

Active-based learning for Biotechnology students

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Overview

Genetic engineering is one of the important techniques for biotechnologists' skills in the 21st century, which is a set of technologies used to change the genetic structure of an organism including the transfer of genes within or across species to produce improved or novel organisms (also called genetically modified organism, GMO) which are probably used to study gene function and expression, produce hormones, vaccines and other biological compounds. Furthermore, genetic engineering has the potential to cure genetic diseases through gene therapy. Genetic engineering has been applied in numerous fields including research, medicine, industrial biotechnology and agriculture. To motivate and improve students' learning and outcomes, active-based learning and Kahoot! were implemented.

Aims and objectives

- To motivate students' learning
- To improve students' knowledge in genetic engineering
- To update knowledge and applications of genetic manipulation



Activity

Prior to the class, I introduce course orientation and ask students some basic concept of techniques related to genetic engineering to evaluate the student. Students were divided to small groups and assigned to search the interesting topics related to the course and present in the class. The floor was opened for question and discussion. Then I give them a conclusion and start a lecture. At the end of the session, I ask students again or quiz them by Kahoot! to recheck the understanding and ask for feedback as well. Finally, I wrap up conclusion and challenge them to think about other applications or analysis that they have to present in the next session.

Outcome

- Students were excited and understood the lessons.
- Students can able to integrate the knowledge and explain to others.



Impact

- Student enjoy to participate in the class.
- Challenge both teacher and students to thinks.
- Update knowledge and new technologies involved in genetic engineering.

Future development of project

- Use other digital technologies to improve learning.
- Use up-to-date issues for discussion in the class.
- Use effective feedback tools for improving teaching and learning methods.

References

- Nichols M., Cator K., and Torres M. 2016. Challenge based learning user guide. Redwood city, CA: Digital Promise.
- Lincorich S.A., Owen H.E., Daniel B., and George J.L. 2018. Students's perception of Kahoot!'s influence on teaching and learning. Research and Pactice in Technology enhanced learning. 13:9.