Evaluating the Impact of ICTs and Education Assessment and Feedback in Modern Era

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Abstract

Information and communication technologies (ICTs) have become common place entities in all aspects of life, more so in education sector. Education is a very socially oriented activity and quality education has traditionally been associated with lecturing staff having high degree of personal contact with learners. However, with the advent of these ICTs generally in provision of education and assessments and feedback in particular, it is inevitable that there is a rethink and a paradigm shift in the manner assessments and feedback are delivered. Assessment and feedback are critical in learning experience of any student, especially in cases where continuous assessment (CA) accounts for a substantial portion towards final examination mark. The review recommends up-scaling of the use of ICTs as a panacea in delivering of quality education to learners.

Key Words: *turnitin, reusable comment, continuous assessment, e-platforms, similarity index*

1. Introduction and Background

Education assessment and feedback in institutions of higher learning can be perceived as any information communicated to the learner as a result of learning-oriented actions. None the less, formal feedback is provided in response to students' work on formative assessment such as assignments, essays or research projects/dissertations. In order to be effective, feedback on assessments need to be accurate, timely, constructive, and personal without being generalized.

Hyland (2000) posited that feedback is an essential component in all learning contexts and serves a variety of purposes including evaluation of student achievements, development of students' competences and understanding and evaluation of students' motivation and confidence. However, within teaching and learning in a higher education setting, assessment and feedback can be perceived as any information communicated to the learner as a result of any learning oriented action.

2. Objectives

The objective of the review is to evaluate the impact that ICTs and education assessments have on the learners in tertiary institutions.

2.1 Assessment Feedback and Quality Attributes

Feedback give as part of formative assessment enables learners to consolidate their strengths, identify their weaknesses and guide them about the necessary actions required of them at every stage of their learning trajectory. However, in order to promote learning that lead to higher level achievement in cognitive and skills outcome, formative feedback should have a range of qualities. Race (2006); Irons (2008); Juwah et al, (2004); and Shute (2008) discuss and review these key quality attributes and explain that feedback needs to be:

Timely: feedback is more effective if it is provided timely since students can still recall how they addressed each assessed task Race (2006). Timely feedback is also important because it allows students to apply it to future learning and assessments. It is also important that the feedback timeframe is clearly communicated to the students.

Motivational: feedback may have positive or negative effect on student motivation and self-esteem. It affects students' personal feelings which, in turn, affect their engagement in the learning process Juwah et al, (2004). As a result, formative feedback should be empowering and constructive in order to aid student motivation and encouragement.

Individual/personal: each student has unique strengths and weaknesses. As a result, in order to be effective and enable students to improve their competences, formative feedback must fit each student's achievements. It needs to be personalised and tailored to individual students' strengths and weaknesses.

Manageable: feedback should certainly be detailed enough to ensure that students understand their strengths and weaknesses. Nevertheless, over-detailed feedback forms and too many comments can result in confusing students and making it hard for them to separate the important feedback. Consequently, feedback should be manageable and allow students to easily interpret and benefit from the feedback they need the most Race (2006).

Directly related to assessment criteria/learning outcomes: assessment criteria establish clear and unambiguous standards of achievement and must be related to the learning outcomes of a course. Since assessment criteria constitute what students had to achieve, formative feedback should explain the extent to which a student achieves each separate assessment criterion, identify knowledge gaps and address specific errors and preconceptions. Students' reception of feedback is very important Yorke (2003). Students with positive mindset can perceive feedback as opportunity for further development while students with a negative attitude may be discouraged. As a result, quality formative feedback should also be effectively communicated to students in order to aid motivation and ensure that students engage with the content of the feedback.

3. Methodology

Methodology and research design direct the researcher in planning and implementing the study in a way that is most likely to achieve the intended goal. It is a blueprint for conducting the study Burns & Grove (1998). This chapter therefore describes the research design and methodology that was used, including sampling and data collection and analysis.

