

Benefits of Videos in YouTube for the Undergraduate Students in Engineering and Technology in India

Rajendra Babu H.

Assistant Professor, Department of studies and Research in Library and Information Science, Tumkur University, Tumakuru, India. ORCID: 0000-0002-6061-3584. E-mail: hrajendra.babu@gmail.com

Rangaswamy Buddayya

Research Scholar, Department of studies and Research in Library and Information Science, Tumkur University, Tumakuru, India. ORCID: 0000-302-73624522. E-mail: rangaswamyut@gmail.com

Nagaraja L. Gujjarappa

Assistant Librarian, SJB Institute of Technology, Bangalore, India. ORCID: 0000-0001-6229-3986. E-mail: nagarajalg@gmail.com

Received September 15, 2019; Accepted December 10, 2019

Abstract

The purpose of this paper is to find the reasons and preferences in the use of YouTube videos by the Indian undergraduate engineering and technology students. To find the use of YouTube videos as a supplementary source in support of learning, developing cultural understanding and obtaining behavioural benefits. A quantitative research design using a survey method was used questionnaire to collect the data. Data was analysed using frequency and percentage approach. The data sample consists of undergraduate engineering and technology students across the Indian subcontinent. The results of the data analysis reveal that the use of YouTube videos engage the students in their academics better. Over 95.0 percent of the respondents are aware and have a conviction about the supplementary role played by YouTube videos in their educational, cultural and moral life. 98.53 percent of respondents have 'learnt to respect the good things in other cultures'. 57.25 percent male and 40.74 percent female respondents have better understood the cultural difference and appreciate them. This cultural understanding has helped 'to identify good

things in other cultures' by 97.84 percent respondents. The study suggests that the student use of YouTube needs to be oriented towards scholarly content to improve student engagement in the learning and enrich their knowledge. The use of YouTube videos among undergraduate engineering and technology students in India is encouraging. There is a lack of focused studies on cultural and behavioural implications through the use of YouTube videos. This paper is the first of its kind in finding the use of YouTube videos as an information source for gaining educational, cultural and behavioural benefits among Indian engineering and technology students.

Keywords

Video-sharing; YouTube; Social Media; Videos; E-learning, V-learning, Education, Cultural benefits, Behavioural benefits

Introduction

The developments in the Internet, Web technologies, and Information Communication Technologies (ICT) in the past two and half decades have made the world a digital village (Miller et al., 2016). The communication involves data exchange (voice, text, images, audios, videos, files and so on) which can be transmitted with ease using Internet and web technologies. Examples of the Offshoots of we technology are called as social media (SM), Wikipedia, YouTube, Twitter, Facebook, Instagram, LinkedIn, Blogging, and so on (Castronovo & Huang, 2012) are also known as social networking sites (SNS). The single click of the mouse button can make a world of information available in every field like News reporting, Banking, Education, Communication, business, and research, across the world (Bik, and Goldstein, 2013). SM has come a long way, it plays an important role in human life and it has changed the way humans communicate (Rao, 2007). The transition from the internet to social media and using SM platforms for the purpose of communicating has increased multifold (Kietzmann et al., 2011). Tim Berners Lee would not have imagined the tremendous growth potential of the Internet in the early 1990s (Mayfield, 2011). Today, social media offers enormous potential for students in their everyday activities, be it education, entertainment, socializing and so on (Baird and Parasnis, 2011).

SM or SNS can be defined as the web 2.0 enabled website applications designed to help people to share their content in a fast, effective and efficient manner (Leonardi et al., 2013). Social media offers both advantages and disadvantages to human life. These web 2.0 platforms allow people to communicate with people of the same work, broadcast messages to all the employees in an organization, in the process the images and videos are key items shared on social networking sites (Hudson, 2019). Almost all the organizations use publicly available SNS for

their communication, especially the activities of content and knowledge management (KM), where there need to be a lot of re-inventing in terms of new employee induction (Treem & Leonardi, 2013). The use of SNS also creates a lot of chaos and tensions at the Organisational level, if the information shared is not properly monitored, leading to proprietary information leakage, hierarchy problems, and cultural issues.

Problem Statement

The penetration of the Internet and web 2.0 technologies have been increasingly high in the world of learning and communication today. In the present times, the use of social media more specifically YouTube by the students of engineering and technology education for their studies, cultural understanding and behavioural improvement is unclear because there are no studies conducted in this focus area. Therefore, this study explores the reasons and perceptions on the use; and aforesaid benefits obtained by the undergraduate engineering and technology students of India.

Research Questions

This study attempts to answer the following research questions:

- RQ1. To what extent YouTube videos are used by the engineering students?
- RQ2. What are the students' reasons and preferences for the use of YouTube videos?
- RQ3. What benefits the students derive by the use of YouTube videos?

