Use of WhatsApp Technology to Improve Understanding and Self Learning Ability of Engineering Students

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Abstract - **In today's academic system teaching has become more difficult and learning becomes so far lagging in the students. The students are now resistive with the traditional teaching methods. Some of the difficult concepts cannot be taught by using Chalk and Talk method. So, use of ICT tools and innovative teaching learning pedagogy becomes essential in engineering colleges. But due to lack of sufficient time, all methods cannot be implemented. In this research, WhatsApp technology is used for better understanding and self-learning of the difficult concepts. The impact of this method on the understanding of the participants is also analyzed.**

Keywords: **Teaching, Self-learning, WhatsApp, Pedagogy, Videos, Survey.**

I. INTRODUCTION

The fluid and turbo machinery course is introduced in the second year at our autonomous institute. The main objective of this course is to develop problem solving skills and to improve knowledge of different hydraulic and turbo machines used in mechanical field.

It is not possible to show actual machines at theory and practical hours [1]. This requires new way of teaching which illustrates the construction and working of turbo machines.

There are different methods of learning such as active learning, collaborative learning, poster making, think pair and share, power point presentations, videos. Use of such activities promotes learning as it is requirement of 21st century learners [2].

Students were showing interest in this course due to the use of innovative teaching learning aids like Moodle, assignments, and Gate tutor software group where teachers can configure their own topic tests as they want [3].

Today's students are using more technology than any previous generation. WhatsApp is one of these technology so this can be used for better understanding and self-learning of the students [4].At the student level, self-learning capability should be increased as it is most useful in the industry [5].

So, it is tried to improve self-learning and understanding of difficult concepts of this course by using what's app technology in their hand.

II. METHODOLOGY

A. Participants

The participants in this study were about 60 second year mechanical engineering students enrolled for the course fluid and turbo machinery during the academic year 2019-2020 in DKTE Society's Textile and Engineering Institute, Ichalkaranji, Maharashtra, India.

B. Procedure

In the beginning what's app group of selected students was formed. The difficult topic to understand from fluid and turbo machinery was selected as Centrifugal Pump for this research.

The different videos from you tube regarding points such as working principle, different types of heads and efficiencies, MPSH and NPSH for centrifugal pump were shared to the students WhatsApp group.

The students were informed to follow these videos and understand the various concepts in centrifugal pump.

The topic implementation results, and assessment can be done by using survey questions. The feedback is collected from Participants in the research.

This was analyzed by using graphs [6, 7]. The Figure 1 shows the flow chart of activities carried out during the research.
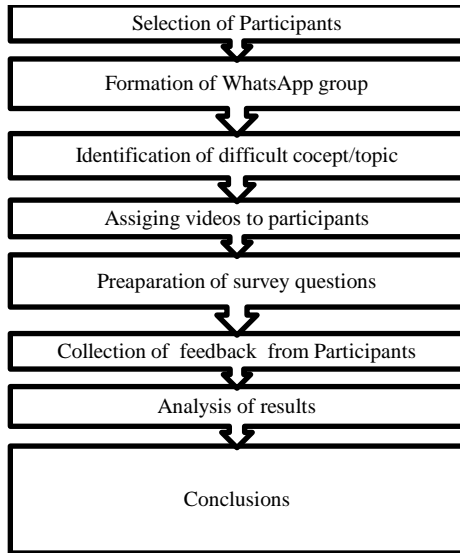
Selection of Participants

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Formation of WhatsApp group

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Identification of difficult cocept/topic

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Assiging videos to participants

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Preaparation of survey questions

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Collection of feedback from Participants

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Analysis of results

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Conclusions

Fig.1 Flow Chart of activities carried out during Research Process

III. COURSE IMPLEMENTATION RESULTS AND ASSESSMENT

When the expectations of the course were discussed in the class and proposed provision was communicated, many of them welcoming the use of WhatsApp for self-learning.

To assess the impact of WhatsApp based self-learning approach a survey was conducted. As a part of the survey the following questions were asked to the participants.

