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ASSESSMENT OF LEADERSHIP PERFORMANCE EFFECTIVENESS IN HIGHER EDUCATION: A MALAYSIAN PERSPECTIVE

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ABSTRACT

Assessment of performance effectiveness in higher education settings is one of the most frequently discussed topics. Responding to this, the current study aims to test and verify academic leadership performance effectiveness scale in Malaysian academic settings. The scale had been developed and validated in one study conducted in Australia in 2008 and was also employed in another research study in Australia and New Zealand in 2012. An online version of the scale was administered among academic leaders from 9 public and private universities in Malaysia and 90 completed surveys were collected. Principal Component Analysis with Promax rotation and Velicer's MAP test were run to identify the underlying constructs. The results revealed the emergence of only two components including Recognition and Prestige (RP) with 11 items and Academic Professional Excellence (APE) with 8 items with a considerable indication of reliability. Additionally, quality issues associated with the analysis, implications, and future directions were discussed.

Keywords: Leadership Performance Effectiveness, Malaysian Higher Education, Scale Development, Velicer's MAP Test, Academic Leader

INTRODUCTION

In the past recent years, performance management and evaluation has been noticed as a key for public sector reform (Zangoueinezhad & Moshabaki, 2011). It also has been regarded as one of the most important factors in reinventing governmental movement (Holzer & Kloby, 2005). In fact, group performance in any types of organizations with different scopes of activities, products and services, has been one of the most significant issues in most of leadership theories.

Among different types of organizations, higher education institutions due to their significant functions are viewed as very contributing entities to the society. Their expansion in terms of their number, size and internal organizational complexity has been one of the marked features of social life in the present age and possibly will be in tomorrow's world. Indeed, Academic managers with good leadership qualities would be needed by the effective universities which reflects a management pattern alteration in universities (Ramsden, 1998). Form another perspective, higher education institutions as responsive organizations, usually consider their internal and external environment and plan their own development agenda and priorities based on environmental scanning (Sufean & Ismail, 2009) to ensure maximum performance effectiveness. As a result and considering the rapidly shifting higher education environment, new performance management tools are required to establish educational objectives and standards, as well as to enhance the competitive advantages of universities in the globalized turbulent environment (Chen, Yang, & Shiau, 2006). However, still performance management in academic settings is one of the major challenges for many countries since these organizations deliver a social return which is completely different from the economic return of business organizations. Thus, the performance of higher education institutions cannot be measured or managed using the tools developed in business sector (Walwyn, 2008). All together, these issues suggest that firstly, higher education institutions cannot perform well if they are not led by effective performance-oriented academic leaders. Second, performance evaluation of the staff within these types of organizations is an extremely crucial issue. In other words, although leadership performance effectiveness has always attracted attention of scholars, however as cited by Scott, Coates, and Anderson (2008), conducting research about performance in higher education settings has been neglected worldwide (Bryman, 2007). This is consistent with the argument made by Smith, McKnight, and Naylor (2000) where they emphasized on the lack of comprehensive research studies about university performance measurement. Given the aforementioned issues and considering result-oriented leadership point of view, training issues have been suggested as one of the most important contributing factors to leadership performance effectiveness. This implies that training the staff as well as fostering the leaders through leadership development programs would result in better performance and decrease problems (Longenecker, 2007).

PROBLEM STATEMENT

Regarding the main issues and challenges of Malaysian higher education, the literature indicates that a few studies were carried out focusing on performance-related issues. These include studies focusing on transformational leadership and performance of academic leaders (Bakar & Mahmood, 2014), the effectiveness of performance appraisal in the private education industry in Malaysia (Phin, 2015), the relationship between the quality culture and workforce performance in Malaysian higher education sector (Ali & Musah, 2012), and the drivers for university research performance in a public Malaysian university (Ab Aziz, Harris, Richardson, & Ab Aziz, 2012). This supports the claim of "lack of research focusing on university performance" given by Bryman (2007) in Malaysian context as well. It may be noted that performance evaluation in Malaysian higher education and especially in Malaysian public universities is crucial. This is due to the fact that Malaysian public higher education institutions have been positioned to be the agents for socio-economic mobility and human resources development at different levels within different economic and socio-economic sectors (Sufean & Ismail, 2009). Therefore, this study as one

