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Posters

Innovations in Pharmacology teaching: *semivirtual mice*, a tool for learning the evaluation of analgesic activity

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INTRODUCTION

The use of experimental animals, as a tool for learning in higher education, continues to be a subject of debate. New technologies are allowing the development of different methods to avoid the use of animals. Our thinking about Pharmacology practices focuses on this way.

The aim of this project was to design an alternative to the use of animals in Pharmacology practices in order to learn the analgesic activity assessment using hot plate test.

METHODOLOGY

Previously, teaching team carried out the complete assay to record a set of videos about the course of the practice. For this proposal, analgesic activity was assessed by hot plate test using mice randomized in three groups. Individual videos for each animal at every assay time were edited (Figure 1).

The practical session starts in the laboratory where the teacher shows the students the equipment for measuring analgesic activity (hot plate and others) and instructs them on the basis. Then it is explained how the hot plate experiment was performed; a) the animals were placed on the hot plate (55±0.1 °C) and the time until jumping was recorded; b) after, each group received saline solution (control), morphine or drug problem; c) the jump time was again evaluated at 10, 20, 30, 60 and 90 min after administration. Each student has to visualize the movies for each animal in order to measure the jump times at every time. After that, the results are plotted, analyzed and discussed during practical session.

Finally, the students´ opinion is requested through the following survey:

a) What is your opinion about this teaching innovation project?
b) What do you think about replacing animal use in Pharmacology practices?
c) How would you rate the practice using *semivirtual mice*?
d) Would you achieve a better learning of this practice using animals?
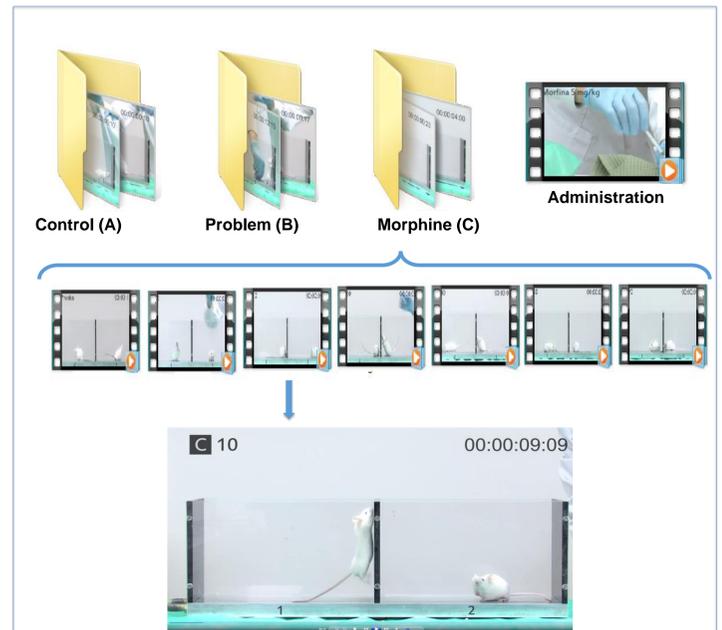e) Establish your order of preference in each part of the practice.

Figure 1. Videos to evaluate the analgesic activity by hot plate. Morphine effect 10 minutes after administration (https://ipap18.files.wordpress.com/2018/09/video-c-10.mp4)

RESULTS

The practice was taught to 81 students of the Biotechnology Degree. The results obtained and analyzed by students after viewing the videos are shown in Figure 2.
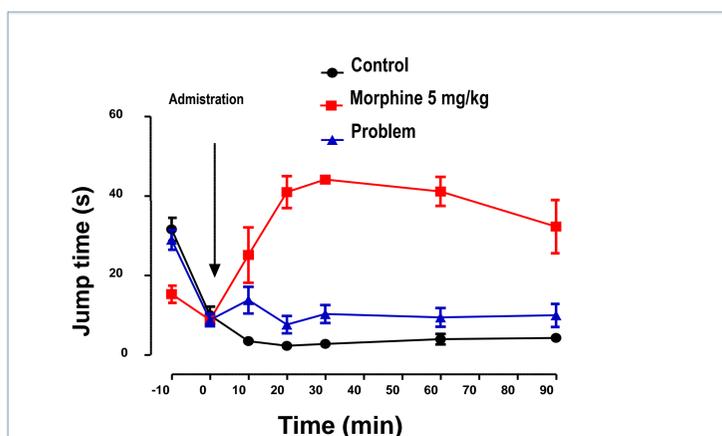

Figure 2. Results of evaluation of analgesic activity.

