Measuring the performance of private higher education institutions in Malaysia

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Abstract

Purpose – The purpose of this paper is to propose a comprehensive model using balanced scorecard (BSC) approach instead of the current ranking system to measure the performance of private higher education institutions (PHEIs) in Malaysia as the ranking system is deemed inaccurate and certain items in the system are redundant.

Design/methodology/approach – A cross-sectional survey was conducted involving 105 academicians from seven PHEIs in Malaysia. The data were analyzed for factor analysis using Principal Axis method with Promax rotation in IBM SPSS Statistics Version 20.

Findings – The result demonstrates that 22 items were successfully extracted into four dimensions that suited the BSC approach with acceptable range of composite reliability and factor loading values.

Research limitations/implications – The paper reveals the issues of ranking system of the current method in measuring performance of PHEIs. The proposed BSC model should be tested on more PHEIs to increase its validity and reliability.

Practical implications – This research analyzes the performance of PHEIs from academicians' perspectives based on the four BSC perspectives. It can be considered as an alternative model for PHEIs' managers to measure performance of PHEIs in Malaysia rather than the current ranking system.

Social implications – In the midst of intense competition in private higher education industry in Malaysia, it is crucial to understand that a high performance PHEI is expected to deliver quality tertiary education. This research assists the society to evaluate the strength of a particular PHEI in Malaysia, and further enable them to make a deliberate choice on which PHEI to enter.

Originality/value – A growing concern for sustainability of PHEIs requires a method to be undertaken by the authority to measure PHEIs' performance. This paper addresses this concern by offering 22 items to measure PHEIs' performance and dictating the need to manage PHEIs in a strategic manner, not by ranking system *per se*.

Keywords Balanced scorecard, Organizational performance, Factor analysis, Private higher education institutions performance, University's performance

Paper type Research paper

1. Introduction

The business world has seen a great shift, from production-based to knowledge-based economics and all have significant ramifications on corporate entities. In order to become sustainable in this economic turbulence, organizations must increase their performance. This can be achieved by several means like reducing costs, introducing new innovative products, improving the processes and productivity as well as reducing the time taken to reach the market (Becker and Gerhart, 1996). This situation has dramatically influenced Malaysia, in wanting to improve the service sector which is the highest contributor to the nation's gross domestic product (GDP).

Among the various components in the service sector, private higher education institutions (PHEIs) are one of the significant contributors to the country's GDP. PHEIs in Malaysia have played a significant role in providing access to tertiary education as well as

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to assist in achieving the envisioned "high income knowledge-based economy" (Abdullah, 2012). Act 555 Private Higher Educational Institutions Act of 1996 defined PHEI as "an educational institution, including a University or a University College or a branch campus, approved and registered under this Act, which is not established or maintained by the Government." This definition also includes all branch campuses and professional bodies which offer professional memberships. The increase in the number of establishments of PHEIs in Malaysia can be traced back to the early 1990s, when the government took steps to liberalize its higher education. The role of PHEIs then was to "supplement and complement" the public universities and this effort had proven to be successful when the number of PHEIs rose to 521 institutions by 2007.

However, there has been a great concern on the sustainability of PHEIs in Malaysia as public higher education institutions (HEIs) were being privatized due to intense academic growth in the country (Harun, 2015). Although the number had grown significantly since 1998, it had reduced from 521 in 2007 to 483 in 2017 (MOHE, 2017), signaling a decline of 7 percent in a decade. The decline in the number of PHEIs in Malaysia was said to be partly due to the liberalization of higher education industry itself, which resulted in the establishments of more international PHEIs and the closure of smaller PHEIs (Harian Metro Online, 2017).

To overcome the issue of sustainability among HEIs in Malaysia, the Ministry of Higher Education (MOHE) outlined seven methods for Malaysian universities to explore new sources of income to assist their financial sustainability through the University Transformational Programme, Purple Book, (MOHE, 2017). These new sources would be derived from academic and research programs, asset optimization, involvement in financial activities, business ventures, endowment, waqf and fundraising.

While these initiatives were actually designed for government-funded HEIs, the role of the private sector institutions in supporting the higher education industry in Malaysia is just as crucial. PHEIs would also need to apply, execute and carry out these same initiatives to remain relevant. Currently, MOHE and Malaysian Qualifications Agency (MQA) are applying two ranking systems, namely, SETARA and MyQuest, which only evaluate the current state of PHEIs (e.g. student enrollment, PHEIs' resources, quality management system and program recognition). Neither of the two instruments evaluates the overall performance of a PHEI. Furthermore, there are redundancies of several items in the ranking systems (Ashikin *et al.*, 2013). Yet, it is these ranking systems that assist potential students to select the appropriate institutions and academic programs for their tertiary education. The rankings that were given to PHEIs will influence the number of students' enrollments in PHEIs.

However, according to Doğan and Al (2019), using a ranking system to evaluate overall university performance will lead to inaccurate results. If the ranking system is used to measure PHEIs' performance, this will impair the result of evaluation and signal the wrong interpretation because the ranking system measures only the current quality level. Therefore, MOHE must measure PHEIs' performance using a comprehensive set of indicators that must include tangible and intangible resources (i.e. financial and non-financial performance) such as research and teaching activities (Tee, 2016), quality culture (Hilman *et al.*, 2017) and dynamic capabilities for facing challenging business environment (Akram and Hilman, 2017).

