

Solving Problems with Science:

The impact of problem-based learning on academic achievement

Background

This study was completed in a high school biology classroom, with 112 participants. Three classes were instructed using problem-based learning, while two classes were instructed using a more traditional approach.

Primary Research Question

Are students who have been instructed through a PBL model of learning, versus a traditional model of learning, able to achieve higher scores on post-assessment measures of student learning?

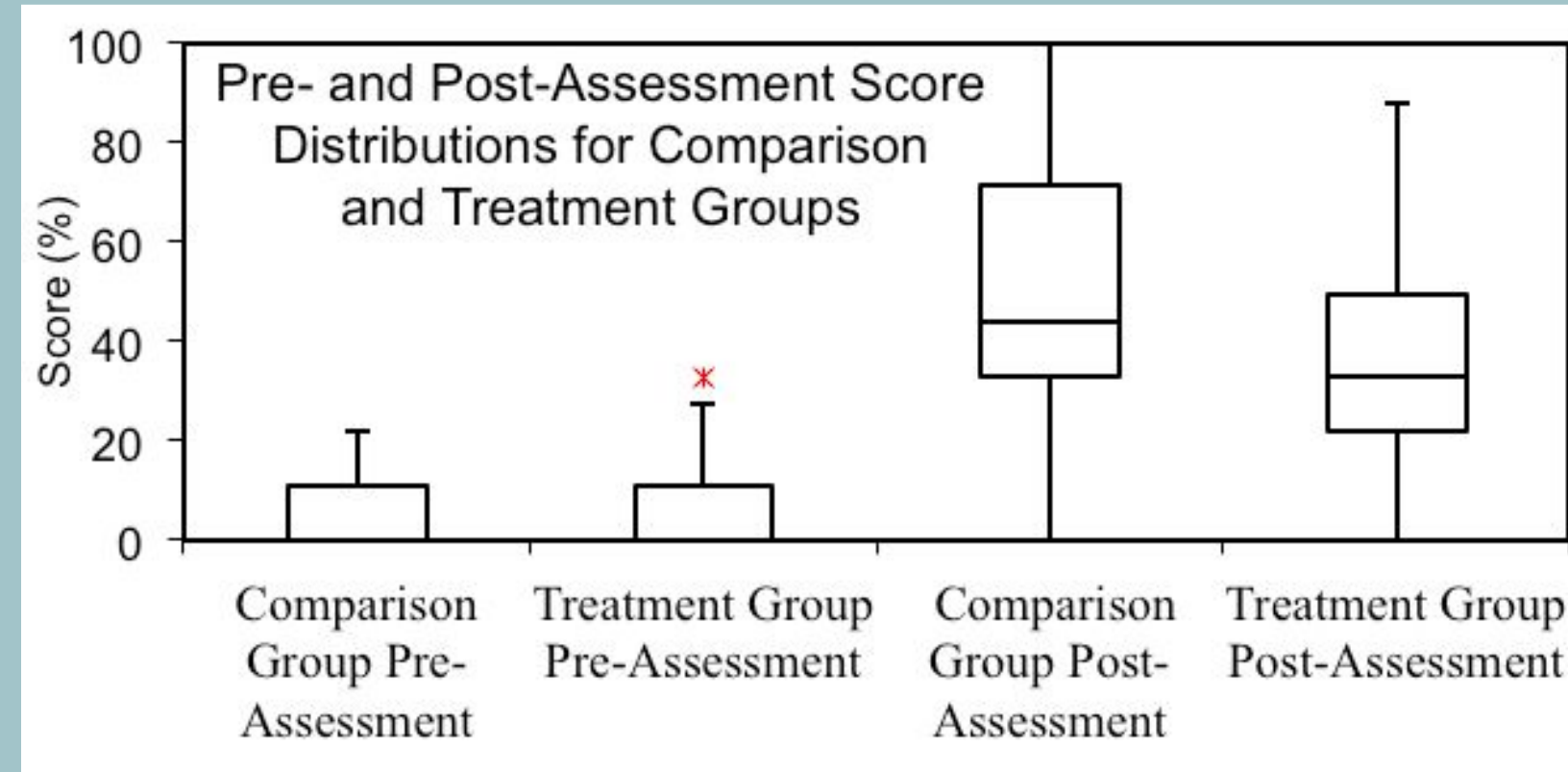
Data Collection and Analysis

Primary Research Question	Pre-unit assessment data	Unit pre-assessment data	Unit post-assessment data
Secondary Question 1 - Does PBL impact ELL students more than non-ELL students?	Unit pre-assessment data	Unit post-assessment data	Student survey (post-unit)
Secondary Question 2 - To what extent does PBL impact learner engagement?	Student interviews	Teacher observations	Student survey (post-unit)

