Assessment for the 21st Century in Higher Education Institution: Way Forward

Sharifah Mazlina Syed Khuzzan[1*], Mazura Mahdzir[2]

[1] Department of Quantity Surveying, Kulliyyah of Architecture and Environmental Design (KAED), International Islamic University Malaysia, Kuala Lumpur, Malaysia
[2] Department of Quantity Surveying, Faculty of Built Environment, Tunku Abdul Rahman College, Kuala Lumpur, Malaysia

*Corresponding Author: mazuram@tarc.edu.my

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Abstract: *Malaysia's education system has been known as being vey exam oriented; written exams have always been our culture in assessing learners' understanding, knowledge and skills. However, with the 21st century, not all can be assessed through examination since the results do not really reflect their competency especially in their employment skills (ie, social skills, critical thinking skills). This 'wrong signal' given to the employers are said to be affecting the construction industry as most employers believed that the graduates were still far from reaching their expectations and demands. Therefore, by using content-based analysis, this paper will make a comparative study on various types of assessment used in HEIs (Higher Education Institutions) and tease out the similarities and differences in embedding each assessment in the classroom management. From the findings, it was found that the existing types of assessment contain some challenges in the process of implementing it towards learners. Due to this reason, it has been considered failed to fully measured the learners' competency in soft skills. Looking into all issues, a conceptual framework related to holistic assessment is proposed, which aims to improve learners' competency for better employability skills.*

Keywords: Assessment, employability skills, learners' competency, HEIs

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1. Introduction

The Malaysian higher education system has grown from strength to strength over the past few decades. Over the last ten years alone, the system has made significant gains in learner enrolment, risen in global recognition on key dimensions such as research publications, patents, and institutional quality, as well as become a top destination for international learners. Malaysia's education system has been known as being vey exam oriented; written exams have always been our culture in assessing learners' understanding, knowledge and skills. Few years back, UNESCO promoted sustainable development and global citizenship education at the same time promoting the concept of holistic learning reflected in the Sustainable Development Goal (SDG) No. 4, and particularly under SDG 4.7 – looking into three pillars, i.e. i) cognitive, ii) socio-emotional, and iii) behavioural. Many countries are also shifting their learning goals to respond to the emerging education needs of the 21st century. It is clear that many countries put significant effort into reflecting the importance of 21st century skills in their education policies and plans. Some countries are taking steps to mainstream SDG 4.7 in the curricula through techniques such as project-based learning and

field studies, whilst many seek to integrate and assess competencies such as critical thinking, collaboration, and global citizenship education through subject areas (e.g., social studies, science, and information and communications technology). Whilst embracing this, the issue is whether written examinations and other *tests* would actually measure abstract areas such as creativity or collaboration in ways that are valid and reliable? How can a teacher/ educator, for example, evaluate the degree to which a learner is empathetic or compassionate, and has skills for taking initiative? (Morohashi and Nyamkhuu, 2019).

As the methods used to assess learners are some of the most critical of all influences on their learning, it is well known that assessment have a deep impact on what and how learners study, how much they study and how effectively they study (Jimaa, 2011). Deciding the most suitable type of assessment methods to be used depends on two aspects that need to be considered: the amount of assessed work and the quality of the assessment types. Within the context of this paper, the quality of the assessment types is looked upon to be able to measure the concept of holistic learning as reflected under SDG 4.7. Assessment environments were found to differ widely in their defining characteristics and the way learners are assessed has a major impact on their learning. According to Jimaa (2011), the volume of critical thinking and problem solving type of assessment is known to have a positive impact on the quality of learning outcomes. There are different forms of examinations and two kinds are very popular for studies evaluating university stress, i) oral examination (Schoofs et al. 2008) and ii) hand written examinations (Ng et al. 2003; Gaab et al. 2006). While the results for oral examinations are mostly homogenous, the empirical picture is less clear for written examinations. Especially with the need to assess learners on the three pillars as mentioned in SDG 4.7; cognitive, socio-emotional and behavioural; it is a wonder how written examination will be able to address all these. In fact, more educational reforms were made in-line with UNESCO and the Malaysian Educational Blueprint Plan which stressed on the importance of creating multiform of assessments (Yoong and Quek, 2013).