While the role has been widened, it is imperative for PHEIs to sustain both financially and non-financially in a liberalized higher education industry. Apart from establishing ranking systems, MOHE has to develop and introduce an appropriate performance measurement instrument tailored for registered PHEIs in Malaysia. This study seeks answer to the following research question:

RQ1. What are the dimensions to be used in measuring the performance of PHEIs in Malaysia?

To answer the research question, this paper proposes a comprehensive model to measure performance of PHEIs in Malaysia to overcome the misperception in using ranking system *per se*. Specifically, the objective is to determine the dimensions of items used to measure PHEI performance. Resource-based view (RBV) theory is used as a frame of reference to explore the extent of dimensions in measuring HEIs. According to Wernerfelt (1984), resource is defined as anything tangible or intangible that is able to help an organization achieve its objectives and performances as expected. The application of RBV is significant because of several reasons. First, RBV is rather understudied in the context of strategic management of HEIs. Second, PHEI is an organization that heavily relies on its resources, both tangible and intangible, to gain sustainable competitive advantage. Therefore, it is pertinent to apply RBV theory as an underpinning theory in this research.

2. Literature review

This section investigates the relevant research topics done on the subject and helps to identify the availability and adequacy of related documents that support and justify the research problem.

2.1 Private higher education institutions (PHEIs) performance

The growth of the academic world is intensified by the privatization of public HEI, and this had posed competitive challenges to PHEIs and affected their sustainability (Lee, 1998). This created the necessity to measure PHEIs' performance objectively so that the government could monitor their progresses and identify their strengths and weaknesses, which would bring to the discovery of their sustainability competitive advantages (Soon and Zainol, 2011).

However, measuring performance of PHEIs involves two critical issues. First, there should be a distinct objective whether to measure a PHEI financially or non-financially. Second, the dimensions of each measure should be determined because they differ depending on the objectives of the establishment of each of the PHEIs.

Table I provides insight on relevant literatures that shows variations on measuring HEI performance. Hamid (2015) asserted that financial tools and measures (e.g. ROI, ROC cash flow and profitability) are paramount in measuring business performance. However, the financial method alone has insignificant presence when it comes to measuring PHEIs' performance because of the ambiguity on the profit or non-profit role of universities, which explained by Deiaco *et al.* (2012), due to the diversity in the objectives of the PHEIs when they were formed. In addition, Moshari (2013) explained that using financial performance measurement alone may also lead to inaccuracy for it only measures the financial terms, while an organization's value might derive from intangible measures such as intellectual capital.

No.	Author(s)/Year	Dimension	
		Financial	Non-financial
1	Rivlin (1973)		✓
2	Kidwell *et al.* (2000)		✓
3	Ahmed Zebal and Goodwin (2012)		✓
4	Montanaro, M.K.F. (2013)	✓	
5	Moshari (2013)	✓	✓
6	Tee (2016)		✓
7	Alcaine, J. (2016)		✓
8	Sahney and Thakkar (2016)		✓
9	Chinta *et al.* (2016)		✓
10	Abubakar *et al.* (2018)		✓

Source: Developed for this study

Table I. List of selected authors and their respective dimensions used in measuring PHEIs' performance

Previous scholars have identified several non-financial factors in measuring a university's performance, such as the effectiveness and efficiencies of university education (Sahney and Thakkar, 2016; Albekov *et al.*, 2017), input-process-output approach (Chinta *et al.*, 2016) and research activities (Alcaine, 2016; Kidwell *et al.*, 2000; Tee, 2016). Abdullah (2012) identified several critical agenda projects (CAP) that may assist the achievement of the Malaysian's National Higher Education Strategic Plan 2007–2020. However, the elements of CAPs were aimed to capture the quantity and were perceived differently by administrators and educators. Among the CAPs used are the number of academics with double appointments, number of expert-based councils established and number of joint publications. The notion of non-financial performance measurement was also supported by Thirumanickam and Ahmad (2013). According to them, non-financial performance is needed to avoid a firm's measurement system being derailed from the organization's vision, mission and strategic direction.

Furthermore, previous literatures mostly focused on the inputs and processes in measuring a PHEI's performance, not on the deliverables or outputs. For example, Bhusry and Ranjan (2011), Esposito *et al.* (2013), Warwick (2014), Demchig (2015) and Tee (2016) studied the strategies pursued by HEIs, whereas Goi and Goi (2009) explained the importance of rebranding in HEIs and Spender (2005) focused on the roles of academicians in HEI. On the other hand, there have been limited literatures studying on the output or performance of PHEI (Ab Hamid *et al.*, 2012; Yuan and Zuo, 2013; Chinta *et al.*, 2016).

Apart from the financial and non-financial dimensions, the study of PHEIs' performance also revolves around the application of ranking systems. Hou *et al.* (2012) emphasized that university ranking motivates and boosts universities' internal quality and performance assessment. However, the critiques on university ranking system are overwhelming. Halai (2013) clarified that university ranking system serves to reflect the development of higher education in one's country as opposed to measure PHEI performance *per se*. Doğan and Al (2019) cautioned the policy makers to be attentive in applying university ranking system because it can bring to inaccurate outcomes. Daraio *et al.* (2015) further investigated the ranking system used in Europe and identified four major criticisms to university rankings, namely, monodimensionality, statistical robustness, dependence on university size and subject mix, and lack of consideration of the input-output structure.