Literature Review

Today's students are digital natives and are driven by technology completely than it was before (McCormick, Holland & Szydlo, 2010). When it comes to social media is specifically used for communication and collaboration in a broader way, it has come a long way and became popular as an educational tool by students for their assignment and project work. Multimedia education with the use of visual aids has made the curriculum stronger in the education system (Shah, and Khan, 2015). YouTube is useful for students as it can act as a learning tool (Fleck et al., 2014); (Almobarraz, 2018) and also YouTube videos acts as an effective and supplementary tool (Moghavvemi et al., 2018) for teaching and learning general skills and completing tasks either at home or classroom setting for students as well as for teachers in a university setup. Use of YouTube in the classroom had a beneficial effect on overall learning of students (Roodt, and Peier, 2013) in terms of cognitive, emotional and behavioural activities. But, Buzzetto-More (2015) defends that student engagement enhances the online learning experience through the course delivery methods for deciding on the use of videos and its services.

There are a significant improvements among the students learning process including narration in the video content while incorporating videos as part of teaching and learning process as indicated

in a study by Muniyandy et al. (2015). YouTube is the major source of video content as of May 2019 over five hundred hours of video gets uploaded on to YouTube every minute worldwide (Clement, 2019) amounting to 30,000 hours of uploaded YouTube videos per hour. The study (Agichtein et al., 2008) on the quality of user-generated content on SNS becomes more and more important as additional information in the form of links and quality ratings by the members of the community. So, YouTube videos in particular have been used by educators especially when they are teaching modeling and providing context for their teaching (Younger et al., 2013) as the videos can be used to build student learning communities for better engagement on part of students to enable systematic learning through problem-solving to enable them with analytical skills. This kind of activities may reduce the use of YouTube among the teachers and the risk of keeping the full benefits of YouTube videos, has been investigated by Wilson (2015). There was another study which assessed the use of YouTube videos in teaching and learning courses in sociology at Durham University by Tan and Pearce (2011) states that the sociology students opine the videos in YouTube are a valid source and supports their enhanced learning as a supplementing tool for providing future explanation and was of a great benefit.

YouTube has spread across all subjects and all fields worldwide as Jaffar (2012) in his study found that remodeling and enhancement of teaching, learning experience is possible in medical subjects in general and anatomy in specific by the use of YouTube videos. The role played by the YouTube videos in medical education as examined by Burke et al. (2009) and found that the teachers use YouTube videos in their teaching effectively.

The study examines the capability of social media in enhancing Saudi Arabians social behaviour in total. It was found by Yusuf et al. (2016) that the teachers were trying to adopt social media tools into the educational system to make strides in effective and impactful completion of the course curriculum. On the other hand, Alwagait et al. (2015) have rejected the hypotheses on the increased use of social media networks indirectly proportionate to the decrease in the academic performance on part of students in their study. It also studied that Saudi colleges use YouTube videos as a supplementary resource for literature and language teaching. The study by Khalid and Muhammad (2012) conclude that YouTube videos are more effective than book-based teaching pedagogy. A study conducted on the use of YouTube videos to increase students' learning by Chtouki et al. (2012) indicates the comparison of the use of YouTube video on computer science students and non-computer science students' performance. The results of the study show that the students understanding and their remembrance of the complex concepts were much better when they are exposed to a visual explanation through video. Duffy (2008) has studied engaging students in YouTube for teaching and learning creates a new learning ecosystem in the development of learning to perform tasks and enhances the learning experience among the Google eyed generation students. The study also highlights some potential strategies to be incorporated by the teachers in the use of Web 2.0 technologies for the effective student learning process. Rapp et al. (2016) studied the use of videos in preparation of surgical methods by

medical teachers and students. It also identified the preferences between YouTube videos, reading, and peer consultation for which 86.0 percent of respondents use YouTube videos.

The present study plugs the gap among the published literature by focusing on YouTube videos as a supplementary information source for the students in deriving multiple gains such as educational, cultural and behavioural benefits while learning in their engineering and technological studies.

Materials and Methods

An extensive search for literature on social media benefits among the Indian engineering and technology students has been carried out to find out the prior studies on the benefits derived by the use of YouTube videos on the students' education, cultural development and behavioural improvement in moulding their life. The search terms used are 'SM', 'social media', 'SM benefits', 'Education benefits', 'Cultural benefits', 'Behavioural benefits'. Relevant articles from Internet, Google scholar, LISA, LISTA, Emerald Insight, J-gate, and other major bibliographic databases were searched and downloaded related studies for the purpose of the literature review and found the gaps to be addressed in this study. The 2018 report on Adolescence social media use from the pew internet and American life projects, talks about the use of YouTube and other SNS platforms as the most popular online platforms among teens has been also consulted to set the tone for this study.

Further, an online questionnaire using Google forms was distributed among 4500 targeted population; there were a total of 4215 duly filled questionnaires received with a response rate of 93.67 percent. The study utilize a quantitative research method based on survey method by using a questionnaire containing a total of 15 questions, includes 4 closed-ended questions and 11 open-ended questions. Closed-ended questions are devised to gather demographic information. Open-ended questions provide students with the opportunity to express their perceptions in the form of preferences and reasons, and the multifold benefits derived by the use of YouTube videos. The authors have not asked the respondents of their religion as part of the questions related to cultural benefits, as it may lead to conflicts. The data obtained from the completed questionnaires were analysed using SPSS software.

