

Continue



concerned with the task of exercising appropriate control over the process of teaching and learning by planning and devising suitable tools and devices for the continuous evaluation of the process and products of the teaching-learning activities. Thus, educational technology is concerned with all variables, phases, levels, and aspects of the teaching-learning process. In brief, it works for over all planning and organization of the system or subsystem of education. In above discussion, an attempt has been made to identify the scope of the subject educational technology by mapping out its field of operation, but in the sense, it is unwise to put hedge and boundaries around such a developing and fast growing subject. Use and Significance of Educational Technology (in the Indian context) In India, before the 1960's the term educational technology was almost unknown to the educational system. It was used as synonym to audio-visual teaching aids. The role of educational technologist in India, today, is not merely that of an audio-visual aid master, hardware expert, media expert or programmed text writer, but of one who is concerned with the information of an overall design to carry out an evaluation of the total process of education in terms of specific objectives. Educational technology, as we find it today, has a meaningful present and promising future in our country. Some of the significant development in this direction may be summarized as follows: There has been a wider and more effective utilization of radio for broadcasting educational programmes throughout the country. These well planned programmes are now broadcast throughout the country for both in-school and out-of-school groups. Another significant development in the use of educational technology is concerned with the development of television programmes. The third important area where educational technology has been useful is the problem of -training and re-training a large number of school teachers in an effective way. Another application of educational technology in our country is known as distance education. Another major area where educational technology is being used in our country relates to language instruction. Another field of operation of educational technology in our country is concerned with the correspondence education. Another use for which educational technology is being put in our country is concerned with preparation, development and utilization of audio-visual material, and handling as well as maintenance of the hardware appliances and sophisticated gadgets. In the latest trend, educational technology is providing its worth by utilizing the services of computers and advanced form of ICT technology in the field of education. Thus, educational technology has been providing its worth in our country by guiding, planning, implementing and evaluating various programmes of formal as well as non-formal education. References and Suggested Readings Branch, Robert C., Instructional design as a Response on the complexities of Instruction, in N. Verkataiah (Ed.), Educational technology, APH Publishing corporation, New Delhi: 1996 Briggs, Leslie, J., et. al, Hand Book of procedures for the design of Instruction, 2nd ed., Englewood Cliffs, N.J., Educational technology Publication, 1981 Davies, L.K., The Management of Learning, New York: McGrow-hill, 1971 Dick, W., et al., The Systematic Design of Instruction, 3rd ed., New York: Harper Collin, 1990 Kurkarnis, S.S., Teaching Learning Process: A systematic Analysis, in C.K. Basu (Ed.), Program Instruction in Industries, Defence, health and Education, Indian Association for Programmed Instruction, 1969. Leith, G.O. et al., A Hand Book of Programmed Learning, University of Birmingham, 1996. Lumsdaine, A.A., Educational Technology, Programmed Learning and Instructional Science in E.R. Hilgard (Ed.), Theories of Learning and Instruction, The sixth third year book of the National Society for the study of Education, Part I Chicago: university Press, 1964 Mitra, Shiv K, Proceeding of Symposium on Educational Technology, IPAL, NECERT, March 1968, p. 4. Richmond, W.K. (Ed.), The Concept of Educational Technology, a Dialogue with Yourself, London: Weidenfeld and Nicolson, 1970. Robinsons, T.K., Educational Technology and Curriculum Development, Scottish Education Department Inspection Bulletin, 49, Nov. 1976, quoted by Tucker, R.N., The Organization and Management of Educational Technology, London Helm, 1978. Report of the interview to Ford Foundation Team of J.R. Gases of the Educational Technology Division OECD, December, 1971. Report of the US President's commission of Enquiry as cited by Richard N. Tucker: The Organisation and Management of Education Technology, London: Croom Helm, 1979. Report of DES working Party on central arrangement for promoting Educational Technology, in UK, as quoted by Tucker, R.N. The Organization Management of Educational Technology, London: Croom helm, 1978 Sharma, S.R., Educational Technology, New Delhi: Mohit Publications, 2003. Unwind, D. (Ed.) Media and Methods: Instructional Technology in Higher Education, London: McGrol-Hill, 1969. Vedanayagam, E.G., quoted by S.K.Mangal, Foundation of Educational Technology, Ludhiana: Tandom Publication, 2001. Woodworth, R.S, Psychology, London: Methue, 1945. Working definition adopted by the Scottish Council for Educational Technology, as quoted