attempt to bridge this gap aims to identify the main performance effectiveness indicators in Malaysian higher education. For this purpose, one of the most recently developed instruments to operationalize leadership performance effectiveness in academic settings used in ALTC (Australian Learning and Teaching Council) and ATEM (Association for Tertiary Education Management) studies in Australia and New Zealand would be tested and verified in Malaysian context.

THEORETICAL FOUNDATIONS

In this study the performance effectiveness scale developed by Scott et al. (2008) in ALTC study was used to identify the main latent variables constructing performance effectiveness in Malaysian academic settings. This scale focuses on issues concerning positive implementation and impact rather than on indicators concerned with the quality of inputs (Scott et al., 2008). In other words, the indicators were discussed to be the true indicators of leadership performance effectiveness in higher education institutions settings (Fullan & Scott, 2009). In ALTC study one framework was used to direct and guide the researchers throughout the research which had been already validated in earlier studies (Scott, 2003; Sullivan & Rosin, 2008; Vescio, 2005). This framework consisted of 5 constructs including personal capability, interpersonal capability, cognitive capability, generic competency, and role-specific competency which were suggested to be very necessary for performance enhancement of academic leaders.

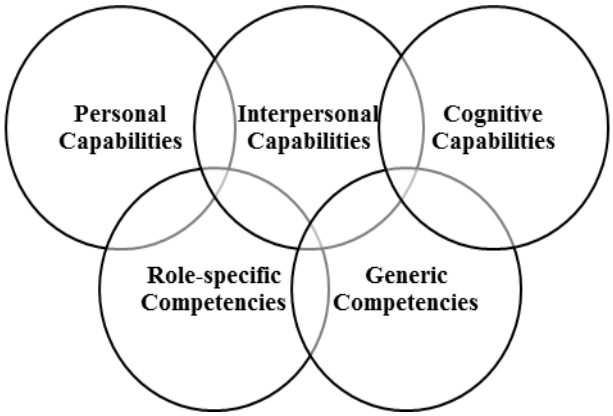

Figure 1: Academic Leadership Capability Framework (Scott, Coates, and Anderson 2008)

In summary, personal capabilities are underpinned by leadership trait theories where the main focus is personality and innate traits of leaders toward performance effectiveness (Zaccaro, 2007). Interpersonal capabilities are supported by leadership style theories and human-oriented leadership theory (Yukl, 2004) for their emphasis on human elements and relationships with human resources in organizations towards performance enhancement. In addition, Cognitive Resources Theory (Fiedler, 1986; Fiedler & Garcia, 1987) to a great extent and trait theories to some extent are the best theories to support the contribution of cognitive capabilities toward performance at individual and group levels. It is notable that for the contribution of personal, interpersonal and cognitive capabilities towards performance effectiveness, the skills approach may also be considered as applicable in order to underpin these constructs since these capabilities have been addressed by leadership skills theories as well (Northouse, 2013). With respect to competencies dimensions, it may be argued that both of them are underpinned by leadership skills theories (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000) and task-oriented leadership theory (Yukl, 2004) since to a great extent, skills and competencies of leaders to deal with managerial challenges and resolve them were addressed in these theories.

All of these five constructs are necessary for leadership performance effectiveness in higher education (Fullan & Scott, 2009). Based on a thorough review of leadership literature over 20 years of research in higher education, several items were generated to operationalize these constructs as well as performance effectiveness scale (Scott et al., 2008). With respect to performance effectiveness, five constructs were proposed including personal and interpersonal outcomes, learning and teaching outcomes, recognition and reputation, financial performance and effective implementation.

