



Focus Question

- Does increasing the number of computer devices in the classroom positively impact student achievement?
- Does increasing the number of computer devices in the classroom positively impact student engagement?

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Master of Science in
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Introduction and Background

- Holy Cross High School is located in Waterbury, CT which is west of Hartford
- The school was in the process of implementing a computer device policy that would allow every student to have their own personal device

Sample

- To study achievement of using computer devices, five chemistry classes of two different abilities were used and compared to previous years
- To study engagement the same chemistry classes were used along with students and faculty throughout the school

Treatment

- The chemistry classes used various websites and expected to perform certain tasks with computer devices such as making chemical formulas
- Chemistry classes took an achievement survey after more technology was implemented into the class
- Students and faculty throughout the school were asked to complete a survey about how technology affects achievement and engagement

Data

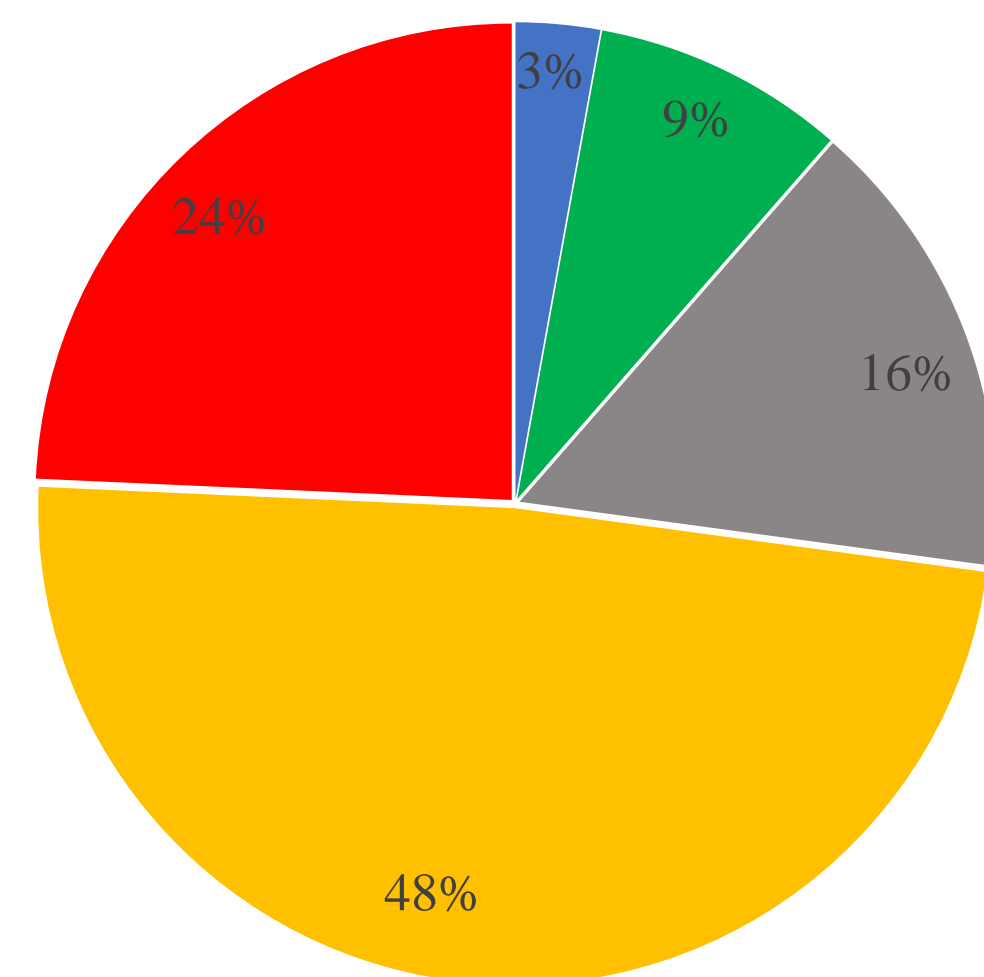
Two-sample t-test of the honors and CPA chemistry classes' four end of unit chapter tests during the 2017-2018 school year and the 2018-2019 school year