Learner assessment is essential to measure the progress and performance of individual learners, plan further steps for the improvement of teaching and learning, and share information with relevant stakeholders, i.e. in this context the future employers of the graduates. Assessment is a process that helps focus attention towards what matters most in education, beyond just access and participation: the actual learning outcomes of each learner (Phelps, 2014). Gathering information on where learners stand in their learning and the progress that they have made is key to designing strategies for the further improvement of teaching and learning. According to Phelps (2014), sharing such information with stakeholders is essential to meet information needs and support decision making at the lecture room, school/universities and education system level. Hence emphasising the importance to ensure that learners are assessed using the right method is important to ensure that the 'right' quality of graduates are given to the industry. The last thing that we want to happen is for employers to get graduates who are Grade A only on paper.

2. Literature Review

Educators and educational leaders have continually debated learner assessment in higher education (Boud & Falchikov, 2007; Carless, 2015; Gilles, Detroz, & Blais,2011). Academics expressed concern that the methods used to assess learners are not linked to learner learning (Carless, 2015; Douglas, Wilson & Ennis, 2012; Trevalyan and Wilson, 2012; Scott-Webber, 2012). In addition, many studies were raised by scholars pertaining to learners' failure to possess good critical thinking skills – able to think out of the box, good

behaviour and social skills. There were many possible factors that have contributed to this situation. Despite managing to achieve high CGPA or scored well in their examinations conducted in higher institutions, the results however, do not really reflect their competency both in understanding, knowledge and especially employment skills – with regards to social skills. This 'wrong signal' given to the employers are said to be affecting the construction industry as most employers believed that the graduates were still far from reaching their expectations and demands. This alarming situations signifies something not right is happening in our educational system. What is actually lacking in the assessment made previously in learner centred learning pedagogy? Being an integral part of teaching and learning, the lectures cum assessor normally measure the performance of learners' work in the forms of tests, quizzes, assignments and so forth before compiling the result completely. The existing assessment are quite adequate to measure the learners' performance (Parmjit Singh, *et.al.,* 2012), but, the question is to which extent does the assessment conducted by educators measure all skills, knowledge, abilities and social skills' attributes of learners? (Jimaa, 2011). Previous researchers claimed that the approach to learning (i.e. learner centred pedagogy) was imbalance, not holistic and comprehensive when it comes measure the learners' competencies. Many scholars have voiced out their dissatisfaction on its application. Parmjit Singh, *et.al.,* (2012), have also argued the validity in assessing learners' competency levels in various critical skills such as communication and interpersonal skills, problem solving and critical thinking skills, which are so essential in the workplace.

Furthermore, Premuzic, *et al.,* (2010) added that the difficulties to determine the level of soft skills efficiently since it consist of wide range of soft skills attributes that very subjective in nature. Felder and Brent (2010) further commented on the difficulties to find an appropriate grading that is reliable and fair for being soft (employability) skills indicator. Apart from that, the hurdle was surrounded by the issue of inappropriateness of this single mode assessment (Parmjit Singh, *et.al.,* 2012) that has placed as a separate phase or at the end of a course (Surat, et.*al.,* 2011) for certain course and subjects. Yet, one of the biggest challenges for lecturers/ instructors within higher learning education engaged in the reformation of the assessment is measuring whether they are having a real impact in the lecture hall, or not. Whilst many of these lecturer/ instructor-designed assessment strategies are increasingly common in the classrooms of developing countries, they are still rarely used in emerging market countries. (2011). To truly improve learners' learning in emerging market countries it is important to transform how lecturers/ instructors assess their learners learning during the lecture. Hence, this research is considered timely in order to produce the quality of graduates who really represent the CPGA that they have obtained in their assessments.

A Current Overview of the Existing Types of Assessments Using Learner Centered Environment

An assessment conceptually can be referred as to judgements of learners' work (Taras, 2005). The evaluation of learner's performance is made into two forms namely formative and summative via various learning environment orientation. Formative assessment are quizzes and tests that evaluate how someone is learning material throughout a course. However, summative assessments are quizzes and tests that evaluate how much someone has learned throughout a course.