LITERATURE REVIEW

Personal and Interpersonal Outcomes

Creating a collegial environment in academic settings has been recognized by universities' academic staff as one of the most prominent facets of the literature on academic work. In other words, managerialism practices in universities which erode collegiality are disliked (Scott et al., 2008). According to a recent study (Trocchia & Andrus, 2003) focusing on effective leaders at department level in US, it was suggested that cultivating a collegial department can be considered as one of the main interpersonal outcomes of effective leaders. In another study regarding the impact of collegiality on satisfaction (Ambrose, Huston, & Norman, 2005) in one of American universities, it was found that collegiality or absence of it was one of the main contributory factors in satisfaction or dissatisfaction among academicians and creating a sense of community among academicians was one of the main behaviors practiced by effective heads of departments. Moreover, communicating the department's needs to the dean as another aspect of leadership effectiveness at department level was found by Benoit and Graham (2005) which focuses on personal and interpersonal outcomes of academic leaders. Five indicators construct personal and interpersonal outcomes category of leadership performance effectiveness in higher education institution settings (Scott et al., 2008). These personal and interpersonal outcomes comprise of attaining self-professional development goals, managing to establish a friendly and interconnected workplace, being able to involve stakeholders outside HE constructively in one's work, achieving an acceptable support from the staff, and having the ability to foster the leaders of the next generation.

Learning and Teaching Outcomes

Five critical leadership dimensions in developing and improving teacher and student learning have been revealed in a recent study (Robinson & Timperley, 2007) including educational direction provision, guaranteeing strategic alignment, creating a community to increase student success, constructive problem solving processes involvement, and selection and development of smart tools to evaluate learning and teaching. In addition, based on this study, strong norms of collective responsibility and accountability for student achievement and wellbeing was addressed as one qualities of effective professional communities. Based on an extensive literature review, six performance indicators for learning and teaching outcomes sub-scale of the performance effectiveness scale in academic settings have been proposed (Scott et al., 2008). These include sound graduate outcomes achievement, equity groups' representation enhancement, improvement of student satisfaction ratings towards learning and teaching, student retention rates increase, increasing the quality of learning and teaching programs, and winning awards and prizes related to teaching and learning.

Recognition and Reputation

According to Bland, Weber-Main, and Lund (2004), the recruitment of highly prominent researchers has been proposed to be one of main features of the heads of research-productive departments at one American university. Based on another US study, the ability to recruit and retain outstanding researchers has been identified as a key strategy to raise research productivity at a research-oriented university (Snyder et al., 1991). Additionally, in

another study, five performance indicators were identified to construct recognition and reputation sub-scale of performance effectiveness scale in higher education context (Scott et al., 2008). The proposed indicators for recognition and reputation dimension of academic leaders' performance include a high profile attainment in the area of responsibility, achievement of positive outcomes from reviews of the area carried out by the stakeholders or third bodies outside the university, being invited to present new and main issues focusing on learning and teaching programs to key groups, having a large number of referred publications focusing on teaching and learning, and receiving positive feedbacks from users regarding the area of responsibility.

Financial Performance

According to Ramsden (1998), funding and performance in higher education are being connected through an international movement. As discussed by Robinson and Timperley (2007), when it comes to resources, a key leadership challenge is to align resources to goals rather than to treat resource acquisition as an end in itself. Bryk, Sebring, Kerbow, Rollow, and Easton (1999) used the metaphor of plucking presents from a Christmas tree to describe leadership that gathers additional resources with little regard for the coherence and strategic alignment of the resulting activities. In addition, managing money, space and people to facilitate research studies has been identified as a mark of effective leaders in research-oriented departments in one American university (Bland, Center, Finstad, Risbey, & Staples, 2005). Moreover, based on the results of another study conducted in one of American research universities, securing the financial resources was viewed as one of appropriate leadership practices (Lindholm, 2003). In terms of financial performance of academic leaders in higher education settings, four indicators were suggested by Scott et al. (2008) including positive financial outcome achievement in the area of responsibility, being able to meet student load targets, being able to secure required funds to invest on learning and teaching, and winning financial resources for the area of responsibility.

