



EVALUATION OF IMPACT OF POWER POINT PRESENTATIONS TO LEARNING OUT COMES OF MBBS STUDENTS IN THE COVID 19 PANDEMIC TIMES IN TWO RURAL MEDICAL COLLEGES, SOUTH INDIA.

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ABSTRACT

Background: Due to Covid 19 pandemic, in early March 2020 lockdown was imposed all over India by Central government and the Lecture classes platforms were transferred from common classroom to online presentation. The teachers used power point presentations for didactic lectures and students logged from their lap tops and smart phones and followed the classes. Aim and Objectives of the study was to assess whether the students were following the classes with interest in learning from the online power point presentations and to assess the outcomes of online teaching methods. **Materials and Methods:** The students joined the teaching session through Google meet arranged by the IT Departments of the institution which lasted for a period of one hour session and was taught by first author and correspondence author on two occasions. Pre-test and post-test evaluations were conducted in the two classes in November and December 2020 for 10 marks and assessed for learning outcomes of the power point teaching. The topics chosen were Hypokalemic and Hyperkalemic disorders. The same study was repeated at Viswabharathi medical 2 college on two occasions in the lecture gallery through power point presentation in the month of July 2022. **Observations:** Of the 132 students from P.K.Das institute of medical sciences, Kerala, who attended the online classes, 88 students answered the questionnaire and mailed to the teacher on the same day. Of the 88 who attempted in the tests from the institution, 66 were females and 22 were males. Of the 123 students from Viswa Bharathi medical college, Kurnool, AP, only 66 attended the class and answered the questions; females were 46 males were 20. The results were analyzed by applying paired t-test to evaluate the outcome in both the groups. It was found that there was a significant improvement of performance pre and post test of the lectures ($p < 0.05$) for both the groups. **Conclusions:** It was discovered that conducting a pre test before power point lecture followed by post test evaluation in the online classes as well as regular class room showed improvement in the performance of the both sexes and helped the students to focus on the lectures given through power point.

KEYWORDS

Online learning_ MBBS students _Powerpoint presentations _Covid pandemic,

INTRODUCTION

E-learning defined as "Learning conducted via electronic media, typically on the internet"[4] and the various digital tools used in e/learning can be designed and analyzed within the scope of constructivism. Background-learning is ubiquitous in medical education and has the potential to enhance learning since the students attain deeper learning when combining both words and pictures rather than words alone[1]. During a lecture, both the visual and auditory senses are used to absorb information and here assistance in the form visual aid is useful. A chalkboard is uniquely effective as a medium of Class room instruction and has been used commonly in lectures, while the use of transparencies with an overhead projector [TOHP] is also popular[5]. The once popular 35 mm slide projector seems to be headed for extinction.

Recently the use of electronic presentations has become common specially with Microsoft PowerPoint [PPT].[5]. In the year 2016, the third author was working as Associate Professor of medicine in Veer Chandra Singh Garhwali Government Medical College, Srinagar, Uttarakhand and had surveyed the MBBS students learning methods by questionnaire and published an article titled as "Impact of Mass media and E learning in medical students in Government medical college, Uttara Khand and published it in the International Journal of Information Research and Review, June 2016, [6]. The conclusion of the study was all students possessed smart phones and 45 and 90 students studied had access to lap tops. The female students 48.4% and males 24.75% were accessing the internet and were utilizing it for e-learning as well as for entertainment.

AIMS AND OBJECTIVES:

In pursuance to the previous studies conducted for evaluation of power point versus chalk and talk by many teachers the outcome of preferences goes to power point presentations [5]. Recently Mary Hyll et al from Karolinska Institute Medical Program have used a new web

based soft ware PREZI instead of conventional power point presentations and shown that the students accepted this sort of presentations than the conventional PPT in terms of improvement in learning outcomes,[3]. Here the objective was to assess whether the students benefitted from power point presentations in reference to the ability to retain and respond to questionnaires at the end of the online teaching session.