As an educator, the incorporation of both types of assessment in classroom management remains crucial for learner's betterment in terms of academic grades, skills and knowledge. However, the challenge is in embedding the formative evaluation; in which remains debatable and places greater attention among educationist (i.e Maizatun Mustafa, 2011). It

was proven clearly when many of them revealed the difficulties to find an appropriate and sound assessment in measuring the competency level of graduates either in problem based learning (Maizatun Mustafa, 2011), project based learning (Van den Bergh, *et.al*, 2006) blended learning (Bonk and Olson, 2002), cased based learning (Carroll and Borge,2007) or collaborative learning (Dillenbourg, 1999). Hence, this situation will indirectly lead to the difficulties in (1) monitoring learners' performance in a large classroom (Pastitrik, 2006; Saroyan and Snell, 1997) with several groups, (2) improving motivation among learners (Shui-fong *et.al*, 2009; Surat *et.al*.,2011) as well as (3) infusing the soft skills via tasks embedded. (Jilan and Yuehong, 2011; Tynjak lak, 1999; Sile, 2006).

Price, Pierson and Light (2011) highlight that basically formative evaluation has been applied into six types of assessment tools and strategies. The main purpose is to assist educators in fostering the 21st century learning environment in their classrooms: The characteristics of each assessment tools or strategies are discussed as follow:

1) Rubrics
There are two types of rubrics, namely holistic and analytical. As for holistic, it is more concerned with the overall performance rather than the individual steps to arrive at the end result. Whereas for analytic rubrics, the grading for each criterion assessment is made separately in the construction of the rubric. However, the problems with analytical rubrics is the amount of criteria set is not fully comprehensive as no specific value rated in the assessment (Riebe and Jackson, 2014). In short, rubrics are both a tool to measure learners' knowledge and ability as well as an assessment strategy. (Price, Pierson and Light, 2011), Using this assessment, educators might be able to measure learners' skills and abilities, but still unclear as no specific value being stated for each criterion.

2) Performance-based assessments (PBAs)
PBA is not a new concept of assessment because the aim was very clear which is to ensure the learners fully explore the knowledge by themselves during the process of learning. Thus, unlike old traditional assessment practices, in which feedback meant returning test scores to learners, in performance-based assessment practices, feedback is considered an important tool to improve learner learning and teacher instruction (Espinosa, 2015). Though changing the teaching paradigms might be difficult for some educators (due to giving feedback is quite time consuming and requires progressive feedback), the engagement of learners in learning is very high.

3) Portfolios Assessment
Portfolio have been regarded as a means of personal self-expression (McDonald, 2012). Using self evaluation, learners might be able to understand the learning process and set clearly their learning goals. (Akubuilo, 2012). For some researchers like McDonald (2012), this assessment is used to measure the quality of the works prepared by learners' progressively. Based on the feedback received from educators, learners have the ability to identify their strengths and weaknesses. Hence, for educators, it requires more time and careful planning and as a learner, they need to be ready and familiar with the criteria of this assessment. They have to be more positive and keep showing their efforts to manage their works timely. However, the drawbacks encountered by educators are they found this assessment as difficult in terms of developing the reliability and validity of the procedures. Thus, to avoid this, it is better to incorporate a triangulation method used to cross check the sources of information

4) Learner self-assessment

According to Taras (2010), this assessment consists of three categories. First is weak assessment as learners employing the use of model answers for making comparisons with their own work. Whereas the the assessor creates a standard, which the learners use to grade their own work. Second is median types of assessment. The learner will use this evaluation (via judging, grading and feedback) as a guideline to avoid any mistakes before presenting the final work. This result can be truly achieved because it allows learners to look through the strength and weaknesses of their previous works. Third is, strong model of assessment, which concerns with improving learners learning using assessor's feedback. Learners would take this opportunity to formulate a new feedback (no grading given by assessor) after further discussion was made between peers regarding the comments pointed out by assessor. (Taras, 2010). Regardless of any categories of assessment, learners play a central role to assess their own works. The involvement of learners remains high since they act not merely as an observer but also being a critical thinker. The main purpose of this assessment would definitely intends to increase learners' motivation which indirectly participate in the evaluation process.