According to the results of the survey (Figure 3), the students positively valued this project, agreed on the replacement of animals and, mostly, believed that this does not harm their learning. Regarding to their preferences, the teachers' explanations seem interesting and they give less importance to the analysis and discussion of the results. This point will have to be improved.

CONCLUSION

This tool is an innovation very useful in Pharmacology teaching as evidenced by the good feedback received from both students and teachers.
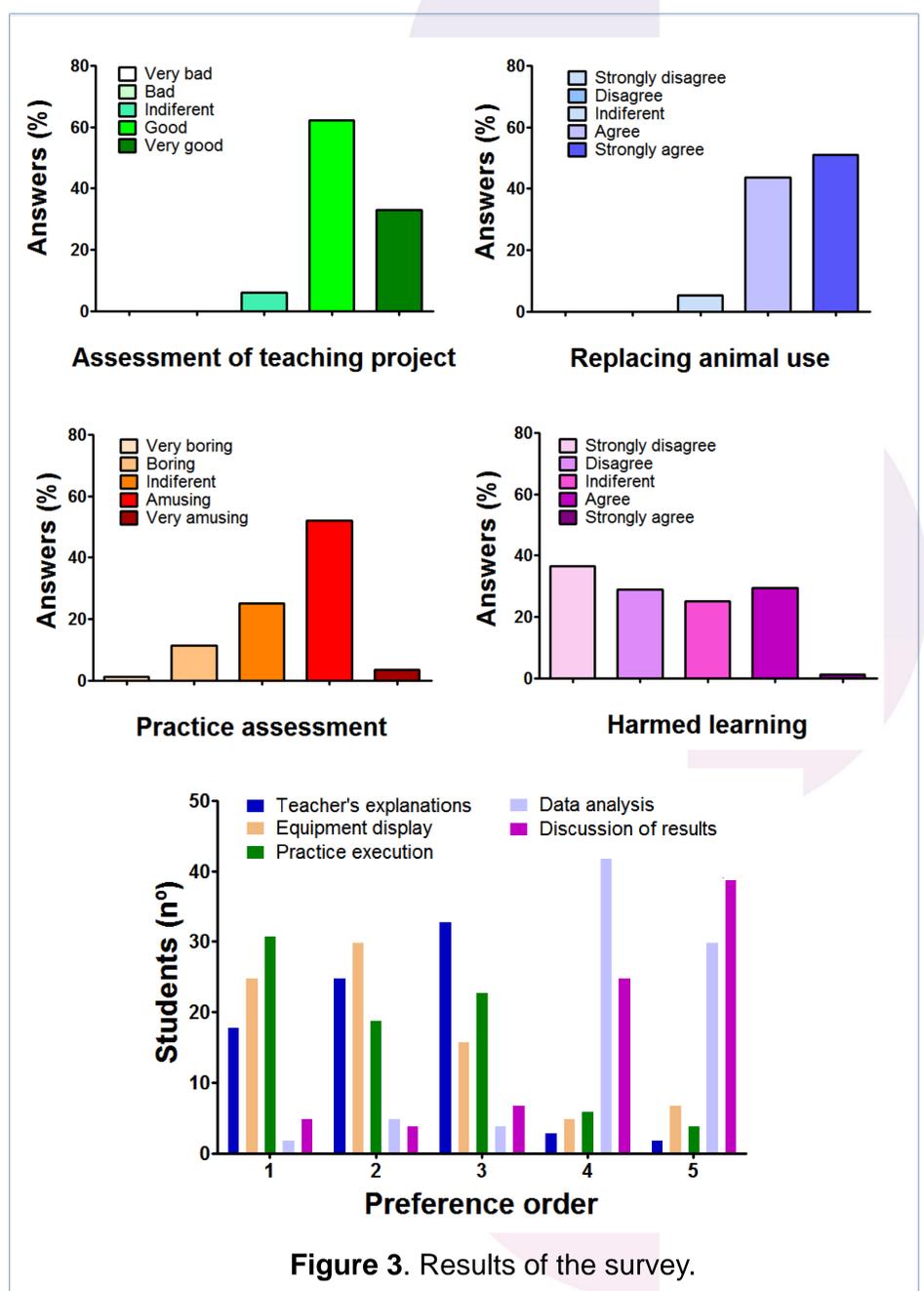

Figure 3. Results of the survey.

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