Monica Cooper
Action Research Proposal
Fall 2017

Positive Teaching in Increasing Student Involvement in a Biology Unit on Homeostasis

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Introduction

Would you be willing to do your work if someone would continuously nag at you, ask you to pay attention to a repetitive, boring teaching "technique," punish you for having your head down, etc.? I would not if I had the choice. But I might not have the choice, as many of our students don't.

I have noticed in my previous years with students, as a substitute teacher, that my positive attitude, my openness, and my good spirits helped them be more willing to participate in class, more willing to do their class work, even if many times they knew it might be just "busy work." I did research action, having myself as a variable, even before I knew that such tool exists, and can improve a classroom experience as a whole. Every time I had something that didn't work, I tried to find a way to make it work. Most times I succeeded, but I also had times when I had to ask for help or to declare myself defeated for the day!

The purpose of this study was to see how does creating a positive relationship with the students will increase their involvement in Unit 2 (Homeostasis) of 9-grade Biology. My research addressed the following questions:

1. How does a positive relationship with the students motivate them to study Homeostasis?
2. How will differentiation by personal learning styles help students stay on task?
3. How will proximity to the students increase their focus on learning Homeostasis?

The variables of the study were:

- students being off-task (sleeping, day-dreaming)
- students requesting for repeated instructions

Context

I have recently been to a Middle School to observe the students for two weeks. The purpose of this was to understand the students that are coming to attend the high school Biology classes that my Mentor Teacher and I were teaching, as to be aware in the future of the history, scientific and behavioral of our students, for when I will be a Biology teacher. Findings in my Middle school experience: students were very loud, and teachers had a hard time calming them down, ignoring them many times, and continuing to talk over students. Students scored poorly in their tests; many students were not understanding concepts, even if they were repeated (verbally) by the teacher several times, and some of them were on posters on the walls of the classroom. It only makes sense that when students move to High School science class, their interest is low; they are either intimidated, either bored, and I don't blame them.

In our classroom, we had several students who would put head down and not raise it until the bell rang. I was shocked when my Mentor Teacher said: "leave them alone, I will write a report". And I decided to figure out ways to keep them awake or even better, interested in the class. Another thing that stroked me was the need of verbally repeating directions of the activity that needed to be done, in spite of the fact the directions were written on the interactive board, and on the handouts. An easy activity that required gluing and cutting was taking five times more. All this sent me to the lack of motivation and interest in the class. Mentor Teacher was very distant and had a long set of rules (15!) that needed to be followed; everyone was expected to be quite at

all times, sited and working on the tablet. The would "raise" virtual hands, and Mentor Teacher would answer their questions online. At times I felt I am attending a funeral (of my middle-aged woman dreams) and this somber classroom atmosphere let me to the idea of bringing a high positive connection with my students.

I did my action research in the third period of a 9th Grade Biology class, at Therrell High School, in Atlanta. The population of the classroom was 25 students, 13 boys, and 12 girls, all African American. One student is coming from Africa, but he is not considered ESOL, while English is used as an official language where he is coming from. In spite of almost double the number of girls, there are no issues of power in my classroom, but at times the girls can become more animated than the boys, who are always reserved. In group activities, they always stick girls with girls, and boys with boys. Most of them don't like school, but they consider it necessary. Most of the girls are taking good care of their hair, and they are not happy with having to wear a uniform. The boys are talking about becoming entrepreneurs, and making a lot of money, but I am pleased to observe they are willing to put the work into it, and they are all aware of the importance of academics, and integrity. Raufelder (2016) explains the importance of the social impact that teachers have on their students - more significant than their peers or family have on them. I have developed a calm and safe environment for students, and this is how I found out that most of them don't spend enough time with their parents. One of the reasons can be the fact that 17 of my students are part of a single parent unit, either without siblings or with one more sibling, while the rest of 8 are living with both parents, and with multiple siblings (at least four more siblings). I consider very importantly to develop an interpersonal relationship with my students. Strong and colleagues (2003) state," Some students' interests are more likely to be aroused and sustained by mystery-oriented curriculum designs, whereas other students

respond to more interpersonal orientation." (p.29). Starting high school is a big step in any student's life, and I make sure to be considerate of that and to help my students become responsible for the work they need to put into developing a full understanding of the science curriculum, and I also constantly teach them how to focus better.