Effective Implementation

Robinson and Timperley (2007) cited and discussed several different ways in which leaders gained commitment to address problems. One of these strategies involved making the challenge of change explicit at the outset of a project by discussing the likely difficulties and the support that would be needed (Phillips, McNaughton, & MacDonald, 2001). Moreover, fve performance indicators for effective implementation were also suggested by Scott et al. (2008) which are implementing innovative policies and transformation practices successfully, being able to deliver agreed and planned tasks on time and with a sound quality, being able to implement team projects focusing on teaching and learning successfully, having the ability to establish effective learning systems and infrastructures, and implementing change programs successfully.

RESEARCH METHODOLOGY

Research design

Based on the assumptions of post-positivism worldview, this research would be a quantitative research (Creswell, 2012). This selection is also consonant with the nature of the problem in the study since based on the problem, latent variables constructing leadership performance effectiveness would be identified through a survey design.

Instrumentation

As mentioned in theoretical foundations section, the scale of leadership performance effectiveness in higher education developed and validated by Scott et al. (2008) in ALTC study was utilized to operationalize Malaysian academic leaders' perceptions regarding leadership performance effectiveness. This 25-item scale consisted of five sub-scales including personal and interpersonal outcomes (5 items), learning and teaching outcomes (6 items),

recognition and reputation (5 items), financial performance (4 items), and effective implementation (5 items).It is notable that necessary permission was also obtained from ALTC office in Australia in order to conduct the research in Malaysian setting using the mentioned scale.

Content and theoretical validity establishment

Prior to the study, the content validity which is the evidence that the content of a construct matches to the content of the construct it was designed to cover (Field, 2013) was established. For this purpose, the scale of leadership performance effectiveness was checked for content and theoretical validity by a few scholars. In fact, these academicians based on their established history of research and writing, formal education in the field, and university work and considering some main factors such as Malaysian culture and current condition of Malaysian HE checked and established the content and theoretical validity of the scale.

Sample and population

An online version of the questionnaire was designed using Google Form application and was administered among 585 academic leadership roles in 9 randomly selected public and private universities in Malaysia. Through the email, the participants were informed that information they provide would remain confidential, their privacy would be respected and their information would be accessible to the research team for research purpose only. Electronic reminders were also sent to the participants to ask non-respondents to complete the survey and to appreciate the respondents that had already filled out the survey instrument. In total, 90 completed surveys (response rate: 15.38%) were collected. In the ensuing Table 1, the demographic information of the participants have been summarized.

Table 1
Demographic Information of Respondents

Gender	**Frequency**	**Percent**
Male	66	73.33
Female	24	26.67
Age Group	**Frequency**	**Percent**
Under 36	4	4.44
36-45	32	35.56
46-55	30	33.33
56-65	18	20.00
Over 65	6	6.67
Main Disciplinary Background	**Frequency**	**Percent**
Agriculture And Environmental Studies	3	3.33
Architecture And Building	3	3.33
Education	6	6.67
Engineering And Technology	24	26.67
Health	11	12.22
Information Technology	7	7.78
Law	3	3.33
Management And Commerce	8	8.89

Nature And Physical Sciences	8	8.89
Society And Culture	7	7.78
Other	10	11.11
Current Leadership Role	**Frequency**	**Percent**
VC	2	2.22
DVC	1	1.11
Dean	10	11.11
Director	7	7.78
Deputy Dean	21	23.33
Deputy Director	2	2.22
Head Of Dept.	24	26.67
Professor (Without Leadership Role)	23	25.56
University Type	**Frequency**	**Percent**
Public	67	74.44
Private	23	25.56

Data screening procedure

Missing values analysis

As quoted by Ho (2013), EM algorithm as the best strategy to handle the issues of missing values was employed in this study as the main technique to settle the problem of missing values. The main assumption of EM technique is that the data must be missing randomly and to check whether this assumption has been met, the significance level of Little's MCAR (Missing Completely At Random) must be checked. If it was over 0.05, the assumption is already met and EM method can be employed to predict and replace missing values. In addition, another accurate regression-based method was also used to predict and replace the missing values in sub-scales which failed to meet the assumption of EM technique. The following Table 2 summarizes the results for each sub-scale.