3.1 Population Description and Justification

The sample for the study involved seven (7) subject lectures at ZCAS and twenty (20) students. Students were picked from difference programs, ten (10) from University of Zambia (UNZA) programs and ten (10) from University of Greenwich programs.
Of the 20 students, ten (10) were females and ten (10) were males. Of the seven (7) lecturing staff, four (4) were males and three (3) were females. This composition was deemed to be representative enough on which results obtained would be extrapolated and represent the general picture.

3.2 Sample Size and Sampling Method

This study was a survey. It assessed the educational assessment using ICTs of candidates from ZCAS as well as University of Greenwich. Two questionnaires were designed, one for the lecturers and teacher trainers and the other one for the students. The participants were required to answer questionnaires that elicited information on their demographic details, examinations question paper development and marking procedure. This ensured that all relevant information for the study was collected, and would be useful to other researchers who may want to undertake research of a similar nature. This study used both quantitative and qualitative methods of data collection. Document analysis was also employed to collect data as past papers were analyzed for language and questioning styles. Questions were posed through the questionnaires and responses ranging from Yes through Not Sure to an affirmative No.

3.3   Data Collection

Data was analyzed quantitatively and qualitatively. Qualitative data was analyzed by the creation of themes after the responses were coded. Quantitative data was analyzed using MS Excel.

4.   Presentation and Analysis of Data

The chapter focuses on the presentation and analysis of data obtained from research interviews and reviews. The research presents the data from the interview schedule. According to De Vos (1998), data analysis in qualitative research is a challenging and highly creative process. It starts with data collection and goes through to analysis. This chapter focuses on the presentation and analysis of data obtained from research questionnaires. The findings relate to the research questions that guided the study. Data was analyzed to identify, describe and explore the relationship between quality assessment using ICTs and the manual brick and mortar marking as well as the general assessments with the E-Platforms.

4.1 Composition of Respondents

A total of 27 respondents were sampled out of which 20 were students and 7 were lecturers.

Figure 1 (Composition of Respondents)

Suitability of ICTs in student assessments by Lecturers

Out of the 7 lecturers interviewed, all of them indicated that the use of ICTs have reduced their work load and has improved the quality of assessments in the that there is now consistence and objectivity in assessing large numbers of students.

Suitability of Turnitin by Students

Figure 2 Suitability of ICTs in student assessments by Students
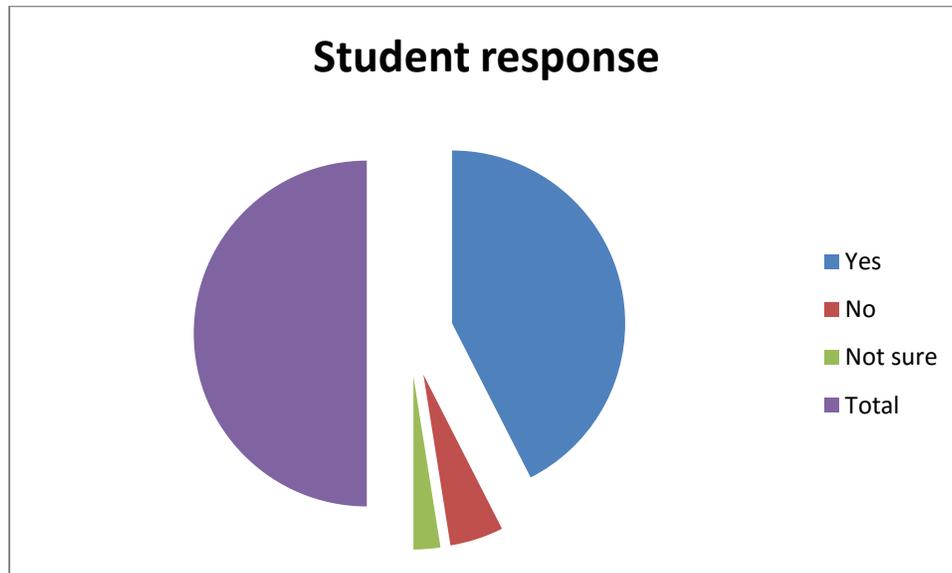
Convenience of E-Platforms in education assessments

Of the 20 students interviewed, seventeen (17) indicated that the ICTs were a good and faster means of learning and getting feedback. They mentioned softwares such as Turnitin and Rubric as among the foremost innovations in ICT that has revolutionalised the way the assessments are conducted especially when the numbers involved are big. Only Two (2) were not in support of the ICTs claiming they were prone to human error and preferred the old way of assessing the learners.

