

---

## **Blended Method of Assessment: A Success Case study based on Engineering Faculty Students**

**BHJ Pushpakumara<sup>1</sup>, Faiz MMT Marikar<sup>2</sup>**

<sup>1</sup>Faculty of Engineering, General Sir John Kotelawala Defense University

<sup>2</sup> Faculty of Health Science, The Open University of Sri Lanka  
faiz@kdu.ac.lk

### **Abstract**

Study was carried out at General Sir John Kotelawala Defence University, Sri Lanka. this study was done at the Faculty of Engineering. A course outline containing these details is given to the students at the beginning of the semester. Relative weights of the mark allocations for this module are 70% for end semester examination as written examination and 30% for continuous assignments. There were 150 students at one single batch and 30% continuous assessment was converted for one group as paper based and other group breakdown for two in class online virtual assessment and a group practical where it can be done online for online and another group physically. We observed that students who split assessment perform extremely well and got higher scores gives the significant difference. Stress level also minimal level when compared to physical examination. We have introduced distribution of marks in a table with the module content to student at the beginning of the lecture series. It helps students to identify their targets and the type of assessments. Further, use of formative assessment in this manner provides several numbers of opportunities for improvements. Student can identify their weaknesses and area for improvement with this way of assessment.

**Keywords:** *Blended, Assessment, Online, End Semester, Sri Lanka*

### **Introduction**

The ultimate goal of teaching is understanding. If we, as teachers, do not teach properly, students will not be able to understand the lesson. In such bad situations, students may tend to bend for self-teaching methods, they will read more books, do searching in the Internet, have peer discussions so that they could be able to avoid or escape from bad teaching (Cole & Chan, 1994. 125: Marikkar *et al.*, 2014, pp 13-26) But can they escape from bad assessment? Therefore assessment should be taken very seriously. Because teaching, and most importantly assessments decide student's future.

Assessment in the field of education can be defined in many ways. Simply we can define it as the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students (Gronlund & Linn: 1990, pp 138-149). Assessments are typically designed to measure specific elements of learning. These evaluation methods can also use to test individual student strengths and weaknesses, and so the teachers can provide appropriate support or use specialized teaching methods for them.

Learner Centered assessment can be considered as the most effective way of assessment, since whole teaching and learning processes are there to encourage learners. Learner centered assessment will provide opportunity to both teachers and students to evaluate learning together. With the online teaching this study was concentrated towards online assessment as well.

We may need to know the level of the students or we may need to rank the students for a selection. Normally we hold assessments to measure the progress of the students (Race, 2001, 124). Also we conduct assessments in order to motivate the students. According to the objective, we can categorize assessments into two categories.

**Summative Assessment:**

In this type of assessments, the objective is to evaluate student learning and marks are taken for decision making. A summative assessment can be a midterm exam, a final project or a paper.

**Formative Assessment:**

The main objective of formative assessment is to monitor student learning. In this type of assessments, the teacher's intention is to provide ongoing feedback which can be used both teaching and learning of teachers and students. The marks of formative assessments are not taken for grade calculations. More specifically, formative assessments: Help students identify their strengths and weaknesses and target areas that need work [5]. Help faculty recognize where students are struggling and address problems immediately with physical and online system.

In this study we have checked whether online assessment can be done efficiently. Continuous assessment was converted for one group as paper based and other group breakdown for two in class online virtual assessment and a group practical where it can be done online for online and

another group physically. Analysis were done to check whether there is a correlation between virtual assessment and physical assessment.

## **Methodology**

### **Research Design**

In this study, we have examined General Sir John Kotelawala Defence University's (KDU's) cadet and civilian students' response to virtual and physical assessment, especially whether there is a correlation between continuous and final examination results platform in the Defence university system. This topic was judged to be extremely important to have a conceptual understanding of what is teaching methods and to find out whether it involves in evaluation by virtual examination. The study design in this study is presented in the **Figure 1**. Approval for the study was obtained from the Staff Development Center. Target population of this study represents 30 cadet and 120 civilian students following a Engineering undergraduate course. All students assessed from the results of their continuous and final examination marks were considered. 150 students, who participated in the study and gave their consent, were included in the study. The purpose of the study was explained to the students at the beginning of collecting data. The cadet students who consented to participate in the study were individually tagged and given them a tag. ( $n=150$ ).

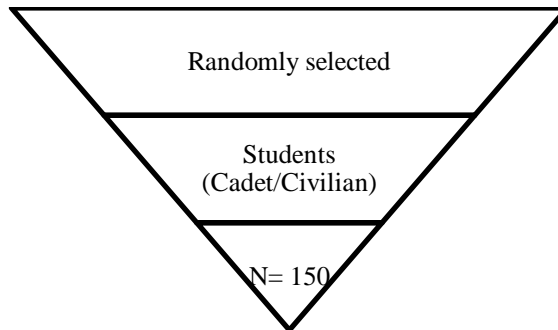
### **Research Context and Participants**

150 cadet and civilian students took part in this study. All cadet students were employed at the university as cadet officers enrolled as students. The civilian students were second year Engineering students. KDU's student population is a socially and economically diverse community in Western Province of the country in the one and only Defense University in Sri Lanka.

