Use of ICT teaching aids in tertiary education – a case study of Moodle implementation

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ABSTRACT

ICT as a pedagogical tool for support in the teaching and learning processes is still used in different degrees and with different levels of success. In view of the various applications of ICT in other areas, it is a wonder that ICT is not more used in teaching at tertiary level. The aim of this paper is thus to investigate the use of ICT teaching aids in the interactions between lecturer and students at tertiary level from a student perspective. Student perceptions and appreciation of the use of different ICT teaching aids in the interactions with their lecturer were analysed.

The paper is based on the experience of the authors in their interactions with students at the University of Technology, Mauritius. The interactions were mostly face to face interactions between the students and their lecturers. However, various ICT teaching aids were used during the interactions or outside the interactions (though in relation to the interaction). A survey was carried out with third year students of the School of Innovative Technologies & Engineering after they had had a variety of experiences with different lecturers (including but not limited to the authors).

It came as no surprise that the use of ICT teaching aids is widely appreciated by students. However, the research also brought to light reasons why some students prefer classical modes of interactions. The study also highlighted the limits of classical ICT aids such as
sending notes through emails. Issues related to the implementation of more integrated learning environments such as Moodle were uncovered.

The paper provides a student perspective in the use of ICT teaching aids and this may be useful in the implementation of ICT-based learning environments at tertiary level. The paper is concluded with the limitations of the current study and an identification of future research opportunities.

**Keywords**: lecturer-student interaction, teaching aids, learning management system, learning, face-to-face interaction

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1 **INTRODUCTION**

Classroom interactions between teacher and students have not always been considered to be the effective way of promoting learning (Giordan, 1998, Rousseau, 1994). However, from the students’ perspective, face to face interaction is still the favoured mode due to its rapid and spontaneous exchanges (Panchoo, 11). Research shows that teacher-student interaction is very much beneficial in motivating students as well as in supporting them in their studies (Panchoo, 2010, Audet, 08: 35-36). This support has gone beyond the classroom with the advent of Information and Communication Technologies (ICT): the Internet and the social networks are opening more possibilities to the field of education.

The use of ICT in the field of education is still used primarily as a communication tool rather than a pedagogical tool (Panchoo, 2010). Electronic mail enables teacher-student and student-student interactions and according to D’Halluin (1995), it is the tool which enables coordination. With regards to the asynchronous tool, like the forum, students are encouraged to exchange ideas on diverse themes on the Internet. The forum enables students to voice out their queries and it gives them to ponder and reply back. However, unanswered threads are very common and they may not necessarily promote learning. According to Devaux et al., (2009:7), a forum is primarily a tool for learners to support each other.

For the past years, at the University of Technology, Mauritius, some lecturers are using the technological tools as supports in the delivery of their lecture. They have even made use of a
Learning Management support (LMS) environment, Moodle, in order to facilitate communication between the lecturer and the students. They are however being used in an ad hoc manner by lecturers and it is therefore imperative to investigate on the use of those supporting tools in order to understand their usefulness and their pertinence from a student’s perspective. It is worth noting though that the collection and use of those tools (forum, email, chat) are not sufficient to promote learning and collaboration among the students (George, 2005). However, findings from the literature reveal that blended learning gives better opportunities to promote learning (Marchand, 2003) and learning communities among the students (Rovaï & Jordan, 04). When there is interaction, learning takes place: In addition to the tools, “learning strategies should be devised in order to make learning an enjoyable, social experience with appropriate collaboration with tutors and peers” (Sukon, Boojihawon, Gatsha and Panchoo, 2012). It is important that the right tools should be used at the right place and at right time in order to facilitate teaching and learning to take place.

2 RESEARCH APPROACH
As the aim of this research was to discover the students’ perception on the use of ICT during the lecturer-students interactions, a survey was carried out with the final year students enrolled in various ICT-related programmes in the School of Innovative Technologies of the University of Technology, Mauritius. All the students were exposed to a variety of ICT teaching aids in their interactions with their lecturers at the University. Some of them also had been exposed to Moodle as some lecturers were using Moodle to interact with the students.

An online survey was developed with Kwiksurveys (www.kwiksurveys.com) and an email link was generated to invite the students to the surveys. The link was sent to the class representatives and to group emails of the students. In all, about two hundred students enrolled in ICT-related courses were contacted. Requests and reminders to fill in the survey were sent through personal contacts in class or on social networking.
3 RESULTS & ANALYSIS

The results were compiled automatically by the survey tool and charts were developed using Microsoft Excel. Thirty-four responses were obtained in all which amounts to a response rate of 17%.

The profile of the respondents is depicted in the types of interactions which the student have with their lecturer in the chart below.

![Figure 1 - Types of interactions](image)

The students surveyed were enrolled in classical face to face classes. It thus came as no surprise that the main mode of interaction was face to face although 28% of students had individual face to face interaction (assumed to be outside classroom interaction). However, it was a surprise to note that there was considerable interaction (30%) on a distance mode. The main mode of distance interaction was through email (23%) but there were also others such as phone, skype and chat.
Students seem to appreciate more face to face interactions (whether in class or individual). It is a bit surprising as one would have expected the individual face to face experiences to have a higher rating. One explanation is that usually classes are of reasonable size (20-40) and that the lecturer has time to interact sufficiently well in class. However, the distance interactions are less appreciated – the most popular being that through email, closely followed by Skype, Chat and Phone. The students are well acquainted with those technologies and are thus used to this mode of interaction.

