



# Assessment the use of Smartphone for teaching and learning process in Higher education special reference to science.

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## **ABSTRACT**

*The use of smartphones is easy and most affordable devices which can be used in different platforms especially in teaching and learning in Higher education institutes. The learners of higher education are very diverse group which need well organized and update knowledge. The present study carried out to access the feasibility of smart phones in Higher Education especially for science students. If the smart phones are used judiciously and purposefully it proved a useful ICT tools in teaching and learning process at Higher education. The smart phones users are more found to be more knowledgeable and updated.*

**KEYWORDS-ICT, Sawaimadhapur, Smart phone, Students.**

## **1. Introduction**

The emergence and advancement of information and communication technologies (ICTs) have changed the way of teaching and learning process are being conducted. According to Sife et. al. (2007), ICTs have capabilities of improving information accessibility, facilitating communication via electronic facilities, enhancing synchronous learning and increasing cooperation and collaboration. In the teaching and learning process, ICTs are known to be cost effectiveness as they facilitate collaboration among learners and tutors and enhance pedagogical improvement through simulations, virtual experiences and graphic presentation.

Information and communication technologies (ICTs) application enhance an exchange of information between learner –tutor and learner-learner and it take place through the use of different ICT tools including computers, radio, television, mobile phones and some other device as. These tools provide suitable platform for the teaching learning process. Current developments in ICTs have increased the level of interactivity and collaboration among learner and teachers. Advancement in the web technology has brought about another opportunity for teaching and learning. Web based learning is form of e-learning supported by an internet browser (Tinio, 2003). It occurs through emails, chats, web based conferencing message boards, and web pages for sharing information resources. It provides a suitable instructional media, facilitates interactive and collaborative learning and



enhances assessment during the teaching learning process (Wijekumar.2005). Among the ICT tools the mobile phones are mostly owned and used among people. The mobile phones can provide suitable learning platforms as they have a lot of applications to tutors and learner which can be used for their activities. Learning through the mobile phones is termed as mobile learning (M-learning). Gay (2009) defines mobile learning as e learning through mobile computational devices. Mobile phones have a potential of improving in the teaching and learning process as the tools available as cheaper than other ICT learning tools. The current study assesses how smart phones facilitate the teaching –learning process, identifying the commonly used Smartphone application. The study also assesses the various activities where smart phones can be used and determine the limiting factors of using Smartphone's.

## 2. Materials and Methods

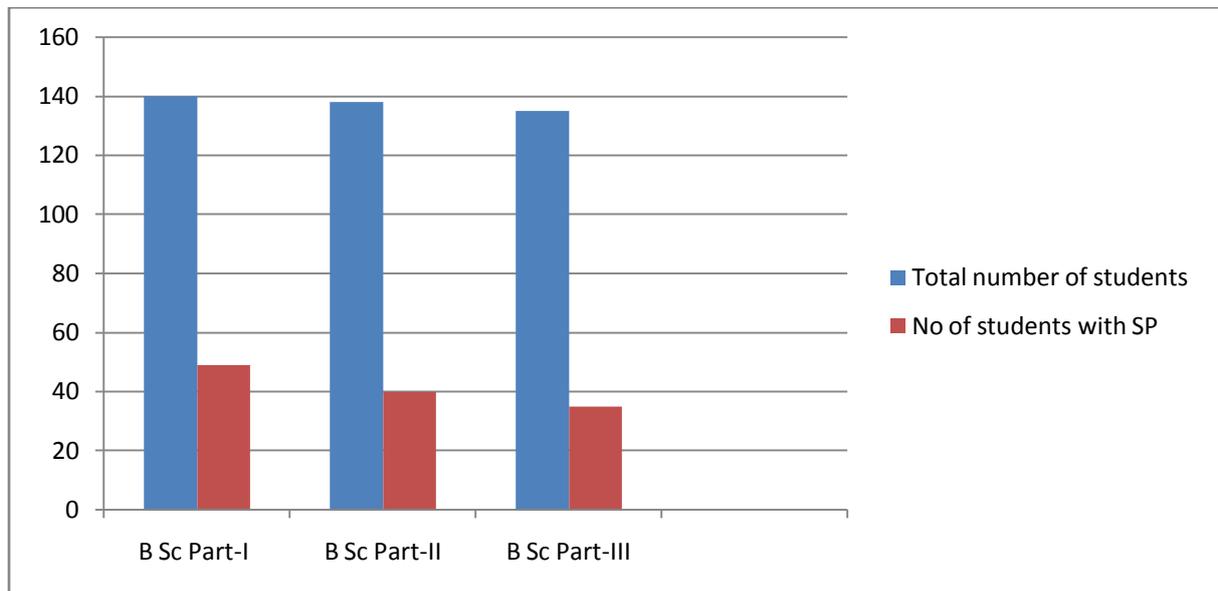
The use of smartphones as a tool of ICT in higher education system of Rajasthan has not been assessed fully and not demonstrated as well. I have chosen a higher education institute as SCRS Government College Sawai madhopur to carry out research and the learner was students of B Sc Classes. The B Sc (Graduation) classes (Part I, II, III) were used to collect different data required for use of smartphones in Higher Education systems in Rajasthan. The science students need to understand concept of problems to reach any result and needed different models, animations, 3d diagrams, charts, cycles. Each class is assessed and evaluated separately through set of questionnaires. The internet connectivity to learner was provided through hotspot of the SCRS Government College, Sawai madhopur.

