

Impact of ICT on Students' Performance- A Case Study on Undergraduate Students

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Abstract

ICT is an acronym for Information and Communication Technology. It is an extended term for Information Technology but broader in nature and primarily focuses on communication technologies. Computer based learning, Internet, Classroom learning, video conferencing are some of the modules of communication tools. ICT covers all technologies like radio, television, cell phones, computer, laptop, tablet etc. It is a universal tool for the globalization. Globalization and technological changes have created a new global economy powered by technology, fueled by information and driven by knowledge. ICT can complement, enrich and transform education for the better.

“Smart Technology” is the familiar terminology that made human life smarter, easier and accessible with the use of Smart Phones, Tablets, gadgets, Smart Television etc. and has become an integral part of our life. The rapidly growing usage of technology in today's world is pressurizing teachers to consider the integration of ICT in to the classroom. ICT based classes will be enriched with text, animation, graphics, audio and video presentations. It can motivate the students to learn in a different way. So, it can be effective, efficient, dynamic and interactive. In this case learning process can be anywhere and anytime.

The main object of the paper is to study the impact on the performance of undergraduates by analyzing their attitudes, habits and opinions about the use of ICT in education. The sample size is 50. The research sample was taken from a group of students studying in the undergraduate level at different colleges affiliated to Mangalore University. They belong to the various departments like Computer Science, Data Processing and Secretarial Practice. The structured questionnaire method was used to collect the primary data. The journals, publications, articles were referred to collect the secondary data.

There is a positive as well as negative impact which may have direct or indirect influence on the students' performance with the use of ICT in education. Though the Internet is a fascinating treasure chest of knowledge, most of the visited websites are entertainment related. So, the students instead of studying prefer to spend their time on entertainment. In this regard, Educational Institutions play a vital role in promoting the use of ICT mainly focusing on academic purposes. At the same time, it is found that the reasoning skill, questioning skill and creative ability of the students will be improved by the use of ICT. The study shows that the female students make use of ICT more than the male students. The female students use cell phones for a longer time than the male. Attempts are made to suggest the younger generation to make best use of ICT in building up their future career by taking up few online courses or applying for the job online.

The use of ICT in education lends itself to more student-centered learning settings. But with world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and will continue to develop in the 21st century.

Key words: Information and Communication Technology, Students' performance, Smart Technology, Cell Phones, transform

Introduction: ICT comprises of three prominent words “Information”, “Communication” and “Technology”, which covers any product that will convey, manipulate, store, retrieve, transmit or receive information by electronic means in a digital form. For example, Email, Digital TV, Computer, Robot etc. ICT is defined as the combination of informatics technology with other, related technologies, specifically communication technology. According to United Nations Report ICTs cover Internet Service Provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network-based information services and other related information and communication activities.

The students have to become compatible to the ever expanding knowledge and equipped with the information and communication technology which is rapidly growing, to deal with this knowledge. Any academic institutions cannot be contented with the limited knowledge to be transmitted in a fixed period of time. Higher education institutions have invested heavily on ICT during the last two decades. The impact of these technologies on students’ performance is one of the major puzzling questions. It is difficult to observe the performance of the student. The past studies stated that there is no evidence for direct relationship between the increased use of ICT and students’ academic performance. The present generation students cannot imagine their life without Mobile phones. Some of the students use ICT to improve the communication with the instructor. The students those who have less time to study, use ICT to increase the leisure time. But, a few groups of students will be attracted towards the non-academic programs offered by the social media like movies, dramas or other videos and spend their time in watching them. Sometimes parents fail to monitor their wards whether they use mobiles for academic purpose or for chatting. In such cases, though the important academic information or study materials sent by

the teacher, it may not reach the students. So, the teachers’ purpose will not be served.

The topics presented through PowerPoint slides, animation, graphics, charts, images, audio and video will attract the interest of the students. The study materials sent in a PDF file through What Sapp or through Email will fetch the students’ attention quickly. The students also feel free to clarify their doubts. The students are availing the ICT facilities using different smart devices and internet. So, it is essential to make a study of the impact on students’ performance.

