Performance Measurement System, Performance Indicators and Funding Mechanism in Malaysian Public Universities: A Conceptual Framework

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Introduction

The funding of financial resources in higher education is one of the central issues faced by most governments in the world in this era of competition and globalisation. The public and relevant stakeholders are now closely scrutinising the public universities with what they do, how well they do it and at what cost (Shale and Gomes, 1998). What is most unnerving is that public sector organisations including universities do not always use financial resources efficiently to achieve their objectives (Yaisawarng, 1997). Thus, to improve the inefficiencies, these organisations should implement performance measurement system to efficiently allocate their financial resources based on performance indicators (Gaither, Nedvek and Neal, 1994). The general notion of performance measurement in the government sector revolves around budget performance. The more a government agency spent on the budget allocated the better it is. There are two major issues that are relevant for this paper i.e. resource allocation and performance indicators. To further explain these issues, the authors have set the objectives of the papers as follows:

- To review the theory and concepts of performance measurement and resource allocation in the context of public universities (PUs) in Malaysia.
- To highlight the types and most common performance indicators that are practised and used by the PUs in Malaysia.
- To establish the relationships between performance indicators as the predictor constructs and the funding mechanism or resource allocation as the dependent constructs.
- To indicate whether the performance measurement usage and practices are relevant in determining the budget or resource allocation decisions of Malaysian PUs.

To date, studies on performance measurement system in the government agencies in Malaysia have tended to concentrate on Modified Budgeting System (MBS) planning and implementation. It is unclear to what extent the MBS objectives have been met in PUs in Malaysia. The extent of the relationship or association between performance indicators and resource allocation decisions is also unknown. It is unclear to what extent the use of performance indicators as specified in the MBS are practised by the programme managers in the PUs in Malaysia. This paper attempts to close this gap and prompted the researchers to investigate how the performance measurement system works in the context of PUs in Malaysia. It will propose a model for a performance-based funding that is suitable for the allocation of financial resources (budget) in the Malaysian PUs.

Theoretical Overview of Performance Measurement and Resource Allocation in Malaysian PUs

Neely et al. (1995) define performance measurement as the process of quantifying the efficiency and effectiveness of action. In another aspect, a performance measure acts as a metric used to quantify the efficiency and/or effectiveness of action, while performance measurement system is the set of metric used to quantify both efficiency and effectiveness of actions. In a similarly related study, Bourne et al. (2003) define performance measurement as the use of multi-dimensional set of performance measures for the planning and management of business. Performance indicators are less precise than performance measures. Performance indicators are typically defined as factual or opinion information usually in quantitative forms (e.g. ratios, percentages, ranks, etc.). However, in qualitative forms they are about the functioning of universities for various purposes such as monitoring, evaluation, and resource allocation (Cave, Hanney, Henkel, and Kogan, 1997; Kells, 1993; Sizer, 1992). Webster and Hung (1992) state that measurement is a key management activity that provides management with information needed for decision making, monitoring performance, and effective allocation of resources.

Some common performance indicators used by scholars in education and performance measurement could be seen in the literature. For instance, Burke and Serban (1998) in a study on institutional performance to funding in the State of Tennessee, United States used indicators such as student and alumni satisfaction survey and number of baccalaureate degrees awarded. Meanwhile, a study by Cave et al. (1997) found that some of the indicators used were cost per FTE student (Full-Time-Equivalent), research income, contribution to consultation and professional training, and submission rate for research degrees.

Resource allocation is defined as the ways in which fiscal and non fiscal resources are divided between competing needs and expended for educational purposes (Richardson, 1994). Resource allocation in the context of Malaysian PUs is measured based on how much financial resources are allocated to various activities (faculties/departments/centres/branches) of

the universities (Bogue, 1998; Xavier, 2001). The budget is allocated based on five general expenditure codes/types such as salary or emolument (expenditure code 10000), academic expenditure or services and supplies (expenditure code 20000), maintenance expenditure (expenditure code 30000), student expenditure (expenditure code 40000), and other expenditure (expenditure code 50000). Salary expenditure refers to the staff and lecturers's salary and benefits; academic expenditure accounts for services and supply of academic activities such as cost for attending seminar, purchase of books, rental of building etc., maintenance expenditure is to upkeep the department and faculties as well as purchase of equipments, student expenditure involves expenditure on students activities, food and hostels and other expenditure, which is expenditure on research, publication, and others (The Treasury of Malaysia, 1997; Xavier, 2001).