In Covid pandemic times due to lock down the students were forced to stay at home and are being taught the subjects through Internet Google Meet platform since last 9 months. Most often teachers are Using the Power Point Presentation for implementing the semester curriculums. In this study, we had chosen 7th Semester MBBS students who were taking weekly 2 classes in General Medicine in addition to other para-clinical subjects as per MCI norms. They were being overloaded with information and getting bored sitting for hours in front of the laptop or smart phone screen. So, to assess as to how much the students of 7th semester were grasping the subject matter a Pre-test was given, followed by lecture through power point and Post-test evaluation for the lectures given in the two subjects of hypokalemia and hyperkalemic disorders.

MATERIALS AND METHODS

Of the 132 students from P.K.Das institute of medical sciences, Kerala, who attended the online classes, 88 students answered the questionnaire and mailed to the teacher on the same day. Of the 88 who attempted in the tests from the institution, 66 were females and 22 were males. Of the 123 students from Viswa Bharathi medical college, Kurnool, AP, only 66 were present attended and answered the questions, females were 46 and males were 20.

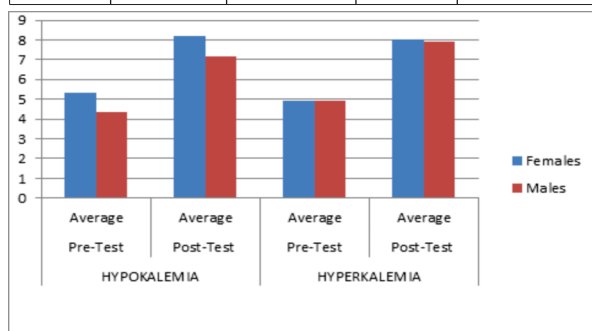
The number of students included in the study were limited to 154 only from both institutions combined. 88 and were from regular batch of 7th Semester MBBS students from the P.K.Das institute of Medical

Sciences and 66 were from the 7th semester MBBS students from the Vishwa Bharathi medical College, Kurnool, A.P. The students were informed about the Pre-test questionnaire and assessed for performance by 10 True/False statements for 10 marks on the two occasions.

The topics were hypokalemia and Hyperkalemia on two different occasions with two different teachers. They were given Pre-test questions before the lecture and followed by the same questions in Post-test. They were asked to email the results on the same day. Only 88 of the 132 students of 7th Semester MBBS students gave feed back. The results of student performances has been show in table 1 and 2 and graphs 1 and 2 for P.K.Das medical college students.

Table-1: Showing the Pre-test and Post-test average marks scored by both the sexes for Hypokalemia and Hyperkalemia by P.K. Das students.

SEX	HYPOKALEMIA		HYPERKALEMIA	
	Pre-Test Average	Post-Test Average	Pre-Test Average	Post-Test Average
Females	5.32	8.18	4.92	8.03
Males	4.36	7.18	4.95	7.91

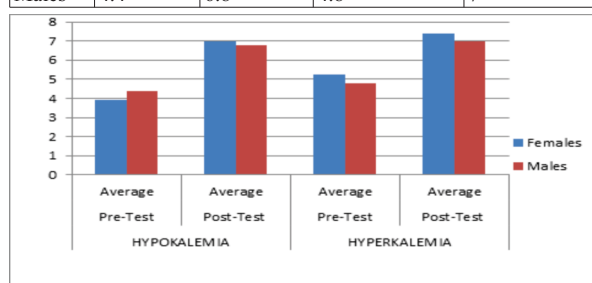


Graph1. Showing the average marks obtained by the P.K.Das medical college students for hypokalemia and hyperkalemia tests(10 marks)

Observations from the second institution was conducted after post covid restrictions were removed and students were attending regular classes, in the month of June 2022. The students from 7th semester were selected. Out of 123 students, only 66 participated in the class room lectures and pre and post test evaluation for the lectures using the same power point presentation data by an assistant professor and an associate professor on two occasions. The data revealed 20 male and 46 females attempted the questionnaire and the data is depicted in the table 2 and graph 2 as shown above.

