5 ICLEI 2016-87 Alias Abdullah

Realizing Studio Project as Part of the Achievement of the Key Performance Indicators (KPI) for Academics

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ABSTRACT

Key Performance Indicators (KPI) is widely known as a measurement tool of work performance. In the International Islamic University Malaysia (IIUM), the six key performance indicators established for all academic staff are teaching, supervising, researching, consultancy, publication, and services to the public. However, academic staffs are struggling to strike a balance with all these indicators, as basis for their annual assessment. Academics in the built environment faculty particularly are of the opinion that their handling of studio projects was being underplayed despite 30% of their working time per week is in the studios. The studio project which is the integral and core component of the built environment education is merely recorded as teaching in the current KPI. This paper elucidated the workings of a studio project for the Department of Urban and Regional Planning (URP). The study contended that the elements involved in the completion of a Planning studio project have all the characteristics of the KPI and should be used as part of academics' annual appraisal assessment. The paper utilised a content analysis of the course outlines and project briefs of six Planning studio projects and validated through an interview survey. Twelve academics of the Department of URP who handled the studio for academic session 2015/16 were the respondents. The study found that Planning studio projects embodied all the components of the KPI and its potential of applicability as academics' KPI is high. The paper proposes two strategies. Firstly, a link needs to be established between the processes and outcomes of a studio project and that these be counted as part of an academic's KPI. Secondly, is to formalise a method so that the outcomes of studio teaching are accepted as part of the achievement of the KPI.

Keywords: Key Performance Indicators, studio project, built environment, higher education

Introduction

The Malaysia Higher Education Blueprint 2015-2025 incumbent with the strategy paper under the Eleventh Malaysia Plan 2016-2020 set a way forward for education system in Malaysia. With the notion of educational transformation, 2015 marked a year of building momentum and laying foundations, 2016-2020 is for accelerating system improvement and 2021-2025 is expected to move to excellence with increased operation flexibility (Ennew, http://www.obhe.ac.uk/). The steps and measures put forward in this Blueprint are an enhancement to the Tenth Malaysia Plan's (2011-2015) initiatives put up by the government to raise the quality of lecturers, to improve student learning, and to strengthen the research, development and innovation at the Higher Education Institutions (HEI). In fact, the MyRA and the SETARA rating systems were devised by the authority to assess the research capacity and the

quality of teaching and learning at HEI respectively. Nonetheless, these requirements gave rise to the assessment of academics' performance. Teaching, supervising, researching, consultancy, publication, and services to the public have been set as academics' key performance indicators (KPI) at many HEIs in Malaysia. In this regard, performance indicators are data indices of information by which the functional quality of institutions or systems may be measured and evaluated. It serves various purposes, for instances monitoring, policy formulation, target-setting, evaluating and reforming (Ken and Denise, http://research.acer.edu.au/learning_processes/11).

Laying a foundation in 2015, 2016 is the first year for accelerating system improvement under the Blueprint. Academics receive direct impacts from this exercise reflected through their KPI. The setting of their KPI is based on MyRA and SETARA requirements. This situation resulted mixed reaction among academics juggling with six KPIs concurrently in a year, yet to include administration tasks.

Within a context of the built environment education, this paper studies the applicability of studio projects to become a partial source to the academics' KPI achievement. Department of Urban and Regional Planning has been chosen to represent the built environment studio based teaching and learning. The paper aims to strategize the achievement of academics' KPI through the planning studio projects. This could be made by establishing a link between URP studio projects and those KPIs, eventually to propose policy implication towards more concerted and quality working environment for academics.

The paper is structured into six parts started with Introduction in Part One. Part Two provides overview on the Department of Urban and Regional Planning. Part Three assimilates planning studio projects and academics' KPI. Part Four explains the study methodology. Part Five presents the results and discussion, finally Part Six gives conclusion and recommendation.

