Giving Students Choices in the Science Classroom: Impact on Student Performance and Attitude

Allison Greco

As a student teacher, I sought to find other teaching implications through the use of my own action research project entitled, "Giving Students Choices in the Science Classroom: Impact on Student Performance and Attitude". It was my belief that giving students choices would motivate them to perform by allowing them to take a more active role in their education. I performed this study using two 7th grade Life Science classes- one acting as the control and the other as the treatment group. Both classes usually consisted of a sample size of 24 students on a daily basis. Given the limited time that I had allotted in the classroom, I conducted this study over a ten week period focusing on one aspect of instruction using choices, assessment of student performance. Following a unit on the Nature of Science, as well as, Ecology, the students were given projects that would serve as their formative assessment. The control group was provided mandatory restrictions that they had to follow while the treatment group was given more freedom in how they opted to demonstrate their knowledge. For the Ecology unit, I utilized a menu-style choice that was taken from Laurie Westphal's book entitled, "Differentiating Instruction Using Menus", the middle school science edition. Both groups were given the same rubrics by which their final products would be graded. In order to study the effects on student engagement, motivation, and content knowledge I triangulated my data using pre and post surveys, a reflective journal, and student interviews with standardized questions. After analyzing the data, I was able to verify my hypothesis while developing subsequent research questions to pursue based on my findings.

Comparison of Survey Averages* (N=24)						
Statement	Control			Treatment		
	Pre	Post	Difference	Pre	Post	Difference
I like science	3.2	3.0	↓ 0.2	3.1	3.3	↑ 0.2
I complete my science assignments	4.3	3.9	↓ 0.4	4.0	3.9	↓ 0.1
I think science class is interesting	3.1	3.0	↓ 0.1	3.4	3.8	↑ 0.4
I'm allowed to take an active role in my science education	3.2	4.0	↑ 0.8	3.0	4.1	↑ 1.1
** My average science quiz/exam grades are:	4.0	4.0	N/A	4.0	4.0	N/A

* Compiled from individual answers based on a scale of 1-5 (Never → Always)
** Statement result was reported based on mode of answer: 4.0 = (81-90)

Fig. 2- Compiled quantitative data from pre and post survey responses given by students as a class average.