Computer Science Should be Taught in Education

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**Abstract**

Computer Science should be taught in education because kids these days don’t know how to use computers, and there needs to be more classes in education both at elementary school level and in high school level. Computer science classes can be tough but they are doable and this is a highly sought after college degree. As it looks today, computers are going to become the main technology soon. There is always still room to grow in the education world and this would be a good one to continue to grow since there are more and more computer jobs becoming available.

Computer Science Should be Taught in Education

 Computer Science is important to students’ education in multiple ways. First of all, Computer science “teaches students design, logical reasoning, and problem solving- all valuable well beyond the computer science classroom” (“Moving beyond computer literacy: Why schools should teach computer science”, 2014). This shows that kids can take these skills they learn in computer science and put them to use in any class that that they have to take. However “I’m not sure that I believe computer science should be required ~ but I do believe some sort of computational thinking class should be” (Denton, D. (2014, October 14). Email interview.). She thinks it doesn’t have to be computer science but there needs to be a computing class of some sort. It is actually proven that not many schools offer classes, for instance “nine out of ten schools don’t offer computer programing classes” (“Blurbs and useful Stats”, 2014). This means the kids that want to take a computer science class have to either go to a different school that has it or can’t take it at all. “It is hard to find qualified teachers” (Heese, 2014) because “Most states don’t allow teachers to be certified just as computer science teacher” Ms. Stephenson said. “So either they force teachers to get a secondary endorsement, or they let anyone teach the course” (Heitin, 2014). This isn’t fair to the teachers that go to school to become a computer science teacher and then get told they have to have another secondary degree so they can then be certified to teach. There also needs to be Computer Science in education because kids don’t know how to use computers, the logic helps them in other classes and many more reasons.

Kids don’t always know how to use computers. Research has shown “Kids who grow using IPad and IPhone don’t know the difference between storage and memory” (Elgan, 2013). If you asked kids that have had no kind of experience with computers, they would probably think these are the same. Kids don’t know how the computers actually work. There are “many students today still think they don’t need even basic skills for computer use and programs and I believe business and industry is stating that they are desiring these basic skills in all careers for all jobs.” (Denton, D. (2014, October 14). Email interview.). Kids need to know the basics for a possible job since many companies are wanting the basics. When they are using these devices they are just playing games or surfing the web. Kids need to know how to use computers to make it through school successfully.

There needs to be more computer classes in education. One way we can do this is by adding more classes in elementary schools so in high school they can take more advanced classes and are used to the way computer science classes are run in college. This makes these classes easier to follow. In fact, in England, they are starting to add more computer classes in elementary schools. They are starting to teach the basic knowledge needed for that age group. For example, these basic knowledge needs are “Debugging programs, writing animation code and explaining how the internet works” (Kelion, 2014). These are the basics every kid should know how to do, that way they can at least know how the internet works, write animation code and debug programs. Kelion also goes on to say that right now England is “creating a new campaign for programming, which comes 30 years after the last major programming campaign”. (Kelion, 2014). While in the United States we believe programming should not be taught in elementary school, but rather creating and solving their own creations. There should be a “good foundation class for basic skills should be included until it becomes part of the K-12 educational experience in all content” (Denton, D. (2014, October 14). Email interview.). This would give them the basic knowledge that we should make them know coming out of elementary school. They should also be “not just in a tech class but in students day to day experience in school” (Denton, D. (2014, October 14). Email interview.). They should be in the everyday class room so they are always working on it. We should be teaching kids the “representation of data and learning about algorithms as a set of directives” (Proulx, 2014). These are basically instructions to your favorite game. We can’t just look at computers as a way to get homework done and a way to play games. We need to “look at computers as a machine that carries out algorithms. Need to teach students how to create and analyze algorithms” (Proulx, 2014). This is one of the basic techniques that is used in computer science. If students can work with these basic functions and they go on to take more computer science classes in the future, even in college, they won’t have to start from the beginning again. These are just some of the reasons why computer science should be taught in elementary school.