In the context of Malaysian higher education, MyQuest is an example of an instrument used by MOHE to rank PHEIs according to six tiers, from 1-star (poor quality) to 6-stars (outstanding quality). However, it is evident that the purpose of MyQuest ranking system is not to measure performance, but to assess the current quality level of PHEIs (MOHE, 2019).

Based on the literature, this research asserts that the ranking system is inappropriate to measure the performance of a PHEI. Therefore, financial and non-financial methods will be used to measure PHEIs' performance. Financial performance is needed because it will bring in organizational competitive advantage (Harlow, 2008). On the other hand, non-financial performance is also required as it relates to the problem in measuring PHEIs' performance, especially in understanding how teaching and research can contribute to organizational and strategic goals, and suitable evaluation methods (are required) when a mere financial measure alone is not adequate (Zangoueinezhad and Moshabaki, 2011). Four dimensions are used to initiate the measurement of PHEI performance. They are: academic effectiveness, PHEI rating criteria, research capacity and financial performance.

Academic effectiveness. This study opines that academic effectiveness is the core of PHEIs' performance. According to Grosbois (2011), performance stems from the efficiency and effectiveness of an action. While effectiveness means "doing the right thing," academic effectiveness refers to the extent of the management and government in PHEIs to assist toward improving their strategies (Blackman and Kennedy, 2009). According to Esposito *et al.* (2013), it is crucial for organizations to measure performance to enhance accountability and effectiveness. Several aspects of academic effectiveness have been identified.

First, PHEIs should consider to enhance the quality of their academic programs and services continuously to achieve sustainable competitive advantage (Caruana *et al.*, 1998). Second, the academic effectiveness is also studied as a function of students' achievement (Sammons *et al.*, 1998). According to Hashim (2012), students' achievements reflect the nature of academic programs. Third, it is also found that good leaderships will contribute to organizational achievement and effectiveness as proposed by Ab Hamid (2015). This includes how the PHEIs' leaderships attract and retain academicians in their institutions. From the review of literature, this study adapted the criteria used (i.e. management of academic programs and academicians) from Delaney and Huselid (1996) in measuring academic effectiveness.

Rating criteria. This study has stressed that MyQuest ranking is not a performance rater. However, it is crucial to understand that the instrument serves as a measurement of the quality in a PHEI. One of the criteria of assessment used by MyQuest ranking system is resource management in PHEIs. In accordance to RBV theory, MyQuest assesses the adequacy of PHEIs' resources, such as library, physical infrastructure, financial and academic staffs. Therefore, the instruments are considered as non-financial measurements of PHEI performance in Malaysia.

These ratings are beneficial and have become an attracting point to increase the student enrollments. Therefore, some of the criteria of these ratings have been chosen in determining the performance of PHEIs in this study. The chosen criteria include: students (quality, participation with external organization, number of international students); resources (physical infrastructure, financial sustainability, support services, staff ratio); quality management system (certification, good management system, external participation, student satisfaction index); program recognition (accredited programs, active programs); and graduates' recognition (employability, employer satisfaction, recognition and awards to graduates). These criteria were adapted as a non-financial measurement of PHEI performance.

Research capacity and capability. Tee (2016) asserted that research is a performance indicator for universities in the UK. This point is also supported by Alcaine (2016), who emphasized the importance of research capabilities as a university's performance measurement. According to him, research capabilities are manifested in the forms of: grants and contracts revenue and licensing revenue. Since previous studies stressed on the research grants that were not depicted in dollars and cents, this study treats the research capacity of a PHEI as a non-financial indicator in measuring the PHEIs' performance.

Financial performance. The crux of running a successful enterprise is to have a good and reliable financial management. With this regard, it is essential to have an implementation of a sound financial and management system. Montanaro (2013) used financial data and ratios such as total operating revenues and viability ratio to measure universities performance. However, complexities might occur when using this measurement in this study, where the unit of analysis is individual academicians who have limited access on financial data. Therefore, the objective of this study is to find an appropriate tool to measure performance in order to evaluate and maintain sustainability.

Although Tseng (2014) introduced both financial and non-financial dimension in measuring a firm's performance, there have been no attempts to evaluate the PHEIs' performance in Malaysia using Tseng's two approaches, which justifies the adaptation of her financial measurement items in this study. The justification is that Tseng (2014) provided the items that were constructed in a perceptual way which makes them directly applicable to this study. It generates a fresh approach in using financial performance measurement to achieve organizational objectives, namely, the efficiency and effective management of resources.

Overall, this study uses perceptual measurement on organizational performance. As Delaney and Huselid (1996) suggested, a perceptual measurement was proven to be

positively correlated with objective measures of organizational performance, although perceptual data were said to increase the measurement error. Ketokivi and Schroeder (2004) supported this premise and concluded that perceptual measurements produced a substantive reliability and validity compared to those of actual measurements. Therefore, it is appropriate to use perceptual measures for an analysis of PHEIs in Malaysia, when the objective from performance data is generally unavailable.

