Challenges Faced by the Students of Higher Education Institution in using Technology for Teaching – Learning Interface

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ABSTRACT

There are wide variety of modules, applications and software available to enhance the teaching learning strategies and implement at the educational institution, with these student's at large face the challenge to opt the best feasible and competitive one to match their goals and objectives. In this scenario an attempt was made in the study to uncover the challenges faced by the student's in using technology for teaching learning interface. The study was conducted in 14 institution of Bengaluru which covers colleges, affiliated institution and deemed university. The study had 446 participants from undergraduate and post graduate programs, from various streams of courses. The data collected was subjected to both descriptive and statistical analysis. The study addresses the challenges faced by students in using technology in various aspects of teaching – learning interface.

Keywords: Technology in teaching, Higher Education in India, Challenges of technology.

INTRODUCTION:

Higher education in India has tremendously grown very big and beyond the boundaries of the country in the last two decades and plus of time. This prevalent growth has not only contributed towards quality of higher education in India but has also contributed towards chaotic situation in delivery of education and learning systems, mushrooming of educational providers and more concentrated in urban areas, exploitation of the common man in the disguise of providing education and the authenticity of the whole system in place providing quality in Higher Education at large.

With the impeccable growth on one side and the impact of the global trends in higher education on the other along with stiff competition from the western counterparts in the field of higher education has brought in versatile changes and needful obligations to be met in order to sustain in this sector.

This trend in higher education has led to the use of technology in teaching and the very concept of technology here means aids used in teaching at higher education institutions (HEI) and the positive and negative consequences of the same in the process of learning and teaching.

There are wide varieties of modules, applications and software's available to enhance the teaching learning strategies and implement at the educational institutions, with these the teaching fraternity, the learners' community and the institutions at large face the challenge to opt the best feasible and competitive ones to match their goals and objectives. And to cope with the process of change happening, the teaching fraternity looks for support from the institution in the form of training, availability of latest tools and techniques, developments, maintenance and up gradation of technology at the institution.

In this present scenario, it is very much needful to understand the challenges that the higher education institute students face.

Hence a study was proposed to understand the challenges faced by students at the higher education institutes with respect to use of technology for their teaching and learning purpose.

LITERATURE REVIEW:

Ken, Kewen, Yan & Ning (2016), researches to determine the hindrances faced by the education community in Malaysia. The current qualitative research involved seven individuals who discussed issues relating to the hindrances of technology integration in English language teaching and learning. This paper presents the results that "Technology can facilitate teaching in the classroom, thus the government needs to promote its use in the education system. Most importantly, the government should provide support and sustenance to the schools to ensure the optimal use of technology. It is also necessary for the government to provide convenient environment and beneficial as well as valuable tools in the whole Malaysian education system, in line with the Malaysian Vision 2020. Information and Communication Technology (ICT) literacy of students and teachers should be monitored periodically by the government. Teachers should be capable of changing their mindset to adapt technology and attend necessary training on the use of technology to equip themselves better before teaching students. Teachers should continuously attend training to use the technology in the English language classroom. It is important to remember that technology does not improve teachers' teaching and students' learning effectively without proper implementation and guidance to the usage of the tools such as computers and the internet. Hence, teachers have to use technology to its best function that is to assist in the teaching and to enhance students' activity and participation. The resources can be presented in many ways that the students can optimize their acquisition of knowledge. Teachers will accept the use of the technology if it assists them in some ways in the teaching and if they start seeing it as an advantage rather than a disadvantage. Consequently, technology will improve students' motivation and willingness to learn in an interesting yet meaningful English language learning environment. "

A cross sectional study was conducted among faculties of Medicine and Dentistry using pre-tested questionnaires. The result of our survey indicates that majority of our faculty (65.4%) held positive opinion towards e-learning. Among the few, who demonstrated reservations, it is attributed to their average level of skills and aptitude in the use of computers that was statistically significant (p<0.05). The study brings to light the need for formal training as perquisite to support e-learning that enables smooth transition of the faculty from their traditional teaching methods into blended approach.

