Effectivity of E-Learning through Whatsapp as a Teaching Learning Tool

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Abstract

Introduction: WhatsApp is a free messenger application that works across multiple platform and is being widely used among undergraduate students to send multimedia messages like photos, videos, audios along with simple text messages. **Aims and Objectives:** To assess the affectivity of social media like WhatsApp in delivering knowledge to 4th semester MBBS students and to compare the improvement of knowledge gain through e-learning and didactic lecture. Simultaneously, perception of learners about e-learning via WhatsApp will also be collated. **Material and Methods**: This prospective analytical interventional study was conducted in the department of Pathology from 01.02.2015 to 31.06.2015, on 4th semester MBBS students. Two groups of students were taught the same topics by two different T-L activities i.e., through WhatsApp and via didactic lectures. Assessment of knowledge was done by giving pre and post-test questionnaire of 20 marks for each topic. Perception of e-learning through WhatsApp was done by feedback form. **Observation and Results:** The post test results revealed that the learners with WhatsApp as a learning tool scored in the range of 5-20 marks while those with didactic lecture scored in the range of 3-17.5 marks and had an average of 11.6 and 11.9 score respectively. The two tailed t value between the two groups is 0.635 which is not statistically significant. Technical, educational and instructional advantages of teaching learning activity via WhatsApp out pars disadvantages. Facilitator's availability and Learning anytime anywhere were top two advantages of learning through WhatsApp with 86.72% and 86.55% students agreeing to it. Message flooding, time consuming and eye strain were the other technical disadvantages observed in the present study with 63.23%, 75.28% and 68.53 students agreeing to it. **Conclusion:** Constant availability of facilitator and learning anytime anywhere has made WhatsApp a new and convenient tool for teaching learning activity. Though there is no significant difference between gain of knowledge from WhatsApp or didactic lectures, advantages (technical, educational or instructional) out pars the disadvantages. A few disadvantages, like message flooding and eyestrain can be overruled by making small groups and using mobiles with bigger screen. Enabling a Wi-Fi in the college campus can make its use cost effective.

Keywords: 4th Semester MBBS Students, Learning Tool, WhatsApp

1. Introduction

WhatsApp is a free messenger application that works across multiple platforms like iPhone and android phones, and this application is being widely used among undergraduate students to send multimedia messages like photos, videos, audios along with simple text messages[1].

Since internet facility is required for using WhatsApp, lots of information can also be accessed in real time, and sharing that information through technology is both instantaneous and convenient[2].

According to Bere[3], WhatsApp messenger has the following collaborative features:

- Multimedia: It allows the user to exchange videos, text messages, images and voice notes.
- Group Chat: It supports the interaction of up to 50 group members.
- Unlimited Messaging: The number of messages you can share on WhatsApp is unlimited. The application uses 3G/EDGE internet data plan or Wi-Fi to ensure continuous data transmission across platforms.
- Cross Platform Engagements: Interactants with different devices (personal digital assistants, Smart phones, Galaxy tablets) can message one another through various media (text messages, pictures, videos, voice notes).

- Offline Messaging: Messages are saved automatically when the device is off or outside coverage area.
- No Charges involved: there is no charges involved for using WhatsApp as it uses same internet data plan which is used for email or web browsing.
- Pins and Users Name: WhatsApp user need not to remember passwords or username as it works via phone numbers and integrates with users address books.

There is also an emerging evidence that these Apps have a significant potential to support the learning process and has major implications on pedagogies, allowing direct access to lots of online resources, more focus on student's creativity, autonomy, and responsibility on one's own learning[4,5].

James M. Marshal[6] established that people remember only 10% of what they read, 20% of what they hear, 30% of what they see and 50% of what they hear and see. With the advent of such technologies which combines images, texts and audio all in one can make the percentage even higher than 50%[6].

Educators have also started to notice the new technologies and explore their effects on student behavior and performance. While there is supporting evidence to suggest that these technologies have a large influence on the social development of adolescents, an even more pertinent issue for classroom teachers is what effects these technologies have on the academic development of young people.[2]

Plana et al.,[7] studied the use of WhatsApp in English language among students in Spain and reported a rise in motivation and a greater enthusiasm for reading in a foreign language. Amry[8] also demonstrated the effectiveness of WhatsApp social networking in comparison with face-to face learning in the Classroom.

