Exploring the Connection Between Seating Layouts and Active Learning in Middle School Science Classes

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FOCUS STATEMENT

The focus of this study was to examine the effects of implementing thoughtful furniture layouts in the science classroom and their contribution towards an increase in students' willingness to engage in active learning behavior.

BACKGROUND

Seating layouts are unique and individualized for every classroom. Each student engages with different seating arrangements throughout their daily schedules. Active learning is achieved through student behavior and willingness to engage in classroom lessons and activities.

CONTEXT

This project was conducted at Riverbend Elementary School in Yuba City, CA. Riverbend has a population of about 1,100 students ranging from kindergarten through eighth-grade. This project looked at data collected from 75 eighth-grade students over the course of three weeks (*N*=75).

METHODOLOGY

Students participated in the rotation of seating layouts in the science classroom to demonstrate active learning behaviors. Pre- and post-surveys, attitude tests, observational tally sheets, and student-led focus groups were used as data collection instruments to triangulate data. Qualitative data was organized by analyzing common themes and student opinions through percent changes. Quantitative data was organized by counting individual cases of active learning behaviors during each layout.

DATA ANALYSIS

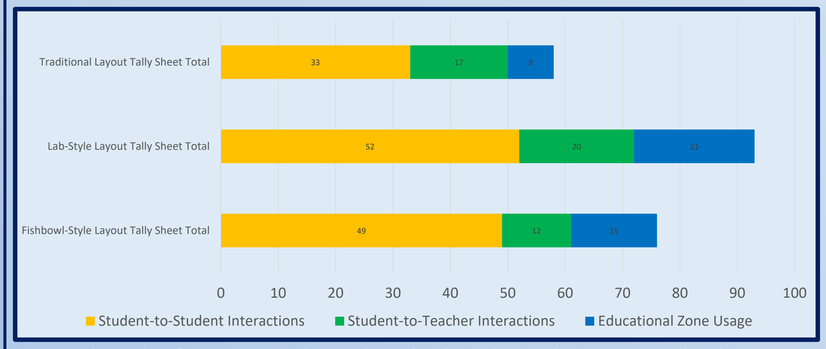

Figure 1. The Number of Active Learning Behaviors Observed By the Teacher Based on Seating Layout, (*n*=66).

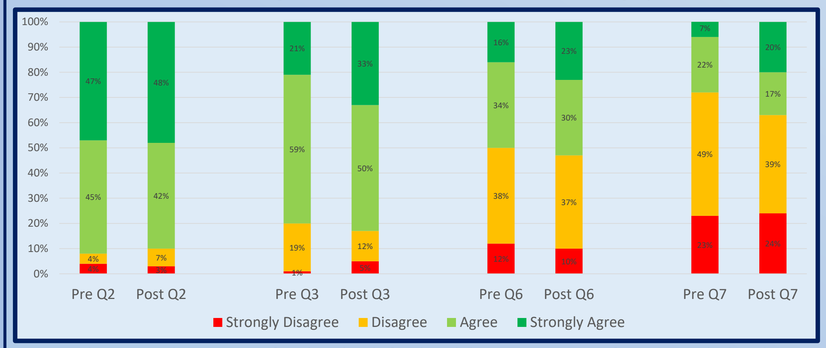

Figure 2. Change in Student Opinion Before, (*n*=68) and After, (*n*=60) the Seating Layout Configurations Had Taken Place. *Note.* Q2=There is more for a teacher to think about than just the subject they teach; Q3=The seating layout in a classroom is important; Q6=The layout of a classroom should change often; Q7=The seating layout in a classroom plays no role in how I learn.

RESULTS

The results from this study suggested that student active learning behavior increased as lesson-specific seating layouts were implemented. The increases were measured in students' abilities to see, move, and communicate.

CLAIM – EVIDENCE – REASONING

Claims: (1) There was an effect on student attitude and behavior throughout the different seating layouts. (2) Thoughtful seating layouts revealed a positive shift in student willingness to engage in active learning.

Evidence: (1) Fishbowl-Style Layout showed a 31% increase in active learning behavior. (2) Lab-Style Layout showed a 60% increase in active learning behavior.

Reasoning: Due to the changing seating layouts designed with the science lesson in mind, students were provided with more opportunities to see, move, and communicate with their peers. Positive student engagement and active learning behavior increased as the physical layout of the classroom allowed all students the opportunity to become more responsible for their learning.

FURNITURE LAYOUT CONFIGURATIONS

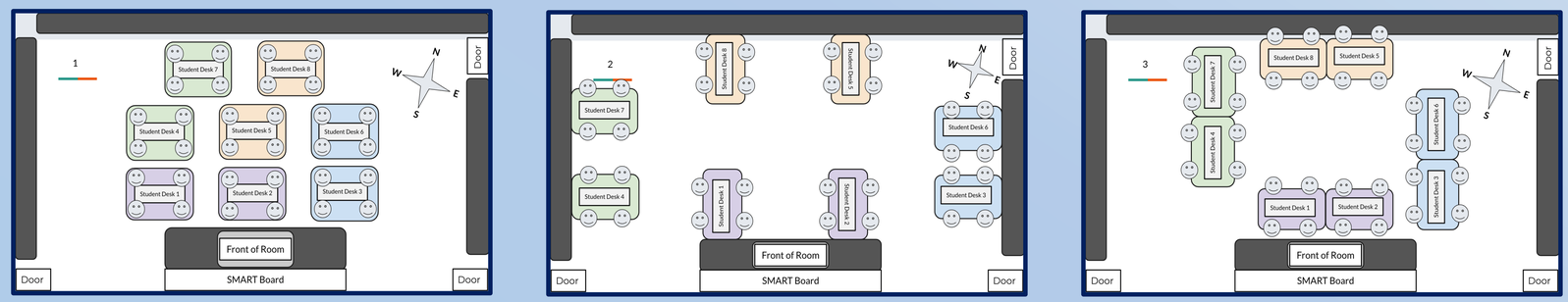

Figure 3. Seating layout configurations used to observe active learning behavior. *Note.* Traditional Arrangement (Left); Lab-Style Arrangement (Middle); Fishbowl-Style Arrangement (Right).