



INSTRUCTIONAL TECHNOLOGY

in 6-8th Education

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INTRODUCTION

RESEARCH QUESTION Which types of instructional technology in 6-8 education do students and teachers view as the most effective vehicles for student-driven learning?

LITERATURE REVIEW

90% of schools in America provide access to computers and internet access. Despite this many teachers do not implement instructional technology in their classrooms due to limited... *time • professional development • technical support • leadership* (Ruiling, & Overbaugh, 2009).

When students are engaged in meaningful, relevant, interactive activities they are more likely to comprehend and remember content (Shapley et al., 2011).

Unfortunately, technology that enhances creativity and enables discovery is rarely implemented in classrooms. Teachers rarely use technology that helps students on a level higher than that defined by Bloom's taxonomy "remembering" (Halawi et al., 2009).



Interactive technology learning is beneficial because it is active, problem-based and provides immediate feedback. It allows students to interact with each other and other students across the globe and study topics that they are interested in more depth (Wang, Wu, Lu, Fan, & Lo, 2012).

90% of participants believed that instructional technology enhances creativity and enables discovery (Sáez-López et al., 2014).

DATA

TEACHER INTERVIEWS

RECURRING THEMES



#1 Digital Citizenship
At the start of the year I talk about the appropriate use of technology but also about the digital footprint. I try to impress upon them that what they do and where they go is so very important.

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#2 Technology in Moderation
There is so much value in the muscle memory of learning. Sometimes the learning activity [on a computer] is not as powerful.



#3 Student-Teacher Ratios
What if you just had one teacher and one student? Would you need all of this technology? I wonder if this technology is trying to grapple with the fact that there are inherent problems with that one teacher and many students

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#4 Producers Not Consumers
Don't teach students to be consumers of technology. Teach them to be producers of technology.



#5 Technology as a Core Subject
I think of technology as a tool. It stimulates creativity and cooperation. It teaches problem solving and perseverance. It will probably be as much of a core subject as the current ones in the near future.

#6 Self-paced Learning

#7 One-to-One Computing

#8 Social Media Disadvantages

#9 Increased Student Choice

#10 Computer Science Core Class

#11 Higher Engagement

STUDENT SURVEYS

What do students like about instructional technology?



