

Fact Findings Of Exploring ICT Model In Teaching Learning

Vikrant Shaga, Samee Sayyad, K. Vengatesan and Abhishek Kumar

Abstract: In past few years, ICT has been adopted by many universities, colleges and industries for better transmission of ideas. Industry experts finding it facile in delivering expert talks using webinars, video conferencing and other ICT resources. Government of India took great initiatives by introducing various teaching learning schemes for enhancing curriculum design, professional development, preparation, evaluation techniques and so on. This has created a very good opportunities for the domain experts to explore their innovative ideas to the audiences. This paper will highlight the impact of using ICT tools in various regions of the world. Also, we have focused on the impact of our own designed ICT model in present teaching learning. Impact of our model is measured on the basis of feedbacks given by students. We have analyzed different factors on the basis of student's approach, satisfaction level and interest. It is observed that level of understanding of students raise to some extent but opinions differ gender-wise in some cases.

Index Terms: ICT, Teaching learning, Evaluation techniques, ICT tools, Multimedia, MOOCs.

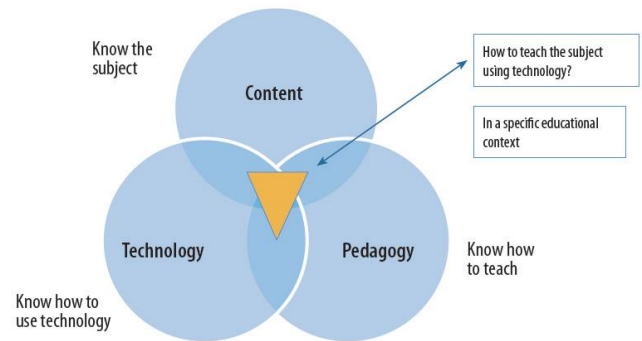
1. INTRODUCTION

Modern technologies motivated the students for self-centric teaching learning. Online videos, study contents, Blogs and other resources foster them to build innovative software applications for the continuous changing society. Before development students have been motivated to provide the solutions for the problem statements which were based on real time situations or problems. Government of India recently initiated many competitive activities for student community to come up with new innovative ideas and solutions. Once problem has the appropriate solution, they will be allowed to proceed for software development. This will not only enhance student technical skill but also increases entrepreneurial skills [1]. According to survey, 400 universities and 14,000 colleges have been benefited with high speed (1 GBPS) internet connectivity [2]. Government of South Korea is the key reason to promote the use of ICT for innovations, private equity and support, increase in job opportunities as a reason of economic growth and sustainability in their country [3]. Changes in technologies also affected the usage of ICT in countries like Southern Africa due to which delivery services related to ICT becomes difficult [4]. The initiatives taken by Australian Government has the positive outcomes by investing in e-learning and e-government resources for the better and improved livelihood of rural citizens [5]. Due to empirical model designed using ICT for enhancing practical knowledge, Students find ICT is very useful in case of reflective thinking, interpretation, relevance and for tutor interaction [6]. Teachers were also becoming highly technological competent and were providing best practices for future perspective. In the figure below, focuses on the intersection of three circles which indicates the new type of

knowledge which is available in training institutions and comprises content, pedagogy and technology. [7].

Fig.1. Technological Pedagogical Content Knowledge

2 OVERVIEW



This model was designed especially for enhancing the conduct of practical sessions in education institutes. This model is student-centric model in which their own teachers are the course owners or experts who incorporate entire contents into the online system. Online education resources created in Gnomio(Moodle), videos created using Screencast-O-Matic uploaded on YouTube and YouTube links embedded in Gnomio. For editing any video, any free software tools can be used. Entire model uses ICT and open source tools and technology for better outcome. Role of instructor is to use pedagogy, course management, student management, adding activities, evaluation on the basis of using designed activities, interaction and optimize solution given for the problem. The activities in the existing model is creation of problem statements and expected output, providing reference videos based on the same topic, Quiz on the same topic, few assignment questions (offline/online) and discussion forum for discussing queries with the course coordinator. Effectiveness of the above model at the student level involves metrics related to student access of the resource and student learning. As we have started this process of teaching learning with practical approach, positive outcomes are observed. Feedback of students about the use of this ICT model in teaching learning is more useful and effective. In terms of

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reflective thinking, interpretation, relevance and tutor support, students find it very important and best way of teaching learning.