5. Results

**5.1 Discussion on Electronic Assessment and Feedback Methods**

There exist a number of ICT tools that can be used in the provision of formative assessment and feedback. Depending on particular contexts (traditional classroom teaching, blended learning, distance learning) and the type of the formative assessment, lecturers can employ one or more combinations of traditional and electronic feedback methods. Type written comments, feedback forms and annotated student work are in this case more, common electronic techniques for producing feedback. The extent to which these feedback techniques and communication methods facilitate the provision of quality feedback is applauded since they integrate differently the timeliness, motivation, personalization, manageability and relation to assessment criteria quality attributes of feedback.

5.2 Modular Object-oriented Dynamic Learning Environment (Moodle)

Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create a personalized experience environment. Moodle is used for blended learning, distance education, flipped classroom and other e-learning projects in schools, colleges and universities as well as work places in other sectors. With customized management features, it is used to create private websites with online courses for educators and trainers to achieve learning goals. Moodle allows for extending and tailoring environments using community source plugins.

Lecturers support for the composition of formative feedback enables the setup of a feedback form template through a user-friendly interface in which the tutor selects and specifies a number of mandatory and optional elements. As seen in figure 1 below, the interface for setting up a feedback form is divided into four parts:

Figure 1 Feedback form set up interface

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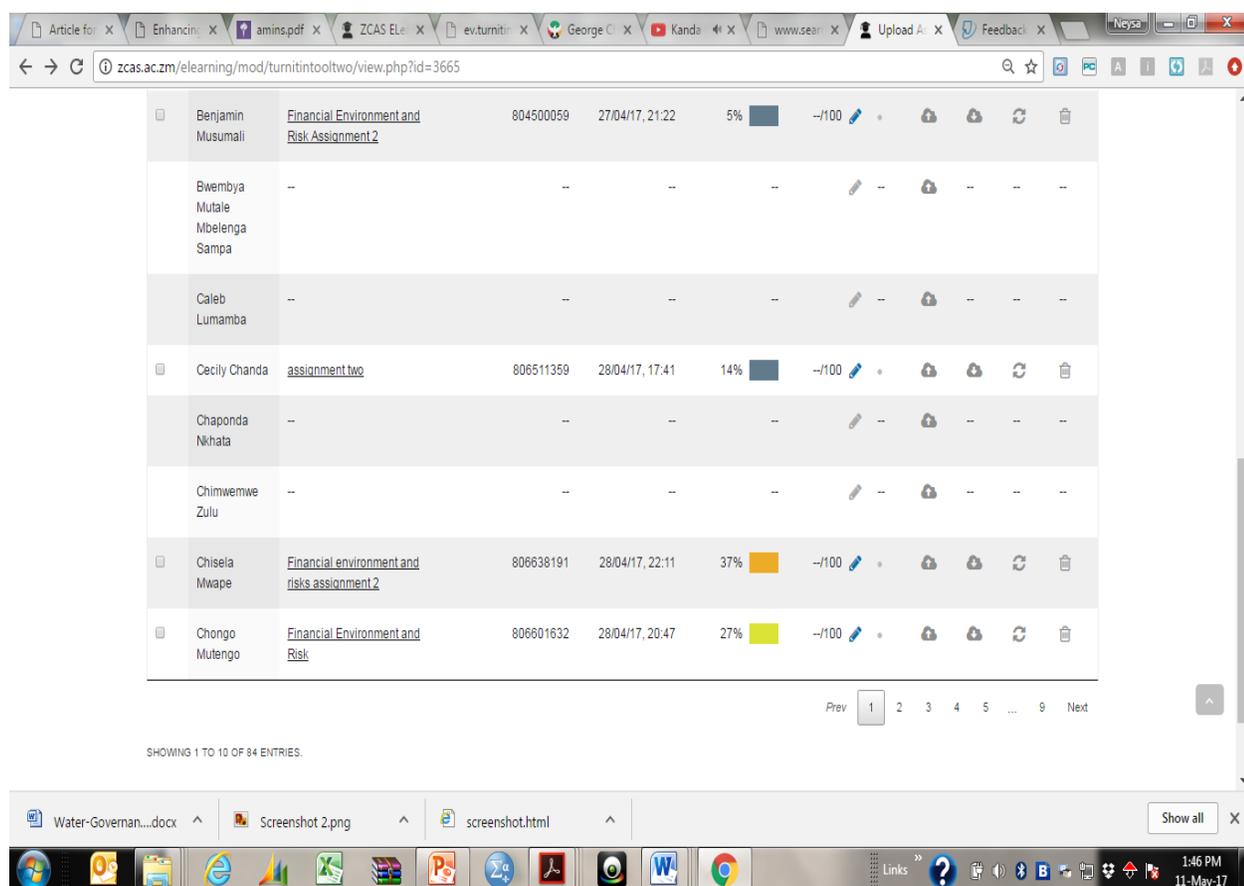
The first part includes basic information about the tutor (name, telephone number and email).

