# Assignment 1: Taxonomy Reading

In the article, the gap between the financial investment in classroom computers and their pedagogical usage was addressed. Technology should be a cognitive tool to extend capabilities, reduce memory load, and enable students to do more exploring than they could with just a pencil and paper. The article states, “Using computers as cognitive tools to assist students in learning powerful mathematics that they could have approached without the technology should be a key goal for research and development.” Math software is split into 5 classes: Review and Practice Software, General Software, Specific Software, Environment Software, and Communication Software. When implementing technology, whichever software is chosen dictates the pedagogy. Software needs to be a tool to target learning goals to be used effectively. Technology could be used to constrain student focus on core mathematical relationships or to used for discovery, hypothesis testing, and extending knowledge. THe article states that “each type of software available to the mathematics teacher offers both affordances, or enabling features, and constraints to learning in the mathematics classroom.

The article relates to me because I am interested in making use of computers and mathematical programs in my classroom. However, I think there should be a balance of technology and a lack of technology. Also, I want to make sure it is not a crutch for teachers to use to make it easier for them, because they won’t truly know what a student understands from most types of software.

I have used Review and Practice Software when studying for tests, general software when visualizing or constructing certain mathematical ideas, specific software in this class to

while using the applets, and communication software for some of my college classes that i never quite took advantage of. I have never used environment software that I can remember. I am the most interested in Review and Practice Software because repetition often helps to get a concept down, so after the student has learned it from me, I don't see any problems with the student practicing repeatedly on the computer. I can see other people arguing with that opinion, but I think as long as it is in moderation, it is okay. I will probably use the software for some concepts and then other class activities, exercises, or games to practice others. I don't want my students to get stuck with a schedule that requires little to no cognitive effort. A quote that supports this idea is "the mathematics itself is not 'fun' but rather a chore that will be rewarded if done correctly."

I thought it was very interesting that gamification in Mathematics Software actually reinforces the idea that math is inherently tedious. However fun or engaged the students are, they are most likely not appreciating or thinking too much about the math, rather just enough to pass each level. A question I had for any particularly difficult software was how can educator prevent wasting time teaching and learning a software with the class instead of actually learning math with it? Another question related to open-ended learning. How can an educator assess problem-solving skills without disrupting the exploratory nature of the environment?

I used the AI platform NotebookLM to help complete this assignment. I asked it to summarize parts and asked for quotes that went with an idea. I rewrote all of it in my own words, but the program made the assignment more efficient and organized for me to write about it. I also used my own experiences in the 3rd and 4th paragraphs.