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Assessment Techniques to Achieve Students' Learning Outcomes: Objective Questions Versus Subjective Questions

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Abstract:

In higher educational program it is important to measure Students' learning outcomes so that University can measure its quality of academic curriculum. To meet this objective it was important to find out the role of assessment techniques on students learning outcomes. For the research purpose, Strategic Management module was selected and two major assessment techniques were implemented, namely Objective Questions and Subjective Questions. Students' performance for both types of assessment techniques would facilitate in measuring SLOs, therefore variety of objective questions such as multiple choices questions MCQs, match the statements, True or False and Subjective Questions such as knowledge based and cognitive learning based, were assessed and then compared for the sample of 50 final year students. Students were more likely to employ surface learning approaches in the Objective questions, which was assessing knowledge-based (lower levels of) intellectual processing but performed Poor for the same if objective questions were associated with the employment of deep learning strategies. In contrast, students were more likely to employ deep learning approaches when preparing their Subjective Questions which they perceived as assessing higher levels of cognitive processing.

Keywords:

Students' learning outcomes, Objective Questions, Subjective Questions, Surface learning , Deep learning, Cognitive Processing

INTRODUCTION:

Students Learning outcomes (SLO) are statements of the knowledge, skills and abilities individual students should possess and can demonstrate upon completion of a learning experience or sequence of learning experiences [1]. There are several advantages to having course learning outcomes including: Setting shared expectations between students and instructors. Helping students learn more effectively [2]. Providing clear information for educators when making instruction and assessment decisions. Figure 1 shows the description of Learning outomes as SMART which means that it should be Specific, Measurable, Attainable, Relevant and Time Based.

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Figure 1. Description of Learning Outcomes [3]

The following examples of academic program student learning outcomes come from a variety of academic programs across campus, and are organized in four broad areas: 1) contextualization of knowledge; 2) praxis and technique; 3) critical thinking; and, 4) research and communication [4].

Information about student learning can be assessed through both direct and indirect measures. Direct measures may include homework, quizzes, exams, reports, essays, research projects, case study analysis, and rubrics for oral and other performances.Figure 2 shows the components of learning design[5].

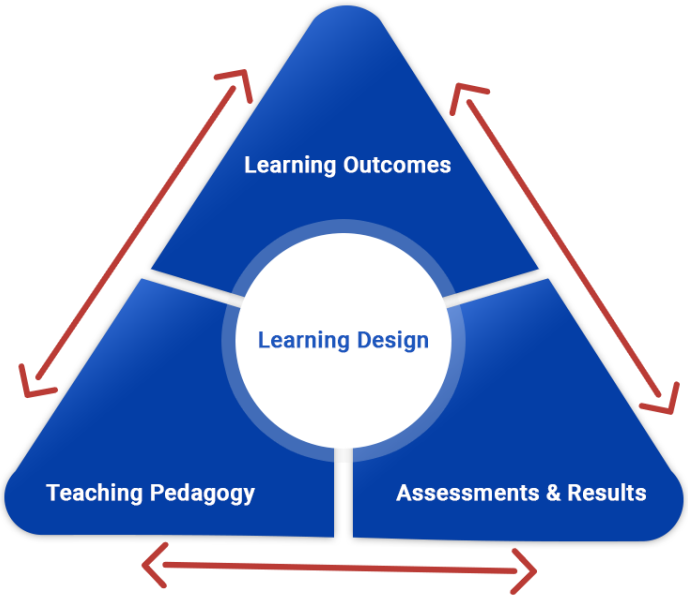


Figure 2. Components of learning design [6]

To design effective exams, educators need a strong understanding of the difference between objective and subjective assessments. Each of these styles has specific attributes that make

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them better suited for certain subjects and learning outcomes [7]. Knowing when to use objective instead of subjective assessments, as well as identifying resources that can help increase the overall fairness of exams, is essential to educators' efforts to accurately gauge the academic progress of their students. Figure 3 shows the mechanism of learning outcomes[8].