Torres, Abbad and Santos (2014), studies the Effects of teaching strategy supported by information and communication technologies on satisfaction and learning of college students. The researcher provides 30 hours basic nutrition course at Brazilian Public University to the students of undergraduate in nursing, pharmacy, physiotherapy, occupational therapy and public health students. 8 Podcast and 6 video classes were recorded to support the study. The study shows that the use of technology strategies based on new information and communication technologies has the possibility to democratize education expanding study access and motivating students to learn. It also showed that the restructuring of a discipline using cognitive instructional and instructional design led to great satisfaction and learning

Teo and Zhu (2014) examine the factor that influences higher education students' intention to use technology. The study was conducted with 314 students majoring in education at a teachers training in Singapore. Of the 314 students, 157 enrolled for post graduate and 157 for BA/B.Sc. The invitations were given to the participant during the term of the study and those who volunteered were provided with online questionnaire. Structural Education Modeling (SEM) was employed as the main techniques for analysis in the study. The study highlights that the change in preferences for experience with digital tools, research on students acceptance of technology in higher education will become more important. The policy makers will need to take a call on findings of research to teach, plan and allocate resources. The key challenge to higher education will be how best to teach their students in times to come.

Simelane and Mji (2013) conducted a study to develop and integrate a technology – engagement teaching strategy (TETS) with aid of clickers by classifying the learning styles of students in Mathematics I. The study had a sample of 105 first year mathematics students from university of South Africa. Kolb's learning style Inventory 3.1 was used for collecting data on learning styles of students. This test comprised of four sub scales that measures concrete experience, reflective behavior, abstract conceptualization and active experimentation. The data was collected at pre and posttest stage. Further the questionnaire was administered by self to determine "What is Happening in this Class (WiHC). The study report that most of the learning styles were either diverging or assimilating. The approach behind TETS thus allows and promotes interaction and active learning.

Chang Zhu (2010) has conducted a study on teacher role and adoption of technology in Chinese context with 125 teachers teaching different subjects were selected and a case study was done. The study revealed those important factors to face the challenge of educational change in the new era are teachers' role and teachers' computer competency. The Study also emphasis on changing roles of teacher from traditional methodology to a

new community of blended learning.

Punie, Zinnaballer & Cabrera (2006) in a working paper "A Review of the impact of ICT on Learning" Concludes, Most studies indicate that the use of ICT for learning is most widespread in tertiary education, followed by ICT usage in schools and for vocational education and training. The use of eLearning for continuous training and lifelong learning is regarded as low, although this does not take into account the growing fields of informal and non-formal learning. The geographical diffusion of eLearning follows roughly other information society diffusion statistics in Europe. These are highest in the Nordic countries and lowest in the new Member States and the Southern European countries, with central Europe somewhere in the middle. This could mean that the impact of ICT on education should be seen within a wider perspective of information society policies and also educational and social policies. The data indicate that there is still a long way to go before eLearning becomes fully established. It is encouraging, however, that a large majority of those who have already taken online eLearning courses are satisfied and could thus be interested in continuing, especially because they appreciate more than ever the full range of eLearning tools such as discussion boards, chat and video streams.

Special efforts are however needed to get those who have not yet used eLearning services on board. There is evidence from case-studies to support the inclusive potential of ICT-enabled learning in terms of specific learning outcomes and also in terms of motivation, independence and self-esteem. Such experiences would need to be brought together and tested on a larger scale, but it is of crucial importance that strategies such as Public Private Partnerships are established to safeguard the sustainability of projects.

There continues to be a need for more reliable and more comparative data. These should not only consist of the traditional indicators (e.g. the number of PCs per student) but also look at the quantitative and qualitative uses of ICT by educators and students. Moreover, as the use of ICT outside the formal learning context is becoming increasingly important, together with informal learning and adult learning, it is advisable to have a holistic view on assessing the impact of ICT on learning.