According to Bujang and Xavier (1999; 2001), performance measurement in the public sector is based on the performance of the budget. The budget proposal is actually the main tool used by the government to ensure the successful implementation of its policies and strategies. Based on the budget proposal the government will monitor the achievement of its programme objectives. These programme objectives are measured based on the MBS approach which was introduced in 1990. Basically this budgeting tool is the measure of organisation's accountability proposed in the budget proposals by the programme managers. The objective of this system was to improve the Government's budgetary process especially with regard to accountability, allocation of resources/funds and the implementation of programmes/activities by the agency (Xavier, 1998, 2001). MBS stresses on the relationship between inputs, outputs, and the impacts of a particular programme or activity. Under this system, Government Agencies are required to determine their achievement targets in terms of outputs and impacts of every program or activity for which there are "programme agreements" between the agency and the Federal Treasury.

The Proposed Performance Measurement Framework for PUs in Malaysia

Evidence of the use of performance indicators could be traced from the programme agreement documents which is a part of the budget document. Based on the original premise of the MBS concept, funding decision should tie with performance indicators (Xavier 1996; 1998; 2001). Based on the literature surveyed from the performance reports of the Malaysian PUs, there are twelve core areas specified by the Malaysian PUs as the main indicators used in their resource allocation decisions. The core areas are grouped into three main perspectives namely administrative, academic and student perspectives. The perspectives were developed based on the balanced scorecard approach suitable for PUs (Kaplan and Norton, 1992, 1996, 2001; Niven, 2003). These perspectives deal with the administrative, academic, and student activities and programmes in the universities. Some of the common indicators used are shown in Table 1.

Based on the discussion of the constructs above, the researchers are proposed a conceptual framework for the study as shown in Figure 1. This study is aimed at establishing the relationships between performance indicators and resource allocation (Schick, 1990; Yaisawarng, 1997).

An exploratory study to test the reliability on the instrument of the proposed performance measurement framework in PUs was conducted. The survey was piloted to 50 programme managers in five PUs. The internal consistency was measured using the Cronbach's alpha coefficient (Cronbach, 1990) to test separately all the items of each criterion. Table 2 displays the result that consists of the reliability values termed as alpha values which range from 0.82 to 0.99 indicating that all scales are acceptable. All factors seemed to reflect values greater than 0.7 are then suggested as being adequate for testing the reliability of the criteria. The results obtained indicate that the proposed instrument has high internal consistency and therefore is reliable.

Conclusions

The framework proposed is based on extensive review made from the literature regarding performance measurement in the public sector especially public universities. The framework is therefore able to elicit elements and factors relating to the use of performance indicators in the Malaysian PUs. Based on the results of the pilot tests conducted, the factors posed in the questionnaire have content validity as they have high alpha and therefore, are well received. It indicated a strong reason to believe that the variables chosen for this study are appropriate. The preliminary study found that performance indicators in the administrative, academic, and student perspectives can be used to allocate salary, academic, maintenance, student, and other expenditures in the Malaysian PUs.

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Table 1: Perspectives, constructs and variables of Performance Indicators in PUs in Malaysia

Perspectives	Constructs	Performance Indicator Variables
Administrative	Human Resource Management (HRM)-staff recruitment, retirement and dismissal	No. of academic staff, No. of administrative staff, No. of lecturers with Ph.D. and Masters qualifications…(17 items)
	Human Resource Development (HRD)-training and learning activities	No. of lecturers on study leave, No. of lecturers attending and presenting papers in international/national conferences, No. of conferences, seminars, workshops organised…(14 items)
	Management of Information (MOI)-reservoir of knowledge for the academicians	No. of books, journals and magazines, No. of library uses, No. of books borrowed…(7 items)
	Financial Management (FM)-rendering financial services	Level of efficiency on financial management, percentage of increase/decrease of yearly allocation, percentage of payment made on time to customers…(25 items)
	Building and Maintenance Management (BM)- maintenance services	No. of development projects planned, No. of maintenance projects planned, No. of development projects completed…(18 items)
	Corporate Affairs and Industrial Relations (CAIR)-links the universities with the stakeholders, industries, parents, potential students, alumni, suppliers, etc	No. of MOUs/cooperation with higher learning institutions/government agencies, private sectors signed at international/national level…(8 items)
Academic	Academic (ACA)-academic activities	No. of students, No. of student intake, No. of graduates…(33 items)
	Research, Consultancy, and Innovations (RCI)-research, consultancy and innovation activities	No. of long-term research registered/commenced/active, No. of short-term research registered/commenced, active…(19 items)
	Publication (PUB)-publishing books, journals, etc.	No. of books published, No. of books translated, No. of academic journal published…(9 items)
	Academic Development (EDUC)-academic development activities	No. of international/national level organised, No. of public lecture organised, No. of academic exhibitions organised…5 items)
Student	Student Placement (STUP)- managing student enrolment in the colleges	No. of colleges, No. of rooms in colleges… (10 items)
	Student Development (STUD)-student enrolment in colleges-student development and extracurricular activities.	No. of student seminar organised at international/national level, No. of student seminar organised at international/national level…(38 items)