by R.N. Tucker, The Organization and Management of Educational Technology, London: Croom Helm, 1978. By Nicole Archambault Image description: Man and woman sitting next to each other, using a tablet and a laptop, respectively. Whether or not you know it, if you've been teaching yourself to code... you've had exposure to Educational Technology (or "EdTech" for short) in some way or another. It can be a challenge to understand what exactly educational technology is, and what it isn't, since it's a relatively new conjoiner area in both education and computing technology. Allow me to shine some light on what Educational Technology actually is, and how it can or probably has already benefited you in your web development education. Then, we'll talk about some of the great careers EdTech has to offer. EdTech is an area of the technology sector dedicated to the development and application of tools with the purpose of promoting education and new learning experiences. So basically, EdTech is using technology to promote education. Even books are a product of educational technology. However, an important distinction: books are not so much the educational technology itself as are the means of creating the book. Rather than the book as a product, we focus on the tools used to create that product when describing education technology. Whether by ink and quill or printing press, the written information is being shared via a non-verbal means, and is able to reach more people as a result to communicate the ideas of the author. I used to think it was the book itself, but this consideration makes sense. Computing-wise, if you learned to code using an online service like freeCodeCamp, Treehouse, Coursera, or even something like Udemy courses... you have used Educational Technology to build your own education. Think about it: these are web applications, which use web development technologies. They have back-end frameworks that render information on the front-end, in the form perhaps of lessons or quizzes, or even a video for the student to watch. It's really kind of meta when you think about it: we use technology to learn about technology. Even though the field of Educational Technology might seem to be super niched-down, it's really not. The implications of education, and by extension, educational technology spread into virtually every industry in existence today. Caleb Clark, educator and EdTech expert, summarized the importance of EdTech this way in his video "What is EdTech?": "Geeks can't teach, and teachers can't geek." What does this mean exactly? Well, the best web developers and more generally, programmers, in the world are often not the best teachers. Often, we expect that the people teaching a particular industry's skills should be the people working in that very industry. However, what happens when someone doesn't learn best by doing, or following suit? What happens when the expert is too far removed from the beginner's perspective to understand their struggles? This is where the educators step in. By combining the superpowers of both technologists and educators, the newly created potential is endless. And it certainly doesn't stop at just teaching technology, though that's at least one thing we've all seen or used EdTech for. If you work a full-time job, have you ever had to go through on-the-job training that was web-based, or even paper-based? That's EdTech at work. EdTech is on a fast track to being everywhere, and that's exactly where we need it to be. So, my personal experience with EdTech began even before I first started learning to code in 2015. But, like my coding journey... it started with Treehouse. I had used tools like W3Schools, which is totally EdTech in its own form. However, that issue I mentioned before of students learning differently... that one affected me deeply. Most of my followers and podcast listeners know by this point that I had a really tough time with traditional educational systems. At the end of the day, I was still a great student—but it was an intensely stressful and anxiety-inducing process for me. I didn't figure out most of the details of how I learned until I was 29 years old, and already established in the field of Customer Service. I didn't have much upward movement to make, so I started looking at opportunities to teach myself new skills. Just based off of curiosity. I wasn't a fixed mindset, exactly... but I wasn't working with a total growth mindset either. My anxiety told me that I was going to at the very least play hell trying to change careers and learn technology. But, once I found Treehouse, all of that changed. The high quality videos, speed controls, closed captioning, ability to pause and restart whenever needed... those are key features of video used across the internet. In EdTech, functionality like this gives power and control to the student, in a way that students traditionally do not have control. And with that control, plus the added benefit of visual teaching... I was off to the races. It was incredible. Like, EdTech gave me my life back, and I feel like in so many ways, I owe EdTech my life. Since then, I've really been focusing my entrepreneurial energy, combined with the web development skills I've learned with the help of EdTech, back onto EdTech. 