Assessment for a Knowledge-Based Era - Issues and Challenges

Prof Dr. Noraini Idris
Faculty of Education
University of Malaya
Kuala Lumpur
E-mail:noridris@um.edu.my

Abstract: *Assessment continues to be a crucial and controversial issue in education. Assessment of student achievement is changing, largely because today's students face a world that demands new knowledge and abilities. In the global economy of the 21st century, students will need to understand the basics, but also to think critically and analyze, to judge logically, to communicate, to reason, and to make inference. Helping students develop these skills will require changes in assessment at the school and classroom level, as well as new approaches to large-scale high stakes assessment. Assessment is changing for several reasons. Many debate the merits or demerits of assessment especially with respect to the effect of national examinations. This presentation discusses the issues involving assessment and how changes in the skills and knowledge needed for success, in our understanding of how students learn, and in the relationship between assessment and instruction are changing our learning goals for students and schools. It is suggested that changing our assessment strategies will tie assessment design and content to new outcomes and purposes for assessment. Presenter will also share the award winning system on how to assess and change students' performance*

1. Introduction

Malaysia is an ongoing effort towards further developing the potential of individuals in a holistic and integrated manner; so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. It is aimed at to produce Malaysian citizens who are: knowledgeable and competent; possesses high moral standards; responsible and capable of achieving a high level of personal well being; and able to contribute to the betterment of the society and the nation at large (e.g. social and economic society).

In order to fulfill the abovementioned, educators need to implement the teaching and learning process effectively. One way to ensure such effectiveness is through assessing the performance of the learners who are/will be undergoing the teaching and learning process.

Assessment is a very important element in any system of education. There are many reasons for and hence forms of assessment. In the Malaysian education system, assessment is synonymous with tests and examinations and there is no doubt that assessment in the form of standardised examinations such as the SPM and STPM have greatly influenced education in Malaysia [2].

As the wave of education reform sweeps across many nations, improved education ultimately depends on the student-teacher interactions. Assessment, the gathering of information for decision making, is critical if one wishes to ensure that these interactions make for a meaningful learning situation. Over the past decades, we have seen changes in many programmes taught at

universities. For example, there have been changes in Mathematics and its uses, changes in the role of technology, changes in the needs of society, changes in international competitiveness, and changes in what we know about how students learn [3].

This presentation focuses on assessment, to see whether shifting toward ongoing, continuous, multifaceted and computer-based assessment, and whether shifting toward the appropriate use of technology in the classroom as an important tool to support learning and to give feedback and reporting results in improved student performance as shown in the screen below:

For several decades, assessment has been discussed from various points of view in Malaysian education. For example, the following questions have been discussed: How are the grading and assessment of students performance related? How are interest in, and attitudes towards, subjects assessed? Should we use criterion-referenced or norm-referenced assessment for grading purposes? Sometimes the media have functioned as a forum in the debate about merit(s) or demerit(s) of assessment, especially with respect to the effects of the national examination. Another issue related to assessment is the feedback in the form of report given to the student at the end of the semester/year. Feedback is information that allows students to check the adequacy of their performance and monitor their learning progress. But is it good enough to know the student's progress only at the end of the semester or year? When should corrective action be taken if feedback is given so infrequently? In this study, researchers had designed a computer-based assessment to evaluate each student's performance and enabling continuous reports to students so that corrective measures can be taken. This system is based on the premise that assessment and reporting are integral to planned approaches to teaching and learning.

The emphasis on standardized examination in an educational system has been subject to controversies. [4] for example argued that standardized examinations do not necessarily measure educational quality. Random observations suggested that some people feel the emphasis on standardized examinations only produced students who are experts in sitting for examinations and not students who are truly educated as expressed through the National Philosophy of Education. The Ministry of Education had earlier introduced school-based assessments such as PEKA that were intended to reduce the emphasis on standardized examination, but the move has been discontinued.

The present system of assessment as shown in Figure 1.1 is norm-referenced, terminal and rigid. The effort is to reform and restructure schools to become smart schools which have focused attention on the role of assessment in school improvement. Many educators claim that traditional measures fail to assess significant learning outcomes and may undermine instruction and policy decisions.