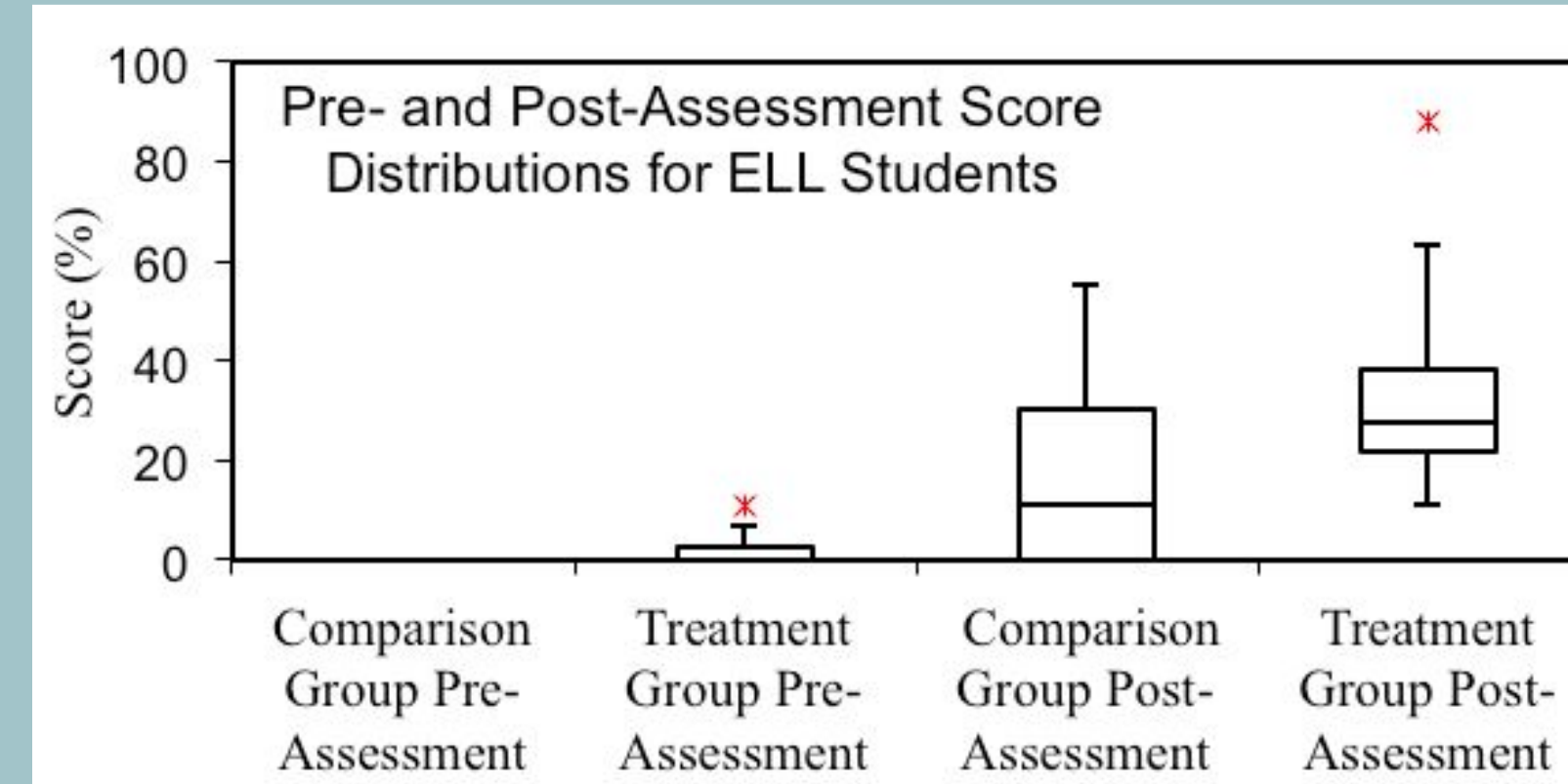
Methodology

The treatment was applied over a five-week learning unit on the topic of genetic inheritance. A pre-assessment and post-assessment was administered to both groups in order to determine content knowledge gains.