Data Analysis and Interpretation

The detailed statistics for each variable were tabulated to find engineering and technology students' use of YouTube. Each surveyed item has been calculated with percentage. The results are divided into three categories which address the issues such as - the first category talks about student demographics and extent of use of YouTube videos for their academics. The second category addresses the reasons and preferences to use YouTube videos. The third category provides the details about the benefits derived from the use of YouTube videos.

The analysis of the engineering and technology students' response indicates that there is 2469 male and 1746 female students participated in the study (Figure 1) out of 4215 responses, comprise 58.60 percent male and 41.40 percent female respondents.

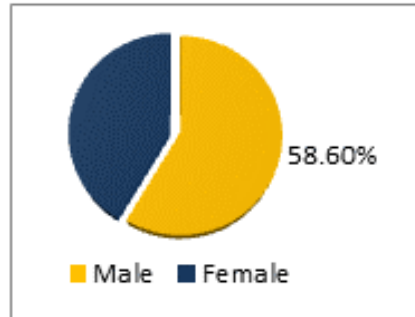


Figure 1. Gender wise respondents of the study

RQ1. To what extent YouTube videos are used by the engineering students?

The highest of 1499 (47.30 percent male and 52.70 percent female) respondents are online less than one hour on a daily basis. This is followed by 1022 (24.25 percent) respondents spend less than five hours of their time online on a daily basis (Figure 2). The analysis of student responses (Figure 2) indicates that 4215 respondents have used YouTube. Most used by the 20 year age group with 1101 responses. A highest of 1499 respondents tends to watch YouTube less than one hour a day.

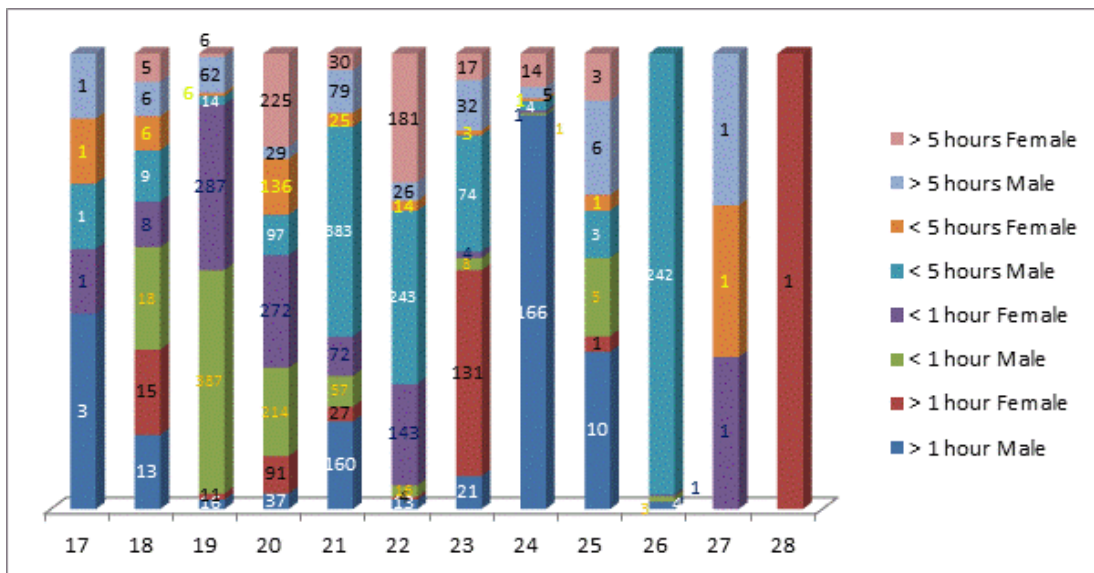


Figure 2. Daily time spent accessing YouTube videos

Duration of YouTube use

Participants have provided their opinion on the duration of YouTube use (Figure 3) indicates that

there were 48 percent (2014) males and 31 percent (1321) females have been using the YouTube more than 2 years. The age group of respondents belongs to 19-22 years of age group. The data indicates that the respondents are well aware and all have been using YouTube videos over two years.

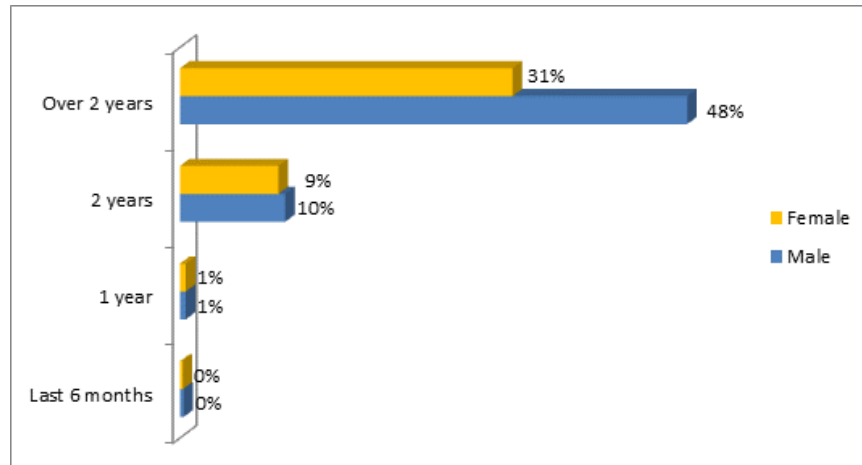


Figure 3. Gender wise duration of YouTube videos use

RQ2. What are the students' reasons and preferences for the use of YouTube videos?

