

## DOES THE USE OF TECHNOLOGY ENHANCE LEARNING AND PASSING? A CASE OF TUT: FACULTY OF ECONOMICS AND FINANCE POLOKWANE CAMPUS

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### ABSTRACT

*The paper aims to investigate if the usage of technology in teaching and learning has indeed enhanced the pass rate. The Faculty of Economics and Finance has many number based modules that have proven a challenge to most of the students in the faculty to pass them on a first attempt. Has there been a significant improvement in pass rate following the rolling out of a variety of technology aids to teaching including e – classroom, my tutor and other online tools that are supported by the university? The research will highlight the challenges faced by students in using the technology that was rolled out in 2011. This is a topical issue as the university has invested significantly on the technology with the aim of improving efficiency in teaching so as to enhance throughput culminating to improved success rate. Could it be that the language used on the technology is complex such that the technology is not complimenting learning hence the negative outcomes experienced? The paper will uncover these questions. Using self administered questionnaires that will be circulated to 114 students chosen at random who have experienced both the pre-technology phase and post technology phase. Moonstats 2 shall be used to analyze quantitatively the findings and the results shall be used to draw conclusions and make recommendations.*

**Key words:** Technology, Learning, Pass rate, efficiency, teaching

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## 1. INTRODUCTION AND BACKGROUND

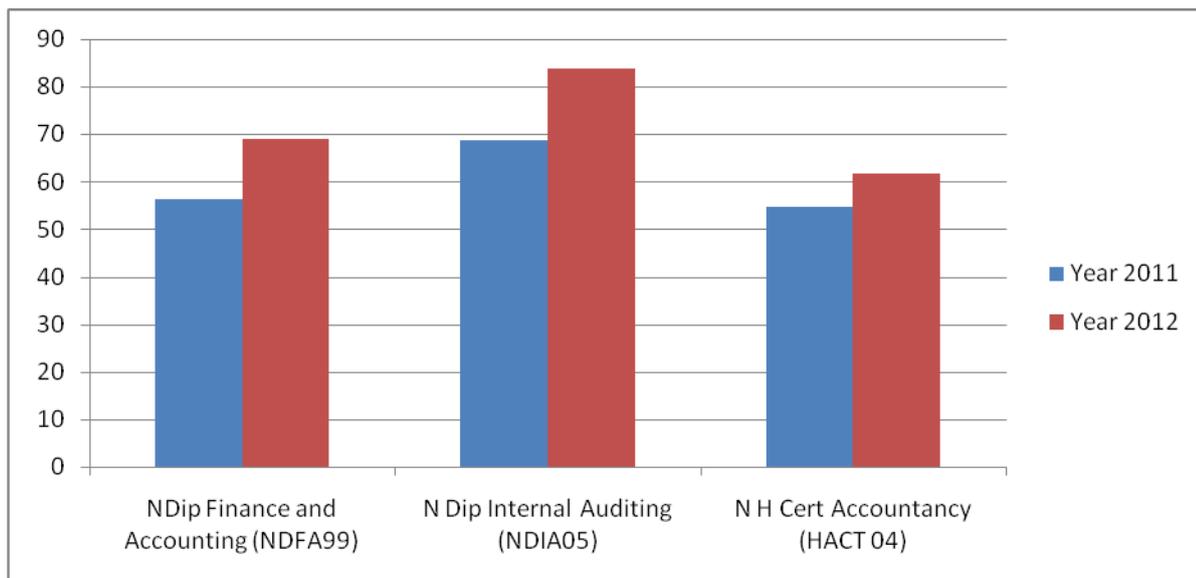
### 1.1 OVERVIEW OF TECHNOLOGY IN TEACHING AND LEARNING AT TUT

Tshwane University of Technology (TUT) was established in 2004 after an act of parliament after the major of Pretoria Technicon, Setlogelo Technicon and Technikon Northern Gauteng. Its spread across 9 campuses in Pretoria West Campus, Ga-Rankuwa, Emahlaheni, Soshanguve, Arts Campus, Science Campus, Nelspruit and Polokwane Campus. It is the biggest University of Technology in South Africa and Africa as a whole in terms of contact hours to students. It has over 50 000 students scattered across the 9 campuses and a staff complement of 1869 academic staff and 5446 support staff. TUT have 7 faculties headed by an Executive Dean who is part of senior University management.