Chapter Test	Difference in means 2018-2017	t-value	p-value	Statistical Change
Honors Chapter ten	-0.13 points	0.054	0.522	No
Honors Chapter five	4.13 points	-1.69	0.048	Yes
Honors Chapter seven	-0.45 points	0.213	0.586	No
Honors Chapter eight	0.42 points	-0.206	0.418	No
CPA Chapter ten	4.24 points	-1.45	0.074	No
CPA Chapter five	3.28 points	-1.32	0.097	No
CPA Chapter seven	4.7 points	16.82	0.034	Yes
CPA Chapter eight	3.35 points	2.00	0.049	Yes

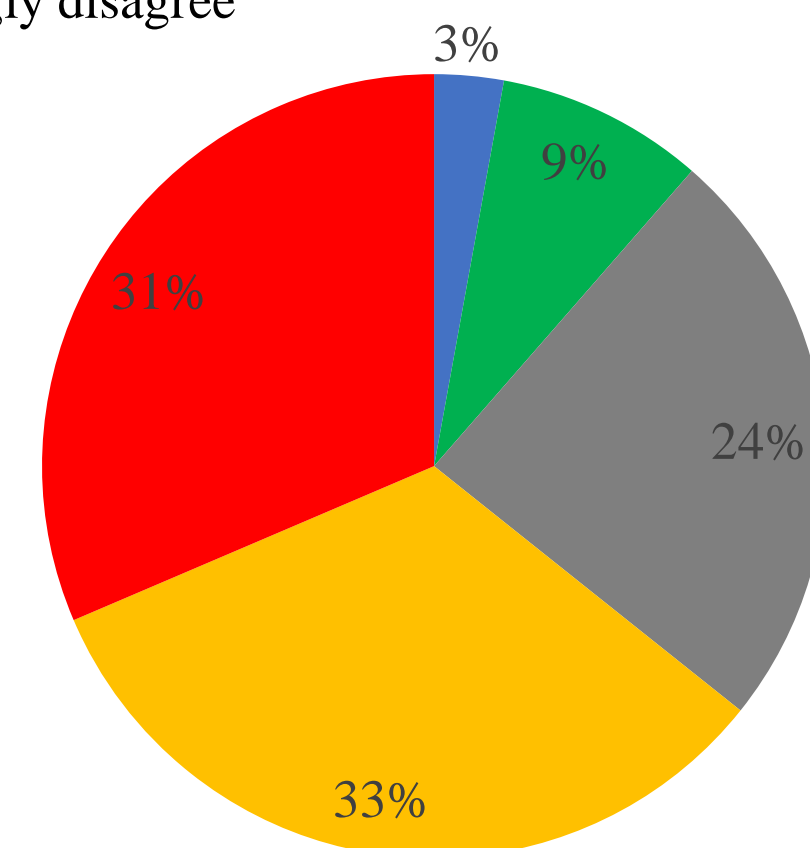
Note. Honors classes for the 2017-2018 school year, (N=35) 2018-2019 school year, (N=32) in total, (N=67). CPA classes for the 2017-2018 school year, (N=41) 2018-2019 school year, (N=50) in total, (N=91).