Data on the preference of using YouTube videos are shown in Figure 4, among the participants 65.95 prefer YouTube for ‘learning new things’, 64.2 percent say that they highly prefer YouTube videos ‘for entertainment’ and for ‘their studies’ respectively, 59.8 percent say that they use YouTube videos for the purpose of ‘time pass’ as highly preferred.

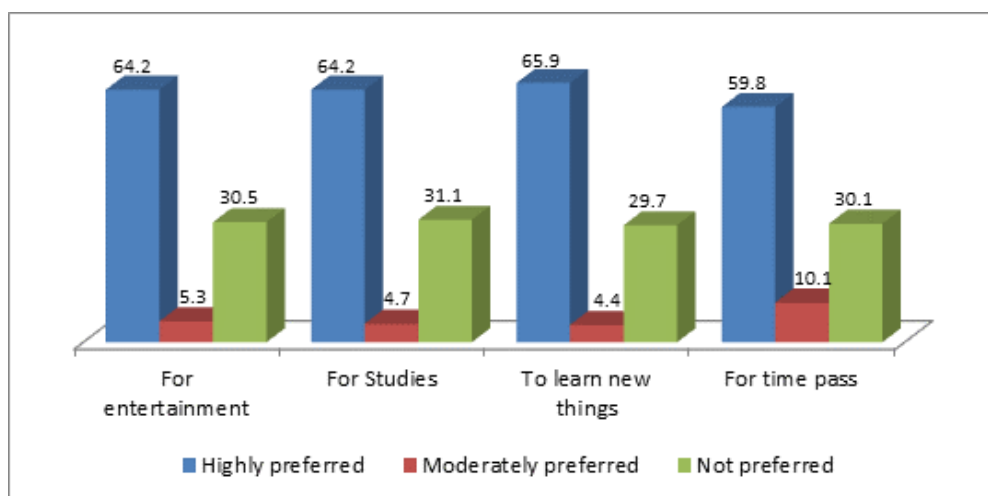


Figure 4. Preferences on the use of YouTube videos

The data in Figure 5 shows the respondents sharing behaviour of information over YouTube videos. A highest of 92.91 percent share general informational videos on YouTube. 89.23 percent

share ‘information for the benefit of the society’, 88.04 percent share videos on the YouTube related to their culture, 80.40 percent share for educational benefit, 65.34 percent share movies on the YouTube platform. 56.62 percent does not share videos related to their personal life.

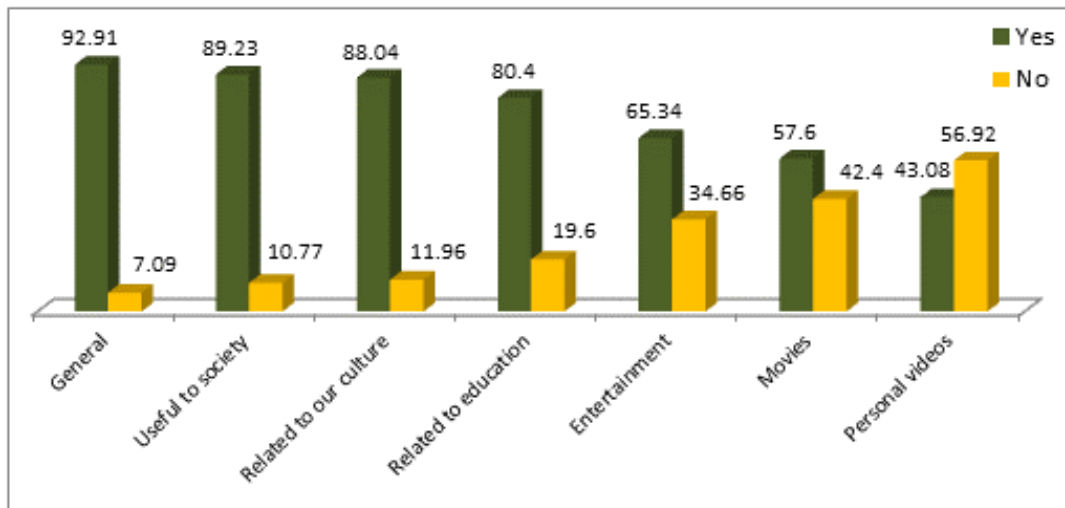


Figure 5. Information shared on YouTube

RQ3. What benefits the students derive by the use of YouTube videos?

Educational benefits

Participants were asked to rate benefits according to five ratings Likert scale by the use of YouTube videos for their education (Figure 6). 60.65 percent and 20.09 percent have agreed and strongly agreed on the usefulness of YouTube videos on their studies. The use of YouTube videos for facing the competitive exams has been strongly agreed by 84.77 percent respondents. YouTube helping 84.56 percent students in making the notes, 61.45 percent respondents have strongly agreed and 29.165 have agreed that the role of YouTube videos for self-learning.