There is great pressure on teachers and administrators to devote more and more time to prepare students to do well on tests. As a consequence, narrowly focused tests that emphasized recall have led to a similar narrowing of the curriculum and a lack of emphasis on higher order thinking skills. These shortcomings of traditional testing method have led teachers to teach to the tests by providing daily skill instruction in formats that closely resemble tests. This negative backwash of traditional testing has led to the use of instructional practices that are both ineffective and potentially detrimental due to a reliance on outmoded theories of learning and instruction.

The limitations of the present assessment system do not allow for the evolution of the education system and therefore the assessment system must change. It is believed that all learners have different styles and rates of learning. Hence, given sufficient time and provided with the right opportunities, all learners can become successful. The integration of technology as a tool to facilitate assessment will create a climate where assessment can be provided for each student virtually on demand basis, as in Figure 1.1.

Since assessment used will greatly influence the processes and hence the products of education, it is necessary to look at the assessment policies and their impact on the education system. How does the teacher know whether students are learning what the teacher is trying to teach them? How do students find out how they are doing, and can they use that information to study more effectively? Would students be able to tell what the teachers thinks is important for them to learn by looking at the assignments that "count" in a course? Good assessment yields good information about the results of instruction; it is itself a necessary component of good instruction. Students who do not understand what they are aiming to know and how they will be expected to demonstrate their achievements will not be able to participate fully in managing their own learning. Sound assessment and grading practices help teachers improve their own instruction, improve students' motivation, focus students' effort, and increase students' achievement.

Assessment means to gather and interpret information about students' achievement, and achievement means the level of attainment of learning goals of school or college courses. Assessing student achievement is generally accomplished through tests, classroom and take-home assignments, and assigned projects. Strictly speaking, assessment refers to assignments and tasks that provide information, and evaluation refers to judgments based on that information.
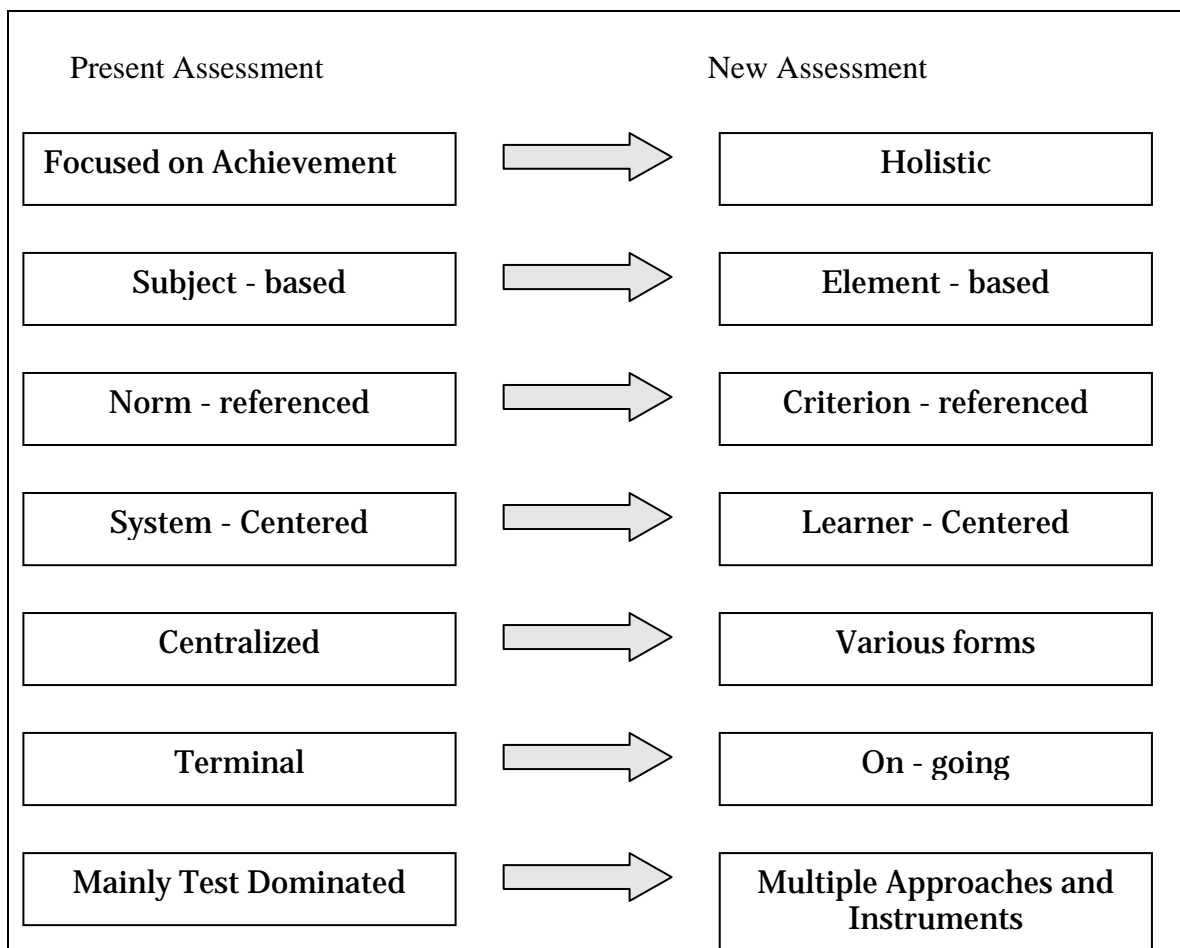
Present Assessment		New Assessment
Focused on Achievement	→	Holistic
Subject - based	→	**Element - based**
Norm - referenced	→	Criterion - referenced
System - Centered	→	Learner - Centered
Centralized	→	**Various forms**
Terminal	→	On - going
Mainly Test Dominated	→	**Multiple Approaches and Instruments**