3. Methodology

3.1 Sample and procedure

The primary data for this research were collected through a structured questionnaire to answer the research question. The questionnaire was administered to 175 academicians in seven PHEIs in Malaysia through convenience sampling method. This method is chosen because it is most suitable within the limited time frame with no sampling frame available to the researcher (Lee *et al.*, 2011). Although it is argued that the result of studies using convenience sampling cannot be generalized, Lucas (2003) explained that non-probability samples do not signal that they are low in external validity. He opined that generalization of research findings is a matter of procedure, not research methodology. Therefore, this study is suggesting that the application of convenience sampling could be generalized to a larger population.

The study targeted the academicians in PHEIs who were part of management levels (Gold *et al.*, 2001; Mills and Smith, 2011; Alaarj *et al.*, 2016). It is a fact that these individuals would be aware of and would be able to describe their perceptions on that particular PHEIs' performances.

Subsequently, 117 questionnaires were received. Each of the response received was screened for errors, as well as incomplete and missing responses. After the screening process was carried out, only 105 responses were considered complete for data analysis. Demographic information is demonstrated in Table II. It can be concluded that the majority of respondents were female (57.1 percent) with master's degree qualification (77.1 percent), aged 35–44 (45.7 percent) with working experiences of 3–5 years (50.5 percent).

3.2 Instrument

In the second phase of this research, 25 items with four constructs of perceived PHEI performance were developed. These constructs represent four dimensions identified from related literature, namely, academic effectiveness, PHEI rating criteria, research capacity and capability, and financial performance. The process of developing the measurement items follows the guidelines proposed by MacKenzie *et al.* (2011). However, due to the time constraint, only five from ten steps were properly followed. First, the authors develop a conceptual definition of the constructs in the context of perceived PHEIs' performance.

Demographic variable	Category	Frequency	(%)
Gender	Male	45	42.9
	Female	60	57.1
Age	25–34	43	41.0
	35–44	48	45.7
	45–54	14	13.3
Education level	Bachelor's degree	12	11.4
	Master's degree	81	77.1
	PhD degree	12	11.4
Years of working	3–5 years	53	50.5
	6–10 years	24	22.9
	11–20 years	28	26.7

Table II. Demographic information

Second, the items were generated from literatures, discussion and interviews with academicians from public universities. Third, the constructs were sent to three panel academicians in local public universities with backgrounds in business and social science studies. This step aimed to achieve construct and measurement validity. Comments were noted and changes were made according to the suggestions from the panels. Fourth, the items were sent for pilot testing on three PHEIs in Malaysia. In the final process, the items were assessed on their reliability and convergent validity to purify and refine the scale. With this in hand, it is expected to improve the quality of scales in measuring perceived PHEIs' performance.

For all items, this study employed a seven-point Likert scale. It ranged from (1) strongly disagree and (7) strongly agree. Sources of measurement and number of items are given in Table III.

Variable name	Item	No. of items	References
Dimension 1: academic effectiveness		7	Delaney and Huselid (1996)
Over the past 3 years, I perceive that my institution has increased its ability to…			
OP1	Ensure the quality of academic programs or services		
OP2	Develop new academic programs or services		
OP3	Attract essential academicians		
OP4	Retain essential academicians		
OP5	Sustain students' satisfaction		
OP6	Sustain good relations between management and other academicians		
OP7	Sustain good relations among academicians in general		
Dimension 2: PHEI rating		9	Self-developed
Over the past 3 years, I perceive that my institution has increased its ability to…			
OP8	Produce higher quality graduates		
OP9	Establish linkages with community and external organization		
OP10	Ensure the adequacy of library resources		
OP11	Sustain good relations with external assessor and industrial advisor		
OP12	Obtain international recognition in quality management system		
OP13	Ensure all programs accredited by MQA		
OP14	Develop of in-house academic programs (home grown)		
OP15	Graduates who are employed within 6 months of graduation		
OP16	Minimize negative complaints from graduates' employers		
Dimension 3: research capacity and capability		6	Self-developed
Over the past 3 years, I perceive that my institution has increased its ability to…			
OP17	Obtain research grants		
OP18	Complete research on time as planned		
OP19	Produce researches that meet objectives respectively		
OP20	Involve participants from other academic institutions/ industry in research works		
OP21	Involve students in research works		
OP22	Produce impactful research on the community		
Dimension 4: perceived financial performance		3	Tseng (2014)
Compared with other college/university college/university's over the past 3 years, I perceive that…			
OP23	Our profit is higher		
OP24	Our return on investment is higher		
OP25	Our sales amount higher		

Table III. Sources of measurement items

4. Data analysis and findings

4.1 Preliminary data analysis

Initial analysis was done with a sample adequacy and items' reliability check using IBM SPSS Statistics Version 20. As shown in Table V, KMO value is 0.878, which is above the threshold of 0.50 for a satisfactory factor analysis to proceed. Meanwhile, Bartlett's test of sphericity value is also significant ($p < 0.05$) which concludes that the relationship among constructs of PHEI performance is strong. In terms of internal consistency, two methods were executed, Cronbach's α and Composite Reliability (CR). According to Hair *et al.* (2014), both values of Cronbach's α and CR must be greater than 0.70 to achieve internal consistency. From Table V, it shows that Cronbach's α value is 0.966, indicating a high internal consistency of measurement items. Second, CR was checked and the result shows that the CR values ranged from 0.809 to 0.96, which is above the threshold of 0.7. Therefore, the constructs used in this study have high internal consistency.