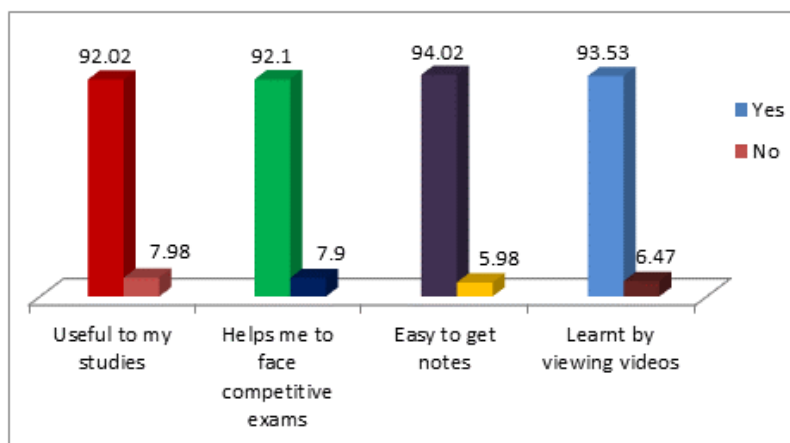


Figure 6. Educational benefits by the use of YouTube Videos

Cultural benefits

Participants were asked to opine the cultural benefits derived from the use of YouTube videos. There was the predominant number of respondents shown positive intent towards cultural benefits derived by the use of YouTube videos (Figure 7). 98.53 percent say that YouTube videos helped them to learn to respect the good things in other cultures. 98.15 percent say YouTube videos have helped them to understand many cultures. 98.15 percent say YouTube videos have helped them to understand many cultures. 97.84 percent opine that YouTube videos have enabled them to identify the good things in other cultures. 97.74 percent of respondents could understand the cultural differences by watching YouTube videos. 95.68 percent have opined that they have adopted best practices in their life by looking at other cultures and by watching YouTube videos, 91.93 percent respondents felt that YouTube videos have helped them to make friends from different cultures.

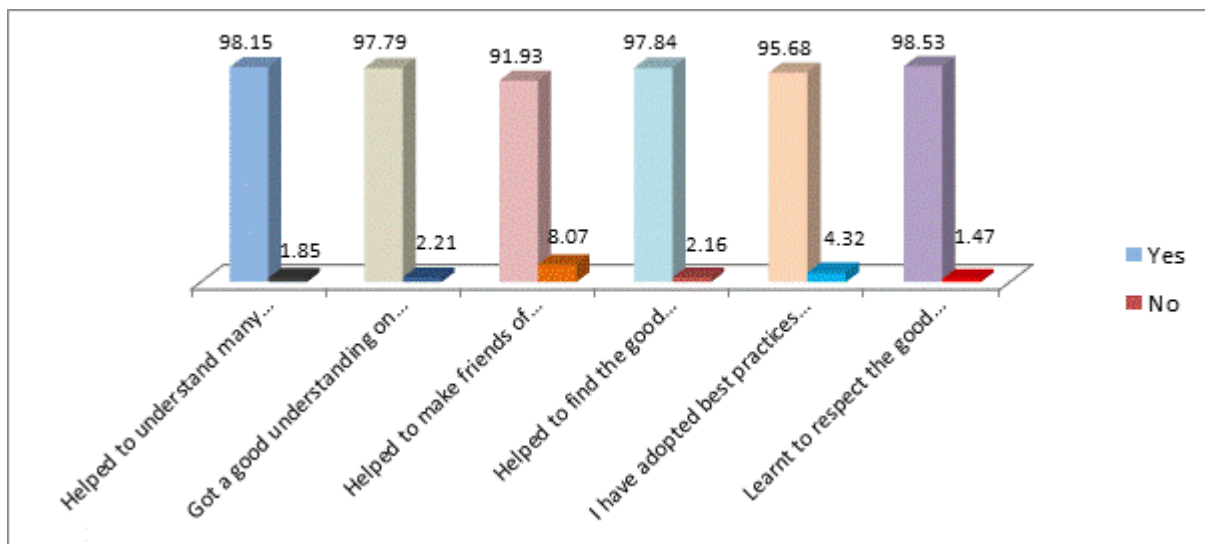


Figure 7. Cultural Benefits gained by the YouTube videos

Behavioural benefits

The investigators have tried to assess the behavioural benefits derived from the use of YouTube videos (Figure 8). A highest of 98.0 percent opined that the videos have helped them to understand the cultural differences and also learnt to appreciate the differences in other cultures. 97.7 percent and 97.5 percent respondents opined that YouTube videos have helped them to face people and the world; and learnt to behave themselves in different (rather difficult) situations. 97.4 percent, 97.3 percent and 97.2 percent respondents opined that YouTube videos have helped them to 'help those who are in need', learnt to gel with different people and 'help the participants to develop self-esteem' respectively. A less in comparison with 92.3 percent opined that YouTube videos have helped them to 'learn many things in life by looking at other people' from different strata.