According to the then director of Teaching and Learning at Tshwane University of Technology in 2006 the university had needs of a supported technology-enhanced teaching and learning in the classroom environment. The Institutional Operational Plan (IOP) defined the objectives and priorities for the equalization of campuses, according to the TUT objectives. By establishment of a technology-enhanced teaching and learning environment (classrooms, specialized laboratories and virtual environments) therefore meant upgrading the campuses to meet the minimum standards and international. According to Prof HJ Van der Merwe (2006) the Smart Classroom concept would be rolled out in phases with the implementation phase from 2007-2009. The target was slightly delayed as smart classrooms only came to being at the Polokwane Campus in 2012. This concept was founded on the implementation of the basic educational technology required at training facilities. By adding cutting-edge educational technology (such as audio and video conferencing), at least one digitally enhanced teaching and learning facility was created at the Ga-Rankuwa, Pretoria and Soshanguve campuses.

Seven years down the line and now technology in place with smart classrooms up and running. Has there been progress in terms of success rate improvement and improved throughput? The paper aims to access if progress has been made on these frontiers. The figure below gives an overview of the success rate pre-technology phase (2011) and the post – technology phase (2012).

**Figure 1.1: success rates<sup>1</sup> (%) at the Faculty of Economics and Finance: Polokwane Campus**



Source (TUT Strategic Management Support, 2013)

From the graph above it can be seen that when technology was implemented on a faculty wise the success rate increased from 2011 as compared to 2012.

## 2. PROBLEM STATEMENT

The intended usage of technology in teaching is to enhance learning with the expectation of increasing the pass rate, but is it happening with our number based subjects in the faculty of Economics and Finance at the Polokwane campus? Needless to say, the overall faculty may be experiencing increasing pass rate but on a module based has this been happening? .A number of students are taking a lot of time than the standard 3 years to complete their diploma studies. This is a worrying development as students by taking longer in tertiary education this implies by the time they finish and want to look for employment, their counterparts from the other 23 universities in South Africa have already amassed work experience and those other graduates can adequately compete in the labour market whilst our students roam the streets and plunge into hopelessness. The more time students spend at university repeating failed modules the more it is a cost to government in terms of subsidy and also the more unproductive they become as they too much unused time at their disposal .

<sup>1</sup> success rate is the rate measuring throughput, from the time a student is registered for a course until he completes the course

## 3. RESEARCH QUESTIONS

- I. Has the usage of technology in teaching and learning improved the pass rate in the last 2 years
- II. Which department in the Faculty of Economics and Finance has the highest number of repeaters and the possible reasons behind this?
- III. Do students make use of the available wifi network for their cell phones?
- IV. Are students and lecturers making use of technology in teaching and learning?
- V. What recommendations can be found on how technology can be best used as a tool to achieve intended outcomes

## 4. REVIEW OF LITERATURE

Teaching technology is defined by Wlodkowski, R (1978), and cited by Houghton (1995:8), as “It is a theory and practice of design, development, utilization, management and evaluation of the processes and resources for learning”. Behavioral perspectives suggest learning is not self initiated but is a reactive behavior .This implies learners learn only by responding to external stimuli and corrective feedback.

In South Africa ,the majority of students at university have mobile telephones .According to a study conducted at the University of Pretoria , the usage of SMS at university tended to encourage first year students to take a keen interest in

their studies .SMS also assisted in reaching out to a wider pool of the student population than online learning .M-Technology helped narrow the gap between formal and informal learning .Ausubel (2000) noted that when e-learning technology is utilized it has to be pre-designed according to the different needs of the students .The relative ease of accessing information through e-learning tools assists the students and thereafter empowers them .Universities need to improve pass rates by improving effectiveness of the tuition that students receive. Focus is to implement mobile phones as new technology to improve the teaching process.

The manner in which a student receives feedback from their lecturers has a large bearing on academic performance. This is something the University has control over. Conclusions were drawn that by improving the level of feedback to university students, the university enhances the students' ability to respond actively to their current academic standing. If minimum requirements are included as part of effective and regular feedback, it equips the university students with an important tool to manage their academic studies to achieve a positive result. This can be done through the use of cell phones.