Using self-evaluation, the awareness level of learners towards their abilities would be developed and this action would encourage them to be more responsible. While this assessment offers full engagement of learners, it also contains some drawbacks. These include two aspects. First, the potential of learners to overate themselves is high and second, there is no limitation in evaluating process due to the characteristic of assessment that is subjective in nature (Amo and Jareno , 2011).

5) Peer-assessment

Similarly, like learner self-assessment, the approach would consider learner as the assessor of their classmate works. The quality of learning has become the primary objective of the assessment. Thus, if is handled properly, the evaluation made by learners could possibly be as similar as educator's evaluation. The most important thing, the values gained from peer assessment could greatly improve learner's skills and knowledge towards learning (Price, Pierson and Light, 2011). Despite generally it favours learners learning, the effectiveness of this assessment lies on the credibility of learners itself. If full commitment and responsibility is obtained, the learning process could be fully improved (Price, Pierson and Light, 011). Akubuilo (2012) added, to enhance performance of learners (i.e professional behaviour) effectively, it will be effective if applied after the learners adapt to the complex learning environment.

6) Student response systems (SRS)

Student response system (SRS), also known as classroom response system (CRS), audience response system (ARS) or colloquially as "clickers," is a general term that refers to a variety of technology-based formative assessment tools that can be used to gather learners -level data instantly in the classroom (Price, Pierson and Light, 2011). In essence, SRS has been introduced to improve engagement of learners in class. The purpose of having SRS also is to ensure their critical thinking can be increased, encourage them to voice out their ideas, improve classroom discussion (Price, Pierson and Light, 2011). The challenges of this assessment can be categorised into three areas. First, it offers an academic inefficacy as those learners who may voting for a particular answer might not fully understand it, thus it does not really reflect their understanding on the system. Second, the utilisation of the system leads to a wasted time as training is needed for learner for their familiarity purposes and performing

any technical malfunctions. Third, the cost of obtaining SRS is high and might cause rejection for some of the learners. (Abdulaziz Aljaloud et. *al*, 2015)

Discussion

Based on the types of assessment methods described in the previous section, it can be summarised that assessment conducted in the classroom management plays an important role towards learners learning. It will definitely give impact on learners' lives – whether it continues to encourage and give interest for them to study; or it ends up making them very bored and finally losing interest to study.

Thus, a good type of assessment should possess three basic characteristics (as discussed above), where it should encourage the engagement of learner, interactivity (mutual interaction) and produce range of skills and abilities. It is expected that via greater engagement in the classroom management and constructive feedback, learners would be able to maximise or improving their abilities and knowledge. However, the implementation of assessment via learner centred environment is not like one-shot process where learners would be informed of their performance at the end of the class. By way of contrast, the formative evaluation (via feedback) must be conducted progressively in order to boost learner's performance. The learner-educator interactions also can be enhanced using learner centred assessment, which indirectly ease their understanding concerning improvement area needed by both parties (refer figure 1).

To reiterate, this evaluation remains essential in supporting learner motivation, maintain their high engagement, achievement and learn due to four primary reasons (1) Frequent, ongoing assessment allows both for fine- tuning of instruction and learner focus on progress (2) Immediate assessment helps ensure meaningful feedback. (3) Specific, rather than global, assessments allow learners to see concretely how they can improve (4) Formative assessment is consistent with recent constructivist theories of learning and motivation (Cauley and McMillan, 2010).
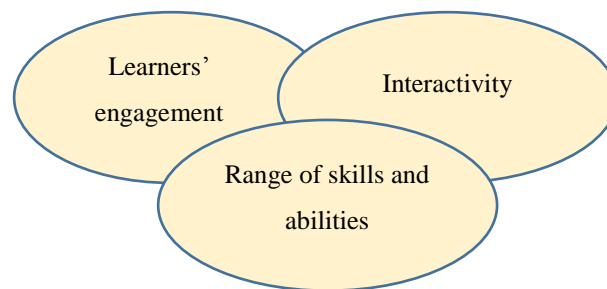

Figure 1: Characteristics of various types of assessment

However, it can be seen from the Figure 1 above that this types of assessment contains some challenges. First, it lies totally on the learners' characters. For active learners, the potential skills and knowledge could be well developed if they fully utilised and explored all assessment. However, it would be a wasteful attempt for learners who are passively participated in the assessment. In fact, for some groups of learners, the idea of assessing them should only be executed by assessor as they possess low level of self-confidence to evaluate their peer's work effectively (Cauley and McMillan, 2010). Second, these evaluations have been normally practised in response to task-based assessment and without considering the personal attributes of the learners. This reduces the learning outcome that is

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expected from the learners. Third, Cauley and McMillan (2010) claimed that if overused, they can lead learners to make detrimental low ability attributions. Learners who believe that their successes are due primarily to their effort and ability will have stronger motivation and staying power to complete challenging work.

