned survey questionnaires).

Results of Confirmatory Factor Analysis (CFA) for MESLPI

This part in particular presented and discussed the results from the employment of SEM analyses of the data. Pursuance to this, the study would address all four research questions that this study would seek out. As far as the applicability of SEM is concerned, this study specified the analysis to maximum likelihood with several goodness of fit indices had being identified and used in this study. To confirm if all research question are fully addressed, the multi-dimensional constructs of MESLPI should at least possess any three goodness-of-fit indices (Hair et al., 2010; Tabachnick & Fidell, 2007) in order to provide adequate evidence of model fit. Subsequently, each construct should indicate convergent validity (average variance extract (AVE) $\geq .5$ and composite reliability (CR) $\geq .7$) of the specified SEM model of MESLPI. After both conditions were fulfilled, only then, the study could concluded that the re-specified SEM model was valid and reliable (Byrne, 2010).

CFA was used as a tool of analysis and confirmation of the factors and dimensionalities of the MESLPI construct. The analysis and testing of the model involved two steps of evaluation, i.e. identification and specification of the model, and secondly, the re-specification of the model. To determine if the study had addressed all research questions, the re-specified or final model needed to be examined carefully.

A hypothesized model as exhibited by Figure 3 was developed, analyzed using CFA and tested for its goodness of fit characteristics. Based on the present theory and literature, Davies and Davies (2009) and Pisapia et al. (2009) had contributed nine and six constructs respectively in this particular study. A total of nine constructs /variables such as DSO, DST, DSA, DSI, DSC, DRE, DAB, DAD and Dw were from Davies and Davies (2009) while the variables such as PM, PT, PBo, PBr, PBa and PBe were from Pisapia et al. (2009). Based on the loadings of every sub-construct or factors, it was revealed that all loadings were above .50 (threshold value) whereby the lowest was PBr = .56 meanwhile Dab = .90 was the highest. As for the goodness of fit indices, the hypothesized/specified model were seemed to be out of the threshold values except CFI = .911 therefore the model could not be accepted as it's at present but rather needed to be improved through the re-specification process (Hair et al. 2010).

Chi Square = 331.607
 df = 90
 GFI = .747
 AGFI = .663
 TLI = .897
 CFI = .911
 RMSEA = .121
 NORMEDCHISQ = 3.685
 p-value = .000

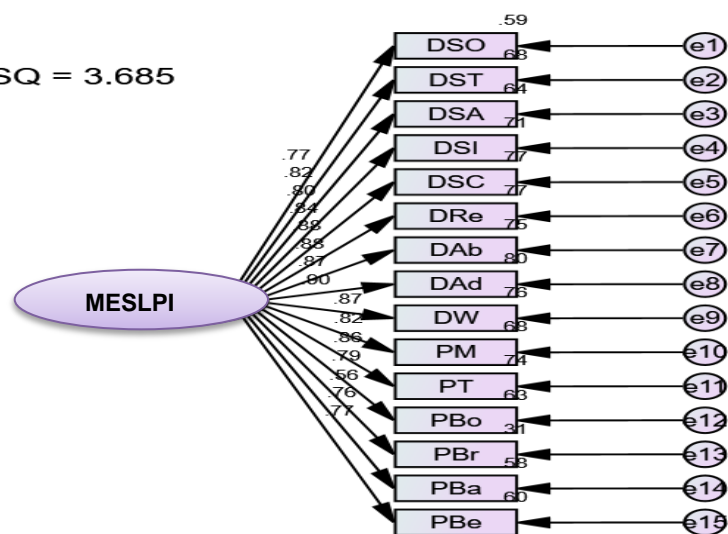


Figure 3: Hypothesized and Generated SEM Model of MESLPI

The study then ensued to the next level of analysis, particularly the re-specification of the MESLPI model. An examination of the modification index was inevitable and it was confirmed that a few modification (as exhibited by the MI) needed to be carried out on the specified MESLPI model by freeing the indicated errors. At least there were eight occurrences where the study decided to free the errors such as e1-e2, e1-e3, e2-e4, e10-e11, e12-e15, e12-e14, e13-e14 and e14-e15. This resulted in the significant improvement and goodness of fit to the re-specified MESLPI model as exhibited by Figure 4.

Ultimately, the revised model of MESLPI exhibited better goodness of fit values (Chi-square = 168.063, df = 82, TLI = .960, CFI = .968, RMSEA = .076, CMIN/DF = 2.050). Only GFI and AGFI were slightly less than the threshold value of .90. However, these were not of a concern as the other indices proved that the revised model was fit to the data (Byrne, 2010).

