



Working together
www.rcis.ro

Revista de Cercetare și Interventie Sociala

ISSN: 1583-3410 (print), ISSN: 1584-5397 (electronic)

USING ONLINE PLATFORMS TO EDUCATE UNIVERSITY STUDENTS IN INDIA TO RAISE AWARENESS ABOUT COVID-19: AN INTERVENTIONAL PILOT STUDY

Ruby DEVAPRASATH, Sunitha KUPPUSWAMY

Revista de cercetare și intervenție socială, 2022, vol. 76, pp. 111-121

<https://doi.org/10.33788/rcis.76.8>

Published by:
Expert Projects Publishing House



On behalf of:
„Alexandru Ioan Cuza” University,
Department of Sociology and Social Work
and
HoltIS Association

Using Online Platforms to Educate University Students in India to Raise Awareness about Covid-19: An Interventional Pilot Study

Ruby DEVAPRASATH¹, Sunitha KUPPUSWAMY²

Abstract

The purpose of this study is to explore the prospects of using technology enhanced active learning (TEAL) as pedagogical method in order to augment knowledge acquisition among media science students. It was intended to find out if the intervention is effective in terms of knowledge acquisition about Covid-19 in turn creating the necessary awareness about the same. Therefore, pre-experimental one group pre-test and post-test design was used (Thyer, 2012). The participants were 100 first year graduation students. The Paired sample t-test was conducted to know if the intervention has impacted awareness level of Covid-19 crisis. The findings reveal that there is a significant improvement in knowledge gained about Covid-19 by the students in this approach. The findings have important implications for the educational reformers, researchers and teachers in India and any other developing country with the similar climate in education for that matter.

Keywords: active learning, Covid-19, ICT, TEAL, technology intervention, online courses, metacognition.

Introduction

Active learning is becoming common in education off late across the world. Active learning by definition means students' active participation in the process of learning by doing what they learn. Active participation along with new knowledge construction will also lead to in-depth and nonstop learning (Pahl & Kenny, 2008). Active learning tends to pose greater responsibility than the passive or traditional method of teaching. According to Bonwell and Eison (1991), anything that "involves students in doing things and thinking about the things they are doing is active learning." Likewise there are many experts who tried to outline the teaching-learning idea of "active learning" but the effectiveness of it is expansive. For the

¹ Anna University, Chennai, INDIA. E-mail: rubydevaprasath@gmail.com

² Anna University, Chennai, INDIA. E-mail: sunithakuppusswamy@gmail.com

same reason, active learning becomes inevitable method of teaching-learning, especially in the case of present student generation. Present student generation are the people who are born from 1981 to 2000 and thus they fall under the category called as millennials (Gibson & Sodeman, 2014). They are born into the digital world in true sense because most of them don't know how the world was before the launch of You Tube, Smart phones and other technological aspects. Hence their needs and wants are greatly shaped by technological advancements compared to the previous generations. Same applies to education as well. The present student generation in the colleges and universities are majorly millennials who demand a hand of technology in their everyday lives. Therefore, certainly technology enhanced active learning (TEAL) becomes a saviour to teach present generation of students due to its technological attributes and ability to treat them as active participants unlike the present system which treats them as passive learners. In fact TEAL is a trend that occurred in response to the learning requirements of present generation. This fact is reiterated with the endorsement of relevant literature.