Hence, how can this be implemented? At the end of the course, learners might be successful in academic but unable to acquire certain skills and knowledge required by employers. In other words, the existing types of assessment still failed to fully measured the learners' competency in soft skills due to imbalance, not holistic and comprehensive in terms of the contents of assessment. The traditional examinations do not reflect assessment for learning (Rawlusyk, 2016).

It is supported by many scholars such as Parmjit Singh, et. *al.,* (2012) who have voiced out their dissatisfaction on assessments applications. Some of the scholars revealed the difficulties to find an appropriate and sound assessment in measuring the competency level of graduates either in problem based learning (Maizatun Mustafa, 2011), project based learning (Van den Bergh *et.al,* 2006) blended learning (Bonk and Olson, 2002), cased based learning (Carroll and Borge, 2007) or collaborative learning (Dillenbourg, 1999). Parmjit Singh (2012) has also argued the validity in assessing learners' competency levels in various critical skills such as communication and interpersonal skills, problem solving and critical thinking skills, which are so essential in the workplace. Other than that, Premuzic (2010) has added the difficulties to determine the level of soft skills efficiently since it consist of wide range of soft skills attributes that very subjective in nature. Felder and Brent (2010) further commented on the difficulties to find an appropriate grading that is reliable and fair for being soft skills indicator. Hence, there is a need to come up with an assessment method that us able to do this.

An assessment in measuring learner's soft skills has become a central issue and subsequent action is required by lecturer (cum assessor). To circumvent this situation, a new mode of learner performance assessments needs to be developed to enable individual learners to maximise their potential (Jarvela, 2006, Prince, Pierson and Light, 2011). In fact, it supposed to be effective in a way that able to generate accurate, reliable and thorough information on the performance of learners (Muskin , 2015). Through effective assessment, it might give a new paradigm shifts towards learners and higher institutions. This notion was consistent with Jimaa (2011) by pointing out the benefits of implementing critical thinking and problem solving types of assessment as it gives positive impact towards (i) learners to learn effectively and (ii) the syllabus in terms of maintaining the quality of learning outcomes.

Understanding the wrong signals (i.e. the mismatch of learners' critical thinking skills and other employability with the good results that they obtain) sent by the learners' CGPA obtained from the 'normal' written assessment; this study tries to bridge the missing gap by introducing an ideal assessment framework, which requires the coordination of three components as shown in Figure 2 below.

A Conceptual Framework On a Holistic Assessment Method Looking Into - I) Cognitive, Ii) Socio-Emotional, And Iii) Behavioural

Assessment helps focus attention on the learning progress and outcomes of each learner. Collecting learner's assessment information is essential to improve teaching and learning strategies and meet information needs at the level of learners, parents, educators, Higher Educational Institution (HEI), policy makers and the general public. Learners need to be

clear about what they are aiming to learn and which indicators and criteria are appropriate to evaluate progress and inform future learning. Engaging learners as active participants in assessment will help them develop capabilities in analysing their own learning and becoming self-directed learners. Parents typically want to know how their children are doing and progressing in relation to expected standards and in comparison to others in the same age group. Educators/ instructors need assessment information that is reliable and consistent in order to understand learners' strengths and weaknesses in relation to expected standards, to target future teaching and improve classroom instruction. Society at large also needs credentials about the quality of education and the achievement of standards in the education system. In addition to this, future employers use the results of the assessments as an indicator of the quality of graduates that they are about to employ.