Therrell High School has a spacious, newly renovated building, surrounded by big trees, in an underprivileged neighborhood in South West Atlanta. I often see students walking from/to school on the street, because some streets don't have sidewalks. 99% of the students are African American, 1% Hispanic, or others. 100% of the students are on free meal program. Therrell HS is working towards becoming an IB (International Baccalaureate) High School, and the teachers are going under intensive training, and the students are getting familiarized with the ten attributes of an IB learner's profile.

Students do well working both alone, and in groups to understand scientific phenomena, and how science is integrated into everyday life. Students are very comfortable using technology, they are visual, and verbal learners. 2 of them are struggling readers, but the rest of them have appropriate reading levels for their grade. So far, one of the students is falling the class due to low scores on quizzes and test. Some of them are not comfortable with public speaking, and their limited exposure to the rural environment is sometimes seen in discussions about plants, and animals.

I conducted this action research for five weeks.

Data Collection

To find out how does a positive relationship with the students motivate them to study Homeostasis I gave the students a pre-survey at the beginning of the five weeks and a post-survey at the end of the five weeks about the classroom satisfaction.

To find out how will proximity to the students increase their focus in learning Homeostasis I collected data on how many times does a student puts the head down and closes the eyes for more than 10 seconds: in the first week I did not use proximity, and the last four weeks, if the student put the head down and closed the eyes for more than 10 seconds I went and sat next to him/her, during a test or teaching. Every time that happened I put a paper clip from my left pocket to the right pocket, and count them at the end of the day.

To find out how will differentiation by personal learning styles help students stay on task, I gave the students a two question exit ticket every day. Students had to fill out a google form and submit it.

I also journaled every day and used self-reflection about my actions in the classroom that possibly let to a positive relationship with the students.

I videotaped the lessons and watched the videos to observe some of my behavior or students' that I might have missed on site.

Analysis Plan

The survey I administered to the students was Classroom Inventory. This inventory took ~5-10 minutes for them to complete. I adapted the purpose of this survey. Students took the same survey twice each time: the first time, they should complete the questionnaire based on their perceptions of the actual classroom. The second time they should complete the questionnaire based on how they would prefer the classroom to be. You can find a PDF copy of the inventory here: http://cw.routledge.com/textbooks/settlage/data/Template-for-My-Class-Inventory.pdf

Before action research:

	Satisfaction	Friction	Competitiveness	Difficulty	Cohesion
Prefer	25	7	13	5	5
Actual	11	9	7	7	5

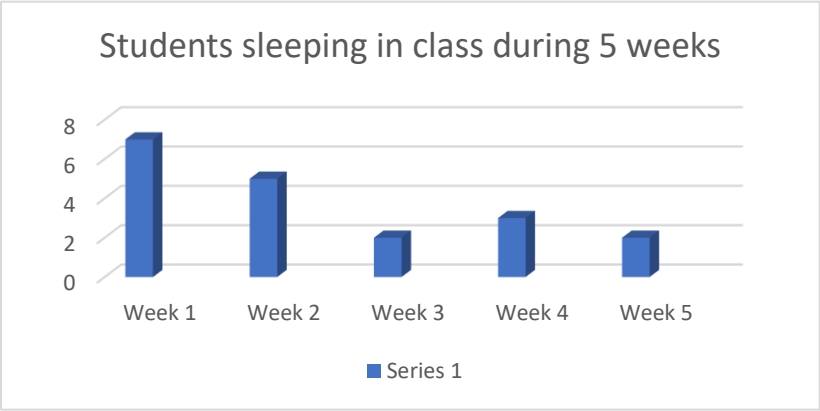
Areas of strength are cohesion, difficulty and friction and areas that need growth are satisfaction and competitiveness.