A report by Educause Center for Analysis and Research and Horizon reveal that the present generation of students necessitate technology-enhanced approaches for learning which simultaneously caters to various learning style (McCoy *et al.*, 2015). It can be interpreted from the report that there are various types of learners in the present generation and TEAL is capable of catering to their different learning needs compared to the traditional method of passive learning. It is also revealed by Lee *et al.* (2019) that the proper usage of classroom space and technology could uplift the learning experience of students. However, enhancing the learning experience of the students cannot be fulfilled if the teachers' perspective is neglected. On this front, it has been acknowledged by Gupta (2006) that there is an existing gap between teacher education and practice in India, although this did not stop them perceiving practice teaching as an important experience he says. He also briefs the solution to fill this gap as incorporating socio-constructivist approach with local beliefs, values and diversity. Therefore, the present education system in India has to be amended specially to create a practical learning environment for the reason, the current student generation's requirement, does not map with what they are being offered at present. Because generation Y or millennials favour hands-on experience and working in teams (Eckleberry-Hunt & Tucciarone, 2011) at the same time, they expect teachers to act as facilitator (Monaco & Martin, 2007) for the basic purpose of learning to be fulfilled. Dror (2008) explains learning as cognitive system obtaining learning information and storing it for future use. In TEAL, teachers act as facilitators and the learning process centres around the students, says Schulte (1996). Eventually this leads to constructing knowledge from the existing or acquired one which is basically the "constructivism". Hence TEAL can be considered to fill the gap in the education system of India and to advance the teaching-learning process academically and socially in future. Therefore, the investigation is furthered from the university student's point of view since they play an important role in uplifting the country's image and economy.

For decades together, technology enhance learning (TEL) was under exploration in Indian education system. TEAL is said to guarantee the enhancement of student's knowledge and employability skills (Hassan *et al.*, 2018). In fact, it was identified by Beichner *et al.* (1999) through an experiment that collaborative, technology-rich and activity-based learning environment was positively correlated with students' ability to understand concepts, attitude, confidence and problem-solving skills. Active learning also helps with the issue associated with e-learning in general i.e., lack of interactions between teachers and students by involving teachers as facilitators. Active learning promotes higher order thinking. It requires students to think about their own learning while doing the activity given to them and learning that happens while involved in the activity. This, in short encourages the process of metacognition, though not openly illustrated (Brame, 2016).

However, there is no much proof about the active learning combining technology when compared with active learning techniques without technology in Indian context for the purpose of raising awareness. Therefore, the present study aims to explore the ties between TEAL and its impact in knowledge gain

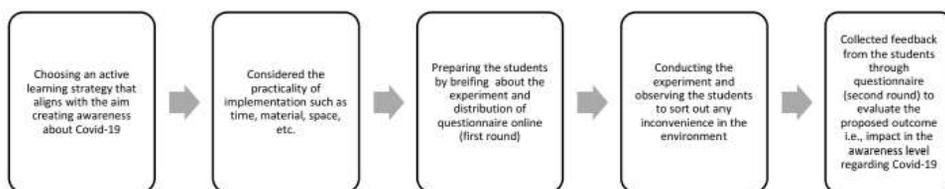
Methodology

Three documentaries that were accessible to the public in YouTube at free of cost were selected to suit the students' ability through random sampling technique. As nominated by Rusell (1974), the validity of the content and reliability of the module (documentaries in this case) were considered before using it. Since the students were first year graduation students who are fresh out of school, the selected documentaries were scrutinized using rubric tool or grading schemes by three domain experts holding PhD degree in communication and social science and humanities. A rubric is an assessment tool which indicates achievement criteria across all the components of any kind of work from oral, written to visual by the student, states the centre for teaching excellence, University of Waterloo (2018). There are two types of rubric tool. One is analytical and the other one is holistic. Analytical rubric separates assessment criteria and addresses them elaborately. Therefore, the content used for the present study was majorly examined for difficulty level of the presentation in terms of comprehensiveness, language simplicity, duration and relevance, in order to use the least difficult one for the purpose of this experiment. The experts were shown all the three documentaries and their feedback was documented in a rubric developed specifically to evaluate online courses available for the public as a free download. However, the video was amended with changes suggested by experts in order to serve the purpose for instance, including subtitles. Thus, the validity was asserted before conducting the experiment. Therefore, an evaluation including reliability and content validity were carried out by the researcher for the purpose of this study.