30 Days to Web Development, my flagship course + coaching program for coding career changers, was developed with a particular approach: to provide fundamental knowledge that is commonly overlooked by the programming industry as a whole, such as problem solving, research, and learning skills. I'll be talking briefly about EdTech and entrepreneurship toward the end of this post in the Careers in EdTech section, but generally speaking — you have lots of options here. Mostly, you can pave your own way, and for someone with an entrepreneurial streak, being given creative license to play with tech and help others is like... my dream job! EdTech can look like a lot of different things, which is why it may be hiding in plain sight. One of the best definitions of EdTech that I've come across was by Hap Azziz in his 2010 article, "The 5 Keys to Educational Technology". He defines EdTech as: the considered implementation of appropriate tools, techniques, or processes that facilitate the application of senses, memory, and cognition to enhance teaching practices and improve learning outcomes. While virtually anything using technology to promote education could be considered "educational technology", further investigation into what truly constitutes EdTech taught me that this is still a widely and openly discussed topic. I mean, did you know prior to me telling you that writing instruments were one of the earliest forms of educational engineering—and by connection, technology? And the printing press, which we more identify with as "technology" as we know it, was perhaps the greatest innovation to educational technology in modern history. Early technologies like these are often overlooked, because compared to today's perception of "technology", the origins of EdTech can indeed seem primitive. In 2019, EdTech can look like web-based learning platforms we know and love. There are far too many to name at this point, which is... quite frankly, amazing. It wasn't like that even a decade ago. EdTech can be in the form of mobile or console games, that teach children and adults alike critical skills they need in life. I ran into an amazing example just recently, when I discovered the game Human Resource Machine—available on many platforms—which teaches programming principles. You're effectively given tasks to filter and sort output based on criteria you're given in a particular challenge. I loved it, it was challenging, and I learned a lot while playing. That is the power of Educational Technology — learning so immersive, and occasionally so wildly different from the traditional methods of teaching in schools — that you're not even cognizant of the fact that you're actively learning. EdTech can be in the form of hardware, as well. There are many potential implementations being explored for the use of VR and AR in EdTech. We'll dig into that some more shortly. In general, just know that EdTech is still a nebulous and largely uncharted frontier. It is truly education at the speed of technology. I still have lots of questions about regulations and standards, especially after speaking with Treehouse CEO Ryan Carson in our July interview, "At The Intersection of Technology & Education with Ryan Carson", which was Episode 11. Ryan talked about how Treehouse initially sought accreditation, but were unable to secure it due to requirements that they freeze their curriculum for two years. In a fast-moving industry like web development... that wouldn't make for a very relevant curriculum. And that definitely kind of limits the opportunities that EdTech companies have to validate and certify their products through traditional routes of doing so — accreditation, namely. I want to help us get to the point where EdTech is looked upon as a different and unique iteration of education, and for bureaucracy to stop trying to shoehorn it into the limitations of archaic educational standards. The beauty of EdTech is that it can take so many different shapes, and be so closely tailored to a particular field or niche. And the cost of exploring all it has to offer is so much less than with traditional K-12, post-secondary, and vocational routes. By embracing that uniqueness, and keeping students and learners at the center of everything we create in EdTech, we stand a chance of disrupting education as we know it, and changing those limiting rules and outdated regulations for the greater good. Now, we've been talking about EdTech as a facilitator for learning to code, and building skills to do your job to the best of your ability. But what about EdTech for kids, in the classroom? From what I've both seen and heard, classrooms have changed a lot since I graduated from high school back in the early 2000s. Of course, this depends on the accessibility of technology to the school or school district, of course. And in a lot of ways, that's a topic for an entirely different article. But with the cost of technology dropping tremendously, the expansion of broadband internet access, and the advent of micro-computers like the Raspberry Pi... that accessibility gap is shrinking. The biggest obstacle is appropriating funding to technology, and understanding the massive improvements it can bring to education overall. Education should be centered around the needs of the student. However, students are limited in their educations by factors that shouldn't be factors at all, like where they live and their school district's funding, their family's socio-economic status, the relevance of the material available to them, their