Overview of the Department of Urban and Regional Planning

The Department of Urban and Regional Planning (DURP) is one of the departments established under the Kulliyyah of Architecture and Environmental Design (KAED), IIUM. It offers a degree programme namely Bachelor of Urban and Regional Planning (BURP). BURP is a four-year degree programme for those who have successfully completed their matriculation programme for the SPM (Malaysian Education Certificate) or GCE 'O' level holder and pre-sessional programme for STPM (Malaysian Higher Education Certificate) or GCE 'A' level holder. Other avenues to the BURP programme in IIUM are Diploma in Architecture, Landscape, Land Survey or other built environment-related field and Diploma of Urban and Regional Planning where the holders will enroll into year 2 and year 3 of the programme respectively. Since its inception in 1996, to date the programme has produced 368 graduates local and international. In addition to BURP, the Department offers taught course postgraduate programmes i.e. Master of Urban and Regional Planning and Master of Urban Management, as well as Master and Ph.d in the built environment fully by research.

Together with the other twelve Kulliyyahs in IIUM, KAED is translating the IIUM's vision and mission of becoming a leading international centre of educational excellence, which seeks to restore the dynamic and progressive role of the Muslim Ummah in all branches of knowledge and intellectual discourse, thereby actualizing the mission of Integration, Islamisation, Internationalization, and Comprehensive Excellence in every aspect. In this respect, the DURP is no exception. The programme offered aims at preparing a group of professionals who are able to manifest the sphere of town planning, within the realm of Islamization. Town planning revolves around questions of accessibility, deployment of resources, land use configuration and

visual pleasantness. To attain this aim, planning curriculum has been designed in such a way as to equip students with knowledge on physical planning, management, built environment, technology and professional conducts. Given this dynamic situation, the need for training, skill upgrading and knowledge enhancement in the field of planning is demanding. Table 1 depicts the programme structure of BURP.

Table 1
Programme structure of BURP at KAED as of 2015/16

		No. of Courses	Contact Hours	Credit Hours
Year 1	Semester 1	6	27	16
	Semester 2	7	30	19
	Semester 3	1	6	3
Year 2	Semester 1	6	26	20
	Semester 2	6	23	20
	Semester 3	0	0	0
Year 3	Semester 1	6	27	19
	Semester 2	5	24	18
	Semester 3	1	0	0
Year 4	Semester 1	4	15	15
	Semester 2	4	11	11
	Semester 3	0	0	0
	TOTAL	46	189	141

Source: Academic Office, KAED

The Department is assisted by eighteen academic staff as shown in Table 2 below:

Table 2
Academic staff at the Department of Urban and Regional Planning

Professor	Associate Professor	Assistant Professor	Academic fellow	Academic trainee
3	6	7	1	1

Source: Academic Office, KAED

Their expertise ranges from social and community planning, local governance, property market and valuation, strategic and policy planning, urban policies and housing, economic planning, resource and environmental planning, spatial decision support system, information technology, Geographical Information System (GIS), transportation planning, planning law and procedure and other town planning related areas. Sixteen of them are Ph.d holder and having experience in town planning related works more than five years. They are associated with town planning professional body in Malaysia that is Malaysia Institute of Planners. In term of teaching, majority of them have rendered their service to the Department for more than seven years. The Department practices ratio 1:10 lecturer to student for planning studio project in conformity with professional body requirement. Table 3 presents the student enrolment to BURP for five cohorts' academic session.

Table 3
Student enrolment to BURP for 5 cohorts' academic session

2011/2012	2012/2013	2013/14	2014/15	2015/16
50	52	52	36	44

Source: Academic Office, KAED

In term of facilities, the Department is equipped with laboratories such as Geomatic lab, GIS lab, Urban lab, Environmental lab and CAD lab. The resource centre is also available for staff and students which placed academic books, journals, newsletter, handbooks, theses and project papers produced by various departments in the Kulliyyah.

