

Computer Science

Should it be taught in elementary schools?

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Introduction:

The importance of computer science has been growing ever since the first piece of technology was built. Humans have become very reliant on computers, using them to conduct education, jobs, and even government work. As the influence of computer science grows, it reaches younger and younger age groups. Originally, the teaching of computer science began in high school, sometimes reaching the excelling students in middle school. In 2011, 21,139 high school students took the AP computer science exam. This is not that many students considering all the students in the United States. It demonstrates that computer science is still a growing interest among students in the education system, with the interest sprouting in high school. Now, it is being discussed to have computer science taught in elementary schools.

This topic is interesting and was discussed in the article, ["Should we teach computer science in elementary school?"](#) by Pat Yongpradit and Beth Schwartz. The article was published on ISTE.org, which is short for International Society for Technology in Education. ISTE is a premier nonprofit organization serving educators and education leaders committed to empowering connected learners in a connected world. Pat Yongpradit and Beth Schwartz share their opposing views on whether or not computer science should be taught in elementary schools through an article on this website. Both authors have very solid arguments and their arguments could stand alone and be very persuasive. ISTE seemingly wants the reader to educate themselves on the pros and cons of the situation to the fullest before they take their side on the debate. ISTE is promoting knowing both sides of a debate before choosing a side in that debate, this is evident by them providing two opposing, sound arguments. Both authors use emotional appeals to the audience to try and draw them in their favor. Since this topic is very personal to many people since it is involving children, both authors discuss points such as the education, future, and benefits/hardships of the children when it comes to teaching them computer science in elementary school.

If computer science is taught earlier on in the educational years of students, maybe there will be more interest by the time they get to highschool? This is something Yongpradit addresses,

saying if interest would rise, students would have better work opportunities and will be better thinkers as well. Schwartze thinks the opposite, saying the cost of teaching computer science would be too much for an elementary school. She also brings up the point that elementary school should focus their attention on teaching basic skills that some elementary students do not have, such as reading, writing, and math. For this paper I will be answering the question “How does someone in my field construct an argument (in the form of an act of public speech) when debating publicly about an issue that’s interesting to me?” in regards to the arguments of both Pat Yongpradit and Beth Schwartze.

Yes:

In the article, ["Should we teach computer science in elementary school?"](#), Pat Yongpradit debates that “Yes”, we should teach students computer science in elementary school. Yongpradit appeals to the reader’s emotions, uses logic, and uses his experience combined with his approach to the audience to attempt to persuade the audience to take his side on this debate. Yongpradit understands the context of this situation, he is writing to the guardians of the children who would be learning the computer science. He needs to persuade the parents with his argument and not the children. With that being said, the topic of the debate is the children, Yongpradit understands that he needs to persuade the guardians of the children that he is on the side of the debate that is acting in the best interest of the children. For this reason, he writes in a manner that is illustrating how he cares about the children whom would be learning computer science. An example of this is when Yongpradit says, “For kids just entering school, teaching CS is about giving them the thinking skills that will help them become proactive learners and citizens — as opposed to just consumers and denizens.” His argument is in the best interest for the children, saying how they will have better job opportunities, be better thinkers, and they will be better people in general. Paired with the emotional appeal, Yongpradit uses logic. Who would not want their child to learn more, be a better person, and have lucrative job opportunities? It seemingly only makes sense since it essentially is preparing children for the future better. Yongpradit knows his audience, giving him an advantage when trying to persuade the readers. He has experience in the topic at hand, being the director of education for [Code.org](#), a non-profit organization dedicated to spreading computer science to women, minorities, and children. He utilizes this by demonstrating his knowledge of the positives of teaching computer science and explaining how this could be applied to the elementary students that he is seeking to implement the teaching of computer science on.

No:

On the other side of the debate is Beth Schwartz, who feels that computer science should not be taught in elementary schools. Beth Schwartz argues based off of logic and through her experience. Schwartz herself is a computer science teacher for grades five through eight. She has hands on experience teaching younger students computer science, making her a reputable source. Schwartz approaches this rhetorical situation from a logistical standpoint. She is trying to explain that her side of the debate is what is best for the children, similarly to Yongpradit. By teaching computer science to students, it will be an overload for them. They are still students who are learning to read and write. She is in no way in disagreement with Yongpradit over the pros of teaching computer science, she just finds the idea far fetched. "I agree that learning how to use many productivity, editing, collaborating, communicating and coding tools would be valuable across the curriculum. But early elementary students' primary needs are literacy and numeracy." said Schwartz. Her approach here is logical and makes sense to her average reader. She attempts to make the reader think about the situation logistically which leads to emotional thinking by the reader. The reader will think about how much of a workload it would be on the student and how it would be too much work for them, from there they have a feeling of sympathy for the students leading to the reader taking the side of Schwartz. Schwartz also leads the reader to logical thinking through the idea of schools not being able to fund a computer science program, saying, "single-building school faces definite funding limitations, as do many schools in small or rural districts, which also often deal with the added challenge of spotty internet connectivity." The reader will understand the idea of monetary issues, especially in the case of schools since a large issue in this country has been educational funding. The last argument Schwartz forms is that teaching computer science in elementary schools is an unattainable idea, she once again uses logic to simply say it is not possible for schools to add a heavy importance on computer science. With universities already placing a heavy demand on students to be skillful in writing, mathematics, communication, and comprehension schools would find it nearly impossible to add in computer science. Especially when the objective is to make computer science extremely important in the curriculum.

Conclusion:

Both Yongpradit and Schwartz have very valid arguments and use rhetorical strategies to try and persuade the argument. Yongpradit was more effective due to his variety of techniques he used. Schwartz only used logic and authority with some appeal to emotion and audience while Yongpradit used authority, logic, emotion, context, and audience to persuade the audience. It

may also be a factor that Yongpradit is arguing with an upper hand while Schwartz is already the underdog in the debate. Most people seem to align with the ideas of Yongpradit, meaning Yongpradit merely has to keep his supporters on his side while Schwartz has to try and convince them to abandon how they originally felt and join her side of the debated topic. ISTE seems to have achieved their purpose of creating a thought provoking article. They provided both sides of the debate, using different authors to illustrate the two sides. Both authors then constructed sound rhetorical arguments, leading the reader to try and understand both sides of the debate.