Measurement and Evaluation Procedures of First Year Students: The Case at Jimma University

Tarekegn Berhanu

Introduction

Jimma University (JU) is one of the youngest higher institutions 335 km away from the Addis Ababa. It was established by the amalgamation of Jimma Institute of Health Sciences and Jimma College of Agriculture in 1999. The University is very much known for its innovative Community Based Education, which was found to be effective in the training of health personnel. Now the University is trying to adapt this philosophy to the other fields of training.

The University accepts students assigned by the MOE in the Natural Science and Social Science fields. The natural science students after completing the first semester are assigned to medicine, technology and agriculture fields. The social science students, after completing a year, are assigned to management and accounting departments based on their choice and performance as indicated in the academic rules and regulations of the University.

Fresh students come to higher institutions with a variety of problems. They may come with academic, social, psychological, emotional, ethnic, cultural and gender problems. If we consider the academic case only first year students have a variety of academic experiences. There is a significant difference in their previous and new academic environments. The amount of content to be covered, the method of teaching, the method of testing and evaluation, and the expectations of students is entirely different from what they were accustomed to in their high schools. We should be sensitive enough about these problems.

Jimma University

Measurement and Evaluation Procedures of First Year Students: The Case at Jimma University

Tarekegn Berhanu

Introduction

Jimma University (JU) is one of the youngest higher institutions 335 km away from the Addis Ababa. It was established by the amalgamation of Jimma Institute of Health Sciences and Jimma College of Agriculture in 1999. The University is very much known for its innovative Community Based Education, which was found to be effective in the training of health personnel. Now the University is trying to adapt this philosophy to the other fields of training.

The University accepts students assigned by the MOE in the Natural Science and Social Science fields. The natural science students after completing the first semester are assigned to medicine, technology and agriculture fields. The social science students, after completing a year, are assigned to management and accounting departments based on their choice and performance as indicated in the academic rules and regulations of the University.

Fresh students come to higher institutions with a variety of problems. They may come with academic, social, psychological, emotional, ethnic, cultural and gender problems. If we consider the academic case only first year students have a variety of academic experiences. There is a significant difference in their previous and new academic environments. The amount of content to be covered, the method of teaching, the method of testing and evaluation, and the expectations of students is entirely different from what they were accustomed to in their high schools. We should be sensitive enough about these problems.

Jimma University

Yusuf (2001) put that:

> Students in the higher education system come from
> diversity of learning background. This means that
> there is diversity in their physical/physiological growth
> and development, their psychological makeup, their
> socio-economic   backgrounds,   their   academic
> preparation and competence, their motives and
> interests and their psychological and mental
> preparation to benefit from learning and teaching
> processes.

Therefore, without considering and taking proper care of all these
students' problems if we rush into lecturing, testing, and evaluation we
may commit a serious mistake.

When the measurement and evaluation issue at the first year level is
raised there are a number of problems that should be considered. The
feedback given to the students, the way tests are constructed and the
content coverage, - all affect the performance of students. This is
because some of the students may be accustomed to studying only
certain selected topics that they think important out of all the topics
covered in the class. Some students may be very much familiar with
trivial type of questions and may not know how to tackle critical
questions. From the writer's experience it is very much clear that
there is a significant difference between the way students were tested
in the high schools and the way they are tested in higher institutions.
First year students are very much worried about their achievement
because their future career is dependent on their performance at the
first year level. Therefore, the measurement and evaluation of the
performance of first year students plays a significant role in their life.
Hence in this paper an attempt is made to present the problems of
testing and evaluation of the first year students at JU and propose
possible solutions.

The Problem

Measurement and evaluation in education are inseparable from the teaching and learning process. The following points should always be considered in the educational process we are currently undertaking:

- A decision has to be made regarding the learning status of students. It is a difficult task to assess whether a student learnt a given content or not, therefore, relevant and accurate information is required.

- The more relevant and accurate the information we have about the learning process the better decision we make.

- The .testing instruments and the procedures provide an important set of tools for improving the information available for decision-making. If our decision is based on subjective, biased and undependable evidences or information, we may commit a grave error.

- The information obtained must be systematically compiled and analyzed for sound decisions.

As stated above, first year students come to higher institutions with a variety of problems. Again as indicated, one of the problems is the difference in the academic background. Because they came from schools with different facilities the students were exposed to different content coverage, ways of testing and language proficiency. Usually these differences among students would not be given due attention, as a result many students fail to compete and are dismissed from the University.

The other problem observed is the absence or poor planning of a test. As a result, some times it is observed that there is a disproportionately heavy weighting of test items calling for factual recall.

The other significantly observed problem is the lack of systematic and transparent marking procedures. Even though it is stated in the academic rules and regulations of the university that normative procedures should be followed in evaluating first year students, only very few instructors follow the normative procedures. This may be due to the lack of the know how of using the procedures or due to the influence of previous traditions or due to the ambiguity of the previous academic rules and regulations which may include that a grade below 50% is F irrespective of the peer performance.

Possible Solutions

Conducting Diagnostic Tests

The educational background of the first year students needs to be assessed before starting course lectures. Diagnostic tests help teachers to adjust their teaching methodology and give proper guidance and counseling.

The large class size, the teachers' workload and the time constraints may hinder the implementations of conducting diagnostic tests. But, if there is courage and commitment from the teachers' side and cooperation from the authorities it is possible to give diagnostic tests to first year students and based on the results obtained it is possible to adjust our methods of teaching and give proper guidance to our students.