Planning Studio Projects

Planning studio project carries six credit hours in academics' teaching workload with twelve contact hours per week. Academics will team up, assigned by the Head of Department to handle studio project on the basis 1:10 ratio lecturer student. The project is designed to be completed within fourteen weeks of studies occupying every Monday and Friday. To ensure academic exercise meets industrial needs, practitioner of town planning is being employed for each studio project to give their inputs. At initial stage, lecturers will help students to establish a link with relevant agencies in kind of a briefing from agencies concerned. Then, students are trained and coached to solicit data and information from relevant agencies in pursuit of their studio works. It continues until week fourteen with a series of input lectures, presentation, fieldwork, and crit session. At week fifteen there will be a portfolio day where students will have to make presentation of their completed studio projects. Internal and external examiner as well as other stakeholders will be invited to review their works. Students are also expected to exhibit their works during that portfolio day. Planning studio project have no final exam. Its continuous assessment constitutes 100% ranging from report writing, presentations, participation, peers evaluation and quizzes. The lecturers will have to equate between individual and group marks assessment to ensure good individual talent and to minimize free-riders. This is to make sure that students are knowledgeable both as an individual and a group member of future town planner.

For academic session 2015/16, Table 4 shows type of studio project according to semester.

Table 4
Planning studio projects for semester 1 and 2, academic session 2015/16

SEMESTER 1 (07/09/2015-27/12/2015)			SEMESTER 2 (01/02/2016-19/05/2016)		
Studio 1	Studio 3	Studio 5	Studio 2	Studio 4	Studio 6
Planning issue and residential layout plan	Special Area Plan	Structure Plan	Mixed development layout plan	Local Plan	Development Proposal Report

Delving into the course outline and project brief of each studio project, some commonalities are evident. Table 5 summarised the fourteen-week six planning studio projects' activities.

Table 5
A summary of planning studio projects' activities

WEEK	ACTIVITIES	
	Planning studio 1 and 2	Planning studio 3, 4, 5 and 6
1	Introduction to the studio project Appointment of project leader and group formation- knowing each other Literature review	Introduction to the studio project Appointment of project leader and group formation- knowing each other Literature review
2	Project 1 Introduction to planning issues, problems and potentials Analysing specific current planning issue and problem based on secondary data	Input lecture on inception report Arrangement with person in study area Arrangement with authority concerned Literature review
3	Project 2 Identifying planning issues and problems at specific area-site visit CSR activities	Firming up inception report Presentation of draft inception report Preparation for site visit
4	Project 3 Introduction to cartographic planning and planning colour codes	Site visit Data collection CSR activities
5	Project 4 Understanding of planning standard and design guidelines	Finalising inception report Submission of inception report
6	Project 5	Literature review & input lectures
7	Introduction to site investigation	Data analysis
8	Site appraisal	Reports writing
9	Site analysis	Presentations
10	Preliminary layout plan	Crit sessions
11	Project 6	Reviewing the reports
12	Preparation of layout plan	Finalising the reports
13	Concept plan Layout plan Model making	Submission of reports
14	Preparation for portfolio day i.e. oral presentation and exhibition	Preparation for portfolio day i.e. oral presentation and exhibition

A minimum of two reports - depending on type of projects

Based on the above studio activities, lecturers are expected to teach, coach and supervise the students. At the same time, students' performance are being observed and assessed through stipulated approaches. On top of that, lecturers are often sought for consultation not only during studio hours, but outside studio hours as well. The biggest amount of time spent in a lecturer's

weekly work is devoted to studio projects that is twelve hours out of forty (30%), thus meriting consideration for KPI achievement.

Key Performance Indicators for Academics

In order to assimilate the planning studio with academics' KPI, Table 6 firstly shows the KPI for academics at KAED, IIUM for 2015.

Table 6
Targeted KPI for academics

No	Key Results Area of KPI	DS51/DS52 Assistant Professor		DS53/DS54 Associate Professor		VK6/VK7 Professor	
		Target	Weightage	Target	Weightage	Target	Weightage
1.	Teaching	12 Credit Hours	30	12 Credit Hours	30	6 Credit Hours	15
2.	Supervision	1 Master	10	1 PhD; 2 Master	10	2 PhD; 4 Master	15
3.	Research & Consultancy	30K (Non S&T)/ 50K (S&T) & 1 Consultancy Project	20	50K (Non S&T)/ 80K (S&T) & 1 Consultancy Project	25	100K (Non S&T)/ 150K (S&T) & 1 Consultancy Project	30
4.	Publication	2 No of book/book chapter/article in indexed journal	20	3 No of book/book chapter/article in indexed journal	25	5 No of book/book chapter/article in indexed journal	30
5.	Conference	1 No attended as presenter (National or International)	10	2 No attended as presenter (National or International)	5	4 No attended as presenter (National or International)	5
6.	Service to the Public	1 committee position at University level	10	1 committee position at University level	5	1 committee position at University level	5
	Total weightage		100		100		100