In addition, it is necessary to be proactive and to develop a stronger understanding of future learning needs and future learning environments. Prospective work on ICT-enabled learning would help to grasp the opportunities offered by ICT to prepare for learning in the 21st Century that embraces digital technologies for better learning, for better assessment of learning outcomes and achievements, for better teaching and for better social inclusion.

Keong, Horani and Daniel (2005) studies on use of ICT in mathematics teaching says, the introduction of laptops in the teaching of mathematics and science in English under the Teaching and Learning of Science and Mathematics in English Programme (Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris, PPSMI) has been implemented by the Ministry of Education since 2003. The preliminary observations found that teachers are not fully utilising these facilities in their teaching. A survey was conducted to study the barriers preventing the integration and adoption of information and communication technology (ICT) in teaching mathematics. Six major barriers were identified: 1.lack of time in the school schedule for projects involving ICT, 2.insufficient teacher training opportunities for ICT projects, 3.inadequate technical support for these projects, 4.lack of knowledge about ways to integrate ICT to enhance the curriculum, 5.difficulty in integrating and 6.using different ICT tools in a single lesson and unavailability of resources at home for the students to access the necessary educational materials. To overcome some of these barriers, this paper proposes an e-portal for teaching mathematics. The e-portal consists of two modules: a resource repository and a lesson planner. The resource repository is a collection of mathematical tools, a question bank and other resources in digital form that can be used for teaching and learning mathematics. The lesson planner is a user friendly tool that can integrate resources from the repository for lesson planning.

Akkoyulnu and soylu's (2004) studies on students view in relation to blended learning environments – the combination of both technology and face to face contact in a learning environment. Both qualitative and quantitative data were collected for the study on perspectives of students. Open ended questionnaire were provided four times over the course time during the semester. The study shows that the male had more favorable attitudes towards use of internet and computers on finding useless information, being more comfortable and less confused than the females. While, the females had more favorable attitude towards use of internet for education purpose.

Lesh, Guffey and Ramp (2000), examined change in students' attitude regarding Web based health professional course. . The participants for the study were 24 students from the Mid-western Public University majoring in physical therapy. The students were in senior level of the course and volunteered to participate in the study. A-4 point Likert – type survey, as well as knowledge test, was administered. The result are concluded from both pre and post test. The observation of the study are that students thought taught through a Web based approach experienced a positive change in their attitude towards education. The learning related to content had violation

to the experimental design hence it is difficult to conclude whether Web based learning makes a difference in students' academic achievement or not.

Morehead & La Beau in a paper on continuing challenges of technology integration for teacher, highlights that to truly understand the benefit of technology use for learning teachers need to be able to acknowledge the benefits of technology as a tool for learning. They need to view the tool, as beneficial, enabling their students and themselves to perform their jobs more effectively. Teachers need to also recognize and identify the learning processes that technology makes possible: the collection, organization, presenting, and communication of information in today's informational society. Classrooms must support learning environments that reflect an understanding of what keeps children in eager pursuit of knowledge.

METHODOLOGY:

The study was conducted by the researcher with a structured close ended questionnaire. The questionnaire was tested for reliability using Cronbach alpha test, face validity and content validity. The Cronbach alpha test resulted in more than 90% accuracy.

Hypothesis 1 – Barriers in use of technology for the students
Ho: The proportion of responses towards barriers in use of technology in all the categories is same
H1: The proportions of responses towards barriers in use of technology in at least two of the categories are not the same

Sampling Description:
Geographical Area: The study is confined to the Urban Bengaluru as the city offers wide variety of programmes in all streams and has all major universities offering both the UG and PG courses with various specialization and professional courses.
Organization: The study covered one the State and one Deemed University which include the affiliated, autonomous and deemed university institutions offering UG and PG courses in the stream of Arts, Science and Commerce and Management.