Literature Review: This section presents the recap of findings of earlier studies regarding the adoption of ICT in education and its impact on the performance of undergraduate students. There is mixed findings regarding the relationship between ICT use and students’ performance. Mohammad Aman Ullah [1] et al. states that “student addiction of ICT is the most important predictor in the analysis. This gives the controversial result with the academic impact of ICT.” Wael Sh. Basri [2] et al. observed that “the students’ academic performance refers to the enhancement of the students’ current state of knowledge and skills reflected in their GPA and also in the formulation of their personality and academic growth from lower levels of study to higher levels.” Sari and Mahmutoglu [3] observed that “in order to bring a change in teaching methodology in a university, a paradigm shift is required that would recommend adoption of student-centered approaches. The new methodology, according to the authors, should aim at making the student an active element in the learning process, rather than passive through an adequate and effective guidance from the tutorial team.” Leuven et al. [4] stated that “there is no evidence for a relationship between increased educational use of ICT and students’ performance.” Tah Babila Mbah [5] opines that “ICT is considered to exploit the flexibility of training. The rhythm of study, the allocation of time and the availability of teachers can allow better articulation between private life/professional life (studies) as well as a better allocation of time between the various uses.” Ramesh Bhinde [6] indicates that “the use of ICT in education lends itself to more student-

centered learning settings. But with the world moving rapidly into digital media and information, the role of ICT in higher education is becoming more and more important. Higher education systems have grown exponentially in the last two decades to meet the demands of quality education for all.” Iniesta-Bonillo et al. [7] find out that “the use of information and communication technology is significant in placing students in an active position and in enhancing the effectiveness and efficiency of the tutorial support.” Cruz-Jesus et al. [8] analyze several studies related to the impact that ICT has made on educational institutions in Europe. Their findings indicate that there is a limited and incomparable evidence of impact of ICT adoption on students’ performance. Irrespectively, none of these studies have been able to provide substantive findings to indicate that ICT adoption has positive impact on students’ performance.

Objectives of the Study:

1. To find out the relationship between use of ICT facilities and performance of the undergraduate level students
2. To identify the reasons for students access to ICT facilities
3. To explore how and how much students spend their time by using ICT
4. To find out relationship between students use of ICT on academic and non-academic purpose and their performance.

Research Methodology: In order to achieve the objectives of this study, Primary data have been taken from the respondents through a Google form questionnaire. The sample size of the study was chosen from the students of degree colleges affiliated to Mangalore University. The sample size consisted of 50 students (those who have completed at least 1, 3 and 5 semesters with their results published). The questionnaire consisted of demographic characteristics, standard of living, academic status of the respondents, ICT facilities available for students, purpose and frequency of use of social media for academic as well as non-academic purposes. The secondary data is collected from research articles, journals and websites.

Limitations of the Study:

1. Academic performance of the students cannot be defined clearly.
2. There was tendency to hide the truth.
3. None of the previous studies provides findings to indicate the direct relationship between ICT use and its impact on students’ performance.

Characteristics of ICT in Education:

- ICT comprises of hardware like computer machine, software like CD ROM, various programming packages, applications, E-learning strategies and configuration for Internet set up.
- It focuses on the acquisition, storage, manipulation, management, transmission or reception of data. For eg. Online admission of students, online marks entry etc.
- Teleconferencing, PowerPoint presentations are also the part of ICT.
- Different Software packages for different uses in education like library software, admission software
- It enhances quality education

Advantages of Use of ICT in Education:

In education communication takes place between teachers, students, management and administrative staff which require large data to be stored, retrieved, disseminated and transmitted. In recent times, Computer Technology, Mobile phones are used for processing the data. The advantages can be listed as follows;

- **Quick Access of Information:** Connecting to the internet and surfing through web page, information can be accessed quickly.
- **Easy availability of updated data:** Anywhere and anytime students and teachers can access the information. They can get updated data.
- **Collaborative learning:** Students from different parts of the world can learn together by using online, offline resources.
- **Individual attention:** In a crowded class rooms, individual attention is difficult. But, ICT can cater to the needs of the individuals.
- **Wide range of Communication Media:** Offline, online and blended learning are different means of communication

introduced in teaching learning process through ICT.