Source: Corporate and Human Resource Office, KAED

As shown, the target for (1) Teaching workload for DS51/52 academics is 12 credit hours. However this number may not equate directly to the teaching hours. As mentioned previously, Planning studio project is recorded as 6 credits, but the contact time is 12 hours (as two full

studio days). The other 6 credit hours come in the form of teaching another 2 theory courses (normally 3 credits each). (2) Supervision in the KPI is only meant for postgraduate and does not include undergraduate research supervision. It must be informed that the undergraduate course outline also included supervision especially for final year or semester students in the form of project papers. The running of this course is similar to any supervisory works. In the usual practice with a big number of students, academics get a minimum of three students at any one time.

Although (3) Research and Consultancy are being put together as one KPI, academics are required to acquire them separately. On the other hand, (4) Publication and (5) Conference are separate KPIs, but the expected outcome is the same with the required chapters, papers and articles. The (6) KPI of Service to the Public comes as holding a post in the University or for those who do not hold any posts the alternative is to participate in any Corporate Social Responsibility (CSR). It can be noted, that administrative works of academics are not mentioned as a KPI.

Table 7 summarises the related tasks of each KPI in more detail.

Table 7

Key Performance Indicators and their related tasks

Teaching	Supervision	Administration	Research/ Research Proposal	Consultancy/ Research	Publication
Browsing new materials for teaching Updating teaching materials Teaching session Marking/keying in assignments' mark Students' consultation	Discussing research topic Facilitating/guiding/monitoring Checking/reading Giving feedback Reviewing	Meetings Reviewing academic programmes Managing classes' activities e.g. site visit, studio portfolio Organising seminar, conferences, discourses Networking with outside practioners Acting on HoD's instruction from time to time	Browsing materials for proposal writing Reading the materials Analysing and synthesizing the materials Writing the research proposal Looking for suitable research grant Reviewing the research proposal Finalising the research proposal Submitting the research proposal	Browsing materials on related topic Reading the materials Analysing and synthesizing the materials Writing a literature review Establishing a data collection tools Data collection Data analysis Report writing i.e.discussion, conclusion and recommendation Formatting and technicalities	Browsing materials for writing Reading the materials Analysing and synthesizing the materials Writing the paper Looking for suitable publication i.e. conferences/journals Reviewing the paper Finalising the paper

Although the KPIs are clearly defined, achieving some of them is easier said than done. In regards to Publication, Sharanjit Kaur et. al. (2013) expressed their views that getting papers published in time has constraints on time and language barrier in attaining the scholarly publication. They recommended that the University management should find adequate and suitable alternative to have works of academic staff recognised. Masturah Markom et. al. (2012) revealed Professors (VK5-7) have the highest real workload which is 230.6%, followed by Associate Professors (DS54) at 184.2%, Assistant Professors (DS51/52) at 133.4% and lecturers (DS45) at 42.3% (based on the standard working hour of 100% equivalent to 8 hours a day) in improving the academics performances. The authors also proposed the lecturers' real workload need to be distributed accordingly and justly while the welfare of the academics is being taken care of. Zumahiran and Azila (2016) and Putri Farah et. al. (2016) in their study found that to achieve all 6 KPIs as set by the university would require more than the academics' forty working hours. The extra time would severely impinge onto their personal and family time outside of work. The authors recommended that a review of the academics' KPI is necessary. Apart from workload and time factor, Tajul Ariffin et. al. (2012) found that other key intangible performances (KIP) of soft skill like visionary, leadership, teamwork, value and ethics, interpersonal skills, servicing to community has a positive and significant implication on academics' KPI. Others like Kadarsah (2007), Mohamad Ishak et. al. (2009), and Fereydoon (2010) have documented and suggested how KPI for academics should be promulgated.