Sampling Method:
Keeping the above criteria for the study the sample respondent would be chosen by multi stage sampling method at each level.
Level 1 – From the entire population of universities which is State, Prominent Institutes and Deemed Universities existing in the urban Bengaluru the purposive sample for the study would be the State University and the Deemed University, as they contribute 90% of the institution in HEI.
Level 2 – Further the study is confined to the Affiliated, Autonomous and Deemed institutes which are Private Unaided and offers both UG and PG Courses in any of the streams from Arts, Science and Commerce and Management.
Level 3 – The students are the direct respondent for the study.

Sampling Size:
The sample size for the study was one State University which is Bangalore University as majority of the colleges and institutes prevailing in Bengaluru are under the same, and one Deemed university which was Jain University. Further the study took ten affiliated and three autonomous institutions from Bangalore University offering UG and PG programmes in any of Arts, Science and Commerce & Management streams.
The sample size consists of 446 student participants from ten private colleges of Bangalore University, three Autonomous Institutions and one Deemed University of Bengaluru.

Ethical Approach and Confidentiality:
The free consent of the respondent was obtained before commencing to respond the questionnaire. The respondents were given free will to withdraw responding, after reading the content if they are not interested.
The responding institution and the responding teaching fraternity and the students' community were assured that the confidentiality of the data will be maintained and the collected data will be used only for the purpose of the research study.

Scientific Integrity:

The integrity of scientific knowledge was protected by applying the principles as stipulated by Babbie and Mouton (2001:526-528) were observed by the researcher.

- The researcher refrained from forging the data, and reporting on something, which is non-existing or does not reflect what has actually been done.
- Sources consulted and all persons who contributed to the study were acknowledged.
- The researcher refrained from distorting findings to support preconceived views.
- The participants were not influenced in their responses to support views held by the researcher.

DATA COLLECTION:

- Both the Primary and the Secondary data were collected for the purpose of the study.

Mode of Data Collection:

The researcher approached the university and obtained an official letter to obtain the consent of the institution from where the data was intended to be collected. The researcher ensured to meet the head of the institution or the concerned authority, explain the study and its purpose and obtain the verbal consent and guidance to collect data from their respective institution. The researcher distributed the questionnaire personally to each respondent assuring that the respondent understands the study and contents of the questionnaire.

The secondary data was collected from the institutions, newspapers, research journals, publications and online sources.

FINDINGS AND DISCUSSION:

1. An equal and fair response of the data is collected from both undergraduate and post-graduate levels of the students. The respondents are 223 from each course.
2. It is seen that a majority of 258 respondents are female whereas 188 respondents are male for the study.
3. The majority of 357 respondents were from the institution which offered both undergraduate and post-graduate programmes, 53 from undergraduate institutions and 36 from post graduate institution.
4. The study had major student respondents from commerce and management stream constituting 407 respondents, whereas a very minimal number of respondents from arts and science background.
5. An attempt was made to collect data from all the semesters and during the period when the data was collected the students were pursuing their first term of the academic year and hence the semester to which the respondents belong are I, III and V semester. The data reveals that 227 respondents are from I semester, 185 respondents from III semesters and 34 from the V semester.

Further the researcher explored to find what are the barriers students face in using technology tool for teaching learning interface and it the study revealed :

- 36.69% of the respondent mentioned that lack of access bars them from using technology to a minor extent, 31.41% of the respondent mentioned that lack of access bars them from using technology to a moderate extent, 23.98% of the respondent mentioned that lack of access is not at all a barrier to use technology and 7.9. (Figure 1)
- 35.01% of the respondent mentioned that lack of necessary skills bars them from using technology to a minor extent, 33.81% of the respondent mentioned that lack of necessary skills bars them from using technology to a moderate extent, 23.98% of the respondent mentioned that lack of necessary skills is not at all a barrier to use technology and 7.19% of the respondent mentioned that lack of necessary skills bars them from using technology to a major extent(Figure 2)
- 37.56% of the respondent mentioned that lack of technical support bars them from using technology to a minor extent, 34.15% of the respondent mentioned that lack of technical support bars them from using technology to a moderate extent, 19.02% of the respondent mentioned that lack of technical support is not at all a barrier to use technology and 9.27% of the respondent mentioned that lack of technical support bars them from using technology to a major extent. (Figure3)
- 31.78% of the respondent mentioned that lack of training programme bars them from using technology to a minor extent, 31.30% of the respondent mentioned that lack of training programme bars them from using technology to a moderate extent, 22.74% of the respondent mentioned that lack of training programme is not

at all a barrier to use technology and 14.18% of the respondent mentioned that lack of training programme bars them from using technology to a major extent(Figure 4)