The survey confirmed that 67.6% students prefer ICT support to deliver notes. However, that still left a surprising 32.4% preferring classical whiteboard and hard copy handouts. It is all the more surprising as the students surveyed are young (in the age gap 20-23 years) and are ICT students. This suggests that if the study is extended to other types of students, this figure could be higher.

The possible reasons for preferring hard copy handouts are shown in the chart below:
It was surprising that the number of students who preferred hard copy handouts was higher than those who preferred the classical white board and hard copy handouts. This means that even those who prefer ICT teaching aids still have a need for hard copy notes. The main reason for this preference is the clear need by the students for printed handouts. The hard copies seem to be more convenient for the students. This fact shows clearly that the students, even though registered on ICT courses, still follow a classical way of learning and use hard copy handouts. Factors such as the cost to print the handouts and student mentioning that they do not have a printer also support the conclusion that students are still in old fashioned learning models with a dependency on hard copy notes. Another explanation for this behaviour is that students preferring face-to-face interactions and printed copies fear the element of uncertainty which is present online (Panchoo, 2010).
Figure 4 - Appreciation of ICT teaching aids

The above chart shows the appreciation of the students for the different ICT teaching aids. The most popular ones remain the delivery of notes through emails (whether group or yahoo/google groups). “Pull” modes where students have to go and download the notes. It also suggests that the university intranet and richer learning environments like Moodle are not being used to their full potential but rather just as a mailing group.

This is confirmed in the chart below which shows the reasons why students prefer notes to be delivered through email:
Although the most important reason is claimed to be that students read the notes online (38% of responses), it is noted that students also like this mode for the sake of convenience as well and for environmental reasons.

The reasons why students prefer social networking groups such yahoogroups and googlegroups are shown in the chart below:

These results are enlightening as they show the appreciation of students of features beyond notes. Students like being part of a community and share other resources apart from lecturer
notes. The ease with which the group is set up, the collaborative tools and the fact that the students are themselves in charge were also highlighted. Reading notes online is the least rated reason by students preferring yahoogroups/googlegroups. Security and environmental reasons are also mentioned but are less rated.

The reasons why Moodle is preferred are shown in the chart below:

![Figure 7 - Reasons for preferring Moodle](image)

These results are also enlightening when compared to the results for yahoogroups/googlegroups. The feature which is most appreciated by the students is the possibility to submit assignments and get feedback from lecturer. Students still feel part of a community here also despite the fact that they are not in charge of the group. Again factors such as user friendliness, reading notes online, security and environment are mentioned but are less rated.

The main problems faced by the students who used Moodle are shown in the chart below:
The main complaint from the student was that the lecture did not give feedback soon enough. Other major complaints included connection problems and slow speed. Forgetting the password was also a common problem. Students also felt a lack of confidentiality. These complaints confirm that the problems of using Moodle lie more in its implementation and its use by lecturers rather than in the software itself. It is obvious that when assignments are submitted online, there is an expectation to get feedback sooner. Moreover, some students probably believed that feedback would not be individual and therefore felt a lack of confidentiality. Connection and speed problems were due to the type of hosting of Moodle which points to the need for reliable and performing hosting for such services (in our case free hosting was used). Password problems were linked that one of the free hosting of Moodle required a strong password which many students do not use and thus had a problem remembering. This is also something unexpected for ICT students. It is worth noting that students are now being exposed to evolving, dynamic collaborative online applications such as social networks (facebook, blogs, tweets) and probably found Moodle not as user-friendly.

The desired features in an ICT-based student-lecturer interaction system are shown in the chart below:
Obviously having notes online is one of the most important features desired by the students in an Learning Management System. However, possibility to submit assignments, get feedback and marks promptly from lecturer are also ranked high by the students. Fast performance and hassle free connection also scored high. Personalised learning speed and comparison with peer were slightly less ranked by the students. It was also surprising to note that students were less interested with chatting/videoconferencing with the lecturer. Possibility to catch on missed lectures and discuss with classmates were rated higher.

4 CONCLUSION
This research showed that although students appreciate ICT-based teaching aids, many students are still attached to hard copy notes. However, it was encouraging to see that those
who appreciated ICT-based teaching aids like yahoogroups/googlegroups and Moodle appreciated features of such systems which were beyond mere “notes” such as submission of assignments, groupwork and other collaborative tools. It was also discovered that the implementation of these ICT-based student-lecturer interaction systems also affected the success of these systems as much as the available features. Moreover, such the high level of interaction of such systems also increases the expectation of interaction from the students – they thus expect feedback on assignment earlier and welcome collaboration with their classmates.

This case study was restricted to ICT students. It would be interesting to have such studies on a larger scale and with a more variety of students. However, despite the fact that a large sample is needed for statistical validation of results, it is felt that each student and lecturer population has its own specificity. Thus, each one would have its own set of expectations. Nevertheless, the main results of this research could be helpful to lecturers who want to implement Moodle or another ICT-based student lecturer interaction system. It would also be interesting to study the role played by such systems on the success rate of students and on their effectiveness in promoting learning and collaboration among students.
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