At present, there is popular perception amongst academics that their promotional aspects will be greater if their efforts are more concentrated on developing their research and publication portfolios. However, this may means that less time is spent on teaching activities. But on the other hand, there are also many who believe that research can have a positive impact upon teaching. These advocates perceived that teaching was more bound to professional obligation, while research appeared to be more closely associated with individual desires for career progression. This perception led to a belief that an academics' first job is to produce a good stock of students rather than the advancement of personal research interests/profile. Some asserted that every upwards step on the career staircase will now be a research grant or publication at the expense of good teaching quality. Seemingly, maintaining a balance between different aspects of the academics' KPI is a challenge that can make academics be neither here nor there. This issue warrants further investigation and solutions proposed.

The list of KPI established for academics and its time and workload's challenges prompted a study on how they could possibly be amalgamated with studio projects. This is in tandem with what Armstrong (1994) professes on 'performance management' as a means of getting better results from the organisation within an agreed framework of planned goals, objectives and standards of achievement and competence. Further work is to study on formalising the studio works to help academics achieve their KPI in the process, in line with the views of Griffiths (2004) and Wei Pan and Murray (2015) where studio orientation can provide an avenue for the teaching and research nexus in the built environment disciplines.

Methodology

The aim of the study is to strategise the achievement of academics' KPI partly through Planning studio projects and to look for ways to formalize the process. Literature reviews and a content analysis were undertaken on the BURP curriculum, six planning studio projects course outlines and project briefs as well as academics' KPI details. Preliminary findings were attested against twelve academics who handled the studio projects for validation through semi-structured

interviews. The twelve academics are considered as expert opinions meeting the criteria set in the study, which are as follows:

1. Having more than 5 years experiences in town planning practice.
2. Possessing a Ph.D in the town planning related body of knowledge.
3. Associating with town planning professional bodies.
4. Involving in teaching and learning of town planning curriculum.
5. Participating in the research and consultancy of physical developments / planning.

The interviews with the academics were structured around questions exploring:

1. The nature of planning studio projects versus the six academics' KPI;
2. The extent of KPI components applied in current practice of planning studio projects;
3. The potential of applicability of Planning studio project into the KPIs.

The interviews lasted between 45 minutes and an hour each. While group interview was intended to see their consensus opinion, in some cases individual interview was inevitable. To ensure their availability for group interview, it was conducted during studio hours. Then, the transcription was done and analysed through a thematic approach. The respondents were coded from Respondent 1 to Respondent 12 according to the studio starting from the lowest year studio. The result of the analysis was presented back to the academics at KAED in a focus group discussion attended by thirty of them for verification, before the final report was prepared.

Results

The results of the interview and the focus group discussion revealed the followings. Most importantly, academics agreed that the activities in planning studio projects are in tandem with the KPI requirements, as shown in Table 8.

Table 8
Reflection of academics KPI across the planning studio projects.

Teaching	Supervision	Administration	Research/ Consultancy	Publication	Services
Input lecture according to phases of studio work	Individual and group consultation fieldwork crit session	preparing proposal for site visit communicating and networking with the authority on site managing portfolio day marking	literature review data collection on site data analysis report writing	studio book conference/ journal paper	Corporate social responsibility during fieldwork

Results from the interviews revealed the percentages of the existence of KPI in the planning studio activities, as shown in Table 9.

Table 9
Percentage of KPI component applied in the current practice of the different levels of studio projects.

	Studio 1 Planning Issue & Residential Layout Plan	Studio 2 Mixed Development Layout Plan	Studio 3 Special Area Plan	Studio 4 Local Plan	Studio 5 Structure Plan	Studio 6 Development Proposal Report
	%	%	%	%	%	%
Teaching	40	35	30	25	25	25
Supervision	40	40	35	35	35	35
Research	5	10	15	20	20	20
Consultancy	0	0	0	0	0	0
Publication	0	0	0	0	0	0
Services to Public	0	0	5	5	5	5
Administration	15	15	15	15	15	15
Total	100	100	100	100	100	100

Based on the existence of KPI and its amount in planning studio project, Table 10 depicts the potential of its applicability.