Figure 1.1. Present assessment as compared to new assessment

Holistic Data

All data about an individual's performance is considered

Humanistic Assessment

Learners are given the appropriate support and allowed to prepare themselves

Assuring Balance

All the elements intended to develop a balanced individual must exist in both qualitative

Living Certification

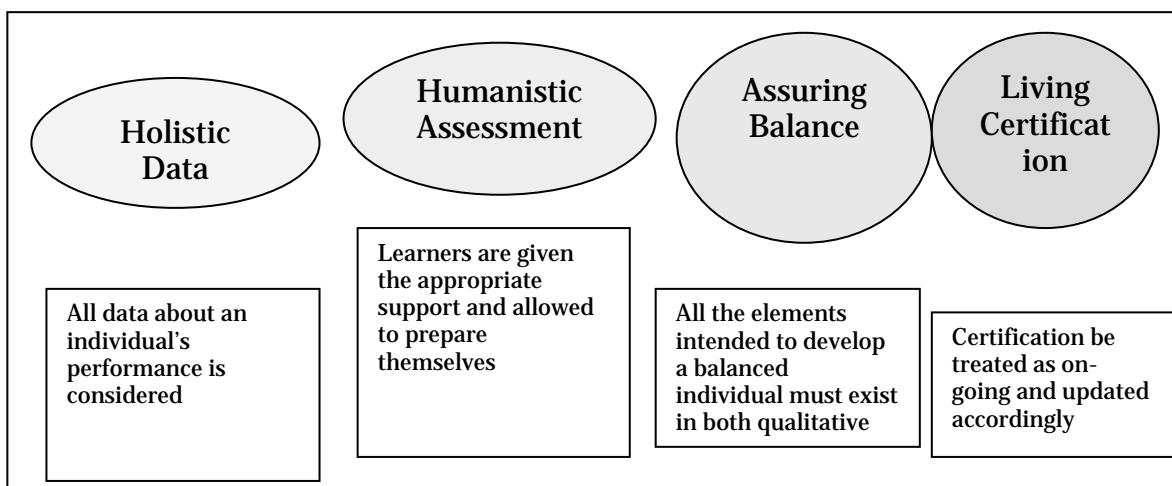Certification be treated as on-going and updated accordingly

Figure 1.2. Underlying principles of assessment

Students should be able to tell what the teachers thinks is important for them to learn by looking at a course's tests, projects, and other assignments. These assessments are the teacher's way

of gathering information about what students have learned, and they can then use them to make important decisions--about students' grades, the content of future lessons, and revision of the structure or content of a course or program. Thus, it is important that student assessments in classes give dependable information as shown in Figure 1.2.