Table-2: Showing the Pre-test and Post-test average marks scored by both the sexes for Hypokalemia and Hyperkalemia by Viswa Bharathi Medical college students tests.

SEX	HYPOKALEMIA		HYPERKALEMIA	
	Pre-Test Average	Post-Test Average	Pre-Test Average	Post-Test Average
Females	3.9	7	5.23	7.4
Males	4.4	6.8	4.8	7



2. Graph showing the average marks scored by the Viswa Bharathi medical college students in Pre and Post tests.

Statistical analysis were done as shown by applying paired t-test to the pooled data from both institutions.

There was significant difference in the Pre and Post evaluation results for both lectures on hypokalemia and Hyperkalemia as shown in the

table 3. And table 4 for females (p value<0.05) and males (p value<0.05). Both sexes have improved in Post test performance from both the institutions.

Table 3. Showing the results of Paired t test in females for Pre and Post tests conducted for hypokalemic lecture.

Paired Samples Test				
Female	Paired Differences Mean		t- value	Sig(2-tailed)
Pair 1	Hypokalemia Pre and Post tests	2.862	22.098	<0.05
Pair 2	Hyperkalemia Pre and Post tests	3.138	19.873	<0.05

Table 4. Showing the results of Paired t test in females for pre and post tests conducted for hyperkalemic lecture.

Paired Samples Test				
Female	Paired Differences Mean		t- value	Sig(2-tailed)
Pair 1	Hyperkalemia Pre and Post tests	2.739	9.243	<0.05
Pair 2	Hyperkalemia Pre and Post tests	2.862	13.773	<0.05

Further analysis was done to compare the performance in both the sexes using Paired t-test and calculate the mean difference as shown in tables 5 and 6. The Paired mean difference 2.862 in females versus 2.739 for the lecture in hypokalemia and the paired mean difference in females was 3.138 compared to 2.826 in males for the lecture on hyperkalemia, suggesting that females performed better than the males in overall performance.

Table 5. Showing the comparison of paired differences mean in both sexes for hypokalemia.

Hypokalemia Pre and Post tests	Paired differences Mean
Female	2.862
Male	2.739

Table 6. Showing the comparison of paired differences mean in both sexes for Hyperkalemia

Hyperkalemia Pre and Post tests	Paired differences Mean
Female	3.138
Male	2.826

DISCUSSION

Vikas seth et al have evaluated the PowerPoint or chalk and talk: Perceptions of medical students versus dental students in a medical college in India[5]. To assess the students' perceptions of the impact of PPT presentations in lectures in comparison to the traditional chalk and talk method and lectures using transparencies and over head projector [TOHP]. The study analyses the preferences for teaching aids of medical students versus dental students. The purpose was to assess students' perceptions of the impact of PPT presentations I lectures I comparison to the traditional chalk and talk method and lectures using transparencies and overhead projector. The study analyses the preferences for teaching aids of medical students versus dental students.

The results were analyzed separately for medical and dental students to see if there was any difference in their perceptions. The medical students clearly preferred the use of PPT presentations while the dental students did not. The study does not bring out evidence based superiority of any lecture deliver method. It appears that in the hands of a trained teacher any teaching aid would be appropriate and effective. This highlights the need for formal training in teaching technologies to develop good presentation skills and thus motivate the students[5].

The original research article Mary Hyll et al [3] in their web-based presentation software Prezi was used to create a digital presentation in order to facilitate antibiotic knowledge in an undergraduate course on infectious diseases in the Karolinska Institute Medical Program. It was unclear how the students used this in their learning, and there is a lack of research on using Prezi presentations in higher education, as well as on learner/content interaction in blended learning in general.