Sampling and data collection

The study employed a pre-experimental one group pre-test and post-test design among the students studying in first year of the graduation across India were connected via Google Meet app for the purpose of participation in the experiment. The research design of the current study can be divided in to five segments as shown in Figure 1. There are varied active learning strategies that can be combined with technology such as think-pair-share, group discussion, turn and talk, pause procedure, etc, in which group discussion was used in the present study to determine impact in knowledge gain about Covid-19. The researcher made an open call in various online platforms for the participants with a mentioned deadline. 106 students responded to the call, in total but 6 students backed out later due to personal reasons. Thus, the rest 100 students were considered for the study. The experiment was conducted at the end of June 2021 among 100 first year graduation students aged between 18 and 19 who volunteered from across the country to take part in the experiment.

Figure 1. *The research design employed for the current study*



Among the 100 students, there were 39 female students and 61 male students. At first students were briefed regarding the experiment and were ensured of viewing the projector screen shown by the investigator. A self-administered questionnaire was distributed online using Google forms regarding TEAL and existing knowledge regarding Covid-19 with a five-point Likert scale before the beginning of the experiment.

After collecting the responses in the form of questionnaire, a brief introduction was given by the researcher or investigator to the participants regarding the experiment. Followed by which, the documentary selected was played to the students after incorporating experts' suggestions and recommendations. After watching the documentary completely, questionnaire was distributed again to check their change in perception regarding TEAL and knowledge gained or understanding regarding Covid-19 prevention followed by the group discussion. Since there were no outliers or internal conflict found in responses, all the 100 samples were used for the analysis procedure.

Results

Validity and Reliability

The documentaries selected were scrutinized by domain experts to determine the content validity. Adhering to the experts' suggestions and opinion, necessary corrections were implemented concerning the appropriateness for the students. Three amendments were made as suggested by the experts: 1. Subtitles in English were included considering the fact that students were not native speakers of the English language and the difficulty in understanding foreign accent, 2. Duration was ensured to be kept between twenty minutes and half an hour in view of the attention span of the students 3. Any gruesome scene or clippings in the documentary was omitted cautiously. On the whole, experts opined that the tutorial was suitable for the study to ascertain proposed outcome among the first-year graduate students. The reliability coefficients were computed using Cronbach's Alpha to evaluate the internal consistency among the statements that are used to measure the knowledge gain and motivation. Soon (2008) (cited in Siew and Chin, 2018, p. 223) put forward the ideal alpha value as anywhere higher than .70 for the researches in academia. Appropriately, the alpha value was 0.725 indicating the acceptable range.

Ethical Considerations

The participation of the experts and students in this study was voluntary and willingly. The participants were briefed about the experiment nature and duration in advance. Participants were also given consent form to be submitted before taking part in the experiment. For the purpose of statistical procedure of the gathered data, participants were assigned identification number to maintain their anonymity.

Demographics and background of the study

The sample population was students' community who had done their schooling in diverse locality. 50% of the population have completed their schooling in urban area and the rest were in sub-urban locality where the access towards technology is limited. More than half the population was male and the rest female (61% Male and 39% female). Among the sample population, majority of them (71%) were aware of active learning method of teaching-learning. However, 37% of the students do not possess laptop or smart phone or personal computer. 6% of the students are always in need of financial aid in order to use internet while another 3% are rarely in need of financial assistance (Table 1). The other key elements that hamper students seeking information through online for learning purpose were identified as financial status (24%), place of living (60%) and class (16%).

Table 1. Percentage analysis of the socio-economic profile of the participants

Socio-economic profile		
Gender	Male	61%
	Female	39%
Age	17	15%
	18	62%
	19	23%
Annual Income*	More than ten lakh rupees per year	7%
	From five lakh to ten lakh rupees per year	9%
	From two lakh and fifty thousand rupees to five lakh rupees per year	28%
	Up to two lakh and fifty thousand rupees per year	56%
Area of schooling	Urban	50%
	Sub urban	44%
	Rural	6%
Possessing own laptop or computer or smart phone	Yes	63%
	No	37%
Frequency of internet usage for learning purpose	Always	41%
	Rarely	41%
	Never	18%
	Always	6%
	Rarely	3%
Financial aid to use internet	Never	91%