Table 2
The Results of Missing Values Analysis

No.	Sub-scale name	No. of items in sub-scale	Missing (Number)	Missing (percent)	Sig. of Little's MACR test	Method employed
1	Personal and interpersonal outcomes	5	15	3.33%	0.000	Regression
2	Learning and teaching outcomes	6	23	4.26%	0.957	EM
3	Recognition and reputation	5	22	4.89%	0.284	EM
4	Financial performance	4	20	5.56%	0.177	EM
5	Effective implementation	5	19	4.22%	0.280	EM

Reliability of the original scale

Reliability of the scale as the ability of it to provide measurement consistently for a phenomenon it has been designed to assess (Ho, 2013) was checked as the next step. In this study, Cronbach's Alpha as one of methods used to establish internal consistency was computed at sub-scale and scale level. The results summarized in the ensuing Table 3 demonstrated a strong evidence of internal consistency at sub-scale and scale level.

Table 3
Reliability Estimates of the Initial Leadership Performance Effectiveness Scale

Scale name	Sub-scale name	No. of items in sub-scale	Alpha at sub-scale level	Alpha at scale level
Leadership Performance Effectiveness	Personal and interpersonal outcomes	5	0.861	0.960
	Learning and teaching outcomes	6	0.816	
	Recognition and reputation	5	0.874	
	Financial performance	4	0.852	
	Effective implementation	5	0.898	

Items analysis

In order to avoid some problems during inferential statistics analysis such as PCA, the dataset was checked to see whether extremely (highly and lowly) correlated items were existed in the dataset. These items can cause many problems such as generating negative matrices or causing problems in terms of carrying out KMO test and to avoid these problems, increasing sample size or excluding one item in each extremely correlated pair of items as the two common methods have been proposed (Field, 2013).

After running the bivariate correlation analysis using Pearson Product Moment Correlation Coefficient method, one item of each highly correlated items ($r \geq 0.75$) or lowly correlated items ($r \leq 0.25$) was dropped. In addition, if one item had highly or lowly correlation with more than one item in each sub-scale, their correlations were evaluated deeply to determine the minimum number of items to be dropped. Following these steps, the necessary items were rephrased. With respect to highly correlated items, after item examination, only 1 item was excluded from financial performance sub-scale. It is notable that no lowly correlated items were identified during data scanning procedure at this stage. Regarding non-significantly correlated items, only 2 items were identified and dropped at scale level. These procedures resulted to existence of 22 appropriate items in the scale to run PCA and identify the latent variables across the items of the instrument based on the collected data.

The final step at this stage was to double check the reliability of the scale after removing the 3 unnecessary items. In the following Table 4 the results of computation of Cronbach's alpha at sub-scale and scale level for the 22 remaining items have been presented.

Table 4
Reliability Estimates of the Developed Change-Oriented Scales after Item Analysis

Scale	Sub-scale	No. of items	Alpha for sub-scale	Reliability at scale level
Performance	Personal and interpersonal outcomes	5	0.861	0.958
	Learning and teaching outcomes	4	0.741	
	Recognition and reputation	5	0.874	
	Financial performance	3	0.753	
	Effective implementation	5	0.898	

PCA and Velicer's MAP test

Checking for assumptions

Normality is one of the main assumptions in many statistical analysis. The logic behind hypothesis testing as well as generalizability of the results depend on this assumption. Based on the central limit theorem, the sampling distribution tends to be normal in big samples regardless of the shape of the data that actually has been collected. In addition, the sampling distribution will tend to be normal regardless of the population distribution in samples of 30 or more and as the sample gets bigger, then the researcher can be more confident that the sampling distribution is normally distributed (Field, 2013).