1. Do you watch the assigned videos on time (choose one)?
a) Always   b) Most of the time   c) Never   d) rarely e) some of the times
2. Does watching videos help you understand the subject better (choose one)?
a) Extremely confident   b) somewhat confident   c) It helps   d) does not matter
3. What is the length of video you prefer for credible value addition (choose one)?
a) 15-20 mins.   b) 20-30 mins.   c) 30-45 mins.   d) Others (specify)
4. How likely are you watch the videos if points/grades are allocated (choose one)?
a) Very likely   b) likely   c) does not matter   d) I will watch knowing if it will up my grade.
5. How likely you watch the videos before coming to class (choose one)?
a) Very likely   b) likely   c) does not matter   d) I will watch
6. Would you come to class if all the videos were made available online (choose one)?

a) Yes   b) Not really   c) Depends on the teacher d) Does not matter
7. Describe the effort you have put in during your time at home (choose one)?
a) I try hard   b) I do not do much at home c) Only when no homework
8. Describe the effort you put in during your time in class (choose one)?
a) I try hard   b) I come to class for attendance   c) It depend on the subject.
9. What is the most helpful part of watching the assigned videos (Describe)?
10. What is the most non helpful part of watching the assigned videos (Describe)?

The method used for evaluating the participant's timely action in watching the assigned videos indicated that 77% of students Watched the videos on time (Figure 2).A substantial percentage of the participants showed that they felt confidant after watching the assigned videos in the WhatsApp (Figure 3).
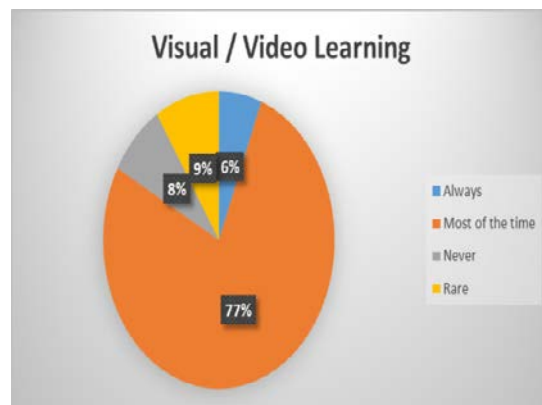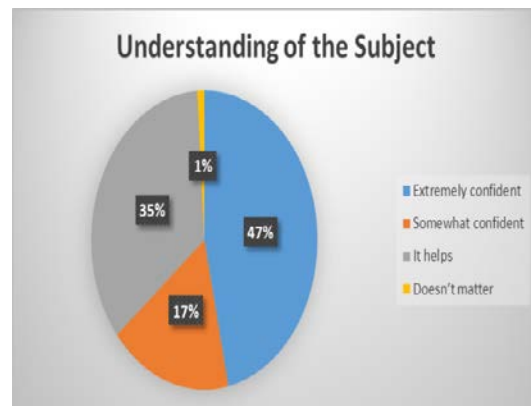

Fig.2 Visual or Video Learning Evaluation

Fig.3 Evaluation of Understanding of Subject

An important aspect of WhatsApp videos survey was to assess the length of video, which would be most

suitable for a group of participants. It was projected that a most of the students would be liked to watch the videos ranging from 15-20 mins. (Figure 4).

An effort was made to pretend the participants into thinking that their comments would specify how much was the video watched.

A good majority of them specified that assigning the percentage of grade would motivate them to watch the videos (Figure 5). A major percentage of them also indicated that they would watch the videos if there would be increase in the grade.
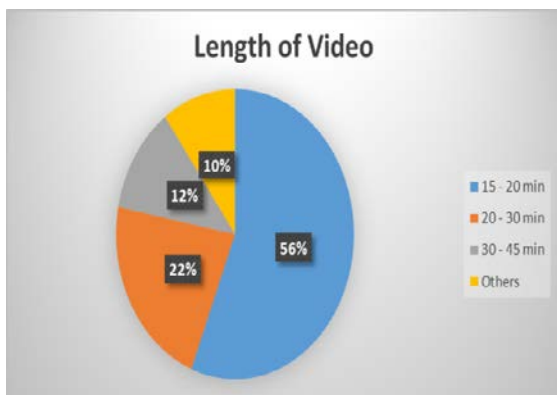
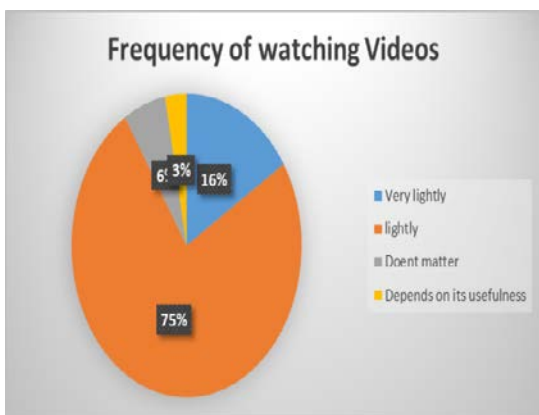Fig.4 Assessment of video length

Fig.5 Assessment for frequency of watching videos

The response to question to prepare and watch the assigned videos before coming to the class was very motivating that it will be beneficial (Figure 6).