Table 10
Potential of applicability of KPI in studio project

	Studio 1 Planning issue and residential layout plan	Studio 2 Mixed development layout plan	Studio 3 Special Area Plan	Studio 4 Local Plan	Studio 5 Structure Plan	Studio 6 Development Proposal Report
Teaching	extremely high	extremely high	very high	very high	very high	very high
Supervision	very high	very high	very high	very high	very high	very high
Research	high	high	very high	very high	very high	very high
Consultancy	less	less	high	high	high	high
Publication	high	high	very high	very high	very high	very high
Services to public	less	less	high	high	high	high
Administration	extremely high	extremely high	extremely high	extremely high	extremely high	extremely high

Discussion

As highlighted in Table 9, most of the studio works have the outcomes of the KPIs except for Consultancy and Publication. Although this is the case presently, but the potential for the

realization to include the two missing components is strong, as revealed in Table 10. However, the degree of applicability varies between lower years (Studios 1 and 2) and upper years studios. The applicability of achieving Consultancy and Publication at the upper year studios has better prospects as compared to the lower year studios due to the intensity of the studio works. Respondents teaching the lower years mentioned that *"lower year studio projects are more concerned with understanding of town planning practices and technicalities involved, therefore Teaching and Supervision are heavier than the others"*. Another opinion regarded studio project as a *"dumping ground of all theory courses where theoretical and principles of URP are translated, thus consultation is very time consuming"*. In addition, another view is that *"research and publication at the lower year studio projects could be done via part timers who contributed a lot in terms of research data or information"*.

In the BURP curriculum the upper year studio projects are research-based in nature where Consultancy and Publication can be more realised, as stressed by the respondent who is in charge of an upper year studio. The respondent said that *"...the built environment research-based studio is comparable to clinical practices under the medical faculty..."* where it is hands on. Further opinion affirmed that,*"...we, too are producing professionals in our respective areas"*. With regards to associating studio projects with academics' KPI, more respondents are of the opinion that *"Studio projects are like our mini KPI where the components* (likened to the KPI) *are there"*. However, another respondent cautioned that "*…realising academics' KPI through studio projects requires a proper study of the URP curriculum, so as not to deviate from the original academic purposes"*.

In summation, all respondents concurred with the idea that they spend a minimum of twelve hours or more in the studios, out of the forty hours of the total work load required by the university. This translates to a minimum of 30% of their time was spent in the studios, thus meriting for consideration as achieving part of the KPI. The respondents also expressed that apart from the teaching and consulting in the studios, the administrative works that they do behind the scenes are being downplayed and not deserving any KPI assessment. These works involved the organising and conducting the various crits, assessments, portfolio reviews, and exhibitions. But the most tedious of all are the fieldworks, where lecturers accompany and supervise students outside of campus, sometimes for a few days.

From the study conducted, it is inferred that most of the respondents are in agreement that whatever they are doing all this while in the Planning studios have elements similar to that in the KPI and some mechanism should be in play to realise them as part of achieving their KPIs, where at the present moment it is not. However further studies on the mechanism to realise the integration of the studio elements into the KPI is necessary. In this respect, fuller understanding on how academics conceptualise KPI achievement via studio projects is needed. There is enormous potential to amalgamate studio project and KPI achievement for the benefit of academics across the built environment education sector. The BURP curriculum of studio projects was found to have similarities in the university's KPI, albeit to varying extents. But to realise this further, studio should be planned and implemented systemically within the whole built environment educational programme.