2. Aim and Objectives

The aims and objectives of the present study are
- To assess the effectivity of social media like WhatsApp in delivering knowledge to 4th semester MBBS students.
- To compare the improvement of knowledge gain through e-learning and didactic lecture.
- Collation of perception of learners about e-learning via WhatsApp.

3. Material and Methods

This prospective analytical interventional study was conducted in the department of Pathology from 01.02.2015 to 31.06.2015, on 4th semester MBBS students. After obtaining ethical approval from the ethical committee, the students are divided into two groups i.e., Group A and Group B. Each group comprised 40 students

The Students were randomly selected by lottery system to participate in either group after obtaining written informed consent. All the students did not have prior knowledge about the topic taught.

Both the groups were taught the same topics by two different T-L activities. All the students were told to download WhatsApp on their mobile phones. They were also ensured to have Wi-Fi as well as mobile data in their phone connection. A group of 40 students was created on WhatsApp by the facilitator and named as Group A. The rest of the 40 students comprised Group B.

Simultaneously a module was prepared on Mycobacterial Infections comprising of micro-photographs, text, audio as well as small video clips. A total of four sessions were prepared on Mycobacterial infections specifically Tuberculosis and Leprosy. First two sessions were of tuberculosis and T-L activity was done via WhatsApp for Group A and via didactic Lecture for Group B. Next two sessions were of leprosy and a crossover was done between the two groups where Group A was taught via didactic lecture and Group B via WhatsApp.

A pretest and posttest questionnaires on the topic being taught along with the feedback form was prepared and validated. Assessment of knowledge was done by giving pre and posttest questionnaire of 20 marks for each topic, to both the groups in the beginning and at the end of the TL activity respectively. Perception of e-learning through WhatsApp was done by feedback form.

4. Observation and Results

During TL activity via WhatsApp, a total of 95 questions were asked by the learners, 22 of them shared learning material and 170 answered to the queries put up either by the facilitator or learner. Various emoticons (167 in number) for example like emoticon, clap emoticon, smiley emoticon, confused emoticon, wish emoticon etc., were also received. During didactic lectures, only 19 questions were asked by the learners which were answered by the facilitator and 24 learners answered to the queries put up by the facilitator. None of them shared any type of learning material either with the facilitator or among themselves.

Majority of the learners agreed that objectives were clearly communicated to them (59.20%), contents supported the objective (80.0%) activities and exercise assisted them in learning (57.34%), topics were well

organised (75.0%) and the course length was appropriate for the information presented. (Chart No. 1)
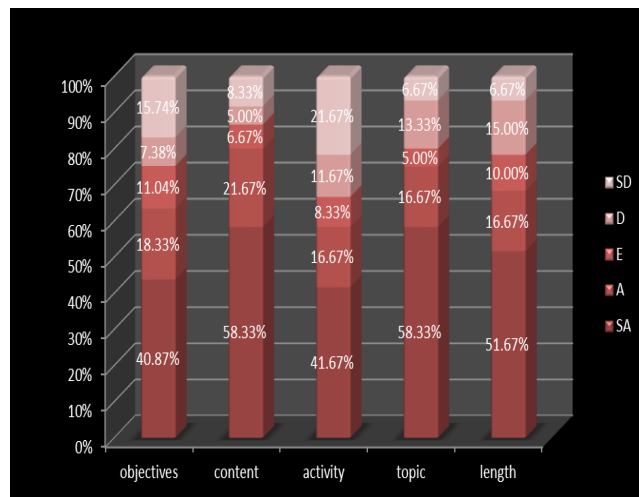

Chart 1. Learners perception about Whatsapp learning sessions.