- **Wider learning opportunities:** Students can opt for their choice of courses. They can evaluate their own progress through online quizzes, tests.

Impact of ICT on Students' Performance:

- There is a widespread belief that ICTs will empower the students, transform their learning process, from being highly student-centered. This transformation will develop their creativity, problem solving ability, questioning ability, reasoning ability, communication skills and other thinking skills. However, there is very less evidence to prove this belief.
- Many studies have failed to measure students' performance. If the students get good rank or low rank, it is difficult to assess whether it is the impact of use of ICT or not.
- If ICTs are used appropriately it can have positive impact on students' performance.
- The appropriate use of ICT depends on its easy accessibility at all times.
- If students are attracted towards non-academic sites like movies or dramas, it will have negative impact on their academic performance.
- If the goal for ICTs need seems to be ineffective, impact will be negative.
- Students' performance depends on students' characteristics, educational environment and teachers' characteristics. ICT may have impact on these determinants, which will differ from college to college.

Technology Trends in Indian Universities:

Technology based tools are helping the students learn, communicate, collaborate and study on and off campus. Some of the exciting technology trends in Indian universities are;

Digitization of books: It enables students to learn through e-books, pictures, videos, simulations and visualizations.

Using ICT, the **National Mission on Education** is trying to formulate new online course content for Undergraduate (UG), Post Graduate (PG) and Doctoral students.

The All India Council for Technical Education – Indian National Digital Library in

Engineering and Technology (AICTE–INDEST) is a consortium which has been set up by the Ministry of Human Resource Development to make journals and bibliographic databases easily accessible to the students.

The UGC initiated a scheme called – ICT for teaching and learning process to achieve quality and excellence in higher education. Along with this, UGC has launched a mega programme namely – UGC INFONET. It is a network of Indian universities and colleges with integration to Information and Communication Technology (ICT) in the process of teaching, learning and education management.

Indira Gandhi National Open University (IGNOU) uses radio, television and Internet technologies to provide content and deliver lectures.

IIT-Kanpur has developed “Brihaspati”, an open source eLearning platform (Virtual Classroom).

IIT-Bombay has started the programme of Centre for Distance Engineering Education Program (CDEEP) as emulated classroom interaction through the use of real time interactive satellite technology.

SWAYAM is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged. SWAYAM offer free online courses to help those who have not been able to join such courses by attending reguoutside.

Many institutes have collaborated with NIIT for providing programmes through virtual classrooms.

Mobile phones: With the increased use of mobile phones, educational institutions can easily approach students to make them aware about the courses. Tasks like administration, sharing class notes, downloading lectures, instant messaging, etc have been made easy by a simple smart phone.

Social learning: Students today are using various websites, blogs and social media channels, as well as new online video repository

to get the content for a specific subject or course.

Data Analysis and Interpretation:

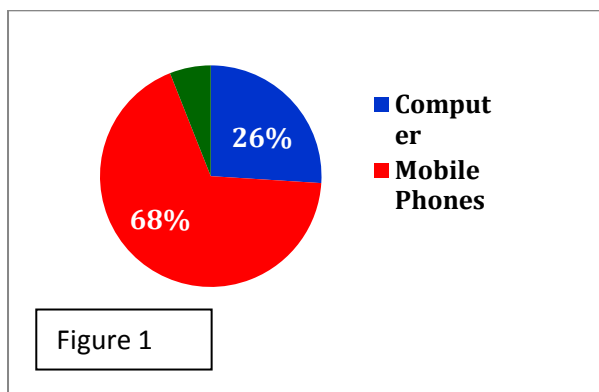


Figure 1. showing the ICT accessibility to students. This shows that university students have access to a variety of ICTs mostly mobile phones, Computer and CD/DVD. 68% of respondents have access to Mobile Phones.

