WhatsApp Application: An Effective Tool for Out-of-Class Activity

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Abstract: In the digital era of education**,** use of ICT is found to be vital in different levels and different types of education to improve teaching-learning process. Now, due to rapid increase in smart phone and internet users a new paradigm shift in learning is m–learning. Even social networking and instant messengers become very much popular in communication and also in education. This study focuses on effective use of WhatsApp Application as an out-of-class activity for campus placement preparation for third year engineering students. Daily around 30-40 minutes ***WhatsApp Activity*** was conducted where one student posted technical questions after rigorous study and remaining students posted answers to these questions in 30 minutes duration. This was followed by assessment and discussions. This activity was completely of students for the students and by the students. After analysis, we found that students found more interest in WhatsApp activity and were more active in WhatsApp activity than *In-class activity*. During this activity students learnt managerial, technical and communication skills. Hence, WhatsApp can be used as an effective tool for *out-of-class activity* for multiple purposes like sharing information, assessment, discussions, feedback, flipped classroom concept etc.

Keywords: WhastApp Application, out-of-class activity, Teaching-learning Process, m-learning, Discussion forum

1. Introduction

Due to sudden expansion in engineering institutions and students' intake India, countryside institutes are getting low quality students. Preparing these students ready for industry is a great challenge. Every Institute takes efforts to prepare students for campus placement by arranging workshops, soft skill sessions, aptitude & technical tests, group discussions etc. Unfortunately, it is observed that students are lagging in general aptitude, communication skills, technical skills etc. To improve teaching learning process has vital role in teaching learning process over conventional teaching.

Now, due to rapid increase in smart phone users and internet users, a new paradigm shift in learning is now m–learning which the next phase of e-learning. There are many benefits like anytime & anywhere access, facilitates collaborations, reduces barriers between students and teachers etc but limitations are connectivity, device compatibility (Mohamed Sarrab et el., 2012). Mobile technologies are used in many online courses and universities worldwide (Jimoyiannis A et el. 2013). Even social networking and instant messengers become very much popular in communication and also in education. Website [1] Statistics says that for 2017 the number of mobile phone users in India is expected to rise to 730.7 million whereas more than 1 billion people are over 180 countries are connected through WhatsApp, making it world's more popular messaging application. WhatsApp Application become popular due to its features (Chokri Barhoumi 2015): Freely available, facilitates reliable and simple messaging, allows sharing of material easily by texting, messaging, uploading images and videos, used as discussion forum etc [2].

Factors like innovations in teaching learning process, youngsters' active participation in social networking & instant messaging, addiction of mobiles & Android apps motivated us to use WhatsApp Application as an out-of-class activity for campus placement preparation. Our study focuses on the use of WhatsApp Application to enhance students' conceptual understanding of courses from computer & allied disciplines, active participation in daily learning and improve communication & managerial skills. It also focused on to create, share and refer repositories of technical stuff which will be helpful for students for campus preparation. We conducted daily activity using WhatsApp Application and found that students found more interest than regular In-class activity.

Section 2 discusses the literature survey and in Section 3 provides the details about the experiment setup. Methodology & implementation is discussed in section 4. Findings are discussed in Section 5 followed conclusion.

2. Literature Review

In the digital era of education, mobile technologies play an important role. Now a day, Social networking sites like Facebook and instant messengers like WhatsApp are used in education for different purposes. Many people used different technologies along with conventional teaching. A learning process is blended by combining In-class activities

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with WhatsApp activities instead of conducting entire learning in the class for the course scientific research methods in information science and found very effective as compared to only 100% In-class activity (Chokri Barhoumi 2015). Facebook and WhatsApp application are used in distance education program for English translation course. Author investigated the participation of students in online discussion and their views & feedback regarding the use of Facebook and also tried to find whether Facebook and WhatsApp will help to build strong learning community in distance education (Adhi Susilo 2014). WhatsApp application is also used out of the classroom for calculus subject to improve conceptual understanding and found that students who were inactive in the class became more active in WhatsApp activity but he has reported that flexible learning caused due to Whatsapp (Siti Balqis Mahlan et el. 2014). WhatsApp application tool is used to improve student's writing skills of English department. Author also recommended that communication between teacher and students can be improved via exchange of files using WhatsApp tool (Said Fathy El Said Abdul Fattah 2015). One more use of WhatsApp is found for communication purpose between high school teachers and students. This platform was used for exchange of ideas and suggestions, open discussions with students which lead them to know the depth level of understanding of the students, to build healthy atmosphere and trust in students (Dan Bouhnik and Mor Deshen 2014).