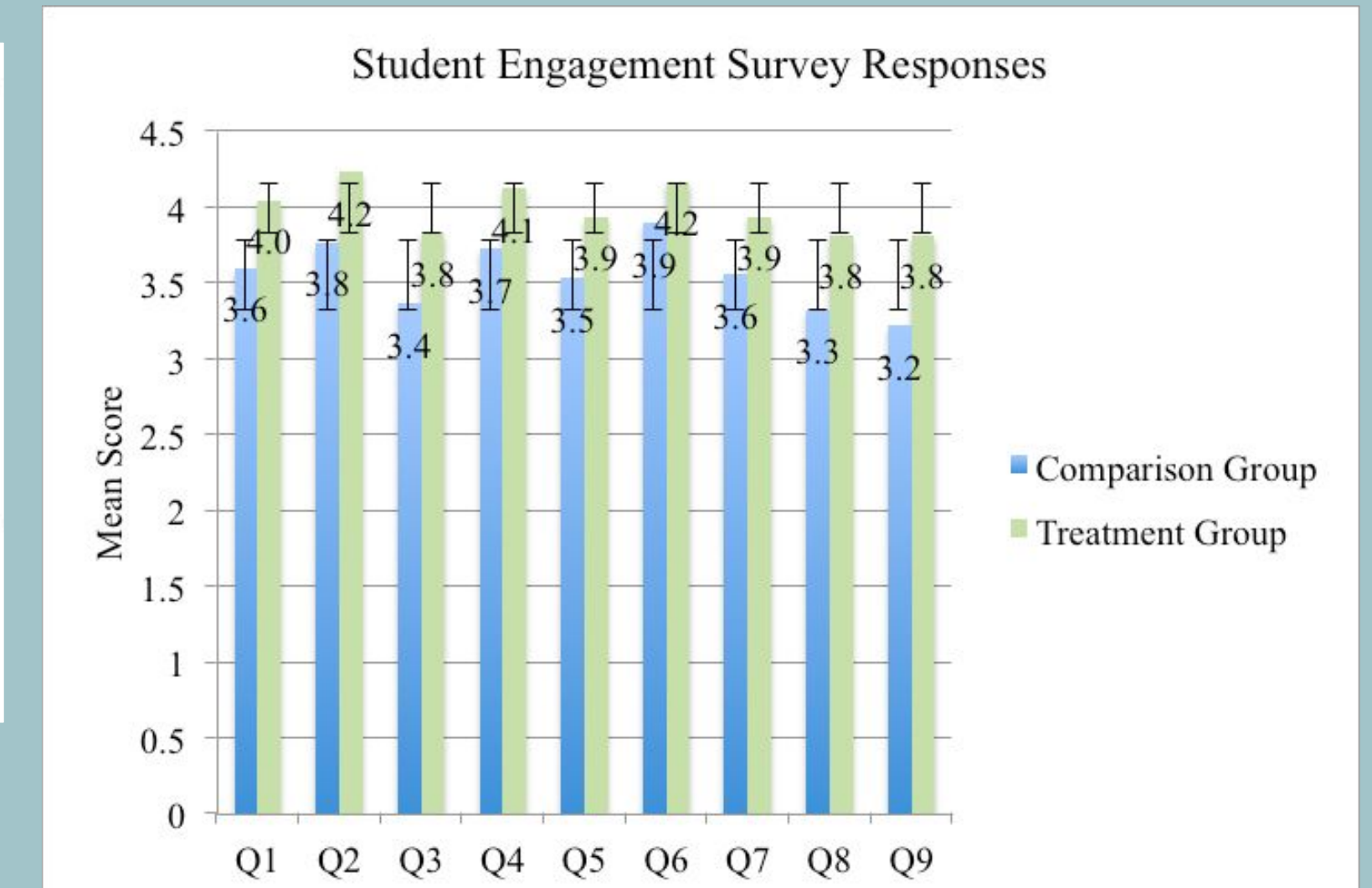
Results



Post-assessment scores were higher for the comparison group when compared to the treatment group.



For ELL students, post-assessment scores were slightly higher for those in the treatment group.



Student engagement was significantly higher for those in the treatment group.



Kayla Robinson

Westminster High School

Westminster, CO