(SA: Strongly Agree, A: Agree, E: Equivocal (neutral), D: Disagree, SD: Strongly Disagree)

Ninety percent of the learners were aware of the new method introduced and 70.00% agreed that a professional as well as comfortable learning environment was created on Whatsapp. More than 70% learner said that the facilitator promoted critical thinking and self directed learning and handled distractions during the sessions appropriately (Chart No 2).
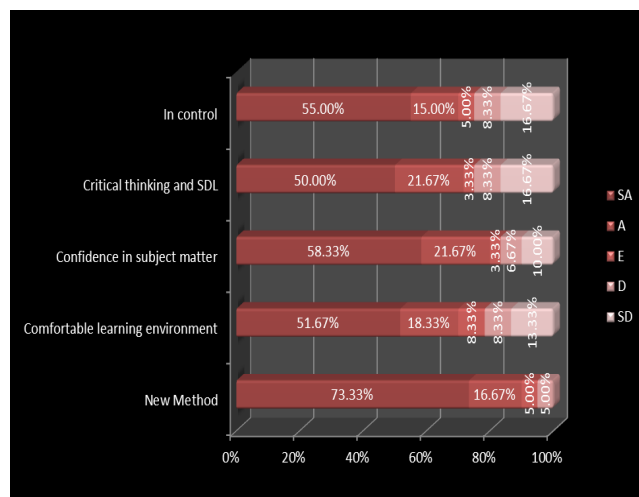

Chart 2. Learners perception about facilitator during Whatsapp learning sessions.

(SA: Strongly Agree, A: Agree, E: Equivocal (neutral), D: Disagree, SD: Strongly Disagree)

A total of 80 students were taught via WhatsApp and Didactic lectures, only 60 students appeared for the test. Pre-intervention scores as assessed by a pre-test questionnaire of 20 marks each for both the topics were in the range of 1-7.5 marks for the WhatsApp group and in the range of 1-6 marks for the Didactic group with an average of 3.30 and 3.14 respectively. Pre-intervention mean score amongst WhatsApp and Didactic sessions were not found to differ statistically (p = 0.514). But when compared to post intervention scores, both the group showed significant improvement from their baseline scores but no significant statistical difference was observed between the group (p = 0.635) (Table 1).

Table 1. Comparison of pre and post intervention marks obtained in two different teaching learning tool

S. No.	Intervention	Teaching Learning Tool	Mean	SD	Unpaired t test
I	Pre-intervention	WhatsApp	3.14	1.32	p=0.514 t=0.555 df=118
		Didactic Lecture	3.30	1.80	
II	Post-Intervention	WhatsApp	11.6	3.53	p=0.635 t=0.472 df=118
		Didactic Lecture	11.9	3.4	

Table 2 and Table 3 describes the perception of the learners (n = 60) about WhatsApp as learning tool along with its advantages and challenges faced on its application as a learning tool. Both the advantages and challenges were measured on the scale of 1 to 5 with 1 referring to strongly disagree, 2 to disagree, 3 to neutral, 4 to agree and 5 to strongly agree. Thirty eight students i.e., 58.52% were already using WhatsApp for other social activities and the rest of the students had to download it before the sessions started. Thirty four learners (53.34%) and 46 learners (79.62%) agreed on high interaction between themselves as well as with the facilitator during TL activity respectively. Also, more than 60% learners agreed that WhatsApp provides easy accessibility to learning material as well as facilitator, and doubts if any can be cleared immediately.

There were many challenges faced by the learners on using WhatsApp as TL tool (Table 3) with more than 60% learners agreeing on technical challenges comprising availability of smart phones, message flooding, time consuming and continuous focusing towards the mobile screen leading to ocular muscle fatigue. Also, 74.97% and 79.62% learners agreed that there were no efforts by some students and some learners only share material to impress the facilitator.

Table 2.   Advantages of WhatsApp as teaching learning tool

S.N.	Advantages/ Subcategories	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
TECHNICAL						
1	Simple to use	29 (44.21)	19(39.67%)	3 (1.80%)	2 (2.13%)	7(12.19%)
	Free of charge	1(0.27%)	2 (2.30%)	5 (7.49%)	5 (5.74%)	47 (84.21%)
	Easily available and down-loadable	22 (32.35%)	21(34.10%)	6 (16.83%)	2 (3.22%)	9 (13.50%)
	Privacy	7 (8.47%)	12(23.28%)	4 (5.41%)	21(34.48%)	16 (28.36%)
	Already using it	32(49.56%)	6(8.96%)	7 (12.79%)	2 (6.50%)	13 (22.19%)
EDUCATIONAL						
2	Conducive environment	15 (26.01%)	18 (28.03%)	17 (28.74%)	-	10 (17.21%)
	Sense of belonging to the group	21 (33.93%)	21 (32.13%)	3 (5.36%)	5 (8.85%)	10 (19.73%)
	Interaction between students,sharing learning material	17 (27.38%)	17 (25.96%)	11(17.21%)	-	15 (29.45%)
	High Interaction with facilitator	23(38.96%)	23 (40.66%)	3 (1.42%)	4 (7.16%)	7 (11.80%)
	Doubts immediately cleared	20(40.27%)	22 (33.61%)	9(16.61%)	-	9 (9.51%)
INSTRUCTIONAL						
3	Easy accessibility to learning material	25 (37.21%)	22 (40.00%	4(2.40%)	-	9 (20.38%)
	Facilitator's availability	28 (44.37%)	23 (42.35%	3(5.36%)	3 (2.13%)	3 (5.79%)
	Learning anytime anywhere	39 (61.09%)	13 (25.46%)	3 (5.03%)	1 (2.51%)	4 (5.90%)
	Provides secure environment	20 (34.04%)	12 (17.38%)	13 (21.09%)	5 (5.25%)	10 (22.24%)