From the literature, it is found that WhatsApp application is used effectively for the subjects like English, Mathematics, Information Science etc and in online courses & distance education. Here, we have used WhatsApp application Tool as Out-of-class activity for enhancing conceptual understanding of courses from computer engineering & allied discipline and preparing students for campus placement. Students concurrently participated in this activity for posting answers and then in discussions to clarify the concepts.

3. Experiment Details

Department of Information Technology conducts campus preparation classes for third year students every year but it is observed that due to continuous assessment, other co-curricular activities and many reasons, students don't attend these classes regularly. So, to increase active participation in daily learning, we formed a learning community group called ***'TEIT Class'*** using WhatsApp Application.

A. Objectives

Using WhatsApp Application,

1.To enhance students' conceptual understanding of courses from Computer engineering & allied disciplines, communication & managerial skills etc.

2. To increase active participation for daily learning

3.To motivate students to create, share and refer repositories of technical stuffs.

B. Samples Used

The experiment was carried out for the Third Year class of Information Technology. The class was divided into two groups Experimental Group and Control Group. 30 students voluntarily joined this WhatsApp Group (Experimental Group) whereas remaining 30 students attended only regular placement classes (Control group) as shown in Fig 1.

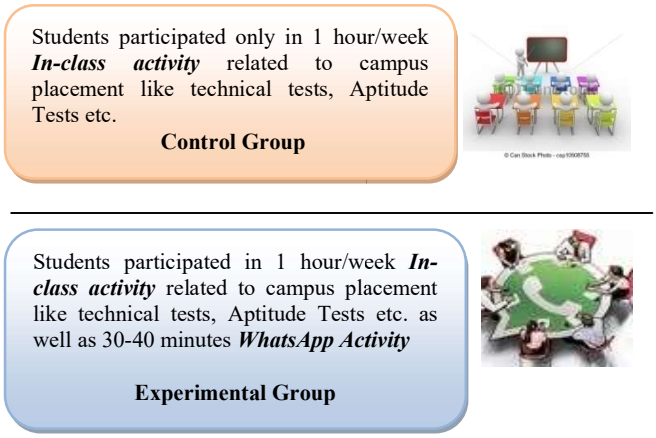


Fig. 1 Experiment Setup

C. Courses Covered

Courses covered in this activity were from Computer Engineering & allied discipline: C, C++, Java Programming, Data structure, Unix Operating system, Computer Networks, Design & Analysis Algorithms, Software Engineering and Software Testing etc.

4. Methodology

This WhatsApp Activity was carried out in three steps as shown in Fig. 2.

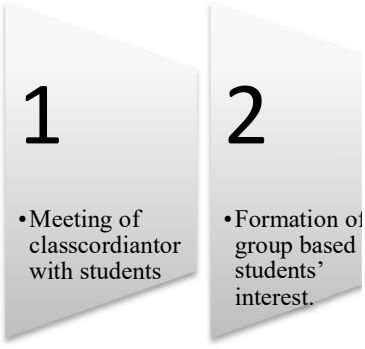
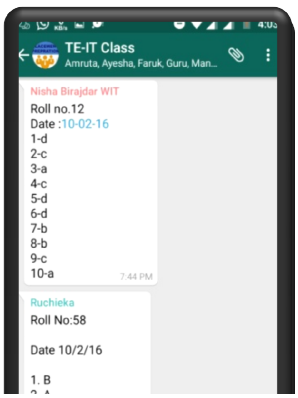


Fig. 2 WhatsApp Activity

A. Meeting of Class-Coordinator with students

A meeting was conducted in TEIT class to discuss about activity, decide rules & regulations, ethics to be followed etc. Objective of this activity was clearly mentioned to the students.