- 39.75% of the respondent mentioned that to a minor extent it is not sufficient to use technology with available aids, 28.89% of the respondent mentioned that to a moderate extent it is not sufficient to use technology with the available aids, 23.46% of the respondent mentioned that this is not the case and 7.90% of the respondent mentioned that to a major extent it is not sufficient to use technology with the available aids.(Figure 5)

- 40.24% of the respondent mentioned that the fact that the applications and software don't run properly bars them from using technology to a minor extent, 28.92% of the respondent mentioned that the fact that the applications and software don't run properly bars them from using technology to a moderate extent, 22.65% of the respondent mentioned that the fact that the applications and software don't run properly is not at all a barrier to use technology and 8.19% of the respondent mentioned that the fact that the applications and software don't run properly bars them from using technology to a major extent.(Figure 6)

- 43.49% of the respondents mentioned that it is not at all the case that barrier in using technology is because they are not interested in it, 32.19% of the respondents mentioned that this might be causing the barrier to a minor extent, 19.90% respondents mentioned that this might be causing the barrier to a moderate extent and 4.42% mentioned that this might be causing the barrier to a major extent(Figure 7)

- Majority of the students responded that they have access to the Wi-Fi (Figure 8). Out of all the students who said "Yes" 30.09% of them mentioned that they have a good learning experience with internet/Wi-Fi, 27.05% of them mentioned that they have a very good learning experience with internet/Wi-Fi, 20.97% of them mentioned that they have a satisfactory learning experience with internet/WiFI, 18.84% of them mentioned that they have an excellent learning experience with internet/WiFI and only 3.04% of them mentioned that they have a poor learning experience with internet/WiFi.(Figure 9)

- From the hypothesis testing it is found that the students face each of the barrier more or less in using technology as a part of curriculum(Table 1)

CONCLUSION:

Hence, here it is concluded that the above variables have been a reason to barrier students in using technology where the response is also been 60% or more as a major and moderate reason to barrier in using technology except not interested to use where 50% the response either say that lack of interest is not at all a reason or to minor extent barriers them inn using technology.

It is found that the majority of the students responded that they have access to the Wi-Fi. And the learning outcomes from the use of Wi– Fi are found to be fruit full.

ACKNOWLEDGEMENT:

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Yues Punie, Dieter Zinnabauer & Marcelino Cabrera, (Oct. 2006). A review of the impact of ICT on learning, *JRC European Commission,* working paper prepared for DG EAC, www.proquest.com

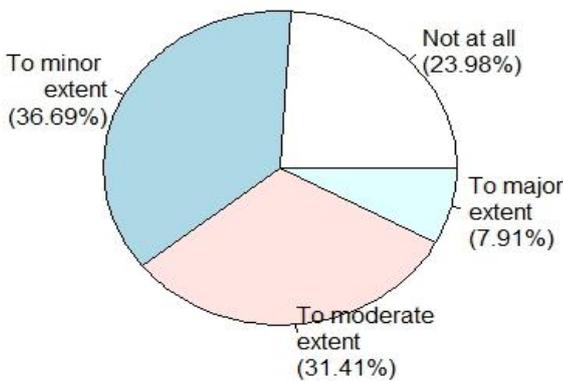**FIGURE(S):**

Figure 1: Barrier of lack of access

Lack of access

To minor extent (36.69%)
Not at all (23.98%)
To major extent (7.91%)
To moderate extent (31.41%)

