

Optimizing Assessment of Students for Quality Learning

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Abstract

The purpose of this paper is to provide a possible solution to the problem of reliability of assessment used in some universities. Often students do not know or understand according to which the criteria they have been assessed, and this leads to student dissatisfaction with their final marks which they believe do not reflect their ability and the amount of work they have done on the course. Students have a feeling that assessment is carried out subjectively and they might not be satisfied with their final marks. An experiment was held to compare the traditional for many universities assessment (1-2 midterm exams and a final exam) with continuous assessment. It was held with the 3rd year students at a University in Iraq for a qualitative (verbal and not numeric) course which is called "Production Management" and is taught by the author. The effects of the above types of assessment are discussed.

Keywords: Continuous assessment, Quality learning, Education, assessment, Formative assessment.

Introduction

Assessment quality as well as assessment accuracy are important. In the systems where 'formative' assessment is only performed via one or two midterm exams during the semester, and summative assessments are performed at the end of a semester, questions occur, such as how much we could keep students motivated to learn better through this kind of assessment, and how could the students' passing grades (as well as their competence) be

increased. We put 'formative' in inverted commas, as the term is often misinterpreted: "All too often, the term "formative assessment" conjures images of quizzes and tests, while in reality, formative assessment is a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning" (Heritage, 2010, foreword). Does such a system of assessment stimulate enough students' effort to achieve success?

The grading policy of the University where the research was held, as well as generally in Iraq, indicates that 40-60% for pre-final (which is equal to midterm exam score only or may include the evaluation of extra activities additionally) and 40-60% for final examination forms the passing grade of a student, as clearly stated in the "student handbook". It is obvious that in this case, the concrete percentage of pre-final and final grades is up to lecturer and applied subjectively. Only two main examinations, which are called as midterm and final, are applied for grading.

It is obvious that measuring students' performances by using the current assessment system, which indicates that 70-80 percent of passing grade consists of only midterm and final exam scores, and 10-20 percent is "non-systematic or subjective" lecturer evaluation, is ineffective for evaluating students' comprehension about the subject. Therefore, assisting students' performance by using an assessment process which covers all activities during the semester would have a positive impact on students' passing grades and maintain their motivation during the semester. The suggested approach is expected to enable students to calculate their grades during the semester using their recorded activities' contribution values, keeping them well informed and stimulating them to timely take measures, if necessary, to improve the results.

Literature Review

According to Chilliers and Collaborators (2010, p.2 not in the reference), "the impact of assessment on student learning is generally held to be profound". Elton and Laurillard (1979) not in the reference stated that "the quickest way to change student learning is to change the assessment system". They emphasized the importance of assessment technique in these words. From this point of view, an effective way of assessment can change the quality of students' learning.

Assessment is the harvest of students' work. It shows (or, at least, has to show) what the student knows and is able to do as result of taking the course. It has to reflect what the student understands, has memorized, is able to apply, analyze, create, and evaluate. Without assessment we cannot judge the effectiveness of either lecturer's or student's work.

According to (Ramsden, 2003, p. 177), regardless of the assertions and their interpretation, assessment cannot be understood in isolation from learning. Assessment is not a goal in itself, it is an inseparable part of the educational process, and correspondingly, it should penetrate the whole process.

Although this is officially recognized, however, in reality the relationship between assessment and learning is often problematic. Assessment has to be about several things at once. From this point of view, a few summative assessments (the format of midterm exams, identical to final exams, in fact, makes them summative and not formative), which are the way assessment is still carried out in some countries and universities, might not be enough for adequate measurement of students' knowledge as well as for student motivation.

Formative assessment, besides knowledge and skill measurement, provides lecturer's feedback, and may involve a smile, a nod, words like "OK, right, correct, yes" as "measure" of student success. The positive role of formative assessment has been proved by research

(Herman et al, 2006). For example; if there are only two examinations during a semester and a student couldn't perform one of them because of his/her health problems, a question arises whether this grade reflects the real situation. Yorke (2003; Taras (2005; Yorke (2007) support this idea as saying "some assessments in higher education are designed to be both summative and formative".

Summative assessment and formative assessment technique may be blended in order to achieve a better assessment. As Bennett (2011) suggested, as summative assessment is preliminarily serves as learning assessment, they can fulfill secondary formative function to support assessment of learning. Brookhart (2010) strongly supports the mixing of summative and formative assessments when both types of assessment are clearly linked to instructional goals and practice.

Some educationalists prefer to use different terms staying for more or less the same concepts. Heywood (2000) claimed that the concept of coursework (i.e., continuous assessment) was used in United Kingdom and Ireland before the terms formative and summative assessment became part of the vocabulary of assessment. The term covers both formative and summative assessment, emphasizing the former. Continuous assessment practices encourage students to learn on an ongoing basis, says Trotter (2006). Isakson (2007) claims that continuous assessment enables the provision of feedback to students on their learning.

Miller, Imrie & Cox (1998, 34) used the term "continuous assessment" to express the use of tests over a learning unit and the accumulation of the results in the final grade. So it can be said that the assessment which is performed continuously and accumulatively may be a useful assessment type.

