THE EFFECTS OF HOMEWORK STYLE ON COMPLETION AND TEST SCORES IN HIGH SCHOOL BIOLOGY

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BACKGROUND

One of our biggest challenges as educators is trying to figure out how to improve test scores. A factor that plays into test scores, is homework, and whether or not it is being completed by students. This is another one of our challenges: improving homework completion. I became curious to see if the style of homework students complete plays a factor in homework completion, especially since we live in a technologically-savvy world. The purpose of this research was to determine if the style of homework; digital or paper, had an impact on homework completion and test scores.

We are in such a push nowadays for technology, students tend to think that digital assignments are best for them, but this may not be the case. This lead to another question I had: do distractions online play a part in homework completion? My school is a one-to-one district meaning all students have a Chromebook. Now that we are in year 5 of Chromebook implementation, I have noticed students becoming more and more distracted online. This research determined students homework completion is not being affected by distractions online.

RESEARCH QUESTIONS

Primary Question:

1. Which style of homework; digital or paper, correlates with higher levels of completion and assessment scores?

Sub Questions:

2. How does choice in style of homework assignment affect completion and test scores?
3. How does online distractors affect the completion of online homework assignments?

TREATMENT

Treatment #1 50% Paper & 50% Online Unit 2 - Energy	**Treatment #2** 100% Paper Unit 3 - DNA & Mitosis
Treatment #3 100% Online Unit 4 - Protein Synthesis	**Treatment #4** 100% Student Choice Unit 5 - Meiosis & Genetics

SAMPLE

The data for this research was collected in my first hour biology class that has 23 students ranging in intellect and ability. The class demographic for data collection are as follows; 11 males and 12 females, 22 sophomores and 1 junior, 2 IEPs and 2 504 plans, and 2 ESL students. (N=23). Post-unit surveys were given to all 23 students, but interviews were given to a small group of 6 students will the following demographics:

	Student Number					
Characteristics	**2**	**9**	**18**	**22**	**3**	**13**
Intelligence (previous tests)	Above average	Below Average	Above Average	Average	Below Average	Average
Social Interactions	Above Average	Above Average	Below Average	Below Average	Average	Average
Learning Disabilities	None	IEP	IEP	None	None	None
Average Homework Completion	Above Average	Below Average	Above Average	Below Average	Above Average	Below Average

RESULTS

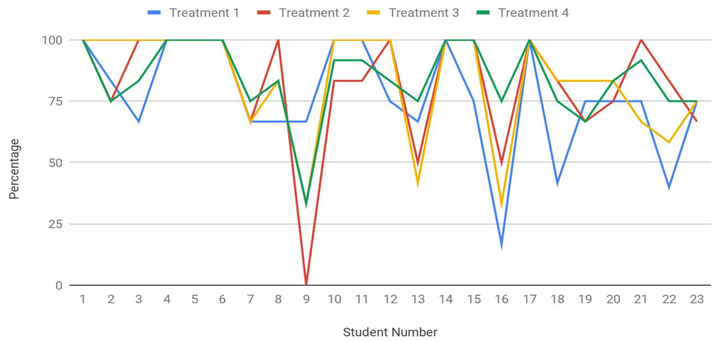


Figure 1. Average Student Homework Completion per Treatment (N=23)

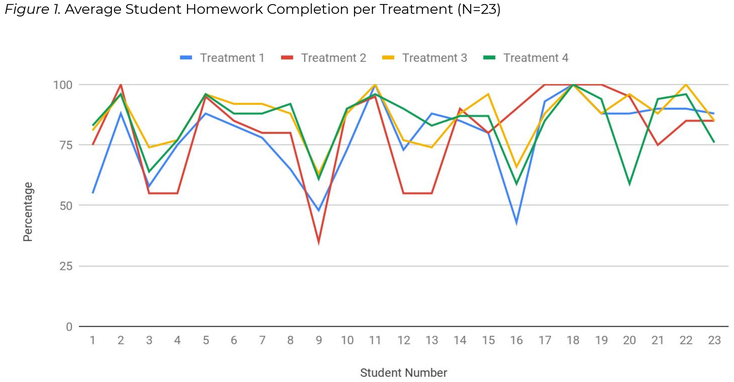


Figure 2. Average Student Test Score per Treatment (N=23)

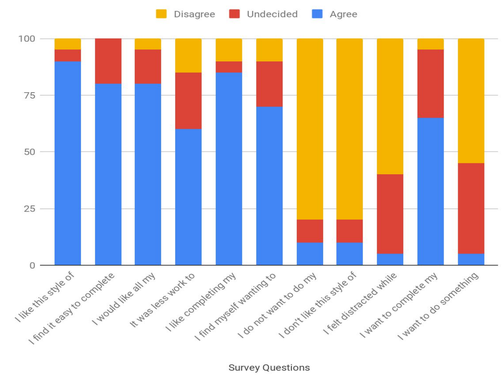


Figure 3. Student Choice Survey Results (N=23)

DATA COLLECTION

	Data Sources			
Research Questions	Homework Completion	Test Scores	Post Unit Surveys	Individual Student Interviews
1	X	X		
2	X	X	X	X
3	X		X	X

CONCLUSION

Which style of homework; digital or paper, correlates with higher levels of completion and assessment scores?

Referring to Figures 1 and 2, the data showed that this is a case by case situation, each student is different. There is not one style of homework that works for all students. Looking at the data now, it does make perfect sense. Some students have an easier time using their Chromebooks and would prefer having all their homework on it. Some students find it difficult to complete homework assignments online, they prefer having a piece of paper in front of them. Some students claim it depends on the assignment.

How does choice in style of homework assignment affect completion and test scores?

The results on this were pretty clear. As you can see in Figure 3, here were two major findings; 1) student choice did not significantly improve homework completion nor test scores, and 2) students really like having the choice in style of homework.

How does online distractors affect the completion of online homework assignments?

The results that came from this question were interesting. I absolutely thought that completing online assignments would be greatly affected by distractions. Based on the results I gathered from student interviews and surveys, students claimed that they seem to always get distracted, regardless of style of homework. While some of the bigger distractions come from the internet; games, Netflix, and social media, the biggest distraction yet was their phones. The majority of students claimed to get distracted by their phones. It didn't matter if they were completing an assignment online or on paper, they said their phones will usually distract them.

VALUE & FUTURE WORK

Value:

- Give students a mix of styles of homework.
- Be mindful of which style of homework works best with the specific assignment, put more thought into the style of homework when assigning it. Assign digital assignments when students need to do a lot of writing or need to make a graph. Assign paper assignments when students needs to illustrate or draw.
- If there are assignments that are not as pointed in terms of style that would be best, give the students a choice.
- Online distractions do not just impact digital assignments.

Future Work:

- Research skill versus will when it comes to homework assignments.
- Further research to analyze the effects of student choice on homework completion and test scores.
- Research distractions while completing homework. How often and why are students becoming distracted while trying to complete any type of homework assignment?