**5. METHODOLOGY**

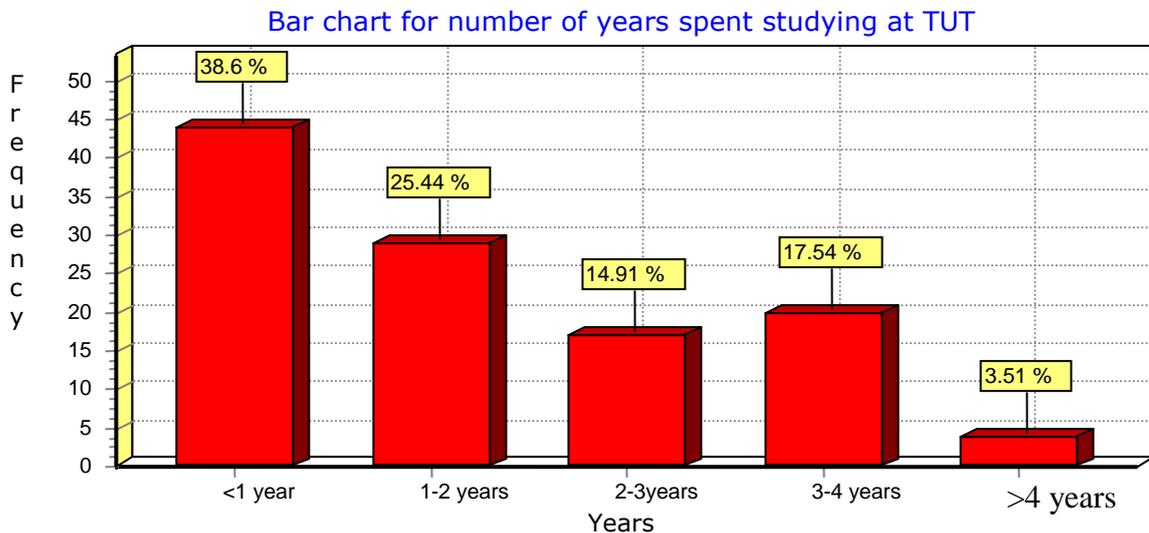
The study will collect and analyse data collected from 114 students in the Faculty of Economics and Finance Polokwane Campus .The study will be qualitative and quantitative in nature. The research will collect primary data for both qualitative and quantitative methodology through questionnaires. A small-scale trial survey with 10 questionnaires shall be conducted to pre-test the survey. The pilot survey will provide an opportunity to field test the questionnaire to detect and correct any serious inadequacies.Data shall be analysed using Moonstats 2 and the following shall be utilized Descriptive statistics-this is the use of graphs .Pearson Correlation coefficient shall be computed .T- test and Chi-square tests shall be used to measure the statistical significance of variable and test cross relationships.

