

Assessment of Computer Assisted Amphibian Lab.

Shahnawaz Alam¹, Anees Akhtar², Abdur Rahman³

¹Assistant Professor, Department of Physiology, Glocal University, Saharanpur- 247121

²Assistant Professor, Department of Microbiology, Glocal University, Saharanpur- 247121

³Assistant Professor, Department of ENT, Glocal University, Saharanpur- 247121.

Received: April 2019

Accepted: May 2019

Copyright: © the author(s), publisher. It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Computer-Aided Amphibian Laboratory (CAAL) means that experiments can be taught any time the computer is accessible; no laboratory technical help is required to set up the lab. The learning potential using computer simulation is tremendous. The Computer Assisted Amphibian Lab (CAAL) has the technology, classes and knowledgeable staff to help students in our Developmental Education. Various Software programs sharpen their skills. Various videos related to frog dissection and rabbit gut experiments provide a better understanding of experiments. Many medical institutes have shifted to techniques which minimize sacrifice of animals. MCI has given liberal permission to use these programs and has also invited faculty to build such programs for future use. **OBJECTIVES:-** The objectives of this study were to assess the benefits of computer assisted learning in amphibian lab and to compare the computer assisted teaching with other teaching methodologies. **Methods:** Total 70 students of MBBS from Glocal Medical College, Glocal University, Saharanpur were provided a self made questionnaire regarding the feedback about Computer Assisted Amphibian Lab. All students were taken from MBBS second prof. batch 2016. Questionnaire consisted of 10 questions out of which 9 were according to Likert scale and one multiple choice question. Data was analysed manually. **Results:** 1) When asked about the most beneficial method for teaching in CAAL lab; 36.45% students answered that they prefer online videos related to experiment shown on computer via website. 27% students answered that they prefer chalk and talk while 25% students preferred Computer assisted learning with predesigned softwares and only 9.37% students preferred teaching with powerpoint presentation. **Conclusion:** CAAL is a better alternative than mere teaching in the absence of animal experiments.

Keywords: CAAL, Computer, Amphibian

INTRODUCTION

In recent years due to technological advances, cost effectiveness, ethical concern of using animals for teaching and policy changes on the use of animals for medical curriculum, the education institutes around the world are adopting simulation based education methods instead of using animals for biomedical training. This article will highlight various alternatives to animals such as computer assisted learning softwares and various other teaching methods. Computer simulations are now widely available at relatively low cost and can provide a dry lab experience. Many medical institutes have shifted to these techniques which minimize sacrifice of animals. MCI has given liberal permission to use these programs and has also invited faculty to build such programs for future use. Prevention to cruelty to animals 1960 and Wild Life

Protection Act 1972 makes it obligatory to shift towards minimal animal experimentation and move towards modern and ethical approaches.

Computer-Aided Amphibian Laboratory (CAAL) means that experiments can be taught any time the computer is accessible; no laboratory technical help is required to set up the lab, and the experient will not fail due to technical inexperience on the part of the students. The learning potential using computer simulation is tremendous. The Computer Assisted Amphibian Lab (CAAL) has the technology, classes and knowledgeable staff to help students in our Developmental Education. Various Software programs sharpen their skills. Various videos related to frog dissection and rabbit gut experiments provide a better understanding of experiments

Objectives:-The objectives of this study were to assess the benefits of computer assisted learning in amphibian lab and to compare the computer assisted teaching with other teaching methodologies.

MATERIAL AND METHODS

Total 70 students of MBBS from Glocal Medical College, Glocal University, Saharanpur were provided a self made questionnaire regarding the

Name & Address of Corresponding Author

Dr. Anees Akhtar,
Assistant Professor,
Department of Microbiology,
Glocal University,
Saharanpur- 247121
India.

feedback about Computer Assisted Amphibian Lab. All students were taken from MBBS second prof. batch 2016. Questionnaire consisted of 10 questions out of which 9 were according to Likert scale and one multiple choice question. Data was analysed manually and results expressed in percentages of students who strongly agreed, agreed, disagreed or remain neutral. The following questionnaire was provided to students for the assessment of computer assisted amphibian lab (CAAL). The study was carried out during March 2017.

Questionnaire For The Assessment Of Computer Assisted Amphibian Lab (CAAL) Running Without Animals

Q1. Which method of teaching do you think is the most beneficial for teaching in amphibian lab in the absence of animals?