Planning of a Test

In order to arrive at a meaningful decision about the learning process of students, we need to assess how well the information within each of the content areas has been assimilated by the students and how well the objectives within each of the content has been met. Well-made tests result from adequate planning. Even though the use of test-outline or test planning seems cumbersome, it provides an excellent base for the construction of tests, which are properly

weighted with respect to content coverage and instructional objectives. In addition, the outline's provisions for content analysis provide a method whereby the instructor may, himself, evaluate the success of his teaching and question writing techniques. Therefore, test planning should be carried out before work is begun on writing the test.

As an example, let us plan a test for General Chemistry course given for first year students. Assuming that the lectures and readings have covered the first three chapters, viz.

- The Atomic Structure
- Periodic Table
- Chemical Bonding

The instructional objectives can be defined as:

- The ability to recall factual material and principles (Knowledge);
  Example: After completing the first chapter the student will be able to identify different atomic models.

- The ability to understand facts and principles (Comprehension)

  Example: After completing the first chapter the student will be able to distinguish one atomic model from the other.

- The ability to apply concepts and principles to new situations (Application).

  Example: After completing the third chapter the student will be able to show the possibility of bond formation between any two atoms.

Assuming that emphasis was given to the first chapter, the Atomic structure, a test-outline or table of specification of 50 items test can be prepared as follows:

Content area measured by the test	Instructional Objectives			
	Recalling of specific facts	Understanding of concepts and principles	Application of principles	Total
1. Atomic Structure	7	9	6	22
2. Periodic Table	4	7	5	16
3. Chemical Bonding	3	6	3	12

Systematic Marking

We should make significant changes in the way we think about our student performance evaluation procedures that are currently underway if we want to create a competent, dedicated, and creative citizen. Thorndik (1977:588) indicated that evaluation of students performance is summarized in some condensed and highly abstract symbols. As he puts it :

> Use of these highly condensed symbols to convey the teachers' evaluation has frequently been criticized..., but the alternatives that have been offered to replace the conventional A,B,C,D,F and percentage systems have introduced problems of their own, and no fully satisfactory replacement for the course grade seem to be at hand.

Therefore, we need to continue to use these condensed symbols to evaluate our students' performance in the future. Ayele (2001) indicated that the purpose of systematic methods of assigning marks (converting raw scores into grades or marks) is to establish greater uniformity among instructors in their marking practice and hence in the meaning of the marks they issue. The most widely used way of converting test raw scores into grades or marks is the use of statistical method. This method is based on the calculation of arithmetic mean or median and the standard deviation of the raw

score. The median of a given test score can be calculated by (Ayele, 2001):

- arranging the scores in decreasing order from high to low

- taking the middle score in an odd number of scores or taking the average of the two scores closest to the middle of the distribution in an even number of scores

Example: 1. In the scores of 30,35,40,43, and 51 the score 40 is the median of the scores.
2. In the scores of 30, 35, 40, 43, 51 and 56, 41.5 is the median of the scores.

The standard deviation of a test score can be estimated by dividing the difference between the sums of scores in the upper and lower one-sixths of the distribution of scores by one-half of the number of scores in the distribution (Ayele, 2001).

Example: Consider the test scores, 30, 35, 37, 39, 42, 43, 44, 48, 52, 56, 57, and 59. One-sixth of the number of scores is 2, therefore the sum of the upper one-sixth would be (57+59) 116 and the sum of the lower one-sixth would be (30+35) 65. The difference between the sum of the upper one-sixth and the lower one-sixth (116 - 65) is 51. Since the total number of scores is 12, half of the number of scores would be 6. Therefore, the standard deviation of the scores would be 51/6 = 8.5.

After doing these calculations depending on the ability level of students, raw scores can be converted into letter marks. Since we are dealing with first year students whose prior ability level cannot be determined, average ability level will be assumed. Under this situation the lower limit of the A's is located 1.5 standard deviations above the mean (median) of the measures on which the marks are to be based. Then the lower limits of the rest letter marks would be located at intervals of one standard deviation from one another staring from the lower limit of A, i.e, the lower limit of the B's would be 0.5 standard

deviations above the mean (median) and the lower limit of the C's would be 0.5 standard deviations below the mean (median) and the lower limit of the D's would be 1.5 standard deviations below the mean (median) (Ayele, 2001).

The ways in which learners are assessed and evaluated powerfully affect the ways they study and learn (Darge, 2001). Therefore, we need to make our evaluation systematic and transparent for the best of our students. As a result the implementation of this systematic evaluation procedure is recommended to be used to evaluate the performance of fresh students at Jimma University.

To make our measurement and evaluation more transparent establishing examination committee at each department is very essential. This committee can assess the validity of the tests; can see into the complaints of students regarding their evaluation, etc.

References

Ayele Meshesha (2001). *Evaluation of Teaching and Learning in Higher Education*: A Teaching Material for the Training Workshop on Teaching and Learning in Higher Education. Addis Ababa, Institute of Educational Research.

Darge Wole (2001). *Teaching and Learning Methods in Higher Education*: Teaching Material for the Training Workshop on Teaching and Learning in Higher Education. Addis Ababa, Institute of Educational Research.

Thorndike, R.L. and Hagen, E.P. (1977). *Measurement and Evaluation in Psychology and Education* (4th ed.). New York: John Wiley and Sons.

Yusuf O. Abdi (2001). *Guidance and counseling in Institutions of Higher Learning-Focus on the Role of Teachers*: Teaching Material for the Training Workshop on Teaching and Learning in Higher Education. Addis Ababa, Institute of Educational Research.