*The annual income categories were fixed based on the Indian income tax slab for the year 2021(Source: India Income Tax 2021 | India 2021 Tax Slabs | India 2021 Ta (icalculator.info))

Impact in awareness about Covid-19 (Paired sample t-test)

Paired-Samples T Test was conducted to identify if technology intervention or TEAL as presented in the present study impacts the awareness level on Covid-19. Respondents have taken part in an experiment in order to see if technology intervention has enhanced their knowledge on Covid-19 awareness and prevention significantly. Survey was conducted before and after the experiment with the same set of questions. Questions were constructed with five-point Likert scale and the scores assigned were strongly agree -1, agree-2, neutral-3, disagree-4,

strongly disagree-5. Therefore, it is evident from the table 2 that the difference in knowledge gain had improved compared to their pre-test Mean value. Since, the scores were assigned as strongly agree 1 to strongly disagree 5, the change in mean value from 2.21 to 1.56 is considered as leaning towards strongly agree from agree and neutral.

Table 2. Paired sample t-test output

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Pre Test- Knowledge gain	2.21	100	1.166	.117
Post Test- Knowledge gain	1.56	100	.686	.069

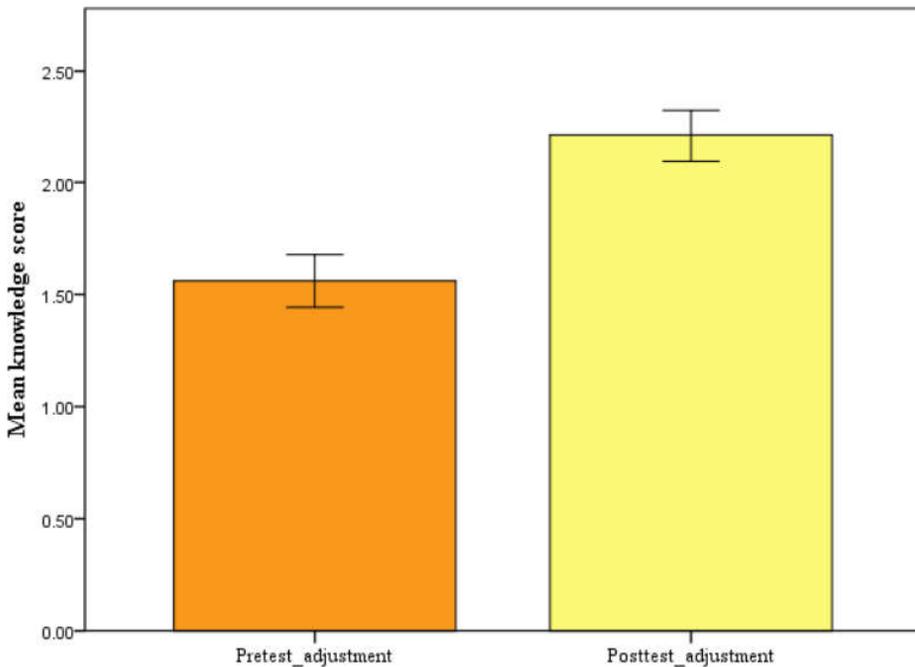


Figure 2. Difference in knowledge gain between pre-test and post-test

Figure 2 was computed using SPSS software version 20 by IBM using the respective adjustment scores of pre-test and post-test values with the error bar at the confidence interval 95%. The evidence for students' change in the level of awareness or understanding Covid-19 crisis from neutral and agree to strongly agree is obvious in Figure 2.

Table 3. Paired samples correlations

	N	Correlation	Sig.
Pair 1knowledge gain	100	.281	.005

The paired sample correlation value supplements the fact that scores are positively correlated with the r value .281. Thus, the variables are strongly associated with one another in this case of comparing pre-test and post-test measures.