Table 2: Internal reliability of the scales and descriptive statistics of Performance Indicators in PUs

Factor	Performance Indicators Criterion	Reliability
F1	Human resource management	0.968
F2	Human resource development	0.941
F3	Management of information	0.994
F4	Financial management	0.973
F5	Building and maintenance management	0.985
F6	Corporate affairs and industrial relations	0.960
F7	Academic	0.867
F8	Research, consultancy, and innovations	0.961
F9	Publication	0.929
F10	Academic development	0.955
F11	Student placement	0.815
F12	Student development	0.972

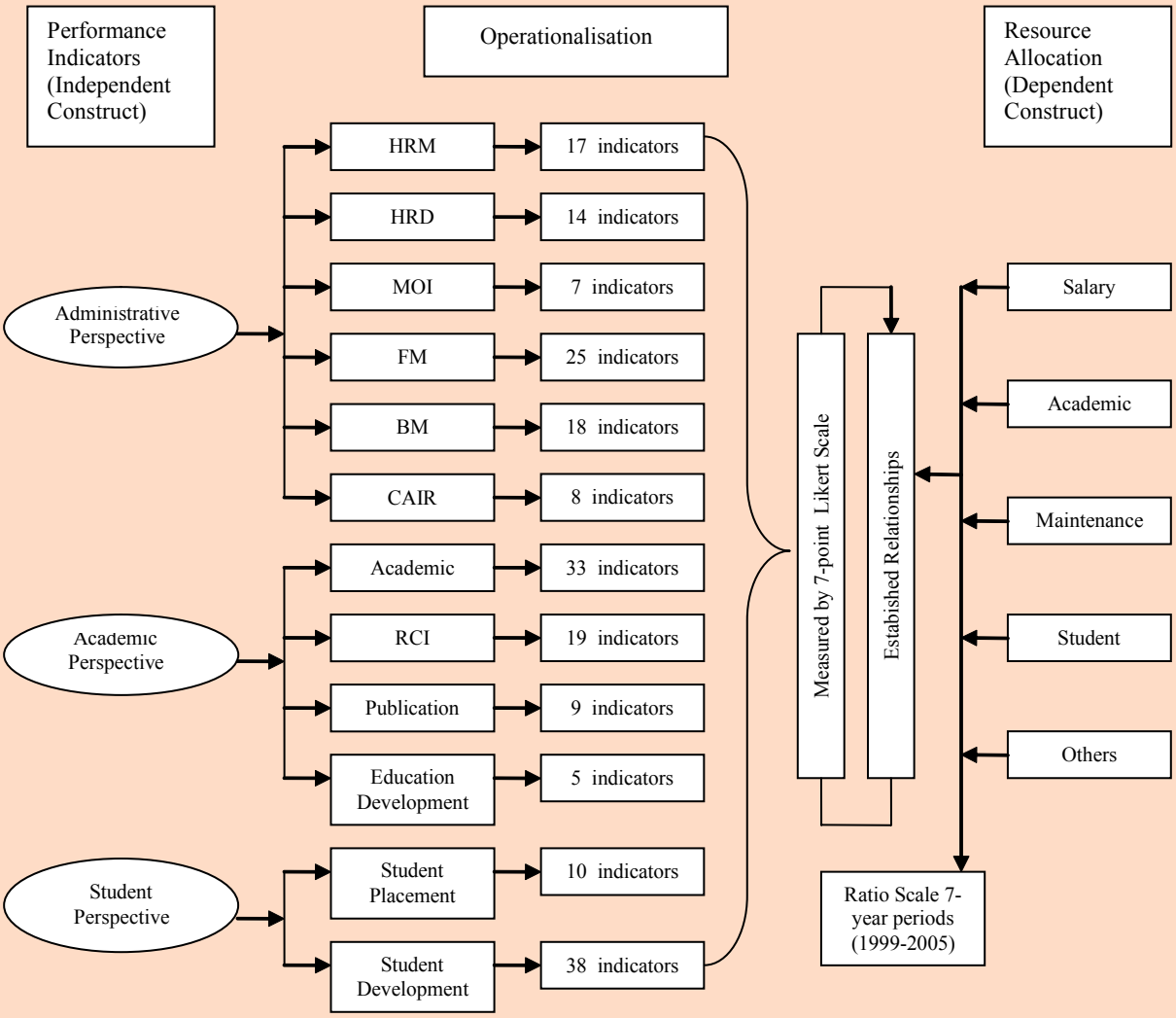

Figure 1: Conceptual framework for Performance Indicators in the Malaysian PUs

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