Next, the data were checked for its normality. It is imperative to identify whether the data were normal or not because they determine the type of further analysis to be followed. Kline (2011) stated that excessive skewness occurs when its absolute values exceed 3 and that the kurtosis absolute value that exceeds 8 is considered to be extremely kurtotic. Table IV shows that the *z*-values of skewness and kurtosis are scattered and the ranges exist beyond the threshold values. This study discovered that the data are skewed for items OP6, OP9, OP11, OP12, OP14 and OP20, and thus concluded that the data are not normally distributed.

4.2 Factor analysis

Factor analysis was conducted to reduce or regroup the items used in measuring perceived PHEIs performance. Prior to performing factor analysis, the suitability of data was assessed. Field (2009) explained that a principal axis factoring with promax rotation is appropriate to be used because this method assumes that it would be applied to the entire population. Browne (2001) further asserted that the option to choose either orthogonal or oblique rotation relies on the correlations among factors. He proposed that if correlations exceed 0.32, then there would be 10 percent (or more) overlap in variance among factors. It shows that there is enough variance to apply oblique rotation. According to the factor correlation matrix in Table V, all correlations were considered high with most of the correlations above 0.32. Therefore, this study is on the right track for using Promax as rotation method.

The results of factor loadings were also shown in Table IV. This study retains all loadings above 0.70 as suggested by Hair *et al.* (2014), while loadings between 0.40 and 0.70 were checked on its average variance extracted (AVE). It shows that the AVE values for these variables were above the threshold of 0.50 and therefore all proposed factors with loadings between 0.40 and 0.70 were retained. Three items were dismissed (OP1, OP10 and OP21). The remaining 22 items were re-grouped into four dimensions and will be explained in the next section.

5. Discussion and conclusion

This study has attempted to suggest a framework to measure PHEIs performance in Malaysia from the academicians' perspectives. A pool of constructs were developed and adapted according to the literature on measuring organizational performance. These constructs were initially divided into four dimensions, namely, academic effectiveness, PHEI rating criteria, research capacity and capability, and financial performance.

This study reveals that 22 items on measuring perceived PHEIs performance have acceptable factor loadings values. These factors were regrouped into four dimensions and by coincidence, these dimensions are similar to the four dimensions of the balanced scorecard (BSC) approach of measuring business unit performance (Kaplan and Norton, 1992).

Construct	Factor loadings 1	2	3	4	Skewness	Kurtosis	Eigen values	Variance explained	AVE	CR
Factor 1										
OP2	0.870				−1.74	−0.61	45.33%	44.46%	0.77	0.964
OP3	0.585				−1.37	−1.23				
OP4	0.886				−1.73	0.84				
OP6	0.910				−3.72	1.41				
OP7	0.917				−1.29	−1.66				
OP12	0.907				−4.17	3.08				
OP13	0.945				−2.28	−1.76				
OP14	0.946				−4.26	2.54				
Factor 2										
OP5		0.915			−1.72	−0.32	18.28%	61.97%	0.721	0.939
OP8		0.821			−1.85	−1.06				
OP9		0.909			−3.12	1.72				
OP11		0.690			−3.77	3.30				
OP15		0.915			−0.39	−1.55				
OP16		0.820			−1.13	−1.90				
Factor 3										
OP18			0.621		−1.35	−0.62	8.42%	69.57%	0.522	0.809
OP19			0.770		−1.09	−1.34				
OP20			0.882		−4.50	2.77				
OP22			0.574		−2.48	0.26				
Factor 4										
OP17				0.610	−0.17	−1.19	4.14%	72.81%	0.863	0.960
OP23				1.013	−0.85	−1.28				
OP24				1.012	−0.99	−0.87				
OP25				1.014	−1.46	−0.18				
KMO Measure of sampling adequacy							0.878			
Bartlett's test of sphericity							0.000			
Cronbach's α							0.966			

Notes: The skewness and kurtosis column show respective z-value for each construct, which values should be between −1.96 and +1.96. Average variance extracted (AVE) values were calculated manually using formula AVE $= \Sigma \lambda^2/N$; composite reliability (CR) values were calculated manually using formula SSI/(SSI+SEV), where SSI, sum of all factor loadings for each indicator, and SEV, sum of all error variances of each indicator

Table IV. Factor analysis, normality and reliability table

Factor	1	2	3	4
1	1.000	0.421	0.305	0.272
2	0.421	1.000	0.537	0.587
3	0.305	0.537	1.000	0.674
4	0.272	0.587	0.674	1.000

Note: Extraction method: principal axis factoring; rotation method: Promax with Kaiser normalization

Table V. Factor correlation matrix

These four perspectives are: internal business process, customer, learning and growth, and financial performance.