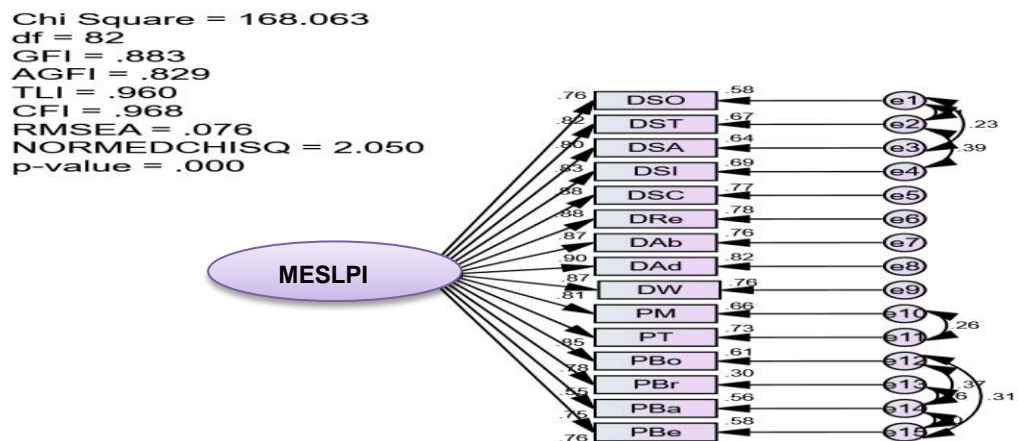


Figure 4: Post Re-specification of model: Revised SEM Model of MESLPI.

Table 2 below would be used for detail comparisons between pre and post specification of MESLPI model. It was very obvious that the post re-specification of model was successfully revised the SEM model of MESLPI. This obviously proved the dimensionalities of the MESLPI construct, and therefore *Research Question 4* was successfully addressed in this study.

Table 2: Comparison of Goodness of Indices between the Hypothesized/Specified and Re-specified Models

Goodness of Fit Indices requirements	Threshold Values	Hypothesized and Specified Model	Re-specified Model
Chi-square	-	331.607	168.063
Degree of Freedom	-	90	82
GFI	≥ .90	.747	.883
AGFI	≥ .90	.663	.829
TLI	≥ .90	.897	.960
CFI	≥ .90	.911	.968
RMSEA	≤ .08	.121	.076
CMIN/DF	≤ 4	3.685	2.05
P-Values	-	.000	.000

The examination of the validity and reliability of the MESLPI construct were discussed next based on Table 3 (Determination of Validity and Reliability of the MESLPI Construct) below. Three columns particularly Internal Reliability (Cronbach Alpha), Average Variance Extracted (AVE) and Composite Reliability Index (CRI) were examined in the effort of addressing the *Research Question 1 and 2*.

Validity means the extent to which the theory is in line with the interpretation of test scores for an intended purpose (Ary, Jacobs & Razavieh, 2005). Therefore, in this particular context, as the value of AVE was .6587 (threshold of .5) and CRI was equal to .9369 (threshold value of .7), convergent validity and reliability were achieved. Therefore, it could be concluded that *Research Question 1 and 2* were successfully addressed.

Finally, the study attempted to address the *Research Question 5: Does the MESLPI model is valid and reliable and therefore could represent as the model of the study?* To address this research question, please refer to the results as in Figure 4 and Table 3. By referring to Figure 4 and Table 2, almost all goodness of fit indices were remarkably high passing the threshold or cut-off values. Consequently, the previous results were supported by the results as depicted in Table 3 below. The internal consistency or Cronbach Alphas of the construct were remarkably high (more than .7), the AVE (.6587) and CRI (.9369) were both passing their threshold values of .50 and .70 respectively (Hair et al., 2010). The factor loadings for every construct was

also exhibited very high (.55 to .90). These proved that MESLPI construct was valid and reliable. By reckoning all the discussed results, therefore the study concluded that MESLPI model is valid and reliable and therefore could represent as the model of the study.

Table 3: Determination of Validity and Reliability of the MESLPI Construct

Construct	Sub-Constructs	No of Items	Internal Reliability (Cronbach Alpha)	Factor Loading	AVE	CRI
MESLPI	Str. Orientation	5	.795	.76		
	Str. Translation	5	.826	.82		
	Str. Alignment	5	.903	.80		
	Str. Intervention	4	.789	.83		
	Str. Competencies	5	.824	.88		
	Restlessness	5	.803	.88		
	Absorptive	5	.783	.87		
	Adaptive	5	.826	.90		
	Wisdom	8	.849	.87	.6587	.9369
	Managing	9	.896	.81		
	Transforming	6	.882	.85		
	Bonding	6	.856	.78		
	Bridging	6	.850	.55		
	Bartering	7	.834	.75		
Behavioural Agility	9	.813	.76			

Implications and conclusions

The implications might be highlighted from two aspects particularly from the theoretical and practical aspects. Theoretically, this study attempted to merge and

harmonize the two prominent theories (Davies & Davies, 2009; Pisapia et al. 2009) and transform it into a new concept and theory for future endeavors. It is hoped that this newly developed MESLPI will enable to offer more opportunities for researchers to carry out their studies and hence will enrich the indigenous body of knowledge and the literature concerned.

Another implications is related to the usage and application of the newly developed MESLPI in preparing the aspiring principals and aspiring educational leaders for high performance and sustainability education. Does this particular new measuring tool is effective enough and be able to attract the policy and decision makers to employ the MESLPI? Does this newly developed tools will finally facing similar fate together with thousands of unnoticed research findings? Or does this newly developed MESLPI is able in mobilizing others to struggle for shared aspirations and vision? (Kouzes & Posner, 2003).

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