In this study the normality and linearity of the items were checked through checking the skewness of the distribution of the data for the ordinal scaled items (Tabachnick & Fidell, 2001, 2012) as well as plotting the normal Q-Q plot. This process resulted that the data is quite roughly normal, linear and suitable for the analysis. In other words, no strong evidence of curvilinearity was detected.

Regarding checking for outliers, a boxplot as a graphical approach was charted at scale level to check the existence of outliers as well as their extremeness in the dataset. The results demonstrated that the case with the ID of S66 was the only outlier at scale level. However this outlier fell beyond ±1.5 but within ±3 interquartile range and as discussed by Meyers, Gamst, and Guarino (2013), these kinds of cases may be considered outliers in some contexts and in other words, are not recognized as extreme scores in general. Therefore, it was decided to keep this case for conducting the Principal Components Analysis. As a result, having 90 cases and based on provided guidelines by Stevens (2009), the critical value for the significance level of factor loading for each item in this study was computed to be 0.542 for the next phase of data analysis. In other words, only items with the loading above this critical significance value were considered significant to be loaded in a component.

Running PCA and results

A principal component analysis (PCA) was conducted on the 22 items of performance scale with Oblique rotation (Promax). The KMO measure verified the sampling adequacy for the analysis, KMO = 0.899. Bartlett's test of sphericity χ^2 (231) = 1628.146, p < .001, indicated that correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data. Four components had eigenvalues over Kaiser's criterion of 1 and in combination explained 71.70% of the variance. As the next step of the analysis, Velicer's MAP test (O'Connor, 2000) was run to determine the accurate number of components to be extracted. The results showed that the value of "smallest average squared partial correlation" in the table of "average partial correlations" was 0.0310 and the corresponding number to this value was 2. In other words, only two factors emerged based on the results of MAP test. As the final step, PCA for the second time was run and this time, it was requested to produce two factors regardless of eigenvalues. These two emerged factors containing 19 items explained 61.14% of the variance. The ensuing Table 5 shows the factor loadings in the extracted components, the communalities for each item after the second run of PCA, the eigenvalues, the percentage of variance explained by each component and the computed Cronbach's Alpha of each component as well as the "corrected item-total correlation coefficient" and "Alpha if item deleted coefficient" for each item.

Table 5

Factor Loadings for Principal Components Analysis with Promax Rotation of Leadership Performance Effectiveness Scale

No.	Item	Component		h^2	Corrected item-total correlation	Alpha if item deleted
		1	2			
1	Achieving positive outcomes from external reviews of the area	**.885**	-.190	.575	.675	.928
2	Securing competitive funds related to learning and teaching as well as to the area of responsibility	**.883**	-.018	.758	.813	.921
3	Bringing innovative policies and practices into action	**.832**	.017	.714	.796	.922
4	Achieving a high profile for your area of responsibility	**.806**	.001	.650	.763	.924
5	Being invited to present to key groups on learning and teaching	**.779**	-.006	.599	.745	.925
6	Winning learning and teaching awards and prizes	**.759**	-.105	.471	.592	.934
7	Meeting student load targets	**.726**	-.082	.447	.609	.930
8	Publishing refereed papers and reports on learning and teaching	**.719**	.080	.607	.735	.925

9	Receiving positive user feedback for your area of responsibility	**.650**	.204	.658	.768	.924
10	Delivering agreed tasks or projects on time and to specification	**.643**	.169	.601	.730	.926
11	Successful implementation of new initiatives	**.566**	.327	.699	.774	.925
12	Formative involvement of external stakeholders in your work	.469	.359	.596	-	-
13	Producing significant improvements in learning and teaching quality	.377	.288	.383	-	-
14	Establishing a collegial working environment	-.217	**.951**	.650	.699	.907
15	Improving student satisfaction ratings for learning and teaching	-.161	**.909**	.638	.696	.908
16	Enhanced representation of equity groups	.007	**.835**	.706	.782	.900
17	Having high levels of staff support	-.033	**.768**	.554	.673	.909
18	Achieving goals set for your own professional development	-.007	**.757**	.566	.666	.910
19	Producing successful learning systems or infrastructures	.111	**.669**	.568	.682	.909
20	Delivering successful team projects in learning and teaching	.337	**.633**	.826	.858	.893
21	Producing future learning and teaching leaders	.261	**.588**	.639	.746	.903
22	Achieving a positive financial outcome for your area of responsibility	.283	.505	.545	-	-
Eigenvalue		**11.969**	**1.481**			
% of Variance		**54.41%**	**6.73%**			
Alpha		**.932**	**.916**			
Note. Factor loadings > .542 are in boldface and h^2 stands for communalities						