Figure 2: Barrier of lack of necessary skills

Lack of necessary skills

To minor extent (35.01%)
Not at all (23.98%)
To major extent (7.19%)
To moderate extent (33.81%)
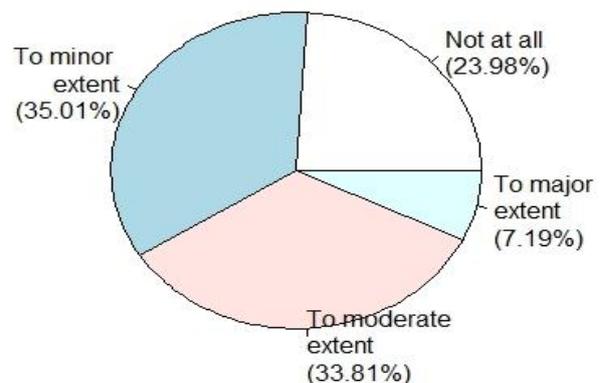
Figure 3: Barrier of lack of technical support

Lack of technical support

To minor extent (37.56%)
Not at all (19.02%)
To major extent (9.27%)
To moderate extent (34.15%)
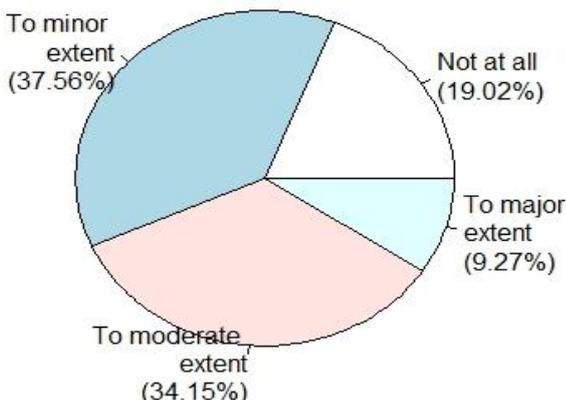
Figure 4: Barrier of lack of training programmes

Lack of training programmes

To minor extent (31.78%)
Not at all (22.74%)
To major extent (14.18%)
To moderate extent (31.3%)
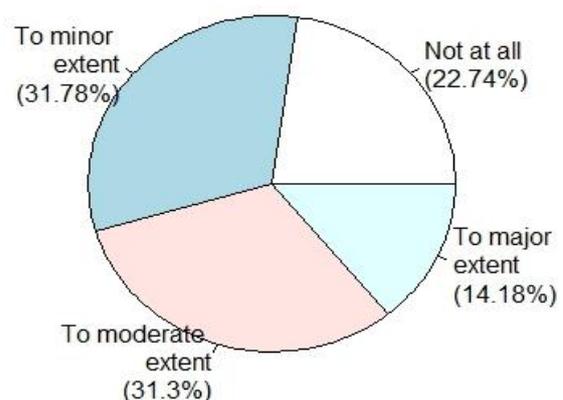
Figure 5: Barrier of lack technical aids
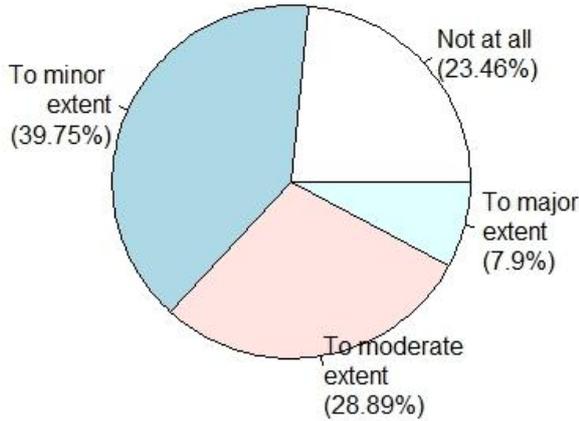
Figure 6: Barrier of application & software running properly

