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Original Research Article

SMART PHONE AS A TEACHING AND LEARNING TOOL TO ASSESS STUDENTS' PERFORMANCE: A PROSPECTIVE STUDY

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Abstract

Background: Smart phones have a role in learning the subject effectively. Various surveys revealed that majority of the students and faculty enjoy their smart phones as study tools. Smart phone can be used as a Learning objective e.g.; Pose a question and asking the students to search and think critically for the answers and the information, conducting interactive sessions, group discussions and circulating Audio visual clippings.

Objective: To assess the effectiveness of smart phone plus conventional learning with conventional learning alone.

Materials & Methods: It's a one year [November 2017 to October 2018] prospective study on 2nd MBBS students, conducted in the department of Pathology, Government Medial College to the slow learners, who were identified based on the marks secured i.e., < 50%, in the first internal examination.

Students are then subjected to smart phone teaching along with the conventional methodology. Faculty members actively participated in the study. There were more interactive discussions scheduled from 5.00pm to 6.00pm, convenient to both students and faculty, every day using smart phone as a tool. At the end of the 3rd internal examination, the marks are compared with the 1st internals, using appropriate statistical methods.

Results: Out of 170 students 41 were identified as slow learners. After 10 months of smart phone as a teaching tool along with the conventional method, academically 75% of slow learners showed marked improvement.

Conclusion: Smart phone teaching methodology is an adjuvant to the traditional teaching method and has motivated the students in self-directed learning and the outcome is promising with good results.

Keywords: Smart-phone, slow learners, conventional method, self-directing learning, students

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Introduction

Now a day's smart phones are popular and have a role in the class room in learning the subject effectively, but majority of the students use it for communicating, chatting, playing games and other recreational purposes. Already there were various surveys conducted regarding the usage of smart phone as a tool for learning, which reveal majority of the students and faculty enjoy their smart phones as study tools [1].

In exploring how mobile phone helps in the educational programmes, two special issues have to be considered.

1. The use of mobiles for accessing information in medical education.
2. The usage mobiles in facilitating learning of new methods in medical education [1].

For the students, using smart phone is more cheaper and effective method as compared to desk tops and internet for e-learning. The universal availability of smart phones enables teaching medical subjects in cost effective way. The smart phone usage as a learning tool enables the students in getting information to improve their skills and understanding of the subject to achieve the goals. As students actively involved in this method as against traditional method of teaching and learning the impact is long lasting [1, 2].

In conventional teaching the objective is to impart knowledge by teacher to the learner where as in the smart phone learning, the student actively participates in the learning process. Smart phones promote in acquiring knowledge in an effective and efficient manner. The student will learn the subject, instead of memorizing [3, 4]. The study aims to know the effectiveness and perception among students towards smart phone based learning along with the conventional teaching in comparison with conventional teaching method alone.

Materials and Methods

This is a one year [from November 2017 to October 2018] Cross sectional study conducted among 170 2nd year MBBS students in the department of pathology, Government Medical College, Telangana State. Out of the 170 students 40 slow learners were identified based on the marks i.e., < 50% obtained in the first internal examination.

The study conducted after obtaining IEC clearance and written consent of participants

Total nine Faculty members participated in the study. There were interactive discussions scheduled from 5.00 pm to 6.00 pm every day using smart phone as a tool. These students are subjected to smart phone teaching along with the conventional methodology.

Smart phone was used as a learning tool to

1. Pose a question and asking the students to search for the answers. As they respond ask them to think critically about the information that they have found [5, 6].
2. Conduct Interactive sessions.
3. Encourage group discussions.
4. Circulation of audiovisual clips regarding the subject to the selected group of students.

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At the end of the third internal examination, the marks are compared with the 1st internals and analyzed using paired t test. Students and Faculty Perception regarding Smart phone usage as learning method along with the conventional method was collected using a pre tested and validated questionnaire.

Results

The study is conducted on the slow learners who are identified on the criteria of marks obtained after the first internal examination. Students who secured less than 50% were selected out of 170 students 41 found to be identified as slow learners (Table-1).

Table 1: Performance of students before and after utilization of smart phone as a learning tool (n=170)

Marks Obtained	Number of students-Pre test	Number of students-Post test
0-50	41	10
51-60	58	68
61-70	33	50
71-80	30	32
≥81	08	10
Total	170	170

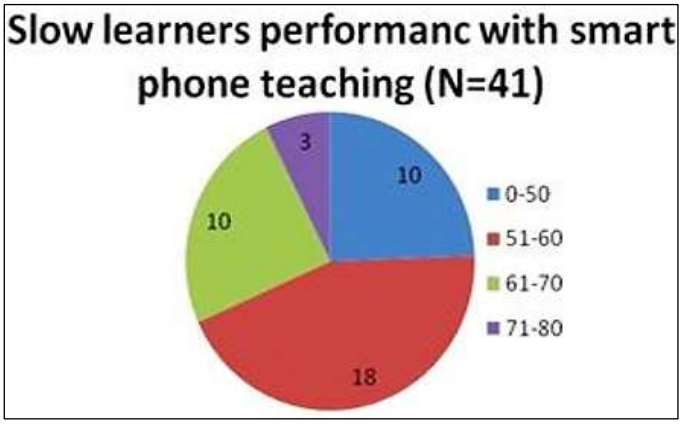

Fig 1: The Percentage of impact of mobile phone learning in slow learners

There is a significant improvement found in the slow learners with the smart phone teaching along with the conventional teaching. The p value is less than 0.0001, indicates the sensitivity of the study.