**6. DATA ANALYSIS**

**6.1 USAGE OF TECHNOLOGY**

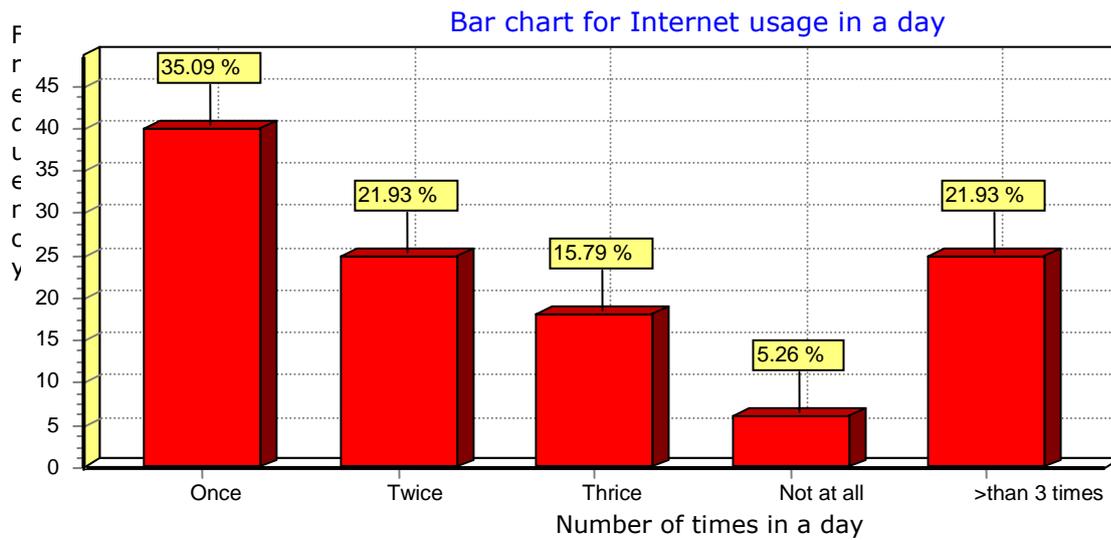
The majority of students who took part in the research have been with the University for less than 1 year (38.6%) and 25.44% have been with the University between 1-2 years. There are about 17.54% of students who have been in the University for 3-4 years and only 3.51% have more than 4 years at the University.

**Figure 1.2: Number of Years at University**



Source: TUT Polokwane Survey (2013)

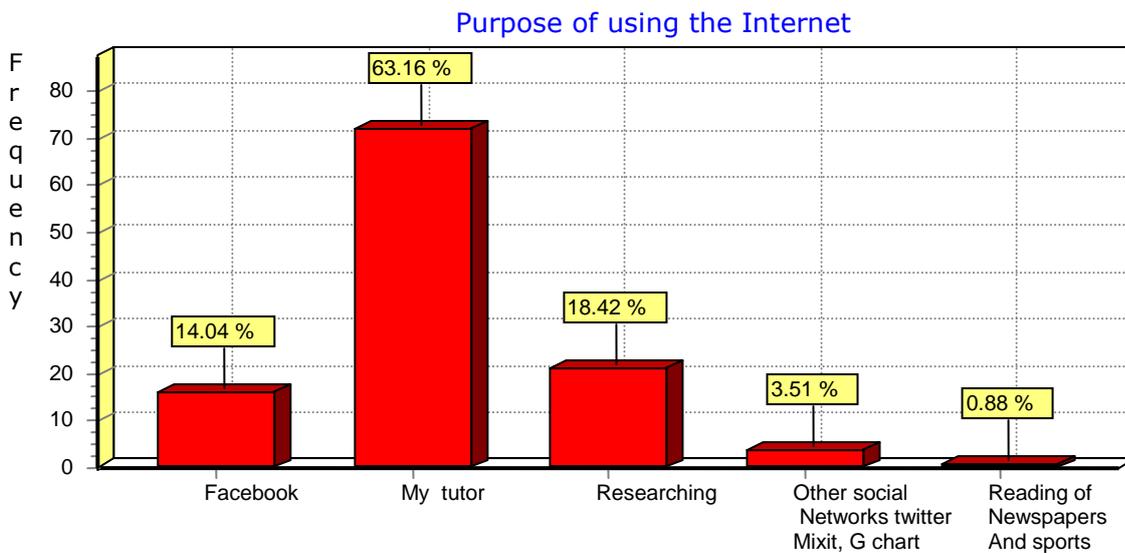
Figure 1.3 Frequency of Internet usage in a day



Source: TUT Polokwane Survey (2013)

Most students use the internet only once per day (35.09%) followed by those that are using it for more than three times (21.93%)