The second part requires details about the formative assignment. These details include an assignment title and number, as well as, details about the academic session in which the assignment was given. The third part allows the lecturer to write the assessment criteria. Students' work will be evaluated against these specific criteria which should be clearly communicated to students in the assignment handout. This part of the feedback form's setup is dynamic since a lecturer can dynamically add criteria by clicking the "Add Another Criterion" button. Furthermore, a tutor may choose to provide an individual mark for each assessment criterion.

Enabling this option activates textboxes in which the tutor can type the percentage of the contribution of each of the assessment criteria towards the total final mark. The fourth and final part of the feedback form setup allows the tutor to specify four extra parameters. The parameter "Enable automatic late submission penalties", if checked, triggers a build-in algorithm that enforces the late submission penalty policy followed at the author's institution. More specifically, there is a 5% reduction in the mark that would have been awarded for each day that has passed between the original submission date and when the work is handed in, for a maximum of 7 days. The second parameter relates to plagiarism. Here the software checks the similarity index (SI), how much work is copied from other authorities without acknowledging them.

If checked, the tutor will have to provide for each student, information from an external plagiarism detection system, such as percentage of matching content, which may result in the reduction of a student's mark.

Student names and identification numbers are already inserted in the system in a manner similar used in most learning management systems. Moodule can display an alphabetical list of registered students (figure 2) through which a tutor can easily invoke a specific student's feedback form by clicking a corresponding "Edit" link. The specific list also informs the tutor about the assessment status (completed or pending) for each student. Once the assessment process has been completed for all students, a tutor can allow students to see their feedback and performance by clicking the "Enable Feedback to Students" button.