Table 3.   Challenges faced by the learners on using WhatsApp as a TL tool

S.No	Advantages/ Subcategories	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
TECHNICAL						
1	No smart phone	38 (59.23%)	14 (27.98%)	-	6 (8.20%)	2 (4.59%)
	Message flooding	36 (57.16%)	9 (16.07%)	5 (10.16%)	3 (4.92%)	7 (11.69%)
	Time consuming	29 (54.54%)	14 (15.74%)	-	5 (11.26%)	12 (18.47%)
	Group maintenance	23 (34.15%)	8 (14.37%)	14 (23.66%)	1 (2.73%)	14 (25.08%)
	Eye strain	31 (52.79%)	11 (15.74%)	5 (5.68%)	5 (14.37%)	8 (11.42%)
EDUCATIONAL						
2	High expectation of teacher's availability	31 (43.11%)	9 (17.98%)	5 (10.93%)	4 (8.96%)	11 (19.02%)
	Huge amount of learning material makes it confusing	20 (40.87%)	18 (24.97%)	7 (11.04%)	7 (7.38%)	8 (15.74%)
	Use of inappropriate language	3 (4.64%)	4 (9.18%)	2 (1.80%)	4 (6.45%)	47 (77.92%)
INSTRUCTIONAL						
3	No efforts by some students	35 (63.17%)	8 (11.80%)	3 (5.30%)	7 (9.67%)	7 (10.05%)
	Some students share material to impress facilitator without actually learning about it	34 (57.65%)	14 (21.97%)	4 (7.43%)	2 (2.73%)	6 (10.22%)

5. Discussion

Over the past year, the high infiltration of Smartphones into the market has initiated growing use of WhatsApp as a communication platform for various student groups, and more recently for groups of teachers and their students as well. Teachers can create a group for their students that constitute a type of "simple social network" for the class[9]. As of today, it seems that WhatsApp has advantages over other technological tools employed by the education system, such as low cost, simplicity, accessibility, efficiency, and natural language[10]. Until recently there was no technological tool which was used naturally by adults and students alike.

In the present study, groups of 40 students were created on WhatsApp and TL activity was done. It was observed that more interactions in the forms of questions, answers, sharing of learning material as well as different emotional gestures of thank you, well done etc., were present in the TL sessions of WhatsApp as compared to the didactic lectures. Rambe and Chipunza[11] also observed that WhatsApp supports knowledge sharing between students, and between students and teachers. Students in their study named WhatsApp as a "communication, transnational platform" where they can express themselves freely in a non-restricted environment thus removing the low participation constraints characteristic of lectures. Bansal and Joshi[12] also observed in their study that 82% students' were eager to post videos, audios, texts on the problems and were also learning from other's posts.

However, when the knowledge gained by two different methods was compared in the present study, the results were not statistically significant. Amry[8] explored the impact of WhatsApp mobile learning activities on the achievements and attitudes of online students and compared those findings with students who were subjected only to face-to-face instruction in the classroom and found that the experimental group using mobile learning through WhatsApp mobile instant messaging performed better than the control group on the achievement test following the experimental period. Almost same learning material in the form of microphotographs, gross photographs, small video clips, and text were used in PowerPoint presentation in didactic lectures of the present study, and it may have led to the result with no significant statistical difference in the knowledge gained through didactic lectures or TL activity through WhatsApp.