In literature, 'interim' assessment is used like "the assessments that fall between formative and summative assessment, including the medium-scale, medium-cycle assessments currently in wide use" (Perie et al., 2007, p. 1 -). Martineau and Dean (2010, p. 142), defend the view that "interim assessment" will help to achieve a "balanced assessment and accountability system to include appropriate uses of assessment data for accountability".

Objective

In order to find out whether the 'traditional' assessment held in many universities (2-3 summative exams: 1-2 midterms and a final) or the continuous assessment is more efficient, an experiment and a survey were held. We were interested in

- 1) Quality of assessment
- 2) Student success in passing the course
- 3) Student motivation

Method

The quantitative research involved an experiment the goal of which was to find out whether the continuous assessment is more efficient than the 'traditional' one (1-2 midterms plus a final) and a questionnaire to find out the motivation of the students in the experimental group. The questionnaire contains yes/no and open-ended questions.

Participants

86 students from a university in Erbil, Iraq, were involved in the research, who were assigned to control and experimental. Students were from the third grade of Business and Management Department. The experimental group consisted of 38 students, while the rest

of students were in the control group. Demographically, 8% of students were Turkish, 10% Arabic, 2% Turkmen, and the remaining 80% of students were Kurdish. Furthermore, all of them are students in Production Management course which is taught at Business and Management Department.

Measuring Procedure

The passing grade was calculated as the sum of the following values:

- 30% for midterm score.
- 40% for final exam score (where the percentage cannot be set less than 40% according to the regulations of the ministry of higher education.)
- 30% for the extra activities evaluation which is distributed as the following;
 - 7.5% for the student attendance
 - 7.5% for the student participation in the class (each correct answer means one (+) and five pluses yield 7.5 points)
 - 7.5% for home assignment
 - 7.5 % for the quizzes

The Observation was done during the first semester. Measurements were performed periodically. At the end of each chapter; students were assessed verbally through their participation in the class. They were asked some questions from the most important points of the concerned chapter. If a student answered a question correctly, s/he got a plus (+), five pluses equaled to 7.5 points.

Quiz grades also contributed totally up to 7,5 to a student. Additionally, home assignments, which were given to a student and evaluated one by one, contributed in total up to 7,5 points. Furthermore, attendance in class was also assessed (up to 7.5 points). It was done because before the experiment students had been complaining about obligatory attendance to the classes in the University, but by giving those points for their attendance of classes, they became more motivated to attend.

Analysis and Results

Here are the data analyses of midterm, final, and passing grades of Production Management subject. These analyses were used to observe the differences between the two groups, and then we checked if the differences (if they exist) were significant. Firstly, a T-test analysis was performed to find out which is higher, the mean of experimental group or the mean of control group.

Table 1: Group Statistics of t-test

Group Statistics					
	Groups	N	Mean	Std. Deviation	Std. Error Mean
Midterm_Grades	Experiment	38	54,3947	13,23088	2,14633
	Control	48	35,5833	17,07908	2,46515
Final_Grades	Experiment	38	67,2105	14,82539	2,40500
	Control	48	48,7500	25,11633	3,62523
Passing_Grades	Experiment	38	62,1579	10,24174	1,66143
	Control	48	47,1250	18,92159	2,73110

According to the values shown in table 1, it can be easily noticed that the mean of experimental group of midterm grades (54.39) is higher than the control group (35.58). Furthermore, means of experimental group grades of final exam and passing grades (67.21) are also higher than those for control group (48.75). This indicates that the experimental group seems to be more successful in this course than control group. The passing grade shows the same regularity: 62.16 for the experimental group versus 47.13 for the control one.

But still it is unknown if this increase in passing grade has occurred coincidentally or if the difference is significant. In order to figure out that, it is needed to check Independent-Sample Test results below.

Table 2: Independent Sample Test

		Independent Samples Test							
		t-test for Equality of Means						95% Confidence Interval of the Difference	
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
Midterm_Grades	Equal variances assumed	5,588	84	,000	18,81140	3,36613	12,11749	25,50531	
	Equal variances not assumed	5,755	83,971	,000	18,81140	3,26880	12,31141	25,31140	
Final_Grades	Equal variances assumed	4,009	84	,000	18,46053	4,60506	9,30285	27,61820	
	Equal variances not assumed	4,243	78,227	,000	18,46053	4,35044	9,78987	27,12118	
Passing_Grades	Equal variances assumed	4,409	84	,000	15,03289	3,40933	8,25306	21,81273	
	Equal variances not assumed	4,703	75,150	,000	15,03289	3,19675	8,66484	21,40095	

On Independent-Sample Test, we need to look at on sig. (2-tailed) bar of midterm, final, and passing grades. In case $P < 0.05$, it can be understood that the concerned relation is significant and not coincidental. It is seen that P value for midterm grades (0.000), for final grades P (0.000), and for passing grades P (0.000) are less than 0.05 which infers that the difference in mean value between experimental group and control group is significant.

