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Reflection on the Action Research Journey

My experience with the action research project involved quite a bit of work and growing pains; yet, it also yielded significant rewards. Part of my role with my new course, *Geometry Honors*, is to encourage students to go above and beyond the regular curriculum and maker projects helped me do just that.

Implementing the action research component of 'Boys as Makers' into the course required quite a bit of preparation. One preparatory activity in particular was crucial to my success. This activity led me to research internet resources for project rubrics, which were very helpful. Also, in writing my research proposal, after some revision, I allowed the students flexibility and opportunity to take control in designing their projects. This was a stretch for a teacher with little experience in maker projects.

My challenge was to create an environment in which students could comprehend and create a representation of a four-dimensional object while maintaining rigor and also continuing the regular curriculum. To help them understand dimensionality, we first read *Flatland*. Then students created explanatory videos before creating physical and/or electronic objects. I also supported the students by showing them helpful websites throughout this journey. While they created their 3-D and 4-D projects, we continued regular assignments on surface area and volume. This complemented the work they were doing on their projects and also eliminated misconceptions that usually occur. School closures due to inclement weather also posed a challenge, but the students rose to the occasion by delegating tasks and by using the school's messaging system to communicate.

My rewards came in the form of increasing enthusiasm, interest in mathematics, and participation. I was able to see students express themselves creatively. My class gained a sense of identity and cohesiveness that was not present before. I could tell the students were proud of their accomplishments. In addition, these projects forced me to quickly and easily get feedback from students using the school website. Moreover, the students introduced me to free and user-friendly software for 3-D sketches.

In short, completing action research helped me break through my own reluctance to let go of being the 'sage on the stage' every single day. It was similar to a tremendous 'ice-breaker' activity. My only regret is that I did not do it sooner! The benefits of action research and maker projects are just too plentiful to ignore.

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