It was very motivating to know that majority of the indicated that they would still come to class even if all the videos made available for watching through WhatsApp (Figure 7).
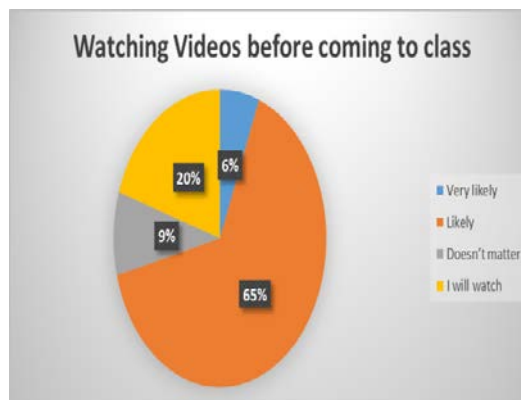

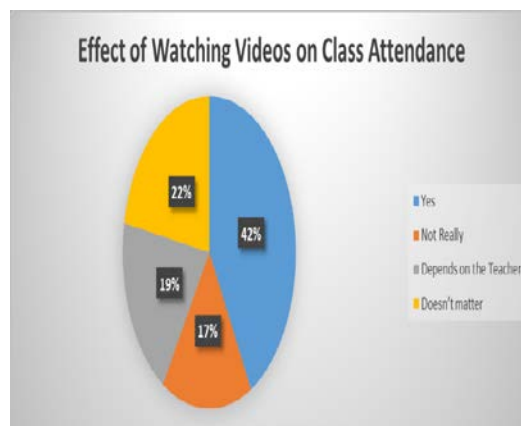Fig.6 Analysis of watching videos

Fig.7 Effect of watching videos

The percentage of participants indicated that they would try hard at home if no home work is given (Figure 8).

The Participants level of effort in class indicates that it depends on the subject whose videos were shared through the WhatsApp (Figure 9).
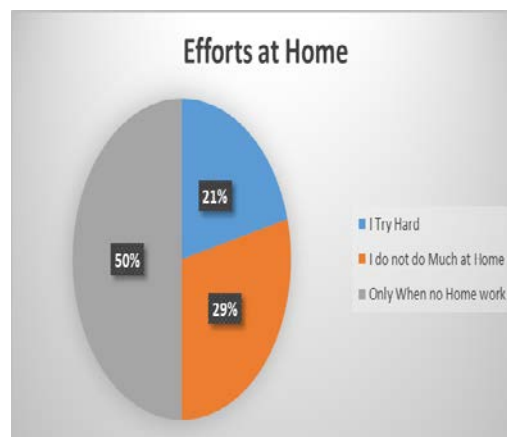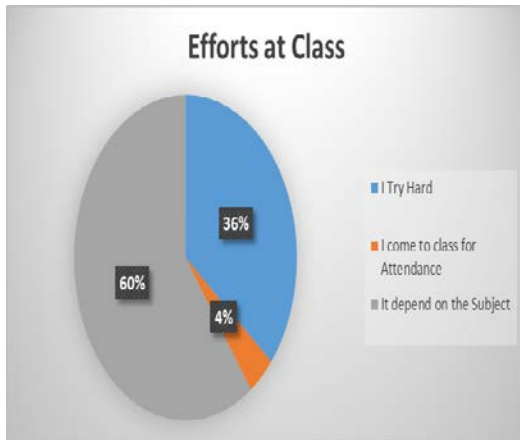

Fig.8 Efforts at home for videos

Fig.9 Efforts at class

IV. CONCLUSION

The author is taking steady efforts to introduce self-learning through the WhatsApp videos, as a part of this effort, survey show that such methods may be beneficial to individuals struggling to understand the difficult topics.

After watching the assigned videos following were identified as the key benefits:

1. Understanding of the difficult concepts
2. Availability of videos at ones preferred place and time.
3. Ability to pause and play the videos as per requirement.
4. Gaining additional information from the WhatsApp videos.
5. Useful in exam preparation for better understanding.
6. If someone has missed the important part of lecture during the classroom, he can review through the watching videos.

The participants also suggested that most useful part in the video as to clear the concept and easy understanding of the concept through the assigned videos. The not useful part in the video shared to WhatsApp was that advertisement and the long length of the video.

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