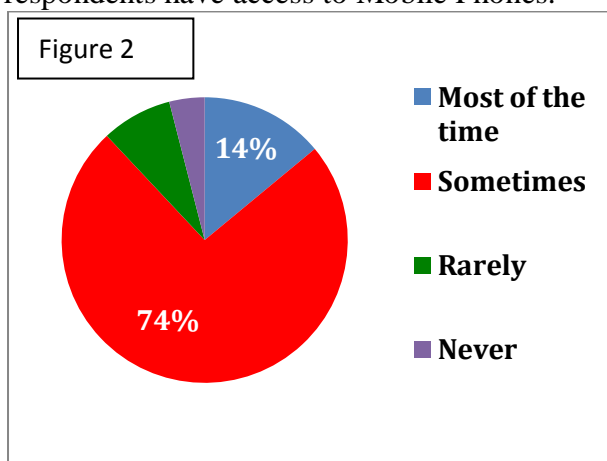


Figure 2. Showing the frequency of browsing non-academic sites. 74% respondents browse non-academic sites for watching Movies, Dramas etc. only sometimes. 14% respondents browse most of the time. 8% respondents rarely and 4% of respondents never browse for non-academic purpose.

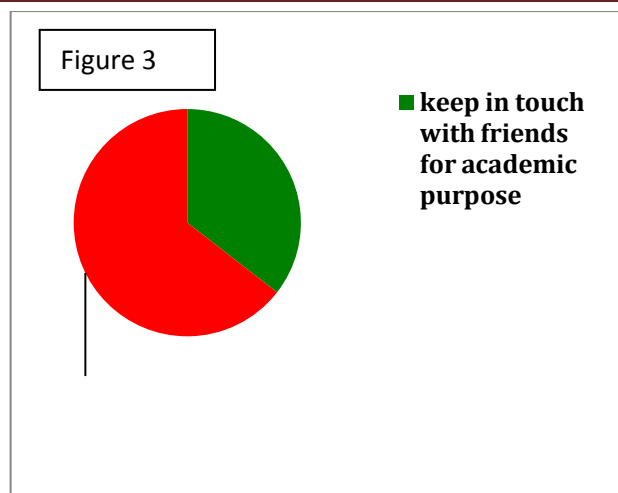


Figure 3. Showing the primary purpose of using Social Media. 64.5% respondents use Social Media to keep in touch with family and friends. 35.5% respondents use it to keep in touch with friends for academic purpose.

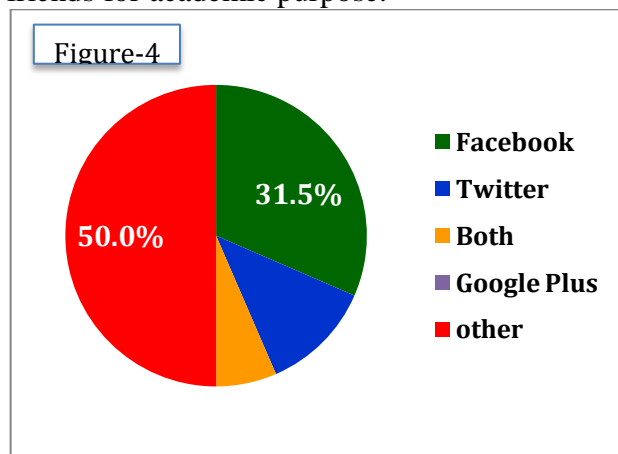


Figure 4 Showing the Social Media Account. 50% of respondents have account with other than Facebook and Twitter. 31.5% of respondents have account with Facebook, 12% with Twitter, 6.5% with both.