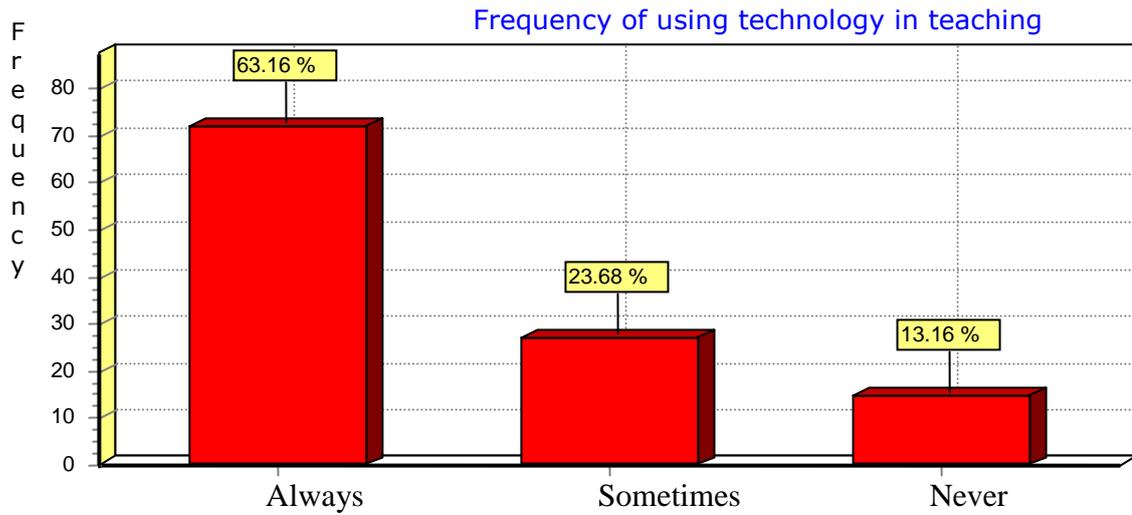
Figure 1.4: Purpose of Internet Usage



Source: TUT Polokwane survey (2013)

63.16% said they use the internet for My –tutor purposes.18.42% use the internet for Research purposes followed by 14.04% who use it for Facebook purposes .There is a small number who use the internet for reading newspapers.

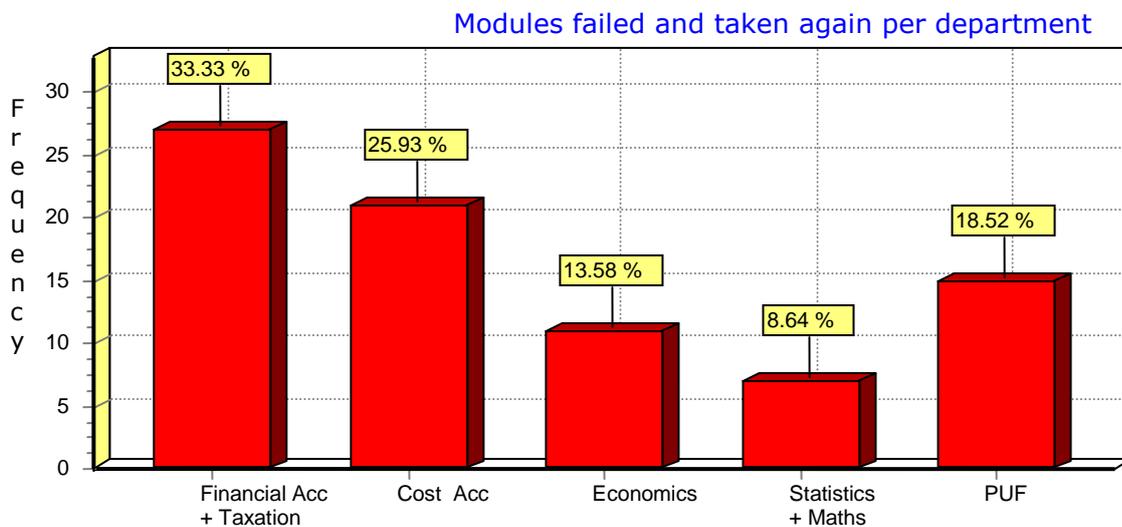
6.2 FIGURE 1.5: LECTURER USAGE OF TECHNOLOGY



Source: TUT Polokwane Survey (2013)

63.16% of the surveyed students indicated that the lecturers utilized the technology in the classroom always .23.68% indicated that Lecturers sometimes utilized the technology in lecture rooms and 13.16% indicated that lectures never utilized technology in the lecture.