However, with the 21st century skills, not all can be assessed through examination. The HEI require a more holistic assessment method that would look into the 3 pillars as outline in SDG 4.7, i.e. cognitive, socio-emotion as well as behavioural. Hence, justifying the core raison d'être of this research into coming up with a conceptual framework of a holistic method (see Figure 2) looking into all three pillars as well as embedding the three characteristics of assessments (see Figure 1).
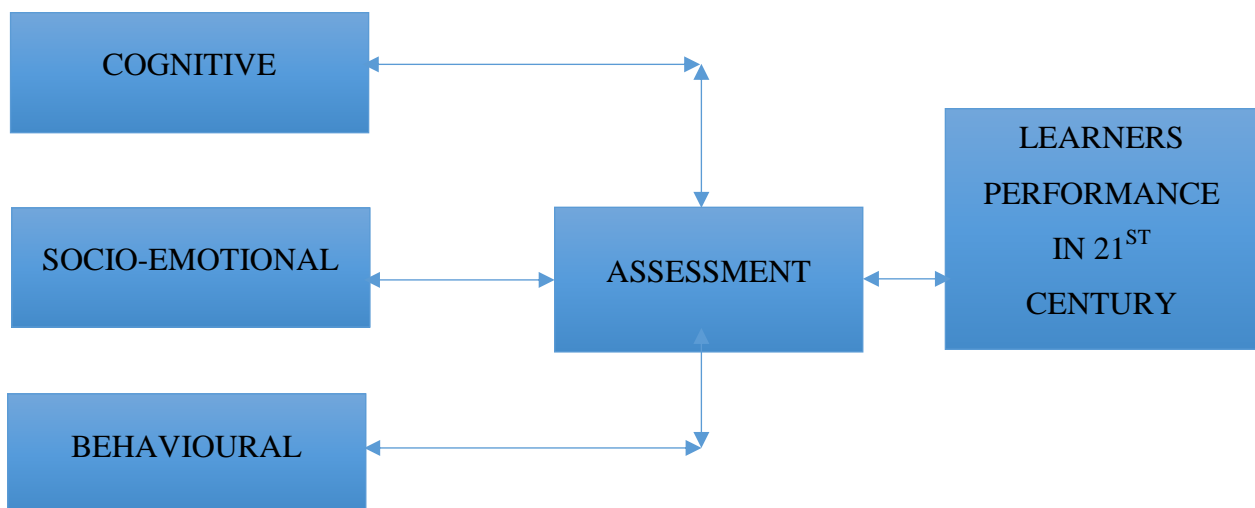

Figure 2: Conceptual framework for holistic assessment

3. Methodology

The research methodology approach for this paper embraces distillation of core research material gathered from a detail literature review encompassed factors surrounding the research issue. The relevant information was retrieved from the main databases of assessment conducted in Higher education institutions (HEIs), which consists of the range of journals and articles between 1999 to 2018. Apart from that, other sources were explored from the common website (ie goggle scholars). Then, the information was analyzed using content-based analysis in order to identify the gaps and each characteristics of assessment which leads to the formation of conceptual framework.

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4. Conclusion

Looking into all issues that have been discussed previously, the application of a holistic assessment framework should be designed and tailored with learner's characters (ie; cognitive, socio-emotional and behavioural) as well as taking into consideration the three aspects of assessments as have been shown in Figure 1. The embedment of these aspects remains essential to ease the learners in making a holistic judgment as well as arguments during the assessment; and to be able to develop appropriate skills when in the workforce. To be more effective, it should be aided by technology as a tool to support learners in learning (Gordon, 2010). Technology used in assessing learners should not only be personalised according to learner's characters (to boost their level of participation), but also must be appropriate according to the subject matter. Since the next paper tries to focus the application of assessment within the context of Built Environment, Quantity Surveying in particular, the area of study might be more technical whereas some other area of studies is exposed to theoretical knowledge. Therefore, based on this (the use of the holistic assessment framework), it is hoped that learners' learning outcome in technical subjects (s) could be improved, especially for the following areas: (i) critical thinking skills and able to think outside the box, especially during decision making; as well as (ii) investigative skills which permit them to handle assessment tasks effectively (Akubuilo, 2012). This application will indirectly lessen the involvement of educators in giving response to too many feedbacks and enhance learners' personal strength (Akubuilo, 2012)

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