Table 4. Paired differences for analyzing knowledge gain

	Mean difference	Std. Deviation	T	Sig. (2-tailed)
Pre Test- Knowledge gain Post Test- Knowledge gain	.650	1.175	5.531	.000

The pre-test score is 2.21 and the post-test score is 1.56 and the difference between their mean is .650. Based on the result generated by SPSS software, the significant value is $.000 < 0.05$, hence there is a significance difference between the pre-test and post-test scores in the students' awareness with regard to Covid-19. The effect size was calculated using Cohen's d formula (Gravetter & Wallnau, 2007) for the obtained test result i.e., $Cohen's\ d = \frac{M - \mu}{s}$. The value achieved using this formula was 0.679493, which is a medium effect as it is greater than 0.5 (Coe, 2002). Therefore, TEAL method of teaching impacts or enhances knowledge gain significantly among the university students in Indian milieu.

Discussion

Active learning in India is very much at its infancy stage and same applies to the TEAL. But slowly and steadily, active learning and TEAL as an innovative teaching pedagogy is catching up with the education sector in order to equip the current student generation with much needed practical knowledge. This was empirically investigated using 100 students who volunteered for the experiment. Students were of the age between 17 and 19. But this age difference or difference in knowledge was not expressed as a barrier in any form during the experiment. However, a small number of students were observed to be reluctant to undergo a newer method of learning though they willingly volunteered for participating in the experiment. Not having access to technology in their personal space was found to be one of the reasons for this reluctance during interaction.

With the help of the present study, it is proven that the creating awareness using online facilities is considerably possible and even enhanced when TEAL strategy is used. This information is also reiterated by the effect size, using Cohen's d formula for the t -test performed. The sample population used for the study were from various socioeconomic backgrounds but were not observed any discomfort or hesitation while taking part in the experiment. In fact, majority of them were shared their comfort level to register their opinion and feedback in the questionnaire online rather than offline. It is also observed during and after the experiment, that this particular method of bringing all the participants in the same platform helped to erase the line of difference drawn between them due to their socioeconomic background, language and region. Thus, ensures fair play by creating a level ground for all the students by integrating them in the same plane of learning in spite of their differential access to technology. In fact, many of them said that they will be getting vaccinated as soon as possible after realising the graveness of the situation through the documentary and discussion.

Conclusion

Due to their generation traits, students expect everything to be digitally available. As a result, they leap towards technologically driven method of learning than the traditional method of learning. At the same time, it was observed and expressed by students that they would like to have teachers as their facilitators. In addition, teaching aids used and the constructive teaching methodology adopted tend to contribute positively towards students' ability to perform further. Majority of the students who participated in the experiment displayed immense assurance to practice the preventive measures as an impact of the experiment.

The purpose of this study is to know if utilising TEAL strategy helps to impact the awareness level of Covid-19 among under graduate students. It is evident from the key findings of this study that both these purposes have been met by the outcomes of the experiment conducted. Therefore, it can be put forward with the help of the results obtained, that TEAL strategies can be used effectively to battle the disadvantages found in traditional educational trajectory as well as to encourage constructivist learning approach for various other subjects academically and socially. Particularly in the time of pandemic like Covid-19, TEAL could become a boon to both teachers as well as students if used appropriately. Since the pandemic Covid-19 had caused a sudden shift in the teaching pedagogy majorly from the traditional method to online teaching across the globe, combining active learning strategies with online teaching increases the chances of achieving the learning outcome not only in the case of creating awareness but also in the general learning process. Adding to these recommendations, the study widens the scope for further investigation on TEAL by adding to the existing sparse literature on the

subject in the context of developing nations and making online teaching effective with TEAL strategy for the purpose of socially relevant topics like Covid-19.