Figure 3. Learing Outcomes Mechanism [8]

There are two types of Assessment techniques chosen for this research to assess the leanring outomes [9].

1. Subjective Assessments
2. Objective Assessments

Subjective Assessment:

According "Subjective tests aim to assess areas of students' performance that are complex and qualitative, using questioning which may have more than one correct answer or more ways to express it [10]." Subjective assessments are popular because they typically take less time for teachers to develop, and they offer students the ability to be creative or critical in constructing their answers [11]. Some examples of subjective assessment questions include asking students to:

- Respond with short answers.
- Craft their answers in the form of an essay.
- Define a term, concept, or significant event.
- Respond with a critically thought-out or factually supported opinion.
- Respond to a theoretical scenario.

Subjective assessments [12]are excellent for subjects like writing, reading, art/art history, philosophy, political science, or literature. More specifically, any subject that encourages

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debate, critical thinking, interpretation of art forms or policies, or applying specific knowledge to real-world scenarios is well-suited for subjective assessment [13].

Objective Assessment:

Objective assessment [14], on the other hand, is far more exact and subsequently less open to the students' interpretation of concepts or theories. Mathematics, geography, science, engineering, and computer science are all subjects that rely heavily on objective exams[15]. Some of the most common item types for this style of assessment include [16]:

- Multiple-choice
- True / false
- Matching
- Fill in the Blank
- Assertion and reason

LITERATURE REVIEW:

In 2007, Georgia developed a comprehensive framework to define what students need to know [17]. One component of this framework emphasizes the use of both formative and summative assessments as part of an integral and specific component of the teachers" performance evaluation. Georgia administers the Criterion-Referenced Competency Test (CRCT) to every elementary student in Grades 1 though 8. Before 2008, the state tested eighth-grade students on a quality core curriculum. In 2008, the state began testing students on a Georgia Performance Standard curriculum. A direct comparison of the curriculum change should have contained items to test both curriculums. However, this was not done. Therefore, the current study was designed to examine if differences in students achievement occurred because of the curriculum change [18].

The idea of using assessment to help learners and to advance learning has no doubt been around for centuries. However the use of assessment for learning as a specialist 'technical' term which embodies a call to action in educational practice is more recent [19]. The Assessment Reform Group was formed in 1989 by a group of educational View metadata, citation and similar papers at core.ac.uk brought to you by CORE provided by Northumbria Research Link assessment researchers under the auspices of the British Educational Research Association and has been active and influential in promoting the concept and practice of assessment for learning [20]. One of the Group's members, Caroline Gipps (1994) is often credited with introducing the term to the wider educational community, on the basis of making a clear distinction between assessment of learning, which is about evaluating what has been learnt and assessment for learning which is about using evaluation to feed into the learning and teaching process and thus improve learning [21]. In this formulation, which is still in widespread use, assessment of learning is equated with summative assessment and assessment for learning with formative assessment. Tracing the history and current usage of assessment for learning is challenging as there are a number of other terms, including 'formative assessment', which appear to carry a very similar meaning to the term assessment for learning or at least overlap very substantially with it. Winter [22] wrote of the 'changing prepositions' of assessment – of, for and as learning. Carless and colleagues [23] introduced the term 'learning-oriented assessment'. Gibbs and Simpson (2004) use the phrase 'assessment that supports learning'. These different terms demonstrate sometimes subtle sometimes quite substantial differences in their usages by different people and in varying contexts [24]. The term formative assessment has the longest history in the educational literature, usually being attributed to Scriven (1967) and