Figure 1.6: Departments showing students with more repeaters



Source: TUT Polokwane Survey (2013)

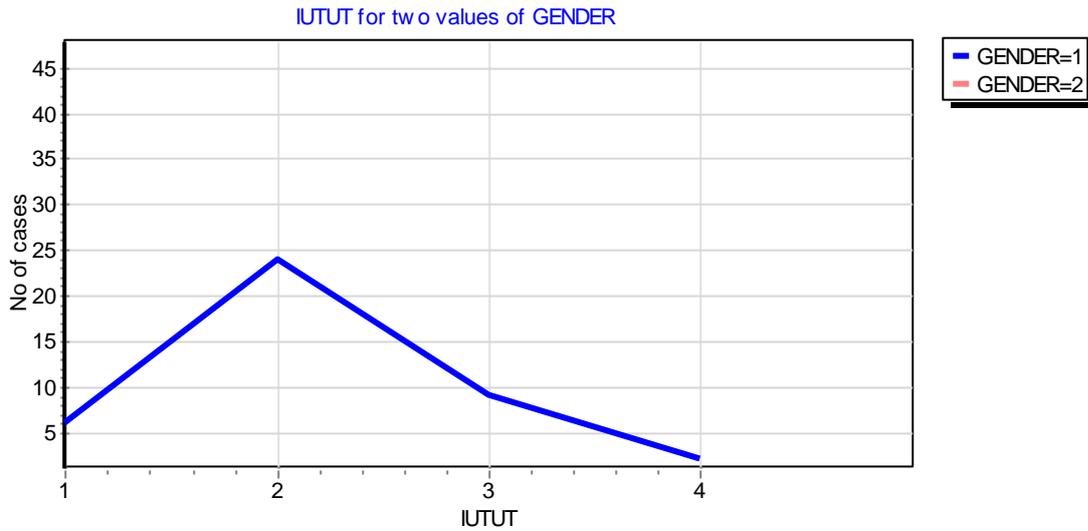
From the respondents 33.33% have failed and set for module for more than once from the Financial Accounting and Taxation department. Followed by Cost and Management Accounting with 25.93%. Maths and Statistics has the least number of re-sits and carries.

6.3: OPINION TOWARDS TECHNOLOGY

6.3.1 Does Technology in teaching and learning enhance learning?

From the responds elicited it is apparent that the use of technology has helped teaching and learning

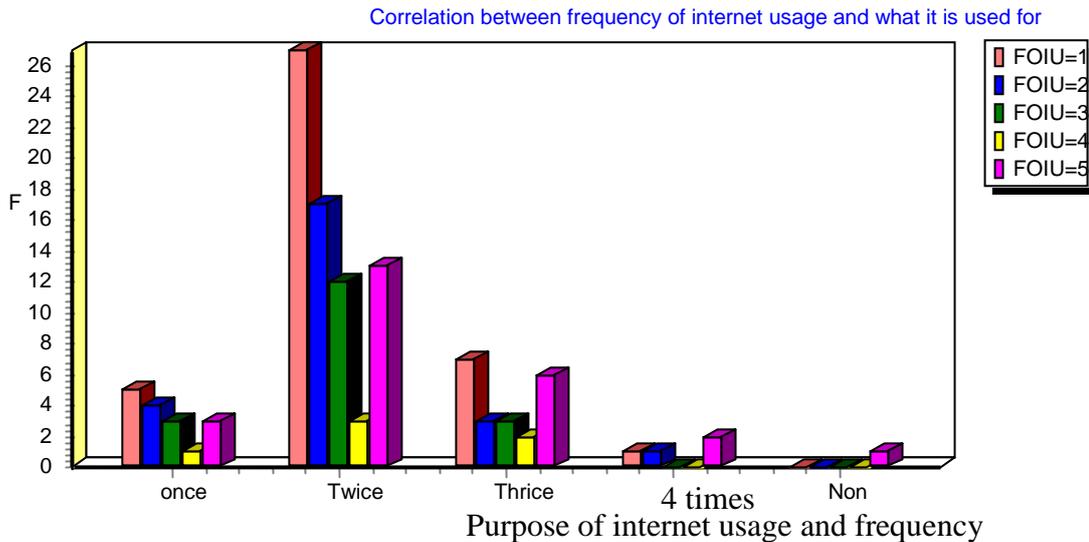
Figure 1:7: Gender and frequency of using the internet