Conclusion

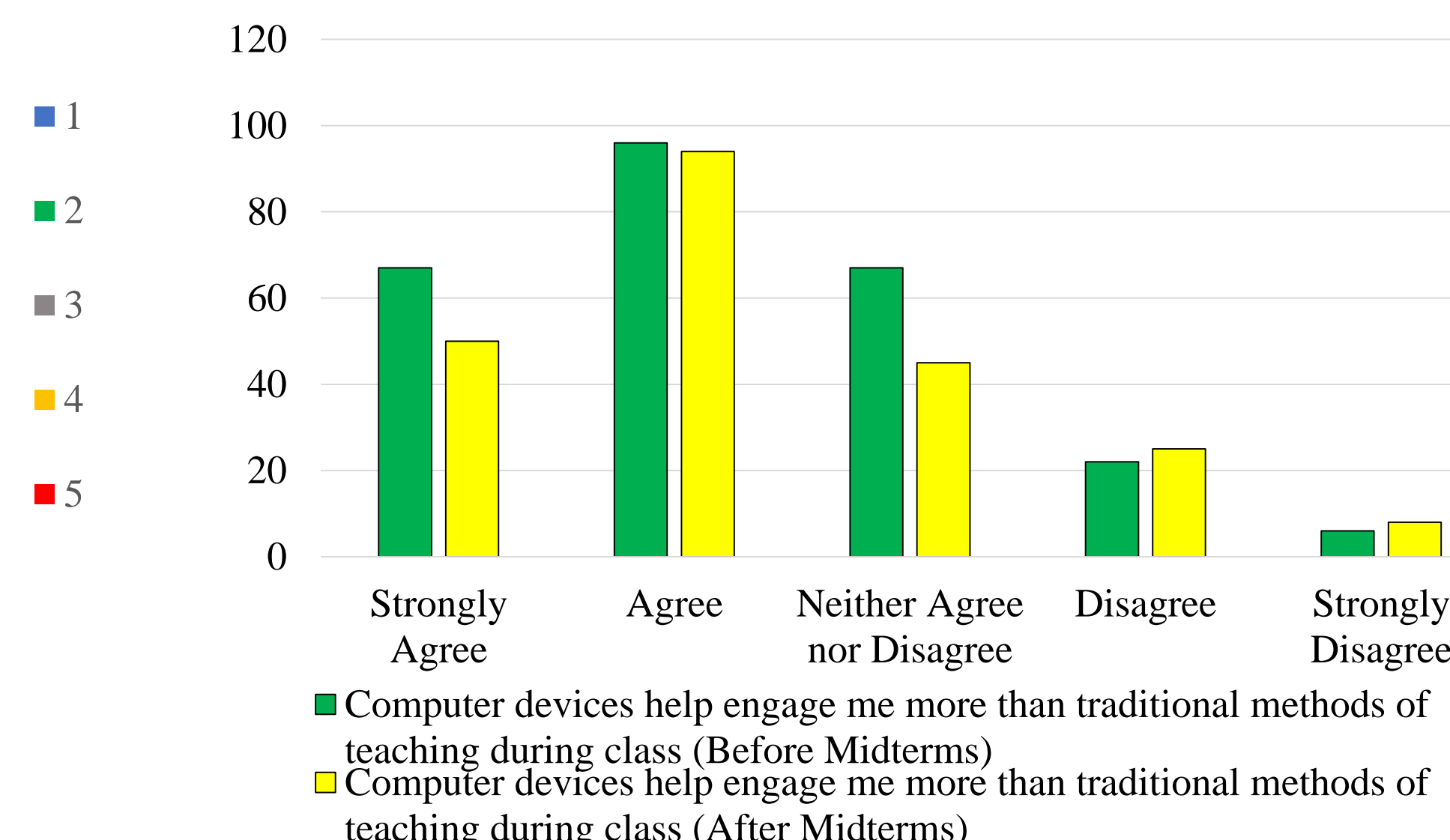
- Data indicated that the results were inconclusive about how computer devices affect achievement
- Data indicated that the students and faculty agree computer devices can support achievement and engagement in the classroom
- Lower achieving students did perform better on chapter tests after learning management systems were introduced
- When more computer devices were present in the school the students and faculty started to disagree more that computer devices help engage students