Conclusion and Recommendation

Quality and academic integrity in education are uncompromising matters. Thus, conducive working environment as well as realistic and achievable KPIs for academics is intrinsic for the achievement of both matters. The study is an attempt to emphasise on

'performance management' as a means of getting better results from the organisation. Teams and individuals need to understand and manage performances within an agreed framework of planned goals, objectives and standards of achievement and competence. In the case of the built environment education, studio projects were deemed suitable to be performing this kind of function where academics KPI are amalgamated.
Thus, the study put forward the following recommendations:

1. Maintaining current credit hours for studio under teaching KPI.
2. Considering studio supervision as part of the KPI.
3. Acknowledging studio research project as part of the KPI with or without grant.
4. Devising mechanism to solicit consultancy for studio project based on the existing programme structure which later on becoming staff KPI achievement.
5. Scrutinizing mechanism to produce a form of publication from studio project.
6. Recognizing activities with local people during studio fieldwork as staff services to public for their KPI record.
7. Accepting studio related administration works as part of staff KPI.

These points of recommendation were hoped to amalgamate the studio projects into the academics' KPI or vice versa, towards better quality and integrity of academic services in the built environment higher learning education.

Acknowledgement

The authors wish to thank academic staffs at the Kulliyyah of Architecture and Environmental Design generally and the Department of Urban and Regional Planning specifically for their participation in the Focus Group Discussion and interview sessions. This study could not be accomplished without supports and cooperation from them.

References

Kadarsah Suryadi, 2007. Key Performance Indicators Measurement Model Based on Analytic Hierarchy Process and Trend-Comparative Dimension in Higher Education Institution. In ISAHP 2007.

Freestone, Robert and Wood, David. 2006. Exploring Strategies for Linking Research and Teaching. Journal for Education in the Built Environment, Vol. 1, Issue 1, pp.94-111.

Griffiths, R., 2004. Knowledge production and the research-teaching nexus: the case of the built environment disciplines. Studies in Higher Education. Vol. 29, No. 6.

Ennew, Christine, 2015. Malaysia's Higher Education Blueprint 2015-2025- the implementation challenge. http://www.obhe.ac.uk/

Mohamad Ishak, M.I., Suhaida, M.S., Yuzainess, M.Y., 2009. Performance measurement indicators for academic staff in Malaysia private higher education institutions: A case study in UNITEN. In Performance Measurement Association Conference PMA2009,April 14-17, University of Otago, New Zealand.

FereydoonAzma,2010. Qualitative Indictors for the evaluation of universities performance. WCES. Elsevier Ltd.

Armstrong, M., 1994. *Improving Organizational Effectiveness*. London: Kogan Page Limited

Sharanjit Kaur, Roliana Ibrahim, Ali Selamat, 2013. Constraints on Achieving Key Performance Indicators for Scholarly Publications Among Academic Staff: Case of a Malaysian Public University. In 3rd International Conference on Research and Innovation in Information Systems-2013.

MasturahMarkom, Nasrul Amir Abdul, Ahmad Kamal Ariffin, DzuraidahAbd Wahab, Hafizah Husain, Nur Farah Liza Ramli, 2011. Lecturer's Notional Hour Measurement in Improving Research University Academics Performance. In UKM Teaching and Learning Congress 2011.Elsevier Ltd.

Tajul AriffinMasron, Zamri Ahmad, Norizan Baba Rahim, 2012. Key Performance Indicators vs Key Intangible Performance among Academic Staff: A case study of a public university in Malaysia. In International Conference on Teaching and Learning in Higher Education in conjunction with RCEE & RHED 2012. Elsevier Ltd.

Rowe, Ken and Lievesley, Denise. Constructing and Using Educational Performance Indicators. http://research.acer.edu.au/learning_processes/11. Retrieved April 2016.

Government of Malaysia. Malaysia Higher Education Blueprint 2015-2025. www.moe.gov.my/.../3_%20Malaysia%20Education. Retrieved April 2016.

Government of Malaysia. Eleventh Malaysia Plan 2016-2020 Strategy Paper on Transforming Education System. rmk11.epu.gov.my/pdf/strategy-paper/Strategy%20Paper%2010.pdf. Retrieved April 2016.

Guide for Assessment and Quality Enhancement for Universities in the Islamic World www.icpsr.org.ma/Files/English-KPI/KPI's%20Doc2-English.pdf. Retrieved April 2016.