In computer-based assessment, performance may be assessed by teachers, the learner himself/herself, peers, parents, and external assessors. A learner may assess himself/herself or peers through the use of a checklist/criteria in the computer-based assessment as shown in the screen below:
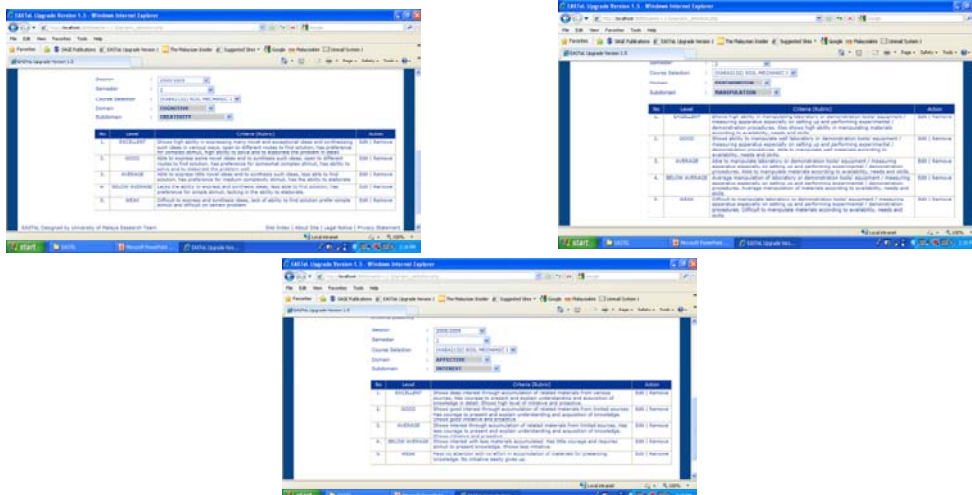

Once the student has been assessed, a detailed report would be able to be seen or printed to assist in improving student learning by allowing students to confirm what they have learned and find out where improvement may be needed, informing teachers of areas where additional assistance is needed, and developing a sense of partnership in learning among parents, teachers and students.

How have other countries coped with the challenges of implementing new assessment methods in line with the knowledge-based economy?

Malaysia has also taken steps to introduce alternative assessment to reduce the reliance on high stakes standardized central examinations. One of the thrusts under the Ninth Malaysia Plan is the challenge of raising the capacity for knowledge and innovation and nurturing a first class mentality. Given the ever changing demand of technology and society, students need to be equipped with lifelong learning skills.

In the United States, helping students to develop higher order skills (e.g., critical thinking, problem solving, analytical reasoning, and written communication) is central to the missions of colleges, universities and high schools. While these institutions also foster other key competencies, such as moral/ethical reasoning, artistic expression, civic engagement, and environmental

stewardship, they emphasize the aim of helping students to develop intellectual curiosity and a lasting desire for learning. In this context, many colleges and universities have participated in the Collegiate Learning Assessment (CLA), an ongoing project incorporating a breakthrough learning assessment approach developed by The Council for Aid to Education (CAE) (a not-for-profit organization) and the RAND Corporation. The CLA approach is to measure an institution's contribution, or value-added, to the development of higher order skills, including the effects of changes to curriculum and instructional methods.

In Australia and New Zealand the use of numeracy learning frameworks in Mathematics teaching share a strong link between research, pedagogy, teacher professional learning and a strong focus on student learning. Learning frameworks allow the reporting of specific outcomes situated upon a sequential learning framework. The real challenge now is to educate parents and the community about these developments [6].