## 3. Results and Discussions

The institute selected for case study is Shaheed captain Ripudaman Government College Sawaimadhopur. The college is situated in district sawaimadhopur of Rajasthan state in India. The college was established in 1971 under Rajasthan state legislature and currently nearly 5000 students are enrolled in different faculties' viz.-Arts, Science, commerce, Agriculture. The students are coming from all over the district to get higher studies. I have selected B.Sc. Biology stream for the study purposes. Smartphone's are becoming easily accessible device nowadays. Keeping the object of I have divided work plan into following steps

**Tables-** How many students have access the smart phones

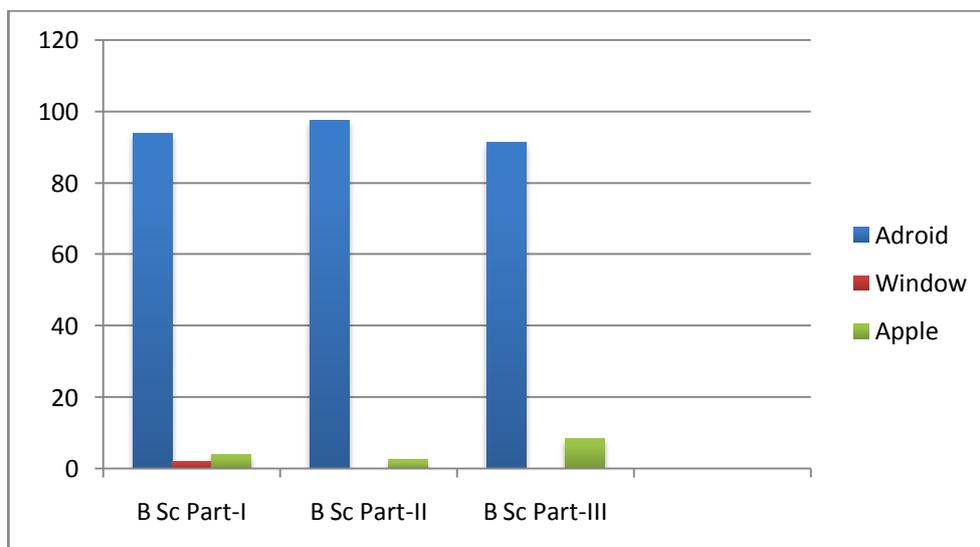
S.No.	class	Total number of students	Number of students have SP	% of students posses SP
1	B.Sc. Part-I	140	49	35
2	B.Sc. Part-II	138	40	28.9
3	B.Sc. Part-III	135	35	25.9
Total		413	124	30.0