We have conducted surveys on Students perception regarding the smart phone usage by giving questionnaire (Table 2).

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Table 2: Students perception regarding the smart phone usage by giving questionnaire

Item No	Items	Yes	No
1.	Sessions were useful in developing Analytical thinking in Pathology.	40[97.5%]	1 (2.5%)
2.	Useful in self-directed learning.	41[100%]	
3.	Helped in clarification of doubts.	41[100%]	
4.	Along with the conventional method, smart phone based learning gives better results.	41[100%]	
5.	Helped in increasing communicating skills.	35[85%]	6[15%]
6.	Interactive sessions are more useful with the smart phone based learning.	30[73%]	11[27%]
7	Smart phone based learning and interactive sessions are useful for better understanding of the subject.	41[100%]	
8	The interactive sessions and questionnaire were well organized.	41[100%]	
9	Will like to have similar sessions in the future.	41[100%]	

Majority of the students gave positive response regarding the smart phone teaching-98% we have taken, Feedback from the Faculty (Table 3).

Table 3: Feedback from Faculty

No.	Feedback from Faculty	Yes	No
1.	There is increased scope for self-directing learning by the students	100 %	-
2.	It facilitates interest as well as awareness regarding the subject	100 %	-
3.	It increases the self-confidence of the student	100 %	-
4.	It motivates group activity.	100 %	-
5.	It gives encouragement to the students	100 %	-
6.	Role of Facilitator is important in this session	100 %	-
7.	Smart phone based learning should be continued in pathology and also in other subjects.	100 %	-

All the faculty members gave positive feedback 100%

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Discussion

Smart phone teaching is readily accessible and encourages learners to plan their studies as per their choice at all the times and all the places and even while travelling [7].

Smart phones promote in acquiring knowledge in an effective and efficient manner. The student will learn the subject, instead of laborious memorization of subject. It will improve understand of the subject and forms the foundation for newer learning in comprehensive manner [8].

In a study of Vavoula, some people use the transit time in learning [9]. In our study also students and faculty members utilized the time after college hours from 5.00 pm to 6.00 pm. The ubiquity of smart phones and economic way of learning the subject is a useful method among student community.

Mobile phones promote learning while performing day to day activities. Learning at places other than regular classroom. It enables learning at all places and at all times and apply what is learnt depending on the need and situation [9].

In the present study Smart-phone learning also facilitated and improved communication skills, and helped in collaborative learning and continued conversation among various people, it is comparable with the studies of Nyiri and Sharples. Students are excited to use smart phones in learning their subjects. In our study also faculty members as well as the students were happy and excited in the smart phone teaching and learning [10, 11].

In our study students got motivated for self-directed learning and that is progressed to the learning of other subjects apart from pathology. Smart phones promote individualized learning and enable learners to improve skills and understanding of the subject in meeting one's own goals in education [9] and also facilitate the learners by active participation rather than passive learning. In contrast to the traditional method of teaching where learning is passively imparted, by using mobile phone learning becomes dynamic. In our study along with the conventional class room teaching, smart phone learning facilitated and enabled the student's current knowledge is coinciding the studies of brown [12].

By providing immediate feedback in smart phone teaching encourages students in learning the subject which is not possible in conventional teaching method in our study also the feedback has imparted more and more motivating force. Smart phones promote learning usefulness in relation to the and social context of health related problems and family care [9].

The post-test evaluation proved that smart phone is no less effective to that of learning by face to face, as evidenced by t-test. In our study the t-test was less than 0.001% and shows the sensitivity of the test. This also coincides with a study conducted in Bangladesh [13], where mobile phone supported study group was compared with face to face training programme.

Smart phones with the availability of ready access in teaching helps in learning by alternate methods. Tailor made learning designs add variety and encourages students learning. The learning during the course of the activity-promotes authoritative learning that helps in tackling real life situations and generates interest to the student [14].

The mobile phone learning and teaching is individualized, person centred, Co-operative, universal and long lasting [9].

Feedback of our study of smart phone-assisted learning is found to be highly satisfactory in delivering the content and also less costly [15].

Only disadvantage is more time consuming for the faculty, for the preparation of questionnaire and group discussions and evaluation.

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Conclusion

Smartphone based teaching is self-directing and facilitates interest as well as awareness regarding the subject. It also increases the confidence of the student and motivates group activity among students. Facilitator's role is very important in this type of teaching.

Limitations: More resources to conduct smart phone teaching behind regular working hours.

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