



## Pharmacology

## A COMPARISON OF COMPUTER ASSISTED LEARNING AND CONVENTIONAL TEACHING METHOD IN EXPERIMENTAL PHARMACOLOGY- A QUESTIONNAIRE BASED STUDY

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**ABSTRACT**

**Background:** Computer Assisted Learning (CAL) for teaching experimental pharmacology is now widely accepted as alternative to animal experiments. The present study was to compare the computer assisted learning and conventional method that is lecture followed by demonstration on the same topic of experimental pharmacology.

**Methods:** This was a questionnaire based observational study involving 100 second year MBBS students. The students were taught experimental pharmacology practical by both conventional methods (lecture with discussion) and computer assisted learning (CAL). Questionnaire and their filled responses by these students were taken after the CAL experiments, covering the same topics of experimental pharmacology.

**Results:** Majority of the students(72%) accepted computer simulation technique gives a better understanding of the topic than traditional method of teaching and 88 % of students accepted that effects of drugs can be clearly visualized by computer simulation. And majority of the students(85%) accepted CAL as a teaching method

**Conclusions:** Thus, to conclude, the use of CAL as an alternative to experimental pharmacology is an attractive area among undergraduate students in practical teaching. It is also a pleasant shift for the students.

**KEYWORDS :** Animal experiments, Computer assisted learning, Experimental pharmacology

**INTRODUCTION:**

Computer assisted learning is almost similar to experimental model of learning. It helps to meet the learning objectives better. A number of computer based packages which may enhance learning is now available and it is a effective tool in education. The use of live animal experiments have been an integral part of medical education<sup>1</sup>. These experiments were time consuming and tedious. A number of studies have been conducted earlier on CAL as teaching method, very few studies only to explore the students perspective. The present study was to compare the computer assisted learning and conventional method that is lecture followed by demonstration on the same topic of pharmacology.

**MATERIALS AND METHODS:**

This cross-sectional, observation study was conducted in the Department of Pharmacology, thiruvavur medical college, thiruvavur among 100 second professional MBBS students after obtaining informed consent.

CAL software obtained from Ex Pharm Animal Experiments. As a first part of the study, 100 students were given theoretical instructions on different animal experiments that dealt with the action of autonomic drugs on rabbit eye, the frog heart and the rabbit intestine. It was followed by further learning of the procedure on the computer using software package. The advantages, disadvantages and acceptability of using CAL as an educational tool was then assessed by using a validated pre-designed questionnaire.

**STATISTICAL ANALYSIS**

The questionnaire was analyzed using descriptive statistics in the form of bar charts

**RESULTS:**

Table 1

Questions	Strongly Agree (%)	Agree (%)	No Difference (%)	Disagree (%)	Strongly Disagree (%)
1.Computer simulation technique gives a better understanding of the topic than traditional method of teaching	72	16	8	2	2
2.CAL is more interesting than the traditional method	70	20	7	3	0
3.Effects of drugs can be clearly visualized by computer simulation	88	10	2	0	0

4.I am accepting CAL method as teaching method	85	10	4	1	0
5.It is much easier to remember.	54	15	20	6	5
6.I would like to perform the actual experiment with the live animal rather than a computer simulation	45	20	15	10	10
7.Computer simulation are time saving than the actual experiments	78	15	7	0	0
8.CAL requires resources and is an expensive method	68	27	3	1	1
9.Requires computer knowledge is a disadvantage	65	30	3	2	0
10.Effects of drugs can be studied without animal loss	88	12	0	0	0

Figure 1

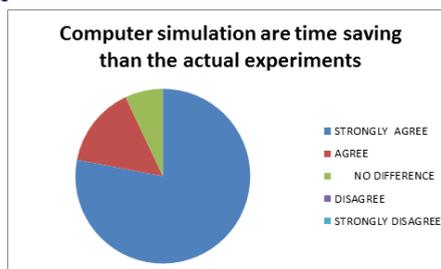
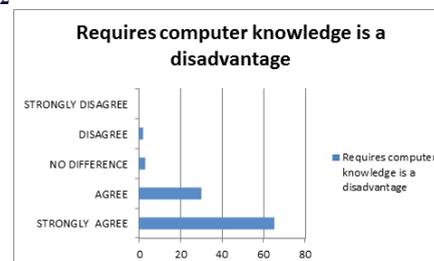


Figure 2



**DISCUSSION:**

Here a questionnaire based comparison was done between CAL and practical animal experiments for medical undergraduates. It was observed that most of the medical undergraduates preferred the use of computer assisted learning (table 1). Various advantages and disadvantages were observed during the study period.

CAL is much easier compared to experimental pharmacology. But it has its own limitations like cost of the packages, technical problems, dependence on computers<sup>3</sup>.

**CONCLUSION:**

CAL as an alternative to Experimental Pharmacology provides a distinctive learning experience among the under graduate students, broadening the probability of learning in pharmacology<sup>4</sup>. It affords a better perception of the topic as the effects were visualized on the screen clearly. The blending of CAL in the student's curricula reduces the unnecessary wastage of time and also wastage of resources like animals and instruments<sup>5</sup>.

Thus, to conclude, the use of CAL as an alternative to experimental pharmacology is an attractive area among undergraduate students in practical teaching. It is also a pleasant shift for the students provided they are acquainted with adequate technical knowledge.

**DECLARATIONS**

**Funding:** NIL

**Conflict of interest:** NIL

**Ethical approval:** OBTAINED

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