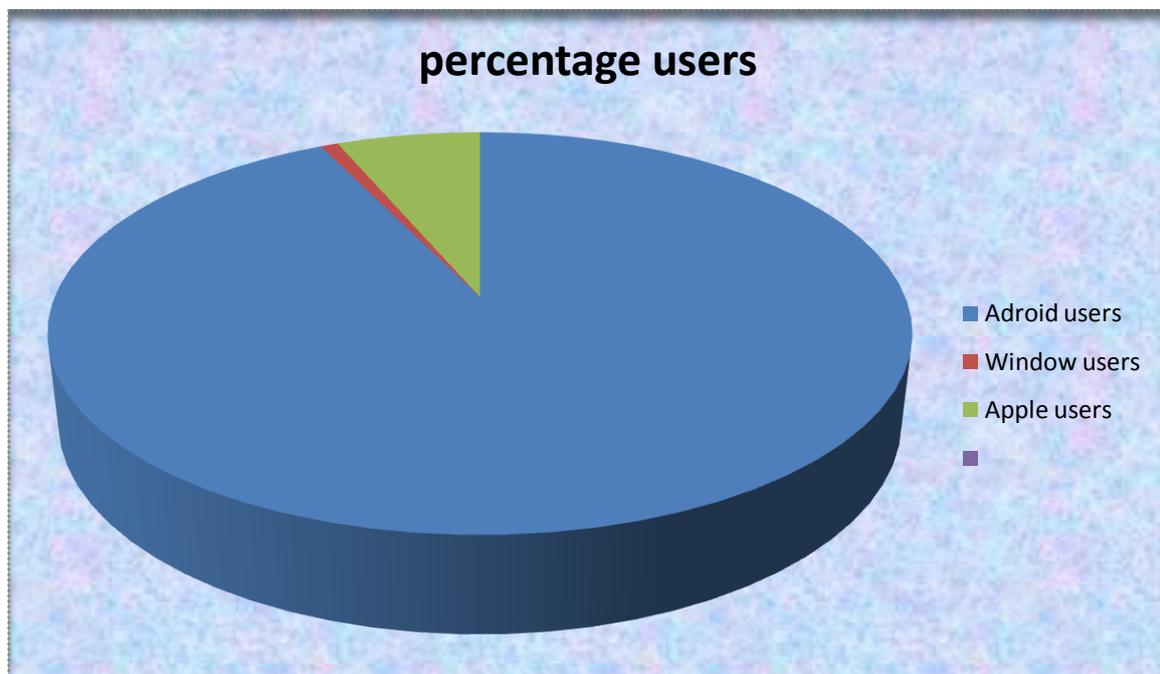
- a. Specification of smart phones
- a. Operating system used in SPs

Sino.	Class	Os as Android	Os as Window	Os as Apple	total
1	B.Sc. Part-I	46	1	2	49
2	B.Sc. Part-II	39	0	1	40
3	B.Sc. Part-III	32	0	3	35
Total		117	01	08	124

Representation of data in percentage class-wise as below



Percentage wise operative systems used are 1. Android- 94.4% 2. Windows-0.8%; Apple-6.5%



Most used apps vs. least used apps in SP

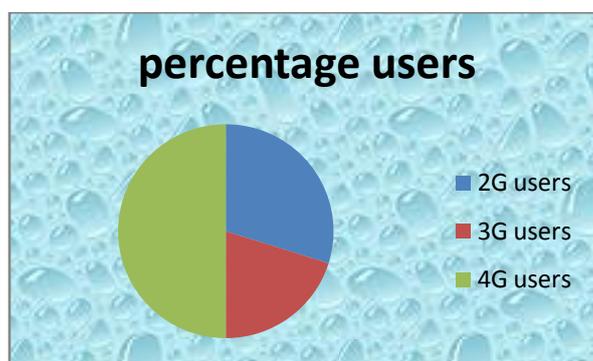
Most used apps are

Sino.	Most used apps	Percentage
1	Utility apps (Calculator, convertor, Translate, camera etc)	80
2	Social Network (Face book, Whatsapp, mail, messenger etc)	95
3	Weather apps (local forecast, natural disaster,	70

Least used apps are

S.No.	least used apps	Percentage
1	Travel apps	25
2	Sports app	15
3	Entertainment apps	40

Ram of SP. 1.Below 1GB-71/124=57.25%; 2.Above 1GB-53/124=42.74%. Networking speed wise. 1. SP with 2G speed-37/124; 2.SP with 3G speed-25/124; 3.SP with 4G speed-62/124 mostly Jio 4G Users



b. Demographic variations of students

S.No.	Class	Girls	Boys	Total students
1	B.Sc. Part-I	60	80	140
2	B.Sc. Part-II	59	79	138
3	B.Sc. Part-III	61	74	135

c. What type of contents viewed on smart phones

Mobile content is any type of electronic media which is viewed or used on smart phones, like ringtones, graphics, discount offers, games, movies, and GPS navigation. As mobile phone use has grown since the mid-1990s, the significance of the devices in everyday life has grown accordingly. Owners of mobile phones can now use their devices to make calendar appointments, send and receive text messages (SMS), listen to music, watch videos, shoot videos, redeem coupons for purchases, view office documents, get driving instructions on a map, and so forth. The use of mobile content has grown accordingly. Camera phones not only present but produce media, for example photographs with a few million `pixels, and can act as pocket video cameras. The SP user with Entertainment, Games are more addicted than study material viewer users.