In addition, the diagonal elements of the anti-image correlation matrix were examined and it was observed they were well above the bare minimum of 0.5 for all items (the minimum correlation was 0.827) and as a result there

was no need to drop any of these items from the analysis and rerun PCA. The determinant of correlation matrix was less than 0.00001 (1.788E-9). However, since PCA was employed in this study rather than common factorial analysis, this coefficient did not cause any problems regarding multicollinearity to the analysis (Field, 2013).

It may be noted that all the items in both components had "corrected item-total correlation" coefficients above 0.55 which was encouraging since they were well above suggested coefficient of 0.3 and the correlation between the two emerged components was 0.634. The correlation matrices of the items in each components were also examined. In the first component, the minimum correlation between the items was 0.333 and the maximum correlation was 0.761 and in the second component the minimum correlation between the items was 0.430 and the maximum correlation was 0.789. In addition, no cross-loading item in the two components was identified. Moreover, since the loadings in structure matrix have different interpretations from the pattern matrix when the oblique rotation is employed (Field, 2013), the structure matrix of leadership performance effectiveness scale has been provided in the appendix section.

In the following Table 6 the labels of the emerged components as well as the number of items in each of them and the reliability coefficient at two levels have been presented.

Table 6
Labeling and Reliability Estimates of Emerged Components

Scale	Sub-scale	No. of items	Alpha at sub-scale level	Alpha at scale level
Leadership Performance Effectiveness	Recognition and Prestige (RP)	11	0.932	0.952
	Academic professional excellence (APE)	8	0.916	

The last issue to be addressed here is about the quality of the statistical analysis in this study. In other words, all the required procedures which reflect on the quality of the analysis and results were taken into account. For example, the issues of missing values were handled with EM and regression based methods, a deep item analysis focusing on the correlation between items was carried out, different indicators confirmed the adequacy of sample size including KMO test, high loading items (over 0.6) in the emerged factors (Guadagnoli & Velicer, 1988) as well as the values in the communalities tables (MacCallum, Widaman, Zhang, & Hong, 1999), Velicer's MAP test which is one of the two tests that professional statisticians use to determine the number of factors (Tabachnick & Fidell, 2001, 2012) was employed in the analysis, and based on the guidelines provided by Stevens (2009), the critical value for item loadings based on sample size was calculated in this study which was 0.542 for the sample size of 90.

DISCUSSION AND IMPLICATIONS

Several implications have been presented by this study for researchers, academic leaders and policy makers in Malaysian HE settings. First of all, the findings of this study are beneficial for Higher Education Leadership Academy of Malaysia (AKEPT) since the study is in line with one of the missions of this organization as the main organization focusing on Malaysian higher education leadership enhancement. Secondly, since identification, selection, and development of leaders in HEIs are not generally well-managed (Fullan & Scott, 2009), identifying the main leadership practices in Malaysian HE would help policy makers and authorities in Ministry of Education Malaysia

focus on the most important dimensions of these practices in terms of training current leaders or fostering future leaders. Thirdly, the study is significant due to lack of research about leadership performance effectiveness in academic settings (Bryman, 2007). Fourthly, leadership performance effectiveness scale was tested and verified in this study based on the feedback and responses of academic leaders in both public and private universities and in other words, its creditability has been significantly increased in Malaysian academic settings. Fifthly, the contents of leadership training and developmental programs may be adjusted and modified in order to enhance performance effectiveness in Malaysian higher education institutions based on the findings of this study. Lastly, not only conducting this study stimulate other similar studies focusing on leadership performance effectiveness in different educational systems in Malaysia, but also it would provide opportunities to compare the results of current study with them to identify the similarities and differences between different Malaysian educational sectors in terms of performance effectiveness indicators.