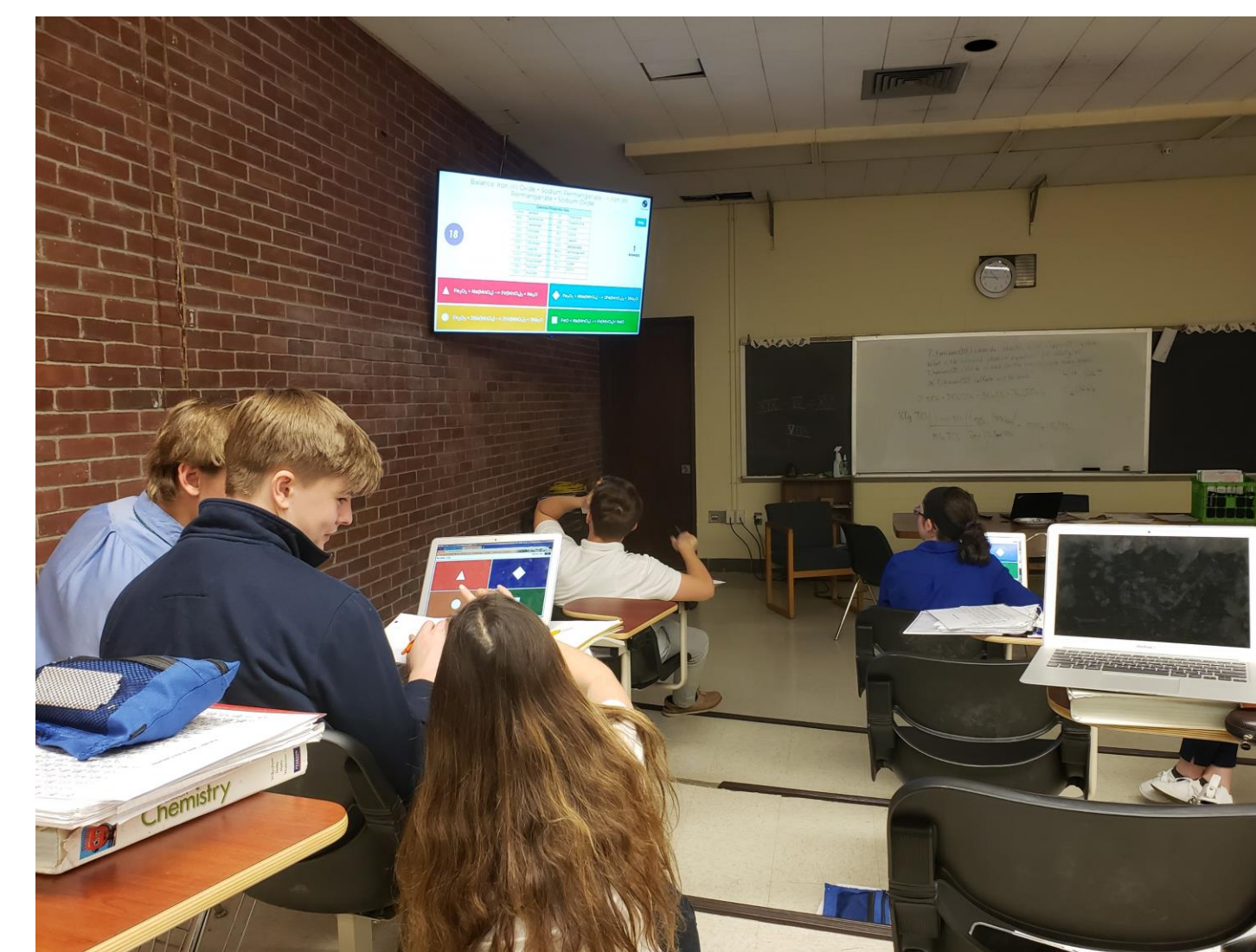
Chemistry students answering the question "Computer devices help me get better grades in school," (N=70). 5 was strongly agree, 1 was strongly disagree



Students answering the question "Using computer devices in the classroom is beneficial to me because it keeps me engaged in class," (N=70). 5 was strongly agree, 1 was strongly disagree



Students in all grades answering the statement, "Computer devices help engage me more than traditional methods of teaching during class," before midterms, (N=258), and after midterms, (N=222).



Value

- Computer devices should continue to be explored in private Catholic high schools
- Engagement will increase with the inclusion of computer devices but it is up to the teacher to maintain that engagement level
- Canvas was shown to increase achievement among students who are lower achievers
- New studies could revolve around learning management systems to see if they play a larger role in helping student achievement