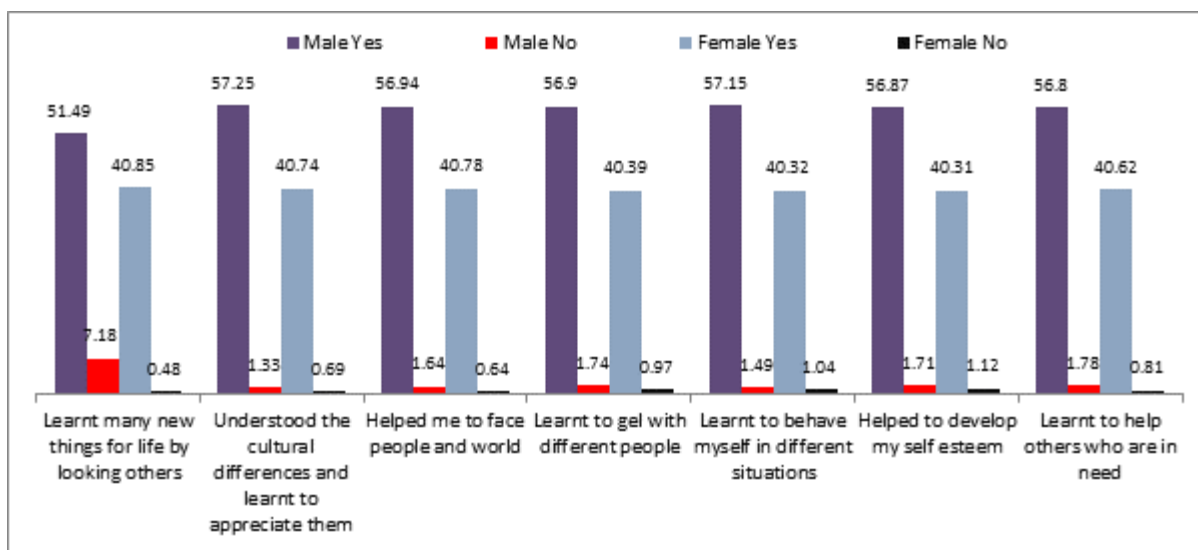


Figure 8. Behavioural Benefits gained by the use of YouTube videos

Discussion

Data analysis of the study ascertained interesting findings. One such finding is that engineering and technology students use YouTube. A similar opinion was found in the study by Carlisle (2010) that ‘YouTube as the second most used SNSs for learning by the college students’. The study suggests that the use of YouTube needs to be oriented towards scholarly content to enrich students’ knowledge. 89.23 percent share YouTube video ‘information for the benefit of the society’, 88.04 percent share videos on the YouTube platform related to their culture, 80.40 percent share for educational benefit, this clearly indicates that today's’ students are well aware of what to share and what no to share on YouTube as similar to the study by Chin et al. (2012).

The students who have responded in this study have opined positive views on the use of YouTube videos for their education, cultural and behavioural enhancement. Over 95.0 percent of the respondents have good awareness and conviction about the supplementary role played by the YouTube videos in the enhancement of their educational, cultural and moral life. This finding has been supported by the studies by Burke and Snyder (2008), Hilner (2012) on students’ deep engagement with their studies by the use of YouTube videos. Other than student awareness and belief of YouTube videos, the level of the supplementary role played by YouTube videos that, over 97.0 percent of respondents opine that they have benefited culturally and behaviorally. The study also found that the student’s use of YouTube videos amounts to almost equally for all the three aspects of deriving educational, cultural and behavioural benefits in line with the study by Almobarraz (2018) conducted in Saudi Arabia. Indeed most students believe that they highly prefer to use YouTube videos for learning new things in line with the study by Almobarraz (2018).

YouTube's incorporation as a supplementary tool in learning environment enhances student involvement and makes the students more engaged in the classroom teaching pedagogy (Buzzetto-More, 2014). The finding from the study states that 93.52 percent of student uses YouTube videos 'to learn by viewing videos on their own'. It is suggested to incorporate YouTube videos into the Indian higher education system for better engagement and learning by the students. The awareness of YouTube videos among engineering and technology students is as high as the present generation students are tech-savvy in an IT pro country like India (Meyer, 2006).

Another interesting finding has been that of the benefits the respondents have identified in terms of cultural benefits by the use of YouTube videos. There were a total of six questions related to cultural benefits posed to the respondents, for which 98.53 percent have opined that they have learnt to respect the good things in other cultures. This is an encouraging factor as YouTube videos are playing an important role in developing an awareness of other cultures and thus increased cultural tolerance. It was also found that 98.15 percent respondents opine that the YouTube videos helped them to understand many cultures; once the cultural understanding is imbibed into the young minds help future generations to come. This cultural understanding has helped to identify good things in other cultures by 97.84 percent respondents. This kind of understanding and mutual respect will develop further harmony in the rich cultured Indian society (Laungani, 1994).