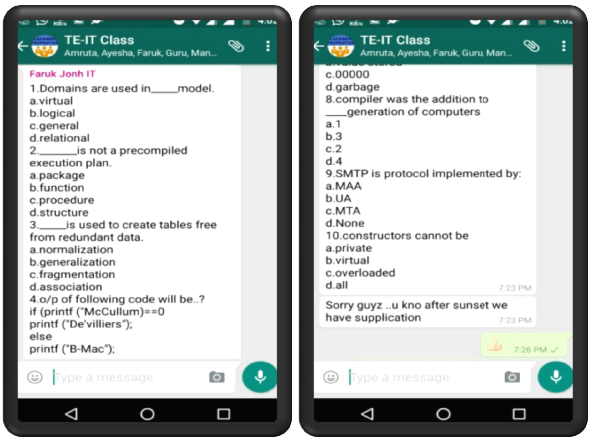
It was decided that every day one student will post 10 questions and remaining students will participate by posting the answers. Duration set for posting answer was 30 minutes. One student who will post maximum correct answer first will be announced as winner of the day. It was also decided to conduct this activity for two months.

B. Formation of Group

After conducting meeting a WhatsApp group called ***'TE-IT class'*** was formed on 2nd February 2016. 30 Students voluntarily joined this WhatsApp Group. One faculty member was member of this WhatsApp group for monitoring activity and one student was appointed as an activity coordinator. Schedule of two months was prepared by coordinators to see that every student will get a chance to coordinate the activity.

C. Daily Activity

As per schedule, daily one student posted 10 questions at 7 P.M. and 30 minutes duration was set for posting answers. Questions were of different cognitive levels (Recall, Understand, Apply, Analyse and Evaluate) as per Bloom's taxonomy. For smooth conduction of the activity, provision of change of student coordinator was made. Students posted the questions by texting or imaging. Important part of this posting question was collection of questions. For posting questions students referred many websites, books, e-material etc and did rigorous study of questions. As a result, repositories of technical stuff got ready for further study and practices. Here, complete activity was managed by students and hence role of teacher was kept only of monitoring the activity. Fig 3 shows snapshot of one day's posting.



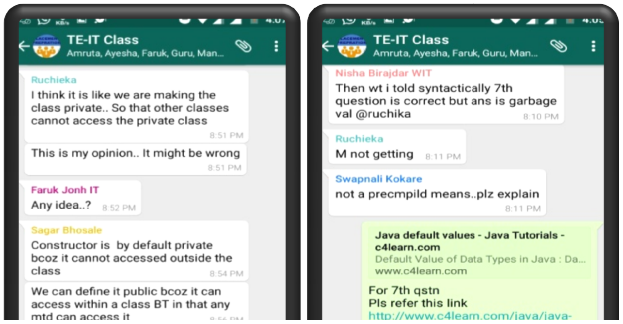


Fig. 3 Questions Posted

The remaining students in a group posted answers within 30 minutes by referring different resources like Books, Internet as shown in Fig. 4. The objective was not to score

Fig. 4 Answers Posted

marks by attempting or answering the questions but to clarify the concepts, which was clearly told to students, so there was liberty of refereeing material. Once the time is over, student coordinator collected the log, evaluated the answers and then, winner is announced who posted maximum correct answers first. Important part of this activity was the discussion followed by test as shown in Fig.5. Students were supposed to justify their answers. This justification helped to not only to clarify the doubts & misconceptions, if any but extended to related topics also. We found that discussion was continued next day in the classroom with respective faculty members. As the test was immediately followed by discussion, the effect was long-lasting. Faculty coordinator was monitoring the archived log of daily activity to analyse the participation of the students. This forum was not only used for daily tests but used for sharing and discussing topics related to campus placement, current trends in IT industry etc. They had healthy discussions through this platform.

Fig. 5 Discussions followed by Test

5. Findings & discussion

We did the analysis of participation of both the groups where we found that students' participation was more as compared to In-class activity of control group. Around 90% students participated regularly in WhatsApp activity whereas they attended 60% in-class activity intermittently. After analysing daily logs we observed that that all students tried to post the answers but not all students participated in daily discussions. Statistics are shown in Fig. 6.

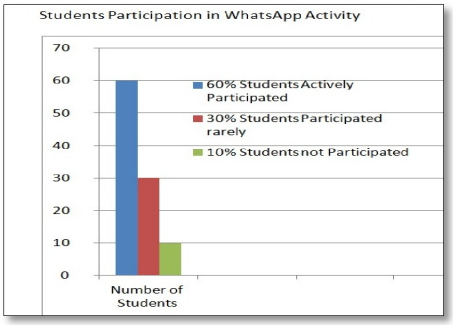


Fig. 6 Students' Participation in discussion

A. Students' Achievements

1) At university level, one competition '*SEED IT IDOL*' was held where more than 5000 students from all institutions participated. Out of 5000, 500 students from our institute were participated. 3 students from the experimental group were amongst top 20 students at

university level whereas no student of control group was shortlisted.