Figure 2 Assessment status
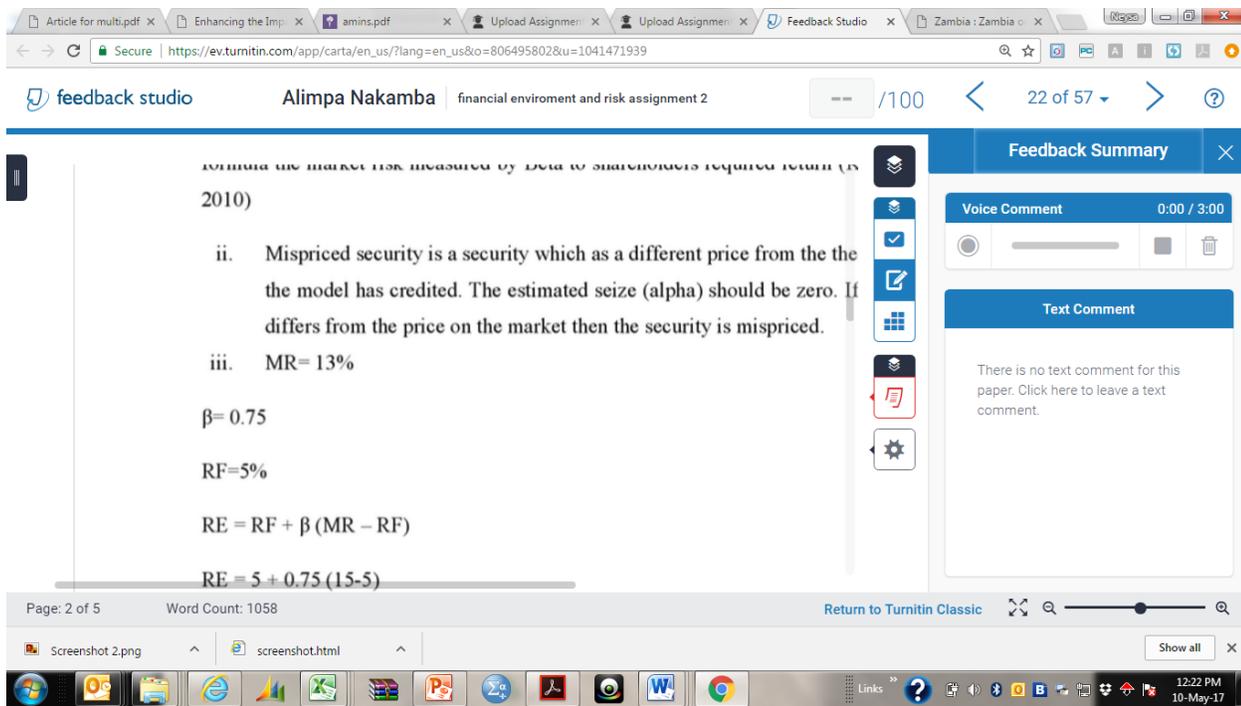
6. Discussion

Students and lecturers view ICTs and education assessment and feedback as leap forward in the right direction. To the lecturer, ICTs such as the expounded module platform serves many purposes. Among them are that the lecturer is spared of the job of carrying loads and loads of assessment scripts from the office to possibly home to mark and give feedback as the feedback generated from module is instant. Lecturers can also use the reusable comments that pop up on the menu so that the lecturer can recycle the same comment if the error by the students s of a similar nature. However, this type of technology has limitations especially in Africa where internet connectivity is erratic and one needs to move with connection gadgets which in most cases are well above what many can afford.

Compounded to this is the fact that the detailed feedback and personalised comments require considerable manual labour. Reducing instructor workload is very important and we are exploring a number of techniques that will be incorporated in the new version of the system.

www.The lecturer can also generate statistics and present them in any required format such as bar charts of other forms. To the student, such ICTs serve students a lot of time as they can now access feedback in real time from their gadgets such as ipads, mobile phones and hence do not necessarily need to be in class to access feedback from their lecturers.

7. Conclusions

Providing high quality formative feedback and assuring that students engage with it facilitates and promotes learning. Quality formative feedback needs to be timely, motivating, personalised, manageable and in direct relation to assessment criteria. In addition, in order to ensure that students engage with the feedback content an effective communication method is required. The effectiveness of the communication method can also be appraised against the quality characteristics of feedback. This paper presents Moodle, a web-based tool for the provision of formative feedback. Moodule attempts to be effective in motivating students to engage in the feedback process. In order to achieve this goal a number of techniques were explored in order to create a personalised and motivational online environment that timely communicates feedback in a manner that is manageable and in direct relation with the assessment criteria. Moodle can be used to give feedback to a range of stake stakeholder.

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