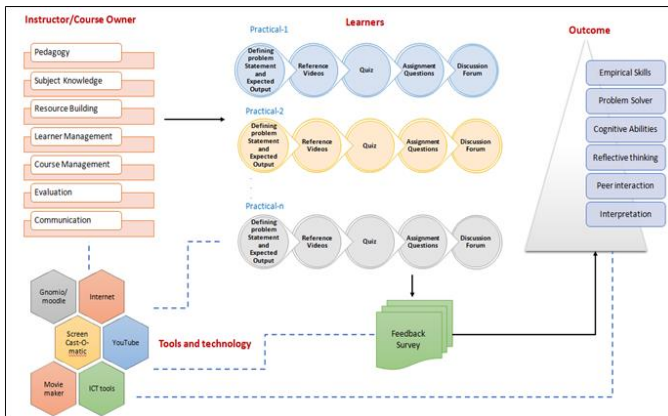


Fig. 2. Model for Teaching-Learning (e-LabManual)

3 OBJECTIVES AND HYPOTHESIS

The main objective of study is to identify gender wise opinions about the ICT tools and the new model that we developed for enhancing teaching learning.

1. To study gender wise opinion of students about contents and activities used in model to improve professional practices.
2. To study students understanding level about the concepts
3. To study the overall gender wise opinion of students about the existing model based on ICT

Null and Alternative hypothesis for the above objectives have been defined as below:

H01: There is no significant difference in male and female opinion about the contents and activities used in model to improve professional practices.

HA1: There is a significant difference in male and female opinion about the contents and activities used in model to improve professional practices.

H02: Students understanding level increased about the concept

HA2: Students understanding level not increased about the concept

H03: There is no significant difference in male and female opinion about the overall existing model

HA3: There is a significant difference in male and female opinion about the overall existing model

4 RESEARCH METHODOLOGY

In present paper, structured questionnaire has been used as the entire course was designed in Gnomio (e-learning community) with predefined set of questions available with feedback facility. To collect the information about the model, we used Gnomios predefined question set. Questions were categorized in 6 sections. First section is in relation with Relevance with dependent variables from 1 to 4, Second section is in relation with Reflective thinking with dependent variables from 5 to 8, Third section is in relation with Interactivity with dependent variables from 9 to 12, Fourth section is in relation with Tutor support with dependent

variables from 13 to 16, Fifth section is in relation with Peer support with dependent variables from 17 to 20 and Sixth section is in relation with Interpretation with dependent variables from 21 to 24. The paper consists of 24 dependent variables and 2 independent variables that is Gender. The questionnaire results in ordinal level data [8]. For all the questions, "Almost Never" has been assigned to 1, "Seldom" has been assigned to 2, "Sometimes" has been assigned to 3, "Often" assigned to 4, "Almost Always" assigned to 5. The collected data has been analyzed and presented using R Software and MS-Excel.

Relevance	
1	My learning focuses on issues that interest me
2	What I learn is important for my professional practice.
3	I learn how to improve my professional practice.
4	What I learn connects well with my professional practice.
Reflective thinking	
5	I think critically about how I learn
6	I think critically about my own ideas.
7	I think critically about other students' ideas
8	I think critically about ideas in the readings
Interactivity	
9	I explain my ideas to other students.
10	I ask other students to explain their ideas
11	other students ask me to explain my ideas
12	Other students respond to my ideas.
Tutor Support	
13	The tutor stimulates my thinking.
14	The tutor encourages me to participate.
15	The tutor models' good discourse.
16	The tutor model's critical self-reflection
Peer Support	
17	Other students encourage my participation.
18	Other students praise my contribution
19	Other students value my contribution.
20	Other students empathise with my struggle to learn
Interpretation	
21	I make good sense of other students' messages.
22	Other students make good sense of my messages
23	I make good sense of the tutor's messages.
24	The tutor makes good sense of my messages

Population and Sampling Method:

Students from the reputed higher education institute involved for the study. All students are pursuing their post-graduation and belongs to computer application and technology field.

Stratification done based on demographic variable gender, hence, stratified random sampling method is used. Total 83 post-graduate students have participated in the study out of which 36 (43%) are female and 47 (57%) are Male.

Testing of Hypothesis H01:

The two -tailed P value is equal to 0.0312. The mean difference between Male and Female opinion is -0.36. 95% confidence interval of this difference from -0.68 to -0.03. t-value calculated to be 2.1923 with degree of freedom (df) = 47+36-2 = 81 at 5% level of significant.

	Male	Female
Mean	4.25	4.61
Standard Deviation	0.77	0.69
Variance	0.59	0.47
N	47	36

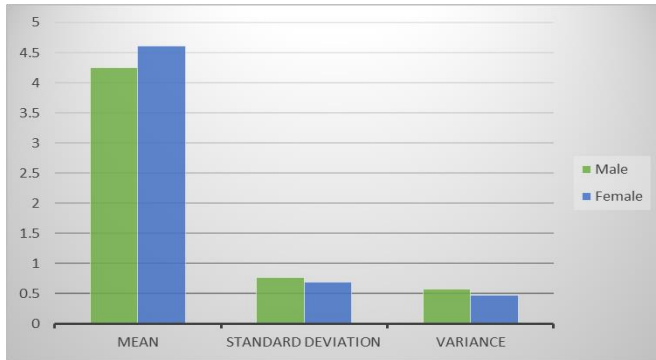


Fig.3. Opinion about contents and activities

The result is significant at $p < 0.05$. H01 is failed to reject and HA1 is failed to accept. Hence, there is no significant difference in male and female opinion about the contents and activities used in model to improve professional practices.