2) One multinational software company Persistent Systems Software Ltd. conducted a technical test for students' internship. Fig. 7 shows the Result of test where 3 students from this experimental group were selected and got the internship for the current academic year 2016-17.

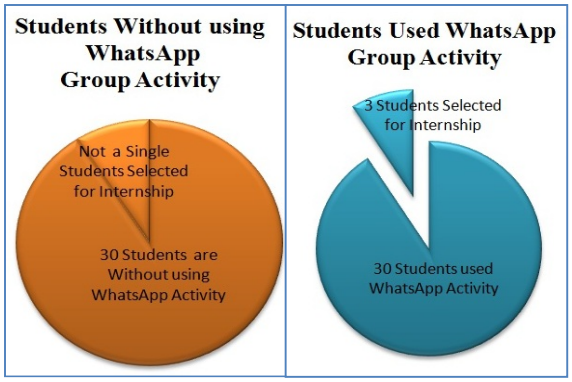


Fig. 7 Students' Internship Results

3) As on date, three Multinational Companies visited for campus and conducted technical & Aptitude test for campus placement. Till date, 12 students from experimental group and 1 student from control group got placement. More companies are yet to visit the institute for placement.

B. Students' Perceptions @ the WhatsApp Activity

To know the students' perception about this activity, 5 point likert scale survey questionnaire was designed which is summarised in Table 1. After quantitative analysis, we found that around 93% students found this activity more interesting than regular In-class activity for campus placement preparation. Around 83% students have shown interest to use WhatsApp as out-of-class activity for other courses. They have also shown interest in using other tools like WhatsApp.

Table 1. Students' perception about WhatsApp Activity

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
WhatsApp activity found more interesting than regular In-class activity for campus placement preparation.	80%	13.33 %	6.66 %	0 %	0%
Activity helped to improve Communication and Management skills.	83.3 3%	13.33 %	3.33 %	0 %	0%
While Searching Questions we came to know about different education websites which will be helpful to prepare for campus placement.	86.6 6%	13.33 %	0%	0 %	0%
Discussions related to answers posted, immediately followed by test helped us to clarify the concepts and doubts.	40%	50%	0%	10 %	0%
Due to different cognitive levels of questions covered in this activity improved learning.	90%	10%	0%	0 %	0%
We would like to continue the use of WhatsApp for out-of-class activity for other courses.	83.3 3%	16.66 %	0%	0 %	0%

C. Observations:

From qualitative analysis of feedback from open ended questions we have summarised following points

- Students found more interest in WhatsApp activity than In-class activity.
- Creation of repository: for Posting 10 Questions, Students searched about 200-300 Questions. Also, they got the information about different education websites which are helpful for placement preparation.
- Students coordinated activities which helped them to improve Management skills.
- Students came to know about different cognitive levels of questions like Recall, Understand, Apply, and Analyse level as per Bloom's Taxonomy.
- Discussions continued even in class related to questions posted on previous day in a group. As discussion was immediately followed by discussion, the effect was long lasting. These regular discussions helped them to improve their communication skills.
- Moreover, Students started discussing and collaborating via this forum.

Here, since complete activity was managed by students, role of teacher was only monitoring the activity to see that it will not lead to off-track discussions. Teachers can use this application as an out-of-class activity for concept clarification, group discussions, formative assessment, feedback etc for small or large group depending on their availability. We have observed that such activity can be carried out effectively for smaller groups of size up to 60. If anyone wants to use this activity for sharing material, then Whatsapp supports maximum 16 MB file as on date and for large group, members can be from 100 to 256 and the most important is internet availability. If internet is an issue then one can use intranet and learning management systems for these types of activities. In future, we will try to carry out such activity for large group.

6. Conclusion

We found that use of technology helps to improve student centric learning. Also, effective use of discussion forum

helps students for concept clarification, improving skills like communication, technical, managerial, etc. WhatsApp Application can be used as an effective tool for multiple purposes like sharing information, assessment, discussions, feedback, flipped classroom concept etc as an out-of-class activity but with some limitations like file size, internet availability etc. Use of mobile technology with conventional teaching will help to improve teaching-learning process.

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