Computer science needs to also be taught more in high school. In England they are still trying to push their campaign. England believes when students are in high school they should be “learning more complex problems like algorithms, data representation and binary” (Kelion, 2014). In general, computer science classes are not needed for graduation. “In 27 out of 50 states, computer science can’t even count towards high school graduation math or science requirements” (“Blurbs and useful Stats”, 2014). This shows that students don’t want to take any computer classes because they could take another math or science class that will count towards graduation. A third reason computer science should be taught, is there are computer science exams students can take that would count for college credits. The computer exams are also a great way to see what college testing might be like. The main computer test that is available to high school students is the AP Computer Science test. The stats also show that the genders taking these tests are mostly male, “18.6% are female” (George, 2014) leaving the other 81.4% as males taking the test. It isn’t just white people taking these tests. “8.1% Hispanic, 3.7% Black” (George, 2014) are taking these tests. Although the tests are predominately taken by white students, students of other races are also showing interest in taking this test, but hopefully there will be less of a disparity in these stats in the future. It is proven that high school kids are used to computers but don’t know anything about them. One problem that is wrong with education in computer science is that the number of students in computer science classes is small. “One in 10 high school students took computer science classes this academic years” (George, 2014). “Students confused over a line of code” (George, 2014) also says that there are not many classes for kids to learn coding and also just knowing how to create lines of code. Kids just get on computers to use social media. “73% of teens are on social networks” (Thomas, 2014). There is one high school in the United States that made computer science classes required. “H.D. Woodson High School made computer science a requirement for freshman year” (George, 2014). Adding more computer science classes into high school will help get kids ready for college.

Computer science classes can be tough because they make you think about what the problem is and how you should be able to fix the problem. “This isn’t just for math wizzes and budding techies” (George, 2014). This takes more than just knowing math and knowing how to use the computers to take these classes. That is why they offer all of the AP test for students to challenge themselves and grow using computers. “Kids like these classes. They are focused more and interact more in Computer Science classes. ” (George, 2014). This shows that kids that actually take this class, enjoy them and have fun. They are focused and try to get through all of the assignments that are given and try to challenge themselves. Computer science challenges the kids and is really doable.

Computer Science is becoming a very popular degree for undergraduates. It is in the top 6 for most popular degree. Computer science majors are also a core part of emerging industries in robotics data processing, and an array of interesting occupations. (“Best Degree”, 2014) Some companies that might hire robotics data processing majors are Amazon, Boeing and Caterpillar. This degree is also a top paying degree. The average pay is $53,800 but there are many jobs in different areas such as software publishing, computer system development and research work for government facilities (Stockwell, 2014). There are many jobs that make more than the average here in the computer science world. Computer science is becoming a very popular degree to get.

A good reason that computers are going to become the main technology soon is because of the job market. “People are realizing these are the skills sets that are going to lead to 21st-century jobs” (George, 2014). People are going to need to have knowledge about computers so they can get jobs. Stats show “over the next decade, about 70 percent of new jobs in science, technology, engineering and math fields will be for computing professionals” (George, 2014). This means people are going to have to learn computer science, or know the basis of it. They also predict that “there will be 1 million more computing jobs than students over the next ten years” (“Blurbs and useful Stats”, 2014). This is a little concerning since there will be more jobs than people. “Computer science is a top-paying college degree and computer programming jobs are growing two times the national average” (“Blurbs and useful Stats”, 2014). You will see more people going into the programing world so they can get one of those jobs. The world is going to become based around computers or the knowledge of computers, so the more computer science classes there are the more people will be ready for them.

One type of job in this degree field is Software Developer. To be a software developer you need to be “Fluent in computer languages that code can be written in” (Profita, 2014). The software developers are the people that make sure all software in the computer is running correctly. For instance “That alarm clock app that woke you from a dead sleep this morning was designed by at least one software developer” (“Software Developer,” 2014). This shows that they have an effect on our everyday life. Software developer’s jobs are increasing “The Bureau of Labor Statistics projects 22.8 percent employment growth for software developers between 2012, and 2022, much faster than average for all occupations. During this period, an estimated 139,900 jobs will need to be filled” (“Software Developer,” 2014). There is a great number of jobs that are going to be opening up. The pay for a software developer made a “median salary of $90,060 in 2012” (“Software Developer,” 2014). The median pay for this job is higher than most jobs out there. Becoming a software developer is a great job to get if you have a computer science degree.