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was well-known before the recent rise to prominence of assessment for learning [25]. The definition of formative assessment proposed by Sadler (1989) is very widely used and accepted as a basis for good practice. Sadler states that formative assessment must enable students to understand the goals or standards to be achieved and their own current level of performance and then guide them in taking action to close the gap [26]. This requires students to develop 'expertise' in order to make effective judgements about their own performance. They need to develop evaluative skills which enable them to monitor and evaluate their own learning position, determine 'the size of the gap' and how to move towards closing it. Sadler argues that these evaluative skills can be developed by developing 'authentic evaluative experiences' for students. Nevertheless, in their influential review of assessment practices across all sectors of education, Black and Wiliam (1998) state that formative assessment 'does not have a tightly defined and widely accepted meaning' [27]. In their review, they refer to formative assessment as 'encompassing all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged'. They propose that formative assessment is as much about being able to work out, or evaluate what someone is able to learn as to what has already been learnt [28]. Yorke (2003) also claims that there is a need for further theoretical development of the concept of formative assessment which 'needs to take account of disciplinary epistemology, theories of intellectual and moral development, students stages of intellectual development, and the psychology of giving and receiving feedback [29]. Formative assessment is, especially in the school sector often regarded as part of good classroom practice but this is a much less common view in higher education. Angelo and Cross (1993) do promote this approach in universities using the term 'classroom assessment'[30]. They describe classroom assessment as 'learner centred, teacher-directed, mutually beneficial, formative, context-specific, ongoing and firmly rooted in good practice [31]. They propose seven principles of classroom assessment, which include the development of an active assessment research community, clear teaching goals and objectives, appropriate and focused feedback, faculty involvement in the design of assessments and the development of 'simple tools' to assist teachers in the classroom [32]. The final concept relates to the sharing of assessment experience both with students and colleagues, resulting in what Angelo and Cross describe as 'mutually positive benefits' which can aid and assist the development of an improved learning process. Black and Wiliam (1998) and many other authors clearly regard feedback as central to the concept of formative assessment or assessment for learning [33]. It is worth noting that, in higher education, formative assessment is often in practice seen in a limited way solely as giving feedback to students [34]. Gibbs and Simpson (2004) argue that the range and complexity of the effects of feedback within assessment have not been adequately conceptualised or theorized and outline a set of 'ten conditions under which assessment supports learning' which aim to address this complexity [35]. These ten conditions, seven of which link explicitly to feedback, address levels of engagement with assessment tasks, time allocation, sufficient, timely feedback, the importance of student perception and understanding in relation to the assessment task and the centrality of student action in relation to feedback. Nicol & Macfarlane-Dick (2006) offer an alternative set of conditions, in the form of a model of assessment and feedback that has learner self regulation at its core [36]. Self-regulation is interpreted as the extent to which students can monitor and evaluate areas/aspects of their own learning behaviours, and then act on this information to improve their learning [37]. This model makes visible the process of student self regulation from the initial assessment task and review of current knowledge, to

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individual interpretation and formulation of learning tasks, to the generation of both internal and external goals. The authors state that the outcomes which are then produced generate internal feedback which enables the student to re-evaluate goals, criteria and standards, and then compare the current stage of their own learning/understanding to the external standards/goals/outcomes which they wish to achieve [38]. This model of learning leads to seven principles of effective feedback encompassing: clarity as to what constitutes 'good' performance, the promotion of self-assessment, encouragement of peer and teacher dialogue and the promotion of student self esteem and confidence [39-40].

DISCUSSION AND RESULTS:

Multiple choice question tests (MCQ tests) can be useful for formative assessment and to stimulate students' active and self-managed learning. They improve students' learning performance and their perceptions of the quality of their learning experience

MCQ tests are strongly associated with assessing lower order cognition such as the recall of discrete facts. Because of this, assessors have questioned their use in higher education. You can design MCQ tests to assess higher order cognition (such as synthesis, creative thinking and problem solving), but you must draft questions with considerable skill if such tests are to be valid and reliable. This takes time and entails significant subjective judgment. Determine whether assessors are using MCQ tests for summative assessment for the ease of making them, or for solid educational reasons. Where MCQ tests are appropriate, ensure that you integrate them effectively into assessment design.