### **Continuous and Final Assessment**

Continuous evaluation consisted of two different parts: the first one corresponded to open exercises in the classroom and homework physically and virtually; the second one consisted of individual tests, performed in a Web self-assessment tool, using Moodle. To conduct these intermediate assignments, we have used the Learning Management System (LMS) of the KDU. The final exam was the same and was held at the same time for all the students independently whether the student is following or not the

continuous evaluation process. Three hour written examination paper with four questions were given and analyzed the results with respect to blended it means virtual and physical together.



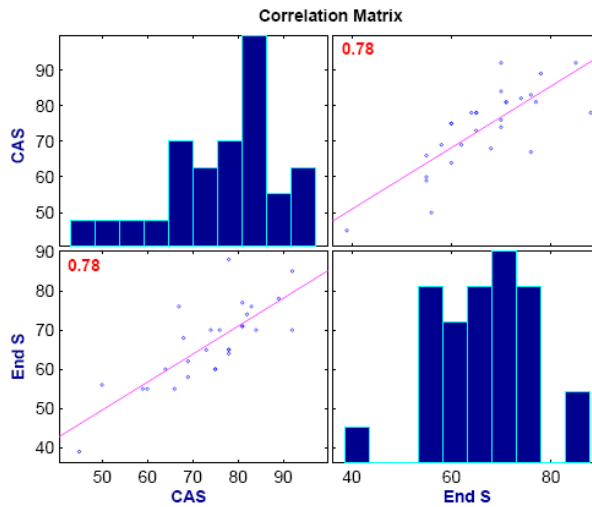
**Figure 1.** Study Design

### **Data Presentation and Analysis**

To analyze the questions, we compared informal reasoning displayed by individuals representing high and low level of understanding of teaching methods with respect to assessment by physical and blend method. The validity of the translation was independently assessed by two observers competent in the English language. We analyzed our data as a balanced figure in a percentage of application. For statistical analysis, we transformed all our data using the basic statistical analysis package

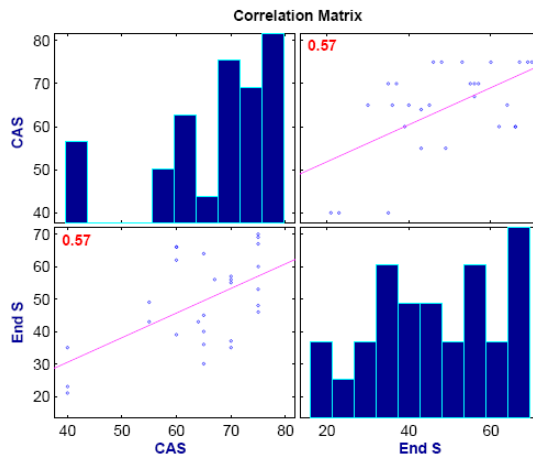
### **Results**

In statistics, the correlation coefficient 'r' measures the strength and the direction of a linear relationship between two variables on a scatter plot. The correlation value is always between +1 and -1. The correlation between continuous assessments (CAS) and end semester (END S) marks for the course Engineering is 0:78 (Figure 2). This indicates that there is a strong uphill (positive) linear relationship between two components. That is, the student performance for both CAS and END S is somewhat equal. Standard deviation for CAS is 11:34004237 and for END S, it is 10:31174139. These indicate that the performance of the students for CAS and end semester are mostly equal.



**Figure 2-** Correlation Matrix between CAS and End semester marks for the course Engineering students physical examination

For this course Virtual and blend assessment the correlation between CAS and end semester marks is 0:57(Figure 3). Figure 2 this indicates a moderate uphill (positive) relationship, which means the two are not having a good relationship. The standard deviations 10:52705006 and 13:98009734 also verify the above decision with respect to physical examination.



**Figure 3.** Correlation Matrix between CAS and End semester marks for the course Engineering student Virtual platform

## **Conclusion**

Overall, there is a positive correlation between continuous assessment and final assessment with respect to blended method. For the Engineering students have performed equally for CAS and end semester in this virtual platform. The reasons can be CAS included a mid-semester examination. Therefore, there can be some similarity between the assessment methods used. Students learning abilities may not much improved during the course. Or students different learning styles lead them to grab the course differently. For the Engineering course physical examination there is no such strong relationship. The reasons can be having used take home assignments for CAS therefore most of the students scored better for CAS and a written exam for the end semester. Different assessment method may lead them score differently. Or students may pay less interest to the subject.

## **Acknowledgement**

Authors acknowledge all the voluntary participants and the Faculty of Engineering for their continuous support.

## **References**

- Cole, P.G. and L.K.S. Chan (1994). Teaching Principles and Practice. Sydney, Prentice Hall of Australia. pp 125-128.
- Marikar, F.M.M.T., I. P. W.Piyumi, S.H.K.M.N. Ilangakoon, D. Jaliya, I, D. Jayasena, S.K.P.B. Kalavitigoda, S.P.S.N. Kulathunga, 2014. Sri Lankan Medical Undergraduates Awareness of Nanotechnology and Its Risks, Education Research International, pp 13-26.
- Gronlund, N.E. and R.L. Linn,1990. Measurement and Evaluation in Teaching. New York, Macmillan., pp 138-149.
- Race, P., 2001. The lecturer's toolkit, 2nd Ed. London, Kogan-Page, pp 124-126.
- Van Duzer and F. McMartin, E. 2003. Methods to Improve the Validity and Sensitivity of a Self/Peer Assessment Instrument. IEEE Trans. Educ., 43(2), pp 153-158.