The next type of job is a Database Administrator, who “Analyze the data needs of users and develop data resources to store and retrieve critical information” (Profita, 2014). This person is in charge of all data that is being used and makes sure when companies need that data, they can access it right away. Database administrators make sure “that data is available to users and is secure from unauthorized access.” (“Bureau of Labor Statistics: Database Administrator,” 2014). This protects us from all of the hackers so they can’t get into this data and take it. Being a database administrator means “Ongoing maintenance of a database requires being on call, and a quarter of Database Administrators work more than 40 hours a week” (“Database Administrator,” 2014). This jobs requires a lot of time, since they are always on call and could have to go into work at any time of the day or night. A database administrator makes an “average of $77,080 per year or $37.06 per hour” (“Bureau of Labor Statistics: Database Administrator,” 2014). They are expecting a “15 percent growth from 2012 to 2022” (“Bureau of Labor Statistics: Database Administrator,” 2014). This job also has a great future for jobs to be added.

The third type of job is a Computer Programmer, who “Writes programs in a variety of computer languages, update and expand existing programs, debug programs by testing for and fixing errors” (“Computer Programmers”, 2014). As a computer programmer you are in charge of all of the programs. Also, as a computer programmer they “write code to create software programs. They turn the program designs created by software developers and engineers into instructions that a computer can follow.” (“Computer Programmer,” 2014). This means they work closely with software developers, also they have to fix anything that is wrong with the programs or just have to keep the maintenance on all the files. The pay for a computer programmer is “$74,280 per year or $35.71 per hour” (“Computer Programmer,” 2014). This is much lower than the software developer and database administrator but they are getting paid well. There is an “8 percent increase from 2012, 2022. With about 28,400 jobs in that time” (“Computer Programmer,” 2014). There is an increase in the computer technology world over the next ten years. To become a computer programmer “They need to have a bachelor’s degree and are normally specialize in a few programming languages” (“Computer Programmer,” 2014). They master the language so they don’t have trouble writing the programs.

The next type of job you could get is an Information Technology Manager (IT Manager). IT managers are “all-important employees are counted on to deliver short- and long-term visions for the company's technology needs and goals.” (“IT Manager,” 2014). They have to make sure everything for their workers is good. IT managers also spend more time in a “meeting room than a server room” (“IT Manager,” 2014). They have to spend a lot of time in meetings making sure they are doing the best for the company. IT managers also are in charge of “install and upgrade an organization's computer system and protect the office network from hackers and malware” (“IT Manager,” 2014). They upgrade these servers and computers to make sure that the computers are up to the latest software. The median pay for an IT manager is “$120,950 a year or $58.15 per hour” (“IT Manager,” 2014). This is the top of all pay of the jobs that are listed here. This is also a very stressful job because you have to make sure that everything is safe and up to date. This position is safe for job security because “rapidly growing health care industry is also expected to greatly increase its IT use. Strong employment growth of 15.3 percent and an estimated 50,900 new positions to be filled by 2022.” (“IT Manager,” 2014). With the health care industry growing IT managers have to manage the hardware and the software.

 The next type of jobs are in the military. A job you could get in the Air Force is Cyber Control Officer. Their job is to “Plan, organize and perform network operations to include establishment, operations, information assurance and defense” (Air Force, 2014). They are in charge of the cyber space, they make sure everything is up and running right. There are also jobs in the Navy that could be useful with this degree. One of the naval jobs is Information Professional. In this job they oversee the work of Information System Technician “which they are writing programs to handle data for a wide variety of applications” (Navy, 2014). So they write all of the programs that are needed in the Navy. The Army is the last military job discussed. In the Army you could be a Signal Officer, which are “responsible for the Army’s entire systems of communication. Officers plan and execute all aspects of communication on a mission and are critical to the Army’s continued success” (Army, 2014). They are in charge of all of the communications that goes with the Army in the battle field. All of these jobs require at least a bachelor degree. All of the jobs listed previously are just some of the jobs you can get with a Computer science degree. There are more and more jobs opening for computer science students and will continue for many years to come.

Computer science needs to be required in education because there are very few people going into this field and this is becoming the main field for jobs. If the kids have the opportunities maybe they would take them and explore more Computer Science classes. The more choices for computer science the better. Students can actually see if they like these classes, to help decide if they want to take more computer classes in college. These classes can teach students all of the necessary skills that they can use in the rest of their lives. Computer science is a great way for kids to study computers and how writing and maintaining programs work. Taking computer science classes could also lead to many different opportunities for a high paying job in a growing market.

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