The most common contents viewed by contents on smart phones regarding study are

1. The definition of terminology; 2. Images of concerned plants/animal/cycle/process/chemical formula etc; 3. The Wikipedia;3. You tube videos of process/practical aspects etc;4. Khan academy teaching materials; 5.Contents regarding questions and answer; 6.Animation of various models

The smartphones are very helpful for bilingual candidate. They can easily get the exact meaning of English language in their study medium. There are many students who feel that Smartphone is a tool which has enhanced their teaching and learning skills. Many tutorials and teaching software are available for different calculation, dissecting material in biology classes; English spoken tutorials by IIT Bombay are available on open software network. This software if used judiciously can enhance our teaching as well as learning capabilities to students as well as for teachers. As per demands and requirement in Biology classes following software found more reliable Biology Software's by NEWBYTES; Scinote; MOIPX; Flexibleparser; IQmol; Animatlab; Dristi; GIMIAS; Bioclips; Open Sftware programme developed by different IITs as part of virtual teaching. SP can be utilize to teach many areas in science topic which required a special knowledge to teach viz.



structure of molecules, function of DNA, structure of DNA, process of photosynthesis and respiration, developmental biology, Paleontology, anatomy, embryology, cytology etc. The topic can be taught based on videos, animation, images, GIF etc and these contents can be shared through the SP.

After delivery of lecture through various ICT tools they feel very comfortable and easily shared the lesson taught by teachers through various sharing tools like whatsapp, facebook, file sharing tools. SP can be used to test instant capabilities of students after class finished. There are many software's which can be used to test the ability and capabilities of students. Most commonly questions are multiple choices and fill in the blank used to assess the learner capabilities.

The SP can be used to share their videos in goggle drive so students can see and revise their class any time. It is also found to be very useful to absent student who are unable to join the class any way. The SP can be used for collecting data for different requirements as 1.To know the feedback of study; 2.Requirements of students; 3.To know learner requirements and facility; 4.Preparation of students for their exams; 5.Feedback required by managements to improve quality and quantity; 6.To make students more participatory; 7.To make study result oriented.

The SP can also used for Assessment students class test and There are many criteria to collect information from learner and following steps can be used 1. Hypothesis, prediction and scale; 2.Setup online study; 3.Setup questions and scale; 4.Bring your study online and make a test; 5.Collection of data; 6.Download the data; 7.Analysis and predictions

The SP can also used for Assessment and evaluation of students work. The Mobile Internet devices and SP have at present a significant potential as learning tools and the development of educational interventions based on SP have attracted increasing attention. The study finds that students use SP and social media for their education even though this technology has not been formally included in the curriculum. This might present an opportunity for educators to design educational methods, activities, and material that are suitable for SP and allow students to use this technology. This accommodating students' current diverse learning approaches in different disciplines. There was positive correlation between SP skills and student attitude toward improved access to learning material helping to learn more independently and use of SP by teaching staff.

Presently most of students in urban cities use SP which is an advantage but it could be disruptive in some cases. Some students are Using SP during lecture which sometimes disruptive the learning process but it can be correlate with multitasking habitat. SP are often banned from classes but have the potential to engage students' participation, for instance, by helping students creating their own content. Students were inclined to think that SP improved access to learning material. However, they were much less positive regarding independence of learning and teaching staff using SP. Further exploration would reveal if this attitude might be different in a course with activities facilitated by the usage of SP. The diversity of SP operating systems overtime and geographical location makes it necessary to use compatible learning applications. Web-based applications such



social media are a good example. A significant number of those who accessed social media with their smart-phones found it of value for learning. Social media blended into traditional educational environments might enhance learning and collaboration despite geographic location. This is promising for courses, as the one in this study, with outplacements activities, and with a portion of students whose vernacular is not the teaching language because social media is shown to improve participation of students whose first language is not English. The younger learner especially below 30 have more skilled and adapted to use of SP Future Research

The SP is very helpful ICT tools if used judiciously and well planned. There are many reasons which need to be enhanced before use of SP as ICT Tools as listed below

1. Faculty members must be trained on how to integrate SP technology into teaching and learning.
2. Faculty members should aware of changing in tools/Gadget etc.
3. Infrastructure facility need to be enhanced
4. Availability of technical and administrative support for faculty members.
5. Well designed lesson work plan
6. Negative aspects of SP as tool need to be convert in positive attitude for both teacher and learner

SP is a tool of real world and its penetration is increasing day by day. The use of it may be debatable in present context but in coming days it will be most efficient and compulsory tool of teaching and learning. The most important trends is that all the teachers are using smart-phone to get connected, to enhance teaching, goggle to any question Using social media as a teaching tool might also require staff to have control over the site content because of the risk of students' inappropriate behaviors, such as breaching patients' privacy and authors' copyrights. Whether students will continue to use social media sites in the same way, if these are moderated or visited by their teachers, is an interesting question to be investigated. The use of smartphones occurring without teaching staff intervention or guidance is an indication of the educational potential of such devices. Smartphones open opportunities for innovative ways to learn and teach. It is encouraging for instructors searching for new teaching methods to see that learning content is accessible, and interaction is possible through smartphones regardless of teaching staff intervention

#### **4. Acknowledgment**

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