The application of BSC approach is considered as a strategic management system that will help PHEIs in the process of converting intangible assets into "customer and financial outcomes" (Lettice *et al.*, 2006). BSC is likely to overcome the problem of measuring intangible assets, such as skills, information systems and culture in PHEIs and thus making

it difficult for competitors to imitate. This will become a source of competitive advantage for PHEIs. Furthermore, the intangible nature of organizational knowledge justifies BSC as an appropriate method in measuring PHEIs performance (Aljardali *et al.*, 2012).

In order to justify the constructs belongings, four components of BSC are further explained.

5.1 Internal business process

A principal axis factoring on the data set had produced the first factor with total variance explained was equal to 44.46 percent. Eight items were grouped under the first factor. The factor loading values were above 0.40, which are acceptable according to Hair *et al.* (2009). This factor also yielded a CR value of 0.964. The items extracted in this first factor were OP2, OP3, OP4, OP6, OP7, OP12, OP13 and OP14. These items represent the academicians' perceptions on their institutions' capabilities in developing new academic programs, attracting and retaining academicians, sustaining good relations between administration and academicians, obtaining recognition in quality management system and legislative bodies. It is concluded that the first factor reflects the internal business process dimension in the BSC model.

Organizations must identify the internal processes that are needed to meet customer's expectations (Kaplan and Norton, 1992). In the education industry, it is important to identify the internal processes that would significantly impact customers' satisfaction. Teaching and learning are core activities in education institutions (Mohayidin *et al.*, 2007; Ali *et al.*, 2014; Chinta *et al.*, 2016), although it has been argued that academicians' roles are expanding (Nyeko and Sing, 2015; Bakar *et al.*, 2015).

PHEIs should consider to continuously enhance the quality of their academic programs and services to achieve sustainable competitive advantage (Caruana *et al.*, 1998). The Malaysian Government, for example, has established MQA as an agency to monitor the quality and accredit academic program. It has become a stringent regulation to ensure that PHEIs are capable of offering quality academic programs. Apart from that, the quality of academicians is also vital to convey the teaching process efficiently. In addition, the ability to retain employees is also vital in measuring performance (López-Nicolás and Meroño-Cerdán, 2011). These criteria have been included as the constructs in this study.

5.2 Customer

The second factor was obtained from the principal axis factoring with six items extracted (OP5, OP8, OP9, OP11, OP15 and OP16). The variance explained of the second factor was 61.97 percent. All the items were extracted with acceptable factor loadings from 0.69 to 0.915. The CR value was 0.939, indicating a high reliability. The items extracted revolved around the students' quality, students' satisfaction and networking with external parties (i.e. community, external organizations, external assessors, industrial advisors and employers). Therefore, this study proposes that the second factor also matches the customer dimension in the BSC model.

Customer's satisfaction refers to when a product or service delivered is meeting or surpassing the customer's expectation. According to Abrahams (2010), PHEIs are facing growing expectations from customers. The mismatch between customers' expectations and perceptions will cause students to withdraw from HEIs (Mah and Ifenthaler, 2017). Therefore, it is crucial to measure customer satisfaction in this study as it is in the BSC model because it complements the financial performance measurement.

However, the perspective of customers needs to be clarified beforehand. Previous studies have conceded that students are the main customers for an education institution (Athiyaman, 1997; Aldridge and Rowley, 1998; Lasisi *et al.*, 2013). The perspective was expanded by Umashankar and Dutta (2007) when they introduced faculty, staff, alumni, parents and corporations into the customer quadrant of the BSC model. In addition, the role

of academic advisors is also important (Aldridge and Rowley, 1998). Their role is recognized in this study to influence students' satisfaction by providing inputs and expertise in developing or revising academic curriculum.

5.3 Learning and growth

The principal axis method applied also produced a third factor from the data set. Four items were extracted with total variance explained of 69.57 percent. The factor loading values were acceptable, ranged from 0.574 to 0.882. The CR was satisfactory with value of 0.809. The four items (OP18, OP19, OP20 and OP22) revolved around the PHEIs' research capability, representing the learning and growth dimension in the BSC model. The items measured the academicians' perceptions on their PHEIs' capability to complete a research in its time frame, to meet the objectives of the research, to involve academicians from other institutions and to produce impactful research on the community.

As the higher education industry becomes more competitive, PHEIs should be capable of continuously improving their products and services. This component denotes the capability of PHEIs to innovate, improve and learn new things that increase organization's value (Kaplan and Norton, 1992). Innovation means that HEIs are committed to research and development as a mean to introduce scientific advances, new inventions in terms of products, processes or systems within the HEIs, and commercializing new knowledge and technology for economic and social well-being (Yusof *et al.*, 2012).

Tee (2016), supported by Alcaine, J. (2016), asserted that research is a performance indicator for universities. Other ways of enhancing knowledge among academicians are by attending workshops and presenting in conferences, which will assist in the distribution of breakthroughs in the respective field of study. Nevertheless, the internal capability of PHEIs in providing knowledge to academicians, such as the availability and accessibility of books and journals, may also help in their learning and growth.