References

- Beichner, R., Bernold, L., Burniston, E., Dail, P., Felder, R., Gastineau, J., Gjertsen, M., & Risley, J. (1999). Case study of the physics components of an integrated curriculum. *American Journal of Physics*, 67 (7), S16-S24.
- Bonwell, C. C., & Eison, J. A. (1991). Active Learning: Creating Excitement in the Classroom. In Fife, J. D. (Ed.), *ASHE-ERIC Higher Education Report No. 1. Washington* (pp. 2). D.C.: The George Washington University.
- Brame, C. (2016). *Active Learning*. Vanderbilt University Center for Teaching. <https://cft.vanderbilt.edu/guides-sub-pages/active-learning/>
- Coe, R. (2002). *It's the effect size, stupid: what effect size is and why it is important*. Proceedings of the Annual Conference of the British Educational Research Association (September 12-14, 2002), University of Exeter, England.
- Dror, I. E. (2008). Technology enhanced learning: The good, the bad, and the ugly. *Pragmatics & Cognition*, 16(2). 215-223; DOI: 10.1075/p&c.16.2.02dro.
- Eckleberry-Hunt, J., & Tucciarone, J. (2011). The challenges and opportunities of teaching "Generation Y." *Journal of Graduate Medical Education*, 3(4), 458-461.
- Gibson, L. A., & Sodeman W. A. (2014). Millennials and Technology: Addressing the Communication Gap in Education and Practice. *Organization Development Journal*, 32(4), 63-75.
- Gravetter, F., & Wallnau, L. (2007). Measuring effect size for t statistic. In Evans. E (Ed.), *Essentials of statistics for the behavioural science* (6th ed., pp. 242-243). Thomson Wadsworth publishing.
- Gupta, A. (2006). *Early childhood education, postcolonial, theory, and teaching practices in India Balancing Vygotsky and the Veda* (1st ed.) (pp. 213-217). Palgrave Macmillan US.
- Hassan, B. F. N., Puteh. B. S., & Sanusi, M.B.A. (2018). Elements of Technology Enabled/Enhanced Active Learning (TEAL) to Enhance Quality and Employability of Bachelor's Students. *Proceedings of the MATEC Web of Conferences 2018*, 150, 1-8; DOI: 10.1051/mateconf/201815005005.
- Lee, K., Dabelko-Schoeny, H., Roush. B., Craighead. S., & Bronson. D. (2019). Technology-enhanced active learning classrooms: New directions for social work education. *Journal of Social Work Education*, 55(2), 295-305; DOI: 10.1080/10437797.2018.1540322.
- McCoy, L., Pettit, R. K., Lewis, J. H., Bennett, T., Carrasco, N., Brysacz, S., Makin, I. R., Hutman, R., & Schwartz, F. N. (2015). Developing technology-enhanced active learning for medical education: Challenges, solutions, and future directions. *The Journal of the American Osteopathic Association*, 115(4), 202; DOI: 10.7556/jaoa.2015.042.
- Monaco, M., & Martin, M. (2007). The millennial student: A new generation of learners. *Athletic Training Education Journal*, 2(2), 42-46.

- Pahl, C., & Kenny, C. (2008). The future of technology enhanced active learning: A roadmap. In Lytras, M., L., Gasevic, D., Ordonez de Pablos, P. and Huang, W (Eds.), *Technology Enhanced Learning* (pp. 348-375). IGI Publishing.
- Rusell, J. D. (1974). *Modular instruction: A guide to the design, selection, utilization and evaluation of modular materials*. New York: Publishing Company.
- Schulte, Paige L. (1996). A definition of constructivism. *Science Scope*, 20(3), 25-27.
- Siew, M. N., & Chin, K.M. (2018). Design, development and evaluation of a problem-based with cooperative module on scientific creativity of pre-schoolers. *Journal of Baltic Science Education*, 17(2). 215-228.
- Thyer, B. A. (2012). *Quasi-experimental research designs*. Oxford University Press.
- University of Waterloo. (2018). Rubrics: Useful Assessment Tools. *Centre for teaching excellence*. <https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/assessing-student-work/grading-and-feedback/rubrics-useful-assessment-tools>