Finally, a correlation test was performed between the groups and marks in order to check whether there is a correlation between the group (control or experiment) results and the mean of the grades.

Table 3:
Correlation between groups' results

		Correlations			
		Groups	Passing_Gra des	Final_Grades	Midterm_Grad es
Groups	Pearson Correlation	1	-,434**	-,401**	-,521**
	Sig. (2-tailed)		,000	,000	,000
	N	86	86	86	86
Passing_Grades	Pearson Correlation	-,434**	1	,915**	,805**
	Sig. (2-tailed)	,000		,000	,000
	N	86	86	86	86
Final_Grades	Pearson Correlation	-,401**	,915**	1	,580**
	Sig. (2-tailed)	,000	,000		,000
	N	86	86	86	86
Midterm_Grades	Pearson Correlation	-,521**	,805**	,580**	1
	Sig. (2-tailed)	,000	,000	,000	
	N	86	86	86	86

** . Correlation is significant at the 0.01 level (2-tailed).

The results of correlation test show that there is a negative correlation between the two groups: (-0.434) for passing grades, (-0.401) for final grades, and (-0.521) for passing grades. As a conclusion, the results both tests indicate that experiment group is more successful than control group at midterm, final exams and has higher passing grades.

Feedback

After the final examination, a questionnaire was applied to the 23 randomly selected experimental group students to understand their ideas concerning the assessment system that was applied to their group during the semester. Below are the questions and overall responses.

Question 1: Were you motivated to participate in the class in the new assessment system?

Answers: The majority (83%) of the respondents think that increasing their marks motivate them to participate in the class. Furthermore, they think they learn much more in this way. On the other hand, a minority (17%) think this assessment style dint motivate them to participate in the class because they don't like to talk.

Question 2: Were you more motivated to come to the class in this system? Why?

Answers: The students were motivated to come to the class. The majority expressed that they found it useful to be assessed continuously to motivate students to come to the class. Many students expressed an opinion that they don't have the question "Why is it obligatory to attend 80% of the all classes within a semester" anymore as they had before this course.

Question 3: Were you motivated to study in order to answer questions in the class?

Answers: The majority of the respondents (91%) expressed that in this way they study at home and learn more to answer in the class. Furthermore, they specified that they are noting down the questions used in the class to make it easy to study for the midterm and final examination because lecturer asks the main important parts of the chapter in the class. They

also think they can express their opinions better verbally rather than paper-based. On the other hand, 9% of the respondents expressed an opinion that because of their lack of oral English skills, they don't like and are not motivated to participate in the class.

Question 4: Were home assignments motivating you to learn?

Answers: The majority of the respondents (96%) expressed an opinion that they were motivated to study more and consequently they have learned better. Investigating from the internet made them happy and they have learned more than in other classes.

Question 5: What do you think about quizzes done after each chapter?

Answers: All students answered that via regular quizzes they study for the midterm and final examinations more easily. They claim that they more easily estimate what the questions of the midterm and finals will be like and they need less time to prepare for them.

Question 6: Overall, compare the current assessment system and the assessment system that is applied at other courses from the motivation, learning and success point of view.

Answers: The respondents believe that apparently this assessment style affected their results positively. They believe that by this assessment system they are more motivated rather than by the current system. 13% of the respondents think that 40% of final weight is not enough. Overall, students are positive about each three issues.

Question 7: Do you think, should this assessment style be applied for all qualitative subjects?

Answers: 78% of respondents answered yes. They write that this assessment helps them at learning, motivation, and getting higher grades. Being assessed in this way, they know they will get the merit of what they are doing and this motivates them to study, come to the class, and participate.

Discussion, Conclusion and Advice

Students, who are assessed on a regular basis succeeded to pass with higher grades than students who are assessed only via midterm and final exams. During the course of the experiment it was observed that in experiment group students were more attentive during the lectures than the students of the control group. This shows that students who are assessed continuously were more motivated to attend and participate in the class. Before the experiment students of the experimental group were complaining about obligatory attendance in the University. Being assessed regularly, students were motivated to come to the class more often.

Being asked questions in the class stimulated students learn the chapter under study and rehearse what they have learned. In this way, even the students, who hadn't studied before, learned something from other students by coming to the class. Home assignments also help students to study and directs them what to pay attention to while studying.

Overall, the experiment proved that the students in the experimental group were more successful than those in the control group, besides, they were really motivated to study regularly. The approach worked for Production Management subject. It may be recommended for other qualitative subjects, but the results will have to be analyzed.

Another limitation of the study is that it does not mean that this approach will work for quantitative subjects, too.

The main idea of the research is that it is necessary to find a motivating way of assessment of students' competences. This will increase the feeling of fairness of assessment, as students will get not only grades, but also helpful feedback. It will stimulate students to study as well as help them pass the requirements of the course. Assessment systems may change based on culture, region and so on.

Finally, authors would like to offer to the administration of the University to apply this style of assessment to all of the qualitative subjects at least for one semester as a trial and analyze the results. If they are supportive, the continuous assessment can be adopted by the whole university, making the assessment (and via it the teaching) more appropriate for contemporary demands.

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