One more focus area for this study was to find the behavioural benefits gained by the use of YouTube videos. There are a good number of behavioural benefits such as 57.25 percent male and 40.745 female respondents have understood the cultural differences and also appreciate them is a good development, ultimately it is the education which moulds a person's behaviour. For all the aspects the study has posed as part of behavioural benefits, male responses are of a little deviation in terms of percentage. Whereas female responses towards the behavioural benefits are almost the same for all the aspects posed in the questionnaire. This indicates that women's use of YouTube videos and their subsequent use are more balanced in nature.

Ministry of Human Resources Development (MHRD) in India has been striving hard in bringing up education standards. The initiative by MHRD to include Massive Open Online Courses (MOOC's) on its SWAYAM platform, includes thousands of videos by NCERT - National Council of Educational Research and Training; NIOS-The National Institute of Open Schooling; IGNOU -Indira Gandhi National Open University; NPTEL -National Programme on Technology Enhanced Learning for engineering; IIM, Bangalore; CEC-Consortium for Educational Communication; and UGC for non-technical PG education has been gaining popularity among Indian student community. It is suggested to include more and more relevant scholarly YouTube videos to help enable the Indian student community to derive better educational, cultural and behavioural benefits.

Conclusion

For students, the uses of YouTube are of multifold and increase the understanding of the educational concepts by supplementing the study material. This study determined that students use YouTube for deriving educational, cultural and behavioural benefits. Therefore, the preference for the use of YouTube is at an increasing trend. The study found that student awareness and use of YouTube is at a high. It is also needed that education in collaboration with student needs to make efforts to create new video content. This would ensure the content relevancy and delivery in a manner most suitable for the benefit of students.

The study implication shows that the students are well aware of the importance and benefits of YouTube videos along with their additional benefits in the form of assisting their educational needs to boost the learning. The study also found a good amount of benefit in terms of understanding the cultural dimensions of society through the use of YouTube content. The most important objective of any education system is to imbibe good behaviour among students. This is all the more important in the case of a country like “India”. It is recommended that future research in this direction incorporates students active participation with the faculty and administration in the creation of instructional materials related to curriculum and upload in the YouTube for the benefit of larger masses. This kind of initiation will give a clear indication of the importance and integration of videos into the education system as the country is making big strides as part of in digital India initiative.

The present-day Indian education system must incorporate more of e-learning and v-learning to realize the full potential of the technology for education. Thus, deriving more important cultural and behavioural benefits as the country is opened itself to the globalization more now than ever. It is recommended to Indian education policy-making bodies to stuff their course curriculum with more of v-learning as part of learning strategies.

References

- Agichtein, E., Castillo, C., Donato, D., Gionis, A., & Mishne, G. (2008). Finding high-quality content in social media. In *Proceedings of the 2008 international conference on web search and data mining* (pp. 183-194). ACM.
- Almobarraz, A. (2018). Utilization of YouTube as an information resource to support university courses. *The Electronic Library*, 36(1), 71-81.
- Alwagait, E., Shahzad, B. and Alim, S. (2015). Impact of social media usage on student’s academic performance in Saudi Arabia. *Computers in Human Behaviour*, 51, 1092-1097.
- Bik, H. M., & Goldstein, M. C. (2013). An introduction to social media for scientists. *PLoS Biology*, 11(4), e1001535.
- Burke, S., & Snyder, S. (2008). YouTube: an innovative learning resource for college health education

courses. *International Electronic Journal of Health Education*, 11, 39-46.

- Burke, S., Snyder, S., & Rager, R.C. (2009). An assessment of faculty usage of YouTube as a teaching resource. *The Internet Journal of Allied Health Sciences and Practice*, 7(1), 1-8.
- Buzzetto-More, N. (2015). Student attitudes towards the integration of YouTube in online, hybrid, and web-assisted courses: an examination of the impact of course modality on perception. *Journal of Online Learning and Teaching*, 11(1), 55-73.
- Buzzetto-More, N.A. (2014). An examination of undergraduate student's perceptions and predilections of the use of YouTube in the teaching and learning process. *Interdisciplinary Journal of e-Skills and Lifelong Learning*, 10, 17-32.
- Carlisle, M. C. (2010, March). Using You Tube to enhance student class preparation in an introductory Java course. In *Proceedings of the 41st ACM technical symposium on Computer science education* (pp. 470-474).
- Castronovo, C., & Huang, L. (2012). Social media in an alternative marketing communication model. *Journal of Marketing Development and Competitiveness*, 6(1), 117-134.
- Chin Wei, C., Siong Choy, C., Geok Chew, G., & Yee Yen, Y. (2012). Knowledge sharing patterns of undergraduate students. *Library Review*, 61(5), 327-344.
- Chtouki, Y., Harroud, H., Khalidi, M., & Bennani, S. (2012). The impact of YouTube videos on the student's learning. In 2012 *International Conference on Information Technology Based Higher Education and Training* (ITHET) (pp. 1-4). IEEE.
- Clement, J. (2019). Hours of video uploaded to YouTube every minute. *Statista.com*. Retrieved June 20, 2019, from <https://www.statista.com/statistics/259477/hours-of-video-uploaded-to-YouTube-every-minute/>
- Duffy, P. (2008). Engaging the YouTube Google-eyed generation: Strategies for using Web 2.0 in teaching and learning. *Electronic Journal of E-learning*, 6(2), 119-130.
- Fleck, B.K., Beckman, L.M., Sterns, J.L. and Hussey, H.D. (2014). YouTube in the classroom: Helpful tips and student perceptions. *Journal of Effective Teaching*, 14(3), 21-37.
- Heller Baird, C., & Parasnis, G. (2011). From social media to social customer relationship management. *Strategy & Leadership*, 39(5), 30-37.
- Hilner, J. (2012). How to use online video in your classroom. Retrieved June 20, 2019, from <http://www.edutopia.org/YouTubeeducational-videos-classroom>
- Jaffar, A.A. (2012). YouTube: an emerging tool in anatomy education. *Anatomical Sciences Education*, 5(3), 158-164.
- Khalid, A.-Z. and Muhammad, K. (2012). The use of YouTube in teaching English literature: the case of Al-Majma'ah Community College, al-Majma'ah University (case study). *International Journal of Linguistics*, Vol. 4 No. 4, pp. 515-525.

- Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54(3), 241-251.
- Laungani, P. (1994). Cultural differences in stress: India and England. *Counselling Psychology Review*, 9 (4), 25–37.
- Leonardi, P. M., Huysman, M., & Steinfield, C. (2013). Enterprise social media: Definition, history, and prospects for the study of social technologies in organizations. *Journal of Computer-Mediated Communication*, 19(1), 1-19.
- Matthew, Hudson. (2019). What Is Social Media?. *The balance small business*. Retrieved June 20, 2019, from <https://www.thebalancesmb.com/what-is-social-media-28903013>
- Mayfield III, T. D. (2011). *A commander's strategy for social media*. Army Europe and Seventh Army Apo New York 09403.
- McCormick, J.G., Holland, S., & Szydlo, L.R. (2010). Experiential learning 2.0: incorporating YouTube in leisure studies. *Scholar: A Journal of Leisure Studies & Recreation Education*, 25, 74-78.
- Meyer, B. (2006). The unspoken revolution in software engineering. *Computer*, 39(1), 124-123.
- Miller, D., Costa, E., Haynes, N., McDonald, T., Nicolescu, R., Sinanan, J., & Wang, X. (2016). *How the world changed social media* (Vol. 1). UCL Press.
- Moghavvemi, S., Sulaiman, A., Jaafar, N. I., & Kasem, N. (2018). Social media as a Complementary learning tool for teaching and learning: The case of YouTube. *The International Journal of Management Education*, 16(1), 37-42.
- Muniyandy, S., Khuenyen, N., Yap, C. G., Shogo, M., My, N. A., Chowdhury, M. E. H., & Musa, A. F. (2015). Influence of YouTube videos on the learning of tablet-and capsule-formulation by Malaysian pharmacy students: A pilot study. *Pharmacy Education*, 15(1), 248-251.
- Rao, N. H. (2007). A framework for implementing information and communication technologies in agricultural development in India. *Technological Forecasting and Social Change*, 74(4), 491–518.
- Rapp, A. K., Healy, M. G., Charlton, M. E., Keith, J. N., Rosenbaum, M. E., & Kapadia, M. R. (2016). YouTube is the most frequently used educational video source for surgical preparation. *Journal of surgical education*, 73(6), 1072-1076.
- Roodt, S., & Peier, D. (2013). Using YouTube in the classroom for the net generation of students. *Issues in Informing Science and Information Technology*, 10, 473-487.
- Shah, I., & Khan, M. (2015). Impact of multimedia-aided teaching on students' academic achievement and attitude at elementary level. *US-China Education Review*, 5(5), 349-360.
- Tan, E., & Pearce, N. (2011). Open education videos in the classroom: Exploring the opportunities and barriers to the use of YouTube in teaching introductory sociology. *Research in Learning Technology*, 19(1), 125-133.

Treem, J. W., & Leonardi, P. M. (2013). Social media use in organizations: Exploring the affordances of visibility, editability, persistence, and association. *Annals of the International Communication Association*, 36(1), 143-189.

Wilson, A. (2015). *YouTube in the classroom. master's thesis*. University of Toronto, Toronto, ON.

Younger, D. W., Duncan, J. E., & Hart, L. M. (2013). Tuning into YouTube in the Classroom: Improving Assessment Scores through Social Media. Reports. Retrieved June 20, 2019, from <https://eric.ed.gov/?id=ED543108>

Yusuf, N., Al-Madah, R., & Alam, M. (2016). Social media as a tool in learning and social behaviour in Saudi Arabia. *International Journal of Higher Education Management*, 3(1), 65-74.

Bibliographic information of this paper for citing:

Babu H., Rajendra, Buddayya, R., & Gujjarappa, N. L. (2019). "Benefits of videos in YouTube for the undergraduate students in engineering and technology in India." *Webology*, 16(2), Article 190. Available at: <http://www.webology.org/2019/v16n2/a190.pdf>

Copyright © 2019, [Rajendra Babu H.](#), [Rangaswamy Buddayya](#) and [Nagaraja L. Gujjarappa](#).