Are Science Fairs Still Beneficial for K-12 Students?

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Introduction
- Science fairs originated in 1828 in New York with the Science and Technology show (Bellipanni and Lilly, 1999)
- The first science fair showcased innovations such as the Morse’s telegraph and Bell’s telephone (Silverman, 1986)
- Science fairs used to place an emphasis on demonstrations or collections; however, emphasis is now placed on experimentally based projects (Grote, 1995)
- During the implementation process of a science fair, students should be completing the following: utilizing critical thinking and creativity skills, processing information, forming questions, making conclusions, and improving his/her presentation skills (Akinoglu, 2008)
- Teachers and parents should act as facilitators and not micromanage the project (Akinoglu, 2008)
- Science fairs have become not as popular as they once were (Grote, 1995)
- Science fairs are becoming mandatory for students to complete, where science fairs used to be nonmandatory (Blenis, 2000)
- Science fairs have evolved to either be mandatory/nonmandatory and competitive/noncompetitive (Blenis, 2000)
- Some students feel that completing a science fair is an extra assignment and students are not excited about learning science (Bunderson and Anderson, 1996)

Proposed Methods
- 10 current science teachers, 10 current science students, and 10 science alumni from Prince Edward County Public Schools will be sampled
- An individualized Google form will be created for the teachers, students, and alumni to complete (see Appendices)
- Once data is received, individualized responses will be analyzed and graphed
- This data will allow me to better understand if science fairs are beneficial and under what circumstances

Expected Results
- The majority of alumni and students that completed a mandatory, competitive science fair, did not get to choose their own topic
- The majority of teachers believe science fairs should be mandatory; however, not as many teachers believe science fairs should be competitive
- The majority of alumni and students believe that their science fair would have been better if he/she would have been able to choose their own topic
- All alumni that participated in the study stated they are using the skills they learned from their science fair project in the workforce

Goals & Specific Aims
- To explore if science fairs are beneficial for students
- If science fairs are beneficial, under what circumstances do educators and students feel science fairs should be conducted under
- Hypothesis: Science fairs will be the most effective and beneficial for students when they are conducted in a nonmandatory, competitive setting, and when students are able to choose their own topic

Expected Conclusions
- Students and alumni do enjoy completing science fairs; however, the science fairs could have been more beneficial if able to choose their own topic
- Students and alumni would have enjoyed their science fair if it would have been nonmandatory, competitive
- Further study: Why do teachers have a different outlook on this?

Appendices

Teacher Survey – Appendix A
1. What grade level(s) have you used science fairs for: ____________________________
2. Do you support science fairs, if not please explain: ____________________________
3. Do you believe science fairs should be mandatory or nonmandatory, please explain: ____________________________
4. Do you believe science fairs should be competitive or noncompetitive, please explain: ____________________________
5. What can be done to make science fairs better: ____________________________
6. Do you assign students a topic when they are completing a science project, is so why: ____________________________

Student Survey – Appendix B
1. Was your science fair fun? Explain why or why not: ____________________________
2. What did you learn from the science fair you participated in: ____________________________
3. Was your science fair mandatory or nonmandatory and do you think this contributed to your enjoyment the science fair: ____________________________
4. Was your science fair competitive or noncompetitive and do you think this contributed to your enjoyment the science fair: ____________________________
5. How could your science fair been better: ____________________________
6. Did you choose the topic you completed your science fair project on? If you didn’t do you wish you could how or not: ____________________________

Alumni Survey – Appendix C
1. Was your science fair fun? Why or why not: ____________________________
2. What did you learn from the science fair you participated in: ____________________________
3. Was your science fair mandatory or nonmandatory and do you think this contributed to your enjoyment the science fair: ____________________________
4. Was your science fair competitive or noncompetitive and do you think this contributed to your enjoyment the science fair: ____________________________
5. Did you choose the topic you completed your science fair project on? If you didn’t, do you wish you could or not: ____________________________
6. How could your science fair been better: ____________________________
7. Have you used the skills that you gained learned from the science fair, is so what skills: ____________________________

Citations
7. https://battlesystem.nasa.gov/solar-system/overview