As a result of their own study two main themes emerged from the analysis. Firstly, the students experienced that they own their learning; the presentations provided flexibility in studying and increased engagement in the learning process. Secondly, the presentation was a

part of a superficial learning process: students saw it as a compliment to other educational activities, but expressed that there was an absence of pedagogical encounters which prevented the information in the presentation to be placed in a larger context. Finally they concluded through their Prezi presentation[3] when used as an e-learning tool was a useful part of and a complement to blended learning in medical education but cannot replace face-to-face learning situations, especially when the content of the course is complex, such as in the case of antibiotics.

In our study it revealed the fact that spending a few minutes to assess the students knowledge in the subject by a pretest and followed by post test showed that the students are focused on learning when these tests were applied rather than given in one sided didactic lecture in PPT irrespective of the teacher who presented it.

The learning objectives should be connected to a learning theory and made explicit for the students. Students should receive instructions and support during the course on how to use new e-learning tools. Continuous pedagogical interaction with feed back and interaction between students, teachers and patients should be provided to enhance deep learning[2].

However, learning is a complicated, multidimensional process. Illeris describes three dimensions of learning and competence where learners actively construct their learning within an integration of both internal and external processes. One cannot only regard a learner's cognitive processes but must also take into consideration the emotional and social dimension[2].

CONCLUSIONS

Due to the covid pandemic restriction in our study the students had no option for other methods of learning from teachers apart from power point presentations and their own book learning or internet learning at home for P.K.Das students. The fact that only 66.6% students participated in the Pre-test and Post-test evaluation and the performance of the 33.4% has not been assessed, so there is limitation to interpret the outcome of the study.

However the same lectures were repeated to the 7th semester batch students in Viswa Bharathi medical college, Kurnool after covid restrictions were removed. The students attendance to the didactic lecture was 71.5%, a significant increase in number of participants.

But our attempt to teach the MBBS students learning through use of power point discourse with Pre-test and Post-test evaluation during the lectures kept the students anchored to the study in hand rather than be distracted, as revealed by the better performance in post test evaluation in both the sexes from both the institutions, irrespective of whether they were taught in class room or online classes.

REFERENCES.

- [1]. Mayer RE. Introduction to multimedia learning. In: Mayer RE editor. The Cambridge hand book of multimedia learning, 2nd edition New York: Cambridge University press, 2014, pages 1-24.
- [2]. Illeris.K.A. Comprehensive understanding of human learning. In: Illeris K. editor, Contemporary theories of Learning. New York: Taylor and Francis:2009 [Cited 2017, 30th Jan]. Available from ProQuest E-book Central p7-20.
- [3]. Exploring how medical students learn with the help of a digital presentation: a qualitative study Mary Hyll 1,2, Robert schvarczq,3 and Katric Manninen3 C. The Authors(s). Wo19, corrected publication 2019. Open Access. This article is distributed under the terms of article Hyll et al. BMC Medical Education (2019) 19:210 <https://doi.org/10.1186/s12909-029-2569-z3>.
- [4]. Oxford dictionaries online. Oxford University press, Oxford,2019. <https://en/oxforddictionaries.co/definition/e-learning>. Accessed 13th March 2019 .6. Liu A Peng W, Zhandg F, Hu R, Li Y, Yan W. The effectiveness of blended learning in health rofessions: systematic review and Metaanalysis. JMed Internet Res.2016; 18 (1). <https://doi.org/10.4807>. & Lew EK, Norquist Ek. Asynchronous learning: student utilization.
- [5]. Vikas Seth, Perma Upadiyaya , Mushtaq Ahmad, Vijay Moghe; Power Point or chalk and talk: Perceptions of medical students versus dental students in a medical college in India. Advances in Medical education and Practice 2010;1 11-16C 2010 Seth et al, publisher and licensee/Dove Medical Press Ltd.
- [6]. Dr. Kakarlathota Kanugolu Murali mohan, Dr. Rajeev Garg et al; Impact of mass media and e-learning in medical students of Veer Chandra Sing Garhwal Government Medical college, Pauri Garhwal Region, Uttara khand. North India; International Journal of Information Research and Reveiv , Vol 03, Issue, June 2016, pages 2490-2496. www.ijirr.com.