

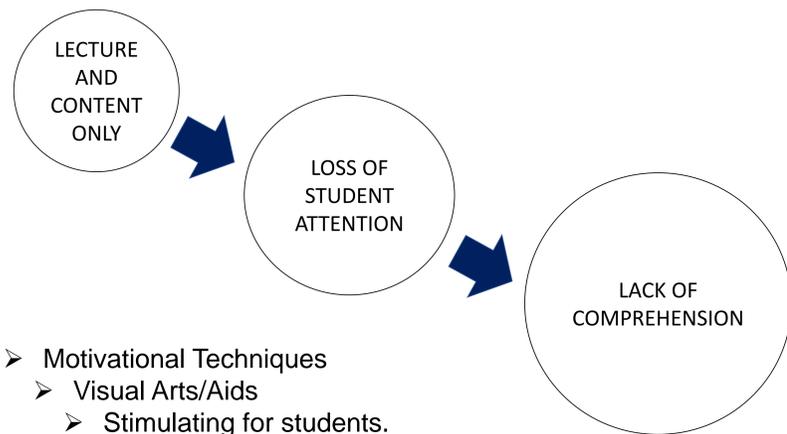


How to Successfully Motivate Students in a Science Classroom

Jordan Vallad
Lake Superior State University

Introduction

- The interest in this topic stems from a future career as a science educator.
- Educators are always asking themselves “How do we teach our students?”.
- To best teach our students we need to motivate them.
- When students are motivated, they will comprehend the content.



- Motivational Techniques
 - Visual Arts/Aids
 - Stimulating for students.
 - Physical Movement
 - Blood flow creates more oxygen in the brain.
 - Relatable Content
 - The content can be applied to their life.
 - Relationship
 - Student knows you care about their success.

Methods

- ProQuest search engine was used to find peer reviewed articles.
- Scholar filter was put on.
- Keywords used:
 - Science
 - Motivation/motivated
 - Secondary Education
 - Students
- Initial articles refined to articles mentioning:
 - Brain Breaks
 - Physical Motivation
 - Visual Motivation
 - Online Motivation
- Abstracts were scanned for content and relevancy.
- Articles were limited to include time frame of last fifteen years.
- Articles were reviewed for:
 - Author methodology
 - Data collected



Results

A

Question	Yes (%)	No (%)
Do you enjoy doing Visual Arts such as drawing, colouring, painting or using clay?	100	0
Do you enjoy your Science lessons?	97	3
Are you happy with the activities in your Science lessons?	100	0
Do you like to work in groups with your other classmates?	90	10
Do you enjoy making 3D models for your Science topics?	94	6
Do you like it when your teacher allows you to draw something for your Science topic?	97	3
Do you think it is fun to learn Science through Visual Arts?	77	23
Did you like today's Science lesson?	94	6

B

Question	Mean
How effective was the use of Prezi in presenting information in an understandable way?	3.4
How effective was Prezi in informing you about the Science topics?	3.6
How effective was Prezi in motivating you to learn more about the Science topics?	3.0
If Prezi was used in other classes, how effective do you think they would be in helping you learn?	3.3
How effective was Prezi in helping you pay attention?	3.1
How effective was Prezi in helping you remember the new information?	3.0
How effective was Prezi in helping you observe details?	2.9

Figure 1: Visual Arts Motivation Surveys. Visual Arts motivation was tested using survey questions in a classroom in Malaysia² (A) and a classroom in the United States¹ (B). The researchers tested the students' perceptions of science and how they view visual arts being incorporated. In (A) classroom the students answered yes or no. In (B) classroom the survey was specific to the use of Prezi and used a 5 point scale for questions.

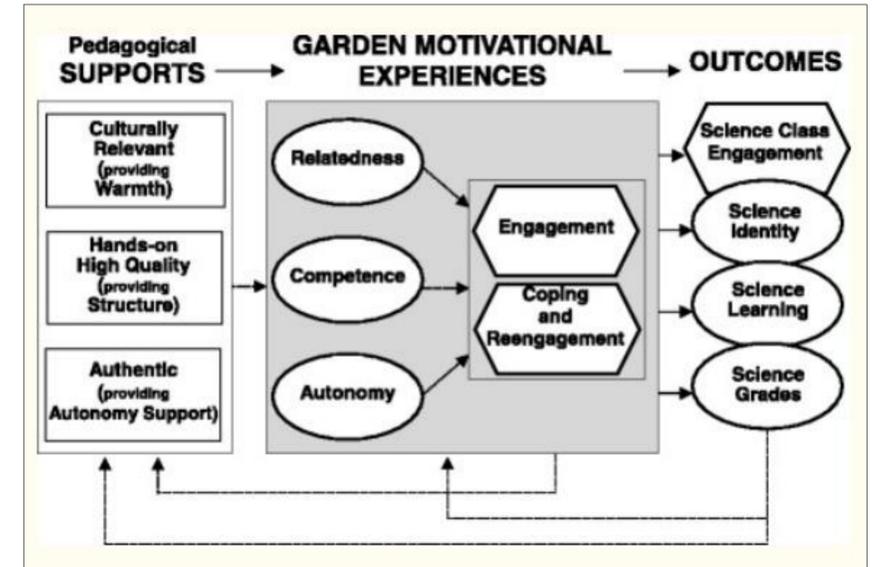


Figure 2: Learning Gardens³. 6th grade teachers in Portland, OR decided to do a community garden to engage their students in science content. This flow chart was created to show what motivated students and the outcomes of that motivation.

Discussion/Conclusion

- Surveys are great tools to understand what motivates your students to learn.
 - Use survey results to create lessons.
- Figure 1 shows incorporating visual arts in a science classroom can be very beneficial to motivate students.
 - Figure 1B shows how Prezi is not the most effective tool.
- Science classrooms use videos, diagrams, models, graphing.
 - All visual arts/aids.
- The Learning Garden unit incorporated multiple motivational techniques:
 - Cultural relevance, hands on activity, visually stimulating
- Students are motivated by visual aids, physical activity, and culturally relevant material.
- Educators need to be constantly making sure they are motivating their students.

References

- (1) Bender, Caroline; Prince Bull. "Using Prezi to Motivate Middle School Science Students." *Manager's Journal on School Educational Technology* 7.3 (2012): 10-21. ProQuest. Web. 10 Mar. 2019.
- (2) Dhanapal, Saroja; Ravi Kanapathy; Jamilah Mastan. "A Study to Understand the Role of Visual Arts in the Teaching and Learning of Science." *Asia - Pacific Forum on Science Learning and Teaching* 15.2 (2014): 1-25. ProQuest. Web. 9 Mar. 2019.
- (3) Williams, Dilafuz R; Brule, Heather; Kelly, Sybil S; Skinner, Ellen A. "Science in the learning gardens (SciLG): a study of students' motivation, achievement, and science identity in low income middle schools." *International Journal of STEM Education*. 5:8 (2018) ProQuest. Web. June 2020.