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Inquiry Based Learning: Effects on Student Learning

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Inquiry Based Learning: Effects On Student Learning
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Research Question
How does an inquiry based learning (IBL) environment affect student learning?

Literature Review
• In a study completed on teachers’ views, Swan (2003) found that teachers’ views changed throughout to prefer more student centered activities.
• Giving students open-ended tasks without strict instructions allows them to be creative and teachers can learn from their responses (Goodchild, Fueglestad, & Jaworski, 2013).
• Senol (2015) discovered that students scored much higher on post-tests after participating in IBL activities combined with cooperative learning.

Methodology
• One class of regular geometry students (13) in a rural high school
• Implemented IBL lessons where students must work together to problem solve, to share ideas with the class.
• Collected sample student work, pre- and post- student surveys, and post teaching reflections.

Results and Data Analysis
• Students views changed during the semester to favor IBL activities, and less preferred direct instruction.
• Students were more engaged during IBL activities at the end of the semester.
• Students had a deeper understanding of the mathematical concepts after IBL activities, and paid more attention to detail as shown in the second quote in figure 1 (below).
• Students were more capable of understanding the questions and completing the entire problem (see figure 2).

Conclusion
• Allow students to form their own conclusions to support the development of their mathematical reasoning.
• Teachers must depend less on the textbook.
• Allow students to learn from each other before giving them answers.
• Have students share findings with each other, but allow them to do so at their own pace.
• Future research on student satisfaction with specific types of IBL activities would be beneficial.

Figure 1: Sample student answers from the post-student teaching survey give to students at the end of the semseter.

Figure 2: Example of sample student work from the beginning of the semester, in which the student did not complete the problem. The problem was looking for the side lengths.

Did IBL impact your learning? Do you think this will help you remember the information for a longer period of time? Explain.

“Yes, because I got to learn it myself. Then we all went over it as a class. That helps with understanding because you are somewhat learning it twice.”

“Yes, because we analyzed things in more detail.”