Testing of Hypothesis H02:

Here, we have considered the responses of dependent variable “I explain my ideas to other students”. One can explain his/her idea only when concepts about the topics are clear which improves the understanding of concept. The two -tailed P value is equal to 0.9954. The population or actual mean for 83 responses obtained to be 3.18. 95% confidence interval of this difference from -0.25 to 0.25. t-value calculated to be 0.0057 with degree of freedom (df) = 47+36-1 = 82 at 5% level of significant.

Mean	3.18
Standard Deviation	1.15
Variance	1.32
N	83

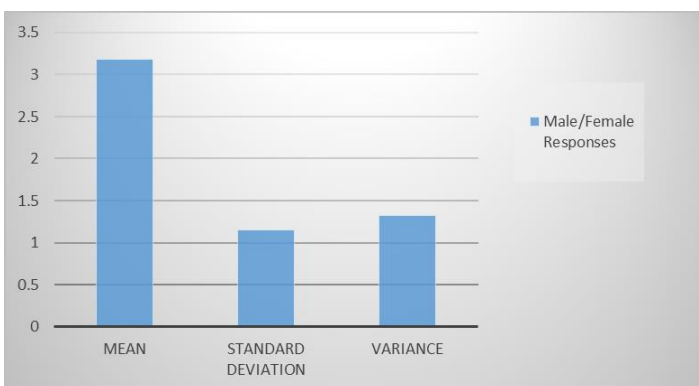


Fig.4. Opinion about students understanding level

The result is not significant at $p < 0.05$. H02 is failed to accept and HA2 is failed to reject. Hence, Students understanding level is still not increased about the concept.

Testing of Hypothesis H03:

Here, we have considered the responses of dependent variable “the tutor stimulates the thinking”. As tutor himself is the designer of the model which uses ICT, opinion about the overall model is necessary gender wise. The two -tailed P value is equal to 0.2134. The mean difference between Male and Female opinion is 0.22. 95% confidence interval of this difference from -0.13 to 0.58. t-value calculated to be 1.2540 with degree of freedom (df) = 47+36-2 = 81 at 5% level of significant.

	Male	Female
Mean	4.28	4.50
Standard Deviation	0.85	0.74
Variance	0.72	0.54
N	47	36

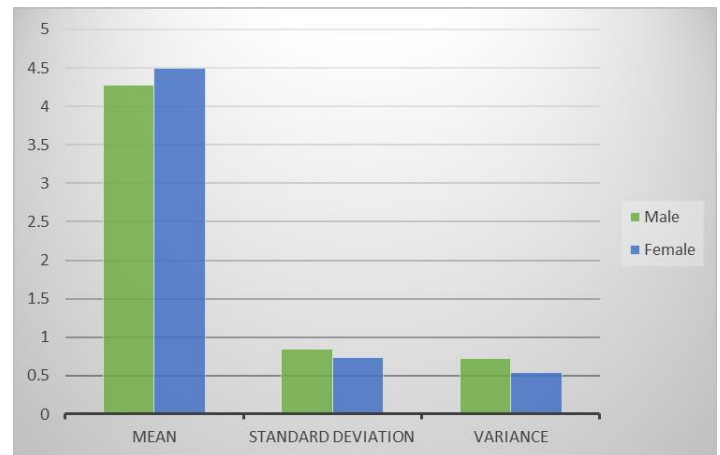


Fig.5. Opinion about overall model

The result is not significant at $p < 0.05$. H03 is failed to accept and HA3 is failed to reject. Hence, there is a significant difference in male and female opinion about the overall existing model.

CONCLUSION

The present research is carried out to understand the perception of existing ICT model e-LabManual by students’ individually or gender-wise. Results were significant in terms of learning, usability and professional practices. This is the first stage where post graduate students participated in the various activities involved in the model for better understanding of the experiments. The findings of the present study will help the universities and other higher education institutes to enhance the practical approach. Despite of opinions differ gender-wise for few cases, it is recommended by authors to spend more time on existing model designed by authors for the better understanding of the concepts and effective learning. This will definitely improve the empirical approach of students of present scenario; where the world is directing towards innovative teaching learning methodologies and learning management tools.

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