The challenges and issues in Australia as summarized by the Centre for the Study of Higher Education (2000) were as follows: capturing the potential of online assessment; designing efficient and effective assessment for large classes; responding to plagiarism and developing policies to foster academic honesty; using assessment to guide effective group work; and recognizing the needs of students unfamiliar with Australian higher education.

As early as 1997, Singapore had introduced the "Thinking Schools, Learning Nation" concept, and in 2000 the Ministry of Education identified eight core skills students should acquire for the new economy, namely: character development, literacy and numeracy, social and cooperative skills, communication, information, knowledge application and thinking, and creativity [1].

According to [5] universities in Singapore have also introduced more innovative ways of teaching and assessment, with a focus on creative and critical thinking. Since going to university remains highly prized by society, the university admission system in any country has a disproportionate influence on student motivation and behavior. If the sole criteria for university admission are examination results, school students, teachers and parents will tend to focus on exam preparation.

However, throughout East Asia today, there is an increasing recognition that a university admission system that assesses applicants solely on academic results has its limitations [5]. While such a system is objective and transparent, it does not take into account a student's talents, communication skills, reasoning capacity, interpersonal skills, and other key attributes and skills that would enable students to succeed in the knowledge economy of the new millennium. Singapore took one full year to deliberate on this issue. Some aspects of the existing system were kept, such as the emphasis on rigor, discipline, hard work and achievement. The Government accepted the recommendations of the Committee on University Admission System to add reasoning tests and co-curricular activities to examination results in order to yield a broader university admission system [5]. A special assessment committee was formed to review the assessment modes to encourage teacher trainees to apply thinking across disciplines. Besides pen and paper tests, project work and performance assessment are being introduced as alternatives.

These are just a few of the initiatives countries throughout the world have taken to cope with the knowledge-based era. The knowledge-based era demands a different type of assessment – more performance-related, and one that assesses the skills and competencies required by the knowledge economy. Unless assessment methods change to cope with the new demands, the education system will not be able to deliver the knowledge workers of tomorrow.

References

[1] Chang, S. C., & Gopinathan, S. (2000). Developing and implementing a framework for teaching thinking in the National Institute of Education. In *Proceedings of the First Symposium on Teaching and Learning in Higher Education* (pp.121-125). Singapore : National University of Singapore , Centre for Development of Teaching and Learning.

[2] Centre for the study of higher education (2002). A new era in assessing student learning. [Online]. Available at http://www.cshe.unimelb.edu.au/assessinglearning/01/index.html

[3] Marlin Abd. Karim, & Shahril Mohd. Karib. (2003). High stakes assessment in Malaysia:Washback in the English Language classroom. In *Koleksi kertas kerja Lembaga Peperiksaan Malaysia* (*Collected working papers of the Malaysian Examination Council*). Kuala Lumpur: MEC.

[4] Noraini, I., Loh, S. C., Norjoharuddeen, M. N., Rashidah, H., Wan Rohaya, W. Y.,Hamidah, S. & Mohd Yusof, S. (2008). Classroom Assessment System for Teaching and Learning (CASTLe). In *Proceeding of the International Conference on Educational Innovation (ICEI 2008)* (pp. 17-28). Kuala Lumpur: Faculty of Education UM, Malaysian National Commission for UNESCO, & UNESCO Regional Office Jakarta.

[5] Stiggins, R. J. (1991). Challenges of a new era of educational assessment. *Applied Measurement in Education*, *4*(4), 263-273.

[6] Tan, K. Y. (2000, January 14). Universities In The Knowledge Era-- Challenges And Responses. Lecture by Dr. Tony Tan Keng Yam, Deputy Prime Minister And Minister For Defence, At The Chulalongkorn University , Thailand . [Online] Available at http://www.moe.gov.sg/media/speeches/2000/sp24012000.htm

[7] White, A. (2007). Assessment in school mathematics. In Noraini Idris (Ed.), *Classroom assessment in Mathematics education* (pp. 43-59. Kuala Lumpur : McGraw-Hill.