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Are Science Fairs Still Beneficial for K-12 Students?

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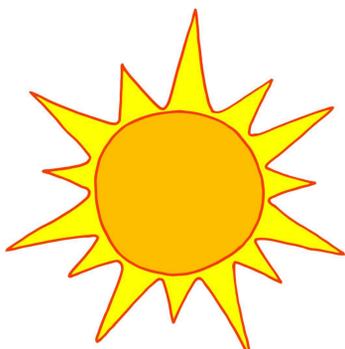
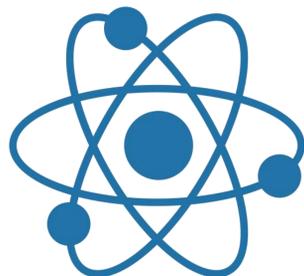


Introduction

- 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)

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



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

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 you enjoying the science fair: _____
4. Was your science fair competitive or noncompetitive and do you think this contributed to you enjoying 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 have 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 you enjoying the science fair: _____
4. Was your science fair competitive or noncompetitive and do you think this contributed to you enjoying 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

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4. Grote, M. G. (1995). Science teacher educators' opinions about science projects and science fairs. *Journal of Science Teacher Education*, 6(1), 48-52.
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