A suggestion I had that would address the growth in satisfaction and competitiveness was using a personalized progress of students rather than all having to be on the same level all the time. Blackboard is a software they could use for this purpose. I also suggested to try diversifying the media I use during teaching: videos, games, paper assignments, working in groups.

After action research:

	Satisfaction	Friction	Competitiveness	Difficulty	Cohesion
Prefer	24	6	13	17	5
Actual	17	6	7	17	5

The results of the post-survey show a slight increase in satisfaction area, and that was a hopeful result for the short time. It takes time to build meaningful relationships.



The chart shows a decrease in students putting their heads down, even if this habit doesn't completely disappear.

The two questions of the exit ticket that I administered each day were:

1. Have you been focused/attentive today?

2. Did you find this lesson interesting/beneficial?

The results were as following:

Question	Week 1	Week 2	Week 3	Week 4	Week 5
1. YES	39%	42%	45%	34%	44%
1. NO	61%	58%	55%	66%	56%
2. YES	20%	29%	35%	39%	42%
3. NO	80%	71%	65%	61%	58%

As seen in the table above, I was able to see a very slight variation in students' attentiveness, but not significant to let me conclude.

As about the interest in the lessons, it was observed a gradual increase.

Discussion and Action Plan

The literature review gave me a sense of understanding, and confidence to become a literate science teacher, and I am going to remember the findings for other purposes as well, not only for my action research project. I have noticed that working in groups is beneficial for student involvement I consider it the "a-ha" moment of my action research. Winter J, Neal J. (1995) examined students' perception of their learning in groups. The findings were as follow: a) there is a relationship between the grades and the student's perception of writing quality, as well as the perception of the amount of information learned in group activities; b) there is no correlation between grades, and students' opinions of the quantity of work achieved in groups, or if the students liked the other students in the group or not.

I have learned that teaching requires endurance on top of passion. There are so many unseen aspects of this profession, and things are changing all the time. Education is this humongous organism that never stops growing that sometimes can swallow you alive, both teachers and students if you don't keep perspective if you don't take steps back to look at the situations from another perspective. About my students I have learned that their socio-economic status is hunting them is haunting them on school grounds as well. No breaks for them! About myself, I have learned that no matter how hard of a day I had at school, I still want to go back next day and that is a great feeling to have; hope it will last forever!

Science is a subject that can intimidate students, especially if they don't have any foundation from previous years, or if they are struggling with other problems, school related or not. I intend to approach my classroom as it is a big family where respect and support are going to play an

important role. Students need human interaction at school, and they can get that either from where I am planning to position myself, as a warm human, interested in their life as much as the ethics allow me or from their peers.

References

Christoforos, K., Sergis, S., Sampson, D. G., Giannakos, M. N., and Pelliccione L. (2017). Investigating the potential of the flipped classroom model in K-12 ICT teaching and learning: An action research study. *Journal Of Educational Technology & Society* 20(1),

Fisher, D.L. and Fraser, B.J. (1981). Validity and use of My Class Inventory. *Science Education*, 65, 14–156.261-273.

Martinek, D., Hofmann, F., & Kipman, U. (2016). Academic self-regulation as a function of age: the mediating role of autonomy support and differentiation in school. *Social Psychology of Education, 19*(4), 729-748.

Strong, R., Silver, H., Perini, M. & Tuculescu, G. (2003). Boredom and Its Opposite. *Educational Leadership*, 61(1), 24-29.

Raufelder, D., Scherber, S., & Wood, M. A. (2016). The Interplay between Adolescents' Perceptions of Teacher-Student Relationships and Their Academic Self-Regulation: Does Liking a Specific Teacher Matter? *Psychology In The Schools*, 53(7), 736-750.

Russel, C. S., Allday, R. A., & Duhon, G. J. (2015). Effects of Increasing Distance of a One-on-One Paraprofessional on Student Engagement. *Education And Treatment Of Children*, 38(2), 193-210.

Winter J, Neal J. (1995) Group Writing: Student Perceptions of the Dynamics and Efficiency of Groups. *Business Communication Quarterly* 58(2), 21-24.