5.4 Factor 4: financial

The oblique rotation of this factor analysis had extracted four items with total variance of 72.81 percent. The CR value was 0.960. The factor loadings were acceptable as suggested by Hair *et al.* (2014), with values between 0.61 and 1.014. Three items had loading values above 1.00, indicating the existence of multicollinearity. According to Jöreskog (1999) and Bagge *et al.* (2004), factor loading values greater than 1 are common in Promax (or any oblique) rotation because the factor loadings are actually regression coefficients, not correlation coefficients. Jayakar and Park (2013) asserted that multicollinearity might increase the standard errors of the coefficients, producing a less accurate result. However, it does not bias the results if the models are accurately designed. Therefore, this study retains those three items. The items extracted in the fourth factor were OP17, OP23, OP24 and OP25. These items measured the research grants obtained, profit, return on investment (ROI) and sales amount according to the perception of academicians. This group was identified as financial factor as in the dimension of BSC model.

Financial performance measures indicate the achievement of ultimate outcome from the execution of a company's strategy, usually in the forms of profitability, growth and shareholders' value (Kaplan and Norton, 1992). Previous studies have acknowledged other financial measures such as ROE and ROI (Chakravarthy, 1986), sales amount (Tseng, 2014) or cash flow (Hamid, 2015). In addition, students' enrollment is crucial to be measured as it indicates high quality academic programs and will contribute to increased sustainability (Nawaz and Gomes, 2014). This justifies that the sales, profit and ROI are to be grouped together in this factor.

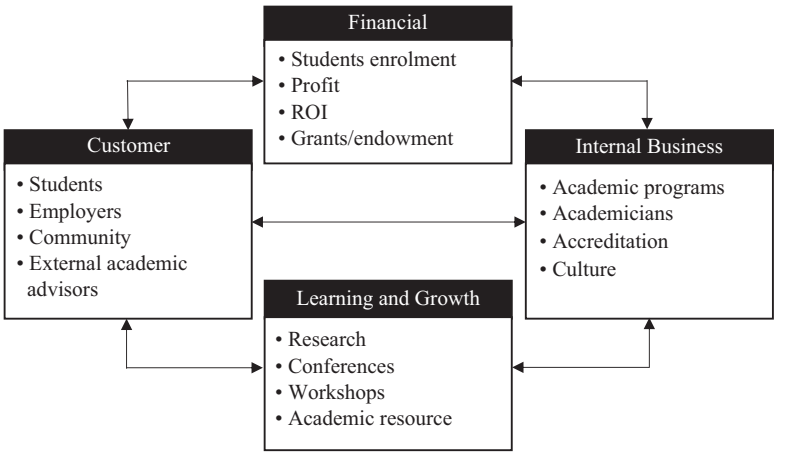
The need to measure PHEIs' financial performance is inevitable. Sahney and Thakkar (2016) explained that the goal in education is to achieve organizational objectives by

utilizing the resources effectively and efficiently. Therefore, financial performance is a crucial measurement of PHEIs' sustainability and may be used to signal academic performance (Montanaro, 2013), although limited literature discussed this matter.

The factor analysis examines the suitability of proposed evaluation model of PHEIs in Malaysia using the BSC model. Basically, the measurement items proposed earlier in four dimensions (i.e. academic effectiveness, PHEI rating criteria, research capacity and capability and financial performance) have shown acceptable loading values, with only three items discarded (i.e. OP1, OP10, OP21). After running a principal axis factoring, the items were extracted accordingly into four dimensions similar to the BSC model. In this regard, the result highlights the application of strategic management tools in measuring PHEIs' performance.

Literature has supported that the BSC model provides advantages to HEIs. According to Baporikar (2015), the adaptation of the BSC model in HEIs has two key objectives: to increase the education quality and to help meet customer demands. Umashankar and Dutta (2007) outlined four potential benefits of the BSC model in Indian universities: improvements in service quality, higher customer satisfaction, increased customer loyalty and increased financial performance. As PHEIs are knowledge organizations (Wiig, 1997), the implementation of the BSC model to measure performance rather than current quality is useful to ensure that the organizational knowledge will be preserved (Esposito *et al.*, 2013). Furthermore, Aljardali *et al.* (2012) have also proposed to implement BSC in Lebanese public HEIs, including the information system and human resource capabilities. Ahmad and Soon (2015) also concluded that BSC is capable to offer an extensive framework for translating an HEI's objectives and strategy into a comprehensive set of performance measures.

Given the limited research on BSC in the higher education industry, this study proposes that the 22 developed and adapted constructs used can be matched to the four perspectives of the BSC model. This proposed model can be applied in measuring PHEIs' performance in Malaysia and is shown in Figure 1. Realizing that there is no objective measurement of PHEIs' performance in Malaysia, this study proposes this BSC model for higher education to be applied by PHEIs' managers. This performance measurement model differs to the ranking systems that are currently applied. As explained earlier, the purpose of ranking system such as MyQuest and SETARA is to evaluate the level of quality delivery by PHEIs. It does not serve to measure the performance of a particular PHEI, instead it ranks the PHEI



Source: Adapted from Kaplan and Norton (1992)

Figure 1.
Balanced scorecard (BSC) diagram in measuring PHEIs' performance

according to predetermined dimensions that have been perceived to be crucial by the authority. This study has managed to establish the crucial items as perceived by the PHEIs' internal manpower, the academicians. These items were statistically analyzed and they showed acceptable levels of internal consistency and reliability. Therefore, this study is convinced that the BSC model proposed that is from the academicians' point of view is able to measure PHEIs' performance more accurately.