Not sufficient with available aids

Applications and software dont run properly
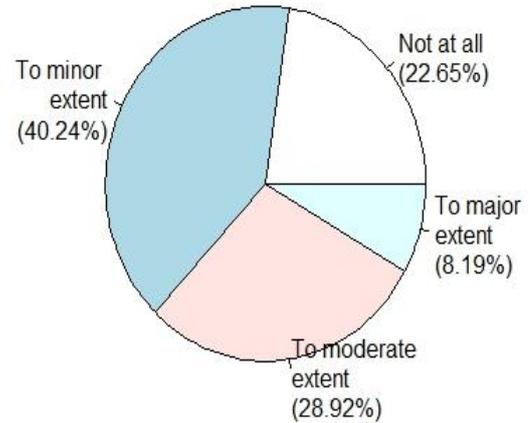
Figure 7: Barrier of lack of interest to use
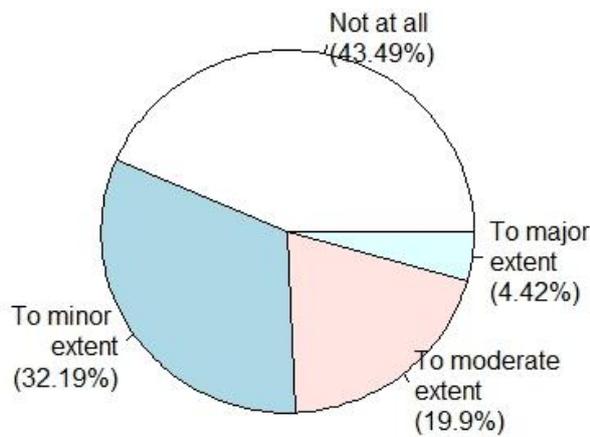
Figure 8: Access to Wi-Fi

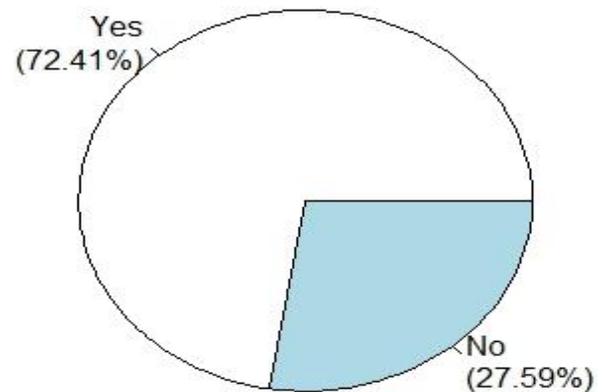## Not interested to use

Access to WiFi

Figure 9: Learning Outcomes with use of Wi-Fi
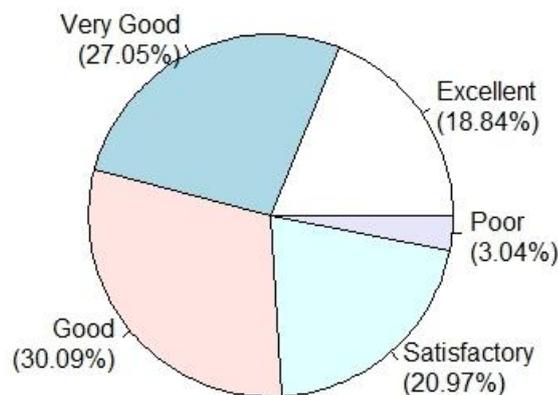

Learning outcomes with internet / WiFi

Table 1: Results of the Chi-Squared test of proportion for hypothesis 1

Variable	Degrees of Freedom	Chi-squared Statistics	P-value
Lack of access	3	78.53	< 2.2e-16
Lack of necessary skills	3	82.731	< 2.2e-16
Lack of technical support	3	86.039	<2.2e-16
Lack of training programmes	3	34.002	1.979e-07
Not sufficient with available aids	3	85.459	<2.2e-16
Application and software don't run properly	3	88.913	<2.2e-16
Not interested to use	3	137.23	<2.2e-16