Test questions are used to assess participants' familiarity with course content and to check for misconceptions. They can be written to assess a wide range of learning objectives in all content areas. Test questions are either objective or subjective.

Objective questions have one correct answer. Participants either select the answer from a list of options or complete a sentence by providing a missing word or phrase. Objective tests are appropriate when large groups need to be tested. They are also useful if the test will be reused. Objective tests are used when impartiality and fairness are a high priority and there can be no scoring bias. Well-designed and tested objective questions also can produce highly reliable scores that support statistical analysis.

On the other hand, subjective questions require participants to provide an original answer. For some subjective questions, responses can be as short as a single word or as long as multiple paragraphs. Subjective test questions are good when testing a small group and the test won't be reused. They are also good if you want to support written communication and/or analysis, synthesis, and evaluation skills. Because participants' responses are not always uniform, grader bias is a real concern. Essay questions may require a rubric or assessment checklist to standardize grading. Figure 4 shows the results of assement methods for students learning outcomes which explains that students learning outcomes is not affected by the types of questions. Students learning outcomes can be achieved well with objective as well as subjective types of questions and both types of assessment methods contribute the same level in meeting the students learining outcomes.

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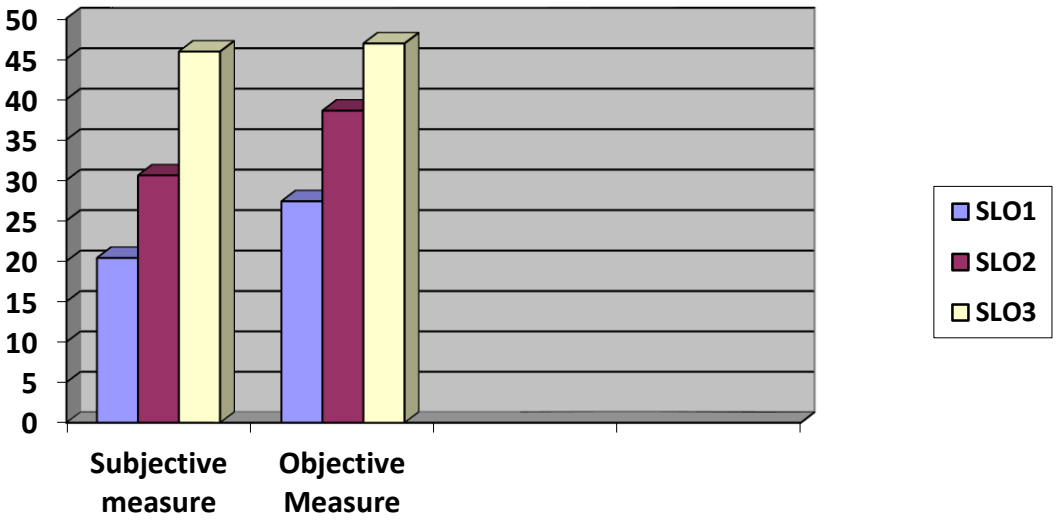


Figure 4. Results for assessment of three SLOs by subjective and objective measures

There SLOs are measured from two types of assessment methods and results show equal impact on SLOs from subjective as well as objective measures.
Within the objective and subjective categories, there are several different types of test questions, each of which have advantages and disadvantages. Regardless of their type, test questions can be written to test comprehension and application of knowledge, as well as critical thinking and problem-solving abilities. Choosing a type or type(s) of questions to use will be based on the course's learning outcomes, time available for testing and scoring, and the testing requirements or restrictions.

CONCLUSIONS:

When evaluating information, it's very important to be able to separate fact from opinion. Objective information is based on unbiased facts, whereas subjective information is based on opinion and conjecture. Both types are valuable, as long as the difference between objective vs. subjective information is clear. The learnig outcomes canbe assessed by both the methods and no variation is identified in the assessment process.

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