Academicians are the heart of the service provided in HEIs. Although academicians are said to work in silos and cross-functional tasks are not common (Basu *et al.*, 2007), the structure of PHEIs has changed due to the increased in competition. The responsibilities of academicians in PHEIs are not subjected to teaching and learning like it used to be. Yasir *et al.* (2017) emphasized that a culture of trust and knowledge sharing should be developed among academicians, while Hassandoust *et al.* (2011) proposed that the effort to build the culture of knowledge sharing is extended toward the PHEIs' students. In another literature, Lorenz (2014) proposed the importance of maintaining wellness among the academicians. The conclusion implies that the academic responsibilities are widening. In a higher working position, academicians are more likely to involve in administrative tasks. It has resulted in a working condition that involves strategic performance measurement. For instance, a dean has to bear the responsibilities to measure the faculty's performance and facilitate cross functionality more effectively. Therefore, the proposed model will assist PHEIs managers in improving internal processes, fulfilling the customers' needs, enhancing research capacity and academicians' learning processes and improving financial performance.

This paper makes several contributions to the literature. First, it contributes to the conceptualization of PHEI performance measurement. While many previous studies varied in focus, this study attempts to introduce a tool that can measure both financial and non-financial aspects of PHEIs. This is to fill the gaps suggested by Sambasivan *et al.* (2009) who proposed that further studies should be done on performance measurement, in particular, the education institutions. Second, this paper also expands the current application of strategic management in higher education industry. It is expected to enhance the sustainability of PHEIs in Malaysia at a time of increasing competitions and liberalizations within this industry.

As for managerial implications, it is insightful and beneficial for the regulators and PHEIs to realize that performance reflects the achievement of strategies pursued. Without a holistic performance measurement, a PHEI cannot identify its capacity and capability to achieve the pre-determined strategy. This study has introduced new constructs such as a rating criteria and research capacity that will be able to assist the Malaysian regulators to evaluate PHEI performance. Second, there is evidence from this study that the BSC model can be applied in many industries, e.g. the higher education industry, as a performance measurement tool. Therefore, although the constructs introduced in this study might not be applicable to all PHEIs, the essence is that the BSC model should be understood by policy makers that it is a tool to evaluate PHEIs' performance.

In terms of practical implication, the findings suggest that PHEIs' managers should consider alternative ways to measure their performance and not rely on ranking systems which are currently considered as the only method to measure performance. This study reveals that ranking system does not reflect the overall performance of an institution and that by applying the BSC model with the proposed measurement items, PHEIs' managers will be able to take actions on the dimensions that they are lacking. This will contribute to the enhancement of overall performance. In sum, this means that the proposed model is not only able to provide more accurate measurements of performance, it simultaneously alerts and identifies managers which strategies require additional effort with the addition of the proposed items within the existing BSC model.

6. Limitations and future work

It is important to understand that this research has been interpreted within the context of its limitations. It requires additional research to help in filling the study gap. First, the result of this study was analyzed based on a pilot study sample of 105 academicians from seven PHEIs. A larger sample size might be able to contribute more on higher generalizability as it will allow for more statistical power and sophisticated analysis. Second, the result shows that the data were not normally distributed. Therefore, future research will have to look into the distribution of its data. Regarding this study, the researchers further plan to analyze the data using non-parametric testing such as PLS-SEM, which does not presume that the data are normally distributed (Hair *et al.*, 2011).

7. Conclusion

This paper presents four dimensions in measuring performance of PHEIs in Malaysia. Initially, four dimensions of PHEIs' performance were identified from literatures. A factor analysis was applied to confirm the dimensions, which resulted in four dimensions as in BSC approach. As opposed to the ranking system that always been misunderstood as a mean to measure PHEIs' performance, the proposed dimensions of BSC can become an alternative in measuring performance by offering a more generalizable, yet applicable to PHEIs in Malaysia.

The higher education industry in Malaysia today is facing challenges and intense competition. Liberalization of higher education has exposed opportunities to international PHEIs to invest in Malaysia. Therefore, local PHEIs must pursue the best competitive strategies to ensure sustainability. A comprehensive performance measurement will help a PHEI to realize and take appropriate actions to overcome the challenges in the higher education industry. This study indicates that the BSC model is a strategic tool that can be applied to measure PHEI performance. Using the Principal Axis method with Promax rotation, the four quadrants of the BSC model have been proven to represent the initial proposed dimensions of PHEI performance (i.e. academic effectiveness, rating criteria, research capacity and capability, and financial performance).

This study provides insights and awareness to leaders in PHEIs on how to manage their performance. Within the strategic management domain, the BSC model is applied as performance measurement in many organizations (Chen and Fong, 2015). However, the application of BSC in HEIs is still rare and needs careful adjustment. Apart from making the authorities aware of the shortcomings of the ranking system, and the importance of a holistic measurement of both financial and non-financial performance that is found in the BSC model, it is hoped that this study will also help PHEIs to have better understanding of the needs required to create competitive advantage. Furthermore, managers may also utilize the findings of this study in formulating and revising their competitive strategies.

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