Limitations and future directions

Although in this study, a rigorous and advanced statistical analysis was employed to produce a reliable, credible and generalizable instrument in Malaysian setting, however there are two limitations regarding the study which needs to be addressed in future research studies.
First, Confirmatory Factorial Analysis (CFA) in a different larger sample is required for cross-cultural validation and further generalization of the instrument. The second issue is that in this study only Cronbach's Alpha method was employed to establish internal consistency of the scale and as a result, external consistency through different procedures such as test-retest reliability which checks the stability of the instrument over time must be established in future research.

CONCLUSIONS

A reliable instrument for conceptualizing leadership performance effectiveness in Malaysian academic setting was provided in this study. The 19-item scale that emerged after two rounds of PCA and one analysis of Velicer's MAP test was demonstrated to produce significant acceptable reliability estimates. In addition, its content validity was established.
This study was conducted in line with the seventh thrust of National Higher Education Strategic Plan (NHESP) of Malaysia which covers the issues related to reinforcing delivery systems of MOE such as KPI facilitating performance-based approaches and appointment of academic leaders based on their merit. It is notable that while performance based approaches have been encouraged based on NHESP of Malaysia as well as guidelines provided by AKEPT, little research has been conducted to assess performance effectiveness of leaders in the context of academic settings in general and in Malaysia in particular.

Although based on ALTC study in Australia, there are five constructs to build leadership performance effectiveness in academic settings, the results of this research based on two rounds of PCA and one Velicer's MAP test confirmed the existence of two constructs in Malaysian academic setting including Recognition and Prestige (RP) and Academic Professional Excellence (APE). The verified scale in Malaysian academic settings represents a significant level of reliability across Malaysian higher education institutions. The generalizability and creditability of the instrument provides a common framework in order to replicate the study in other settings and compare the results from various studies. In other words, it is recommended that practitioners and researchers use this reliable instrument to collect data for their researches in different academic contexts.

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Declaration of conflicting interests

The authors disclose that they do not have any actual or potential conflict of interest of any kind with other people or organizations that could inappropriately influence, or be perceived to influence this research study.

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APPENDICES

Structure Matrix of Emerged Components of Leadership Performance Effectiveness Scale

No.	Item	Component	
		1	2
1	Securing competitive funds related to learning and teaching as well as to the area of responsibility	.870	.627
2	Bringing innovative policies and practices into action	.845	.625
3	Achieving a high profile for your area of responsibility	.806	.590
4	Successful implementation of new initiatives	.806	.741
5	Receiving positive user feedback for your area of responsibility	.799	.679
6	Publishing refereed papers and reports on learning and teaching	.777	.605
7	Being invited to present to key groups on learning and teaching	.774	.563
8	Delivering agreed tasks or projects on time and to specification	.767	.639
9	Achieving positive outcomes from external reviews of the area	.747	.457
10	Formative involvement of external stakeholders in your work	.732	.702
11	Winning learning and teaching awards and prizes	.682	.449
12	Meeting student load targets	.666	.448
13	Producing significant improvements in learning and teaching quality	.587	.563
14	Delivering successful team projects in learning and teaching	.799	.879
15	Enhanced representation of equity groups	.617	.840
16	Establishing a collegial working environment	.478	.793
17	Improving student satisfaction ratings for learning and teaching	.503	.791
18	Producing future learning and teaching leaders	.691	.779
19	Achieving goals set for your own professional development	.547	.753
20	Producing successful learning systems or infrastructures	.600	.750
21	Having high levels of staff support	.528	.744
22	Achieving a positive financial outcome for your area of responsibility	.653	.712