Facilitator's availability and Learning anytime anywhere were top two advantages of learning through WhatsApp with 86.72% and 86.55% students agreeing

to it. M-learning increases the flexibility of accessing a variety of resources for learning independently at anytime and anywhere[13]. Seventy three percent students in a study of Bansal and Joshi[12] found learning anytime, anywhere convenient with disagreement coming only from those students who did not want to compromise on family time.

Amongst technical advantages, most of the students agreed that WhatsApp is simple to use and easily available and downloadable but 89.95% students disagreed that it is free of charge as the college campus is still not Wi-Fi enabled and they had to take packages with mobile data which had cost slightly more than the plan without mobile data. Bouhnik & Deshen[14] had concluded that WhatsApp is simple and provides privacy along with low cost application as compared to other social network like Facebook or twitter. Since students in the present study also used to do social networking on Facebook and twitter,

Interaction between students, sharing learning material, easy accessibility to learning material, High Interaction with facilitator and Doubts immediately cleared were the other educational advantages of WhatsApp TL activity with more than 70% students agreeing to it. Fifty six percent participants in a study of Bansal and Joshi[12] agreed that learning through WhatsApp m learning has educational benefits like immediate feedback to the problem; learning on move; deeper clarity on issues; revision of previously learned topics; learning from others problems; healthy discussions; and availability of learning material all the time. WhatsApp enables learning beyond the classroom's borders and the high availability of teachers to the students' questions can potentially enhance the learning Process. It also enables easy and quick transference of links to study materials[14]. But those students who were not in concurrence cited low internet speed for receiving context after a while leading to disruption of the flow of TL activity causing confusion.

Along with the advantages, there were many challenges faced by the students as well as facilitator during TL activity through WhatsApp. Though 87.21% students agreed that smart phone is a pre-requisite for WhatsApp, it was temporary and the students who did not have smartphone in the beginning arranged one for the sessions. Bouhnik and Deshen[14] also observed the fact that not all students have access to the application is temporary, since the number of students with Smartphones increases daily.

Message flooding, time consuming and eye strain were the other technical disadvantages observed in the present study with 63.23%, 75.28% and 68.53 students agreeing to it. Some teachers also reported being swamped by too

many messages, in a way that burdened and annoyed them, especially if they have more than one group or groups that are bigger than 15 students[14]. Since the group comprised of 40 students in the present study, it could have led to message flooding and consumption of more time. Many of the students had smart phone with small screens (less than 5 inches) and many of them wear spectacles which may be the reason for eye strain after continuous staring towards mobile screen.

More than seventy percent students agreed that there were no efforts by some students and some students shared learning material only to impress facilitator without actually learning about it. Bansal and Joshi[12] in their study also observed that some students disagreed on the fact that WhatsApp provides collaborative learning and gave the reason that not everybody shared the content in the group.

Use of inappropriate language was not witnessed in the present study with 84.37% students denying it. However, challenges, such as the demand for constant availability, foul language and behavior, may cause adults to feel uncomfortable[14]. It is also worth taking into account that operating such a group requires the teachers to invest time beyond their regular work hours, in addition to being swamped with messages.

6. Limitations

One of the biggest limitations of the study was absence of Wi-Fi connection within the college campus and students had to use mobile data for the sessions, where the data speed was low leading to delayed downloading as well as uploading of the learning material. The other one was that only four sessions were conducted on WhatsApp with a group of 40 students. Long term study with more time and more number of sessions, if dedicated to this new innovative methodology of TL activity, may throw more light on its efficacy in comparison to didactic lectures.

7. Conclusion

High infiltration of Smartphones has initiated growing use of WhatsApp for groups of teachers and their studentsto support the learning process by allowing direct access to lots of online resources. Combination of medium like videos, pictures and voice notes along with constant availability of facilitator and learning anytime anywhere, has made WhatsApp a new and convenient tool for teaching learning activity. Though there is no

significant difference between gain of knowledge from WhatsApp or didactic lectures, advantages (technical, educational or instructional) out pars the disadvantages. A few disadvantages, like message flooding and eyestrain can be overruled by making small groups and using mobiles with bigger screen. Enabling a Wi-Fi in the college campus can make its use cost effective. Learning via WhatsApp, that's what's up!

8. Acknowledgement

9. References

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