Source: TUT Polokwane Survey (2013)

The Pearson Correlation coefficient is  $r(x,y)=-0.03$  with a  $p=0.740$ . This implies there is a weak negative relationship between gender and frequency of internet usage, the  $p$ -value is statistically insignificant since  $p>0.05$ . Chi-square relationship shows females are heavy users of the internet both researching and using

Figure 1.8: Correlation between frequency of Internet usage / what they use it for



Source: TUT Polokwane Survey (2013)

The Pearson correlation coefficient between internet usage and what its used for, gives an  $r(x,y)=0.15$  and a  $p=0.0115$  which means that the correlation coefficient is not statistically significant. Most students are using the internet once to check my tutor.

7. CONCLUSION

The results from the survey showed that there was an improvement in the success rate following the rolling out of the smart classrooms and using e-learning as indicated by the improvement in the pass rate from the pre-technology era (2011) to the post technology era (2012). The department of Financial Accounting and Taxation experienced the highest number of repeaters. The results also indicate that students are making use of my-tutor using wifi network enabled at the University. The results also indicated that females use the internet more frequently to access information

on my tutor .Lecturers are making usage of the technology in the lecture rooms sometimes but on rare occasions are they not using technology in teaching and learning .

## 8. POLICY RECOMMENDATIONS

From the survey it is apparent that despite technology being supposed to be used as a supplementary teaching aid there still exists deficiencies:

- Lecturers are dumping material on my tutor and not monitoring the volume of traffic on these sites .There is need to liaise with ITS such that mechanisms are put in place to monitor student visits to posted material, if students are not visiting the material on my-tutor then Lectures device mechanisms like to give a homework done on an e-test that accounts for a small percentage of their predicate mark. Otherwise when they is no carrot a student won't do the homework
- Students need to have a paradigm shift .The “believe what you touch and see” syndrome has to change .Online material is as good as the hard copy and it saves money and paper . The students need not wait for the study guide to be delivered in class by the Lecturer when it was posted online a long time ago .All means of communication like class reports, class postponement ,announcements and lecture notes need to be online . This saves time and money .There is no need printing loads and loads of study guide and in line with the paperless learning the university will be going in the right direction in as much as embracing the green economy is concerned.
- Lectures are encouraged to avoid discouraging teaching methods like dictating notes in class .Handouts should be posted online and one copy given to the Library and another to the class representative for photocopying purposes .Lecturing time should be devoted to explaining of notes, group work and presentations .Not only are you boosting students morale, they became more motivated to learn .Lecturers should not spoon feed students. Teach them the way to manage their study time effectively .Monitor their attendance in class and emphasize on time keeping .If a student is late by 15 minutes he should not attend class .Next time everyone shall be in class on time and they look forward to presenting and brain storming .If you put them into groups and let each group work on a separate question within an hour you have covered the whole learning outcomes and they are more informed .Remember there is power in numbers .Also punctuality comes from above ,lectures should be in class on time so that students also learn the importance of punctuality .
- If lectures are not present in class work should be distributed by Faculty Administrator and classes will progress uninterrupted .A schedule of the teaching plan needs to be communicated to students at the start of the semester .If a lecturer is go for an international conference ,say overseas .It does not mean lectures need to be cancelled . They can communicate with students via Lynch to their class when they are kilometers away via video conferencing .This means effective contact time with students is maximized and lecturers have plenty of time to do active research.
- Lecturing without the understanding the pedagogy of education is a problem .Having a PhD does not make you a good teacher .Lecturers upon joining TUT ,say the first 3 months have to learn the courses in education before they step into the class .Just like License to teach does. This helps them manage frustrated teenagers better and also help them manage their emotional side .Lecturing is a calling as opposed to a way out of being an industry reject or one is genuinely searching jobs in the private sector and waits during lecturing .If one has no genuine passion for Lecturing they won't be any research output and results won't come easily.

## FINAL REMARKS AND AREAS NEEDING FURTHER RESEARCH

Organisation and planning are key to success .The lack of it results to sadness and failure. The failure to plan is planning for failure. There is still need to probe why South Africa's educating ranks so low in the world and what needs to be done to improve this.

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