- A. Computer assisted learning with predesigned softwares
- B. Powerpoint Presentation with Projector
- C. Chalk and talk
- D. Online Videos on Computer shown via websites

Q2. The videos of Frog dissection shown to you were beneficial to you in understanding the experiment.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

Q3. Computer assisted teaching helped more than other teaching methods in answering questions of spot exams.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

Q4. Facts are learnt better, when the teacher uses software programs instead of live experiments.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

Q5. Frog's heart can be learnt better with the help of computer aided learning than chalk and talk.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

Q6. If you have a question in mind related to the experiment, you get help from computer via internet quickly.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

Q7. Experiments related to movements of isolated rabbit gut are learnt better with predesigned software programs as compared to other teaching methods.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

Q8. Computer aided learning provided you a better understanding of physiology of different types of muscles.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

Q9. Computer aided learning helped you in answering the questions related to the experiment, given in the lab manual.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

Q10. Computer based online teaching from website proved much better for you in learning Applied Physiology.

- A. Strongly Agree
- B. Agree
- C. Disagree
- D. Neutral

RESULTS

We assessed computer assisted amphibian (CAAL) lab by taking feedback from 70 MBBS students. Assessment was done by asking them to fill up a self made questionnaire.

- 1) When asked about the most beneficial method for teaching in CAAL lab; 36.45% students answered that they prefer online videos related to experiment shown on computer via Elsevier website. 27% students answered that they prefer chalk and talk while 25% students preferred Computer assisted learning with predesigned softwares and only 9.37% students preferred teaching with powerpoint presentation.
- 2) When asked that computer assisted learning helped them in understanding physiology of different types of muscles and applied physiology; 45.82% students agreed that they were benefitted in the former case whereas only 54.16% students and 43.75% agreed that they were benefitted in the latter case.
- 3) When questions arise in the minds of students related to experiments they get help from internet in a short time via Elsevier website. 17.7% students strongly agreed on this while 43.75% students agreed, 22.9% students disagreed and 6.67% remain neutral.
- 4) Frog's heart and rabbit gut are learnt better with computer aided learning than chalk and talk; 15.62% strongly agreed and 50% agreed on this fact. While 19.8% disagreed and 15.62% remain neutral.

- 5) Online videos of frog dissection on computer are beneficial to students; 46.87% of students agreed on this fact while 6.25% strongly agreed 30.2% agreed and 16.67% remain neutral.
- 6) Computer assisted learning helped more than other teaching methods in answering the questions of spot exams; 31.25% students agreed on this fact and 7.29% strongly agreed on this fact. 34.37% students disagreed and 26% remained neutral.
5. Comparison of a Computer Simulation Program with a traditional laboratory practical class for teaching principles of intestinal absorption. Dewhurst, D.G., Hardcastle, J; American Journal of Physiology 267, S95-104 (Advances in Physiology Education 12).

How to cite this article: Alam S, Akhtar A, Rahman A. Assessment of Computer Assisted Amphibian Lab. Ann. Int. Med. Den. Res. 2019; 5(4):PH01-PH03.

Source of Support: Nil, **Conflict of Interest:** None declared

DISCUSSION

Computer assisted amphibian lab (CAAL) has become a necessity for undergraduate students since animal experiments have been banned in our country. Because not much time has elapsed since the animal experiments have been banned in India, a very few number of studies have been carried out for the assessment of Computer assisted amphibian lab. In this study we tried to explore the students view about the importance of CAAL lab. We assessed the students about teaching methodology which they prefer the most. Overall, 61.45 percent students preferred computer assisted teaching with the help of predesigned softwares and videos as compared to other methodologies. Dewhurst(2004) reported that there are few major advantages of Computer assisted simulation programs. He said that high quality of presentation of factual information is well beyond that of a typical lecture or textbook, eg. Animations and high quality graphics may be incorporated. The level of presentation is consistent and access to the resources by the user is flexible, so that students can work when it is convenient to them. Further studies are required for a better assessment of computer assisted learning for medical students.

CONCLUSION

Now a days due to technological advances, cost effectiveness, ethical concern of using animals for teaching and policy changes on the use of animals for medical curriculum, the education institutes around the world are adopting simulation based education methods which a better alternative to the live animal model lab.

REFERENCES

1. Modernize Biomedical Training: Replacing Animal Use with Simulation-Based Methods: Dr. Rohit Bhatia.
2. Non-Animal Training Methods for UG/PG Physiology: Richa Ghay Thaman; Sri Guru Ram Das University of Health Sciences, Amritsar, Punjab.
3. The need for Alternatives to Animal Use in Physiology and Pharmacology Education: Dr. Bikash Medhi; PGIMER, Chandigarh.
4. Computer Based Alternatives to Using Animals in Teaching Physiology and Pharmacology to Undergraduate Students: Dewhurst; ATLA32, Supplement1, 517-520, 2004.