89%

of students believe instructional technology is **beneficial**

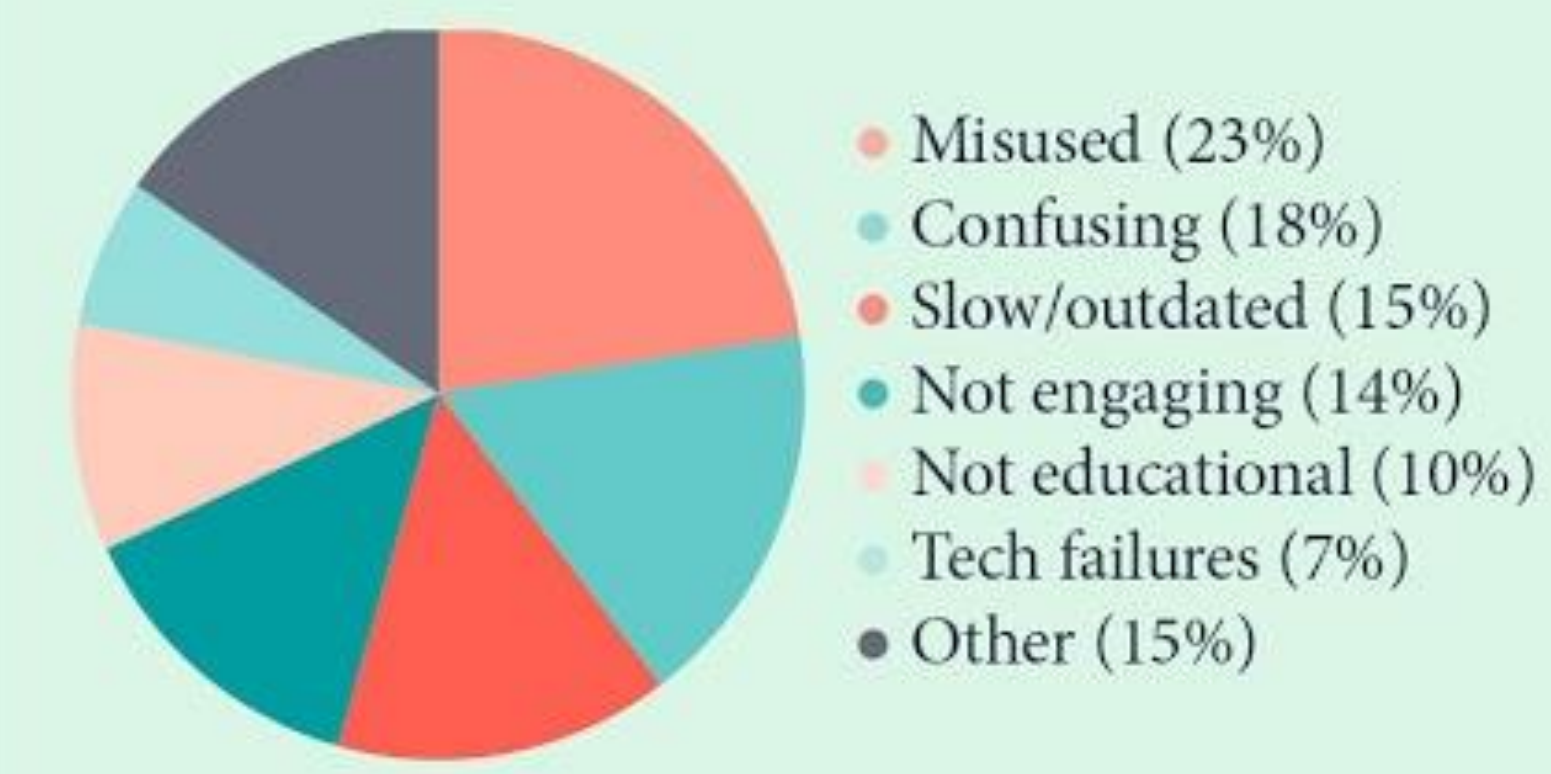
FAVORITE TECHNOLOGIES

1. Kahoot
2. 3D Printers
3. TinkerCad
4. Google Drive
5. Schoology

“

The 3D printer is fun and engaging, as it allows exploration in different dimensions (3D editors) and to do things that one could not do irl [in real life].

What do students dislike about instructional technology?



LEAST FAVORITE TECHNOLOGIES

1. Plickers
2. iBooks
3. Gizmos
4. Document Camera
5. Text Wrangler

“

I am not big on Gizmos. I am not a fan of the interface and find it more confusing and complicated than useful. I cannot learn while I use Gizmos.

What is digital citizenship?

It means being a good person and not plagiarizing or stealing work or cyber bullying.

Student Suggested Educational Technologies

- Virtual Reality
- Phones
- iPad Pros
- Play Station
- Robots
- Microsoft Office
- Cameras
- Adobe Suite

METHODOLOGIES

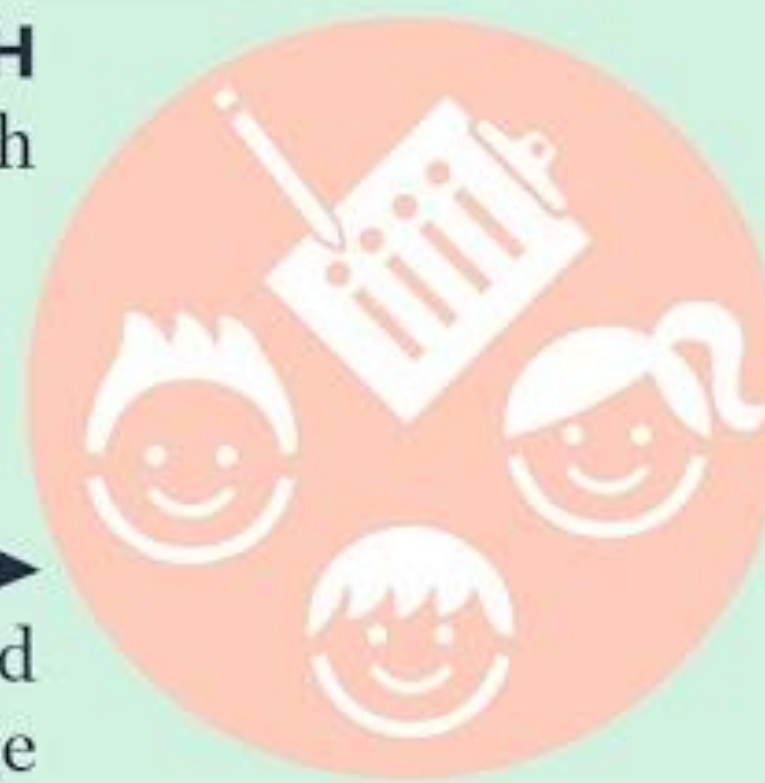


INQUIRY APPROACH

descriptive research

◀ **TEACHER INTERVIEWS (5)**
gain insight into current uses of instructional technology

STUDENT SURVEYS (243) ▶
gather quantitative and qualitative data from a large sample of students



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ANALYSIS

Teachers like technology best when it is used responsibly to enhance student understanding of material. They would like to increase focus on students being producers of technology by making computer science a core subject.

Students like technology best when it is flexible and allows for self-paced and individualized learning while also being interactive and facilitating collaboration. Some students prefer working on paper because technology can be difficult to use, have failures, and be too slow.

CONCLUSION & NEXT STEPS

Instructional technology has many benefits. Time and research needs to be devoted to determining the best way to implement it.

RECOMMENDATIONS from both students and teachers

- Teach students digital citizenship eg. do not play video games in class, no cyberbullying
- Do not use technology to replace interaction, eg. dissect a real frog, not just one in an app
- Reduce student-teacher ratio, eg. students currently use technology to answer questions their teachers lack time to answer
- Increase student engagement by regularly updating technology, eg. current iPads are too slow so students prefer not to use them, students are increasingly interested in virtual reality and robotics