IMPROVEMENT OF STUDENTS' ENGAGEMENT IN LECTURE CLASS OF NOVEL DRUG DELIVERY SYSTEMS BY GROUP DISCUSSION BASED ON PUZZLES

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Novel Drug Delivery Systems classes normally comprise of conventional lecture and research articles explanation that cause students to lack of engagement and feel difficult to understand the lessons. In order to improve the students' engagement as well as the critical thinking process. The technique of group discussion based on puzzles has been adopted in this study.

Aim and Objective

To improve students' engagement and critical thinking in the novel DDS class.

Activity

Within 2 h class, the activities were done as follws; 1st h

- Teacher gave a lecture for students to understand the general concept of DDS and explained 1 related research paper. $2^{nd}h$
- Divided the students into 5 groups, each group has 4-5 persons (by their convenience)
- Students picked up 1 puzzle figure. Students matched the puzzle figure to the relevant method of study and results. Students discussed in group regarding the materials obtained. Students presented and exchanged the knowledge with another groups. After class

Outcome

1. Score obtained

From total 24 students, average score was 9.75 ± 0.58 out of 10 points.

2. Students expression

Students expressed their feedbacks that they feel more engaged in the class. This activity is creative and fun. They could enhance the understanding of the research article by linking the method and results. In addition, they could work in group and exchange the understanding with friends.

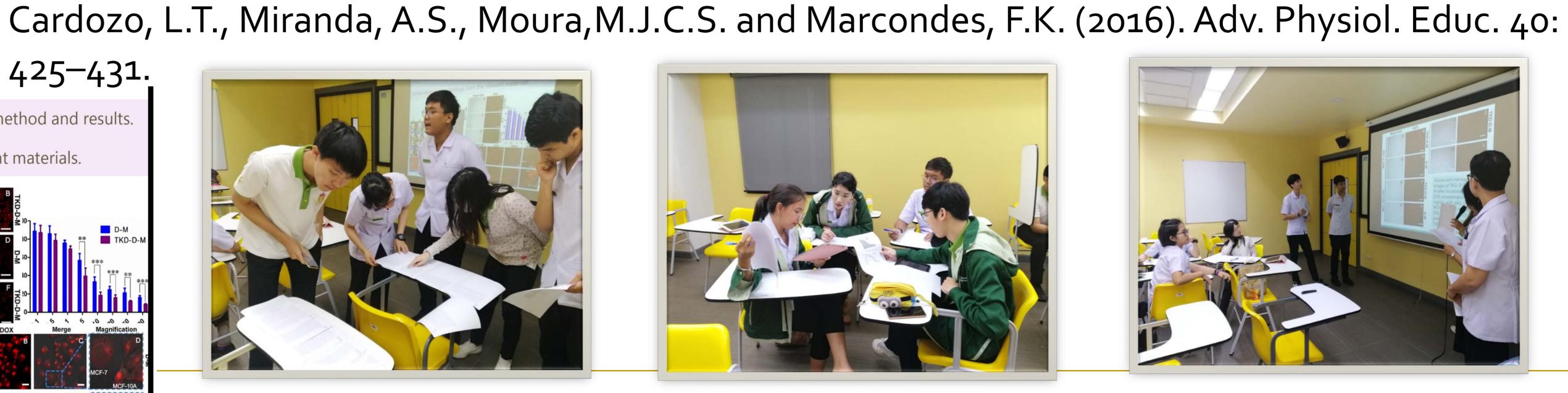
Impact

Students did the online quiz and gave the feedback to the teacher regarding this teaching technique.

> Let's discuss the rest of this paper **References** in the group of 4-5 persons 425-431.

Match the following figures with the relevant method and results.



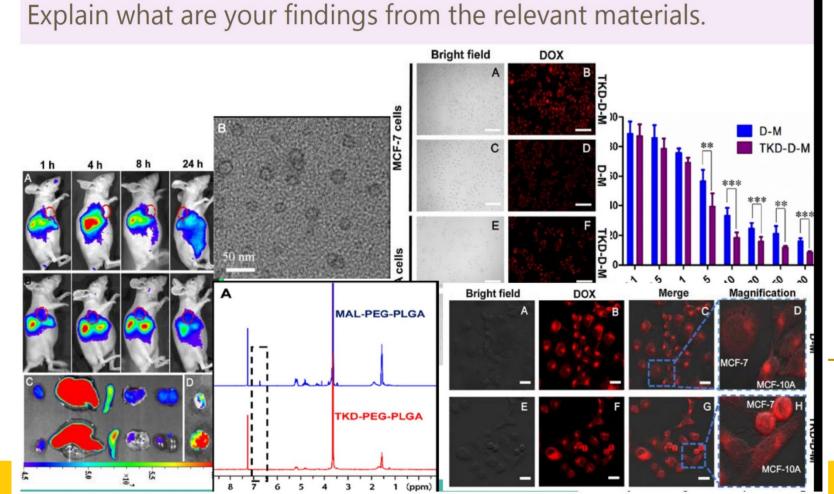




This technique could improve students' engagement comparing to conventional class and students were enthusiastic and happy in studying. However, teacher must help to prevent the incorrect matching of the materials, and misunderstanding interpretation of the results.

Future development

Different techniques to enhance students' engagement e.g. games or contests could be used, and the assessment to ensure the effect of the teaching techniques should be improved.



Select the correct materials



Presentation to the class