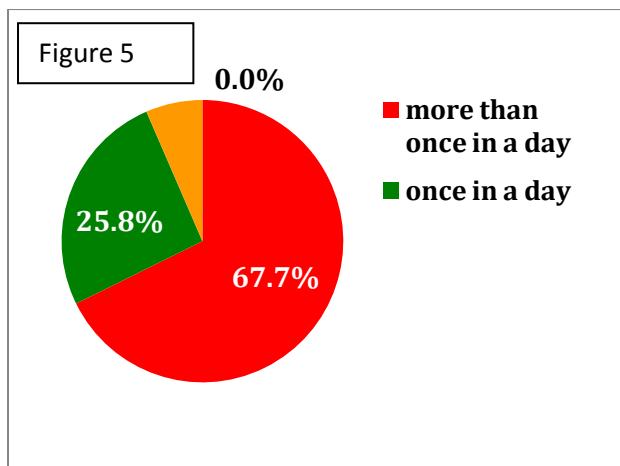


Figure 5 showing frequency of use of Social Media. 67.7% of respondents use Social Media for more than once in a day. 25.8% of respondents use it once in a day. 6.5% students use atleast once in a week.

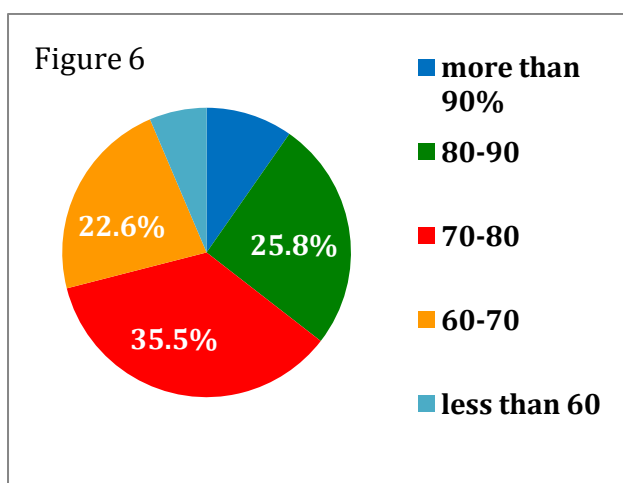


Figure 6 showing Academic performance of respondents. 35.5% students got 70-80% marks, 25.8% got 80-90% marks, 22.6% got 60-70 marks, 6.4% students got less than 60% and 9.7% got more than 90%.

Findings:

- Most of the students use Mobile phones for both academic and non-academic purposes. A few of them also definitely use Computer/ Laptop with Internet access.
- 74% of students agreed that they use ICT only sometimes.
- Majority students agreed that they use ICT (social media) to keep in touch with family and friends, rather than to keep in touch with academic friends.

- Most of the respondents agreed that they use Mobile phones for more than once in a day.
- A very few students use ICT for completely academic purpose.
- From the study it is observed that with the given opportunities, (E-books, academic sites) students can improve their academic performance. But, it is difficult to measure their performance whether it is an impact of ICT or not.
- Majority respondents scored 70-80% marks. A very less respondents scored above 90% marks. This shows that students are attracted towards other non-academic sites and spend more time in such sites.
- Students prefer ICT based education than traditional method of teaching because of the time constraints. Presentations through videos, graphics, animations and charts will make the study more effective.

SUGGESTIONS:

- There should be a support from the institution in order to allow all students to have regular access to ICT facilities under the strict vigilance of teachers.
- The over use or addiction towards ICT may cause the lower performance and psychological imbalance. So, the parents should be very conscious to ensure that their children should not too much involve of using ICT for entertainment purpose.
- The usefulness of online courses should be explained both to the students and the parents.
- There should be a control on the unnecessary use of technology.
- Training can be given to the teachers on the use of ICT. For eg. Training on use of Google class room, Google forms for sending the assignments questions, quiz and study materials to the students’ email. Through this students can also be evaluated easily.
- Just clicking photo of notes from the mobiles and studying cannot be considered ICT use. Students should browse some additional information which is not taught in the class.

Conclusion:

To conclude, ICT in education has both positive as well as negative impact on students. But, it depends on how it is been used by them. Use of ICT off the campus like going to the cyber for browsing can be avoided by providing such facilities inside the campus. But, more funding, access and training is needed. However, learners can access the best practices and best course or study materials by means of ICT. If

the students use ICT for solely academic purposes by installing useful apps in their mobiles, they can do wonder in their performance. Such apps will help them to get through in the competitive exams, online job interviews and thus achieve excellence. From the study it is concluded that ICT-Based Education has improved the motivation and success of students.

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