differences in learning, and the availability of teachers to attend to those differences... just to name a few. With the advent of internet-connected technology, there's no reason for these to be factors any longer. Children can have access to the information and books they need, in the most relevant editions required, without being required to ship expensive books at exorbitant rates to less populous regions. I mentioned differences in learning as a factor, as well, and this is an enormous benefit that EdTech can offer. Special education teachers, and teachers skilled in delivering information via particular teaching styles, are all over the world. However, they may not be available in a particular school district. Can you imagine a classroom where there were multiple teachers for each learning style? One drawing images on the whiteboard, and another connecting ideas to help associative learners. Another working through a book for textual learners. What if we could have the teachers pause whenever needed so students could take the breaks they need to absorb information without overwhelm? In the case of home schooling, EdTech not only delivers options for parents who aren't teachers and don't know everything, but also has great potential to provide that same accessibility to special education teachers for their own children, without depending on their school district or paying someone to teach their child 1:1, in-person. Can you think of some applications on your own? Perhaps a teaching assistant even be replaced by an AI chat bot that's available at all hours? Or, AR/VR technology could allow children in remote areas to virtually "visit" important world landmarks they may not otherwise have a chance to visit. You can see — I'm so excited just talking about these topics. Because the potential benefit is so, damn, big. Let's talk a little about EdTech and privatization, versus open source education, or "OpenEd" for short. For the newbies out there, privatization in this context basically means educators working for companies to create proprietary, for-profit products — as opposed to open source — to promote education. Conversely, open source education communities would provide this information and associated learning tools for free, for educators worldwide to build a global, living repository of knowledge. In many ways, we're already there. Wikipedia is, in fact, a great example. However, while the future of education requires more than the opinions of an average Wikipedia contribution, there are definitely options for being "verified" to join these communities. Now, there's nothing wrong at all with privatization. With privatization often comes the funding required to bring in the best talent from both the educational and technology sides, and create better products, sooner, than the Open Source communities could. Personally, I would love to see OpenEd welcome professionals and specialists from all walks of life, not just educators, to freely provide information that technologists can adapt into usable EdTech software and web applications. Input can always be filtered and validated, but it needs to be contributed first. It's my personal dream to be an Open Source contributor on the technologist side, which is why I've begun flexing my entrepreneur muscle to open up my schedule in order to do so. While I'm sure working in EdTech would be an absolute blast, it would have to be a really forward-thinking, cutting-edge company to pull me away from Open Source in order to build proprietary apps. We need those perspectives of really dedicated educators and technologists to show us how important the world of EdTech is, and the incredible things we can build in it. Excited about EdTech? You should! This is huge, and it's an area so many people don't even know about. Like, we use these tools all the time, but we have no idea about the very industry behind it. It's also an extremely fulfilling career to work in, and you know that you're making a big difference every step of the way. If you want to work in EdTech, fortunately, EdTech brings in ALL areas of technology, particularly design and UX. Every aspect that is required in the building of native mobile, desktop software and web applications, as well as hardware design and development, is desperately needed to make EdTech the world-changing field it is going to be, but with the help of talented professionals you all will become, even sooner. A lot of job seekers out there want to find work that is both fulfilling and profitable, and it was actually just recently that I found out that I was completely wrong about what I thought about EdTech. While the Open Source world may not offer many opportunities to get paid for your work, there has been a dramatic increase in venture capital investment in Educational Technology startups in the past 10 years. In a 2013 Forbes article by Elli Sharef called "EdTech Dream Jobs: Doing Good While Getting Paid", included in the show notes, she remarked on the topic, "Whereas teachers generally top out at around \$80,000 a year, and only if they get masters/doctoral degrees, educational entrepreneurs have shown that making money and doing good are not always misaligned." If you're interested in getting a job in Educational Technology, though, here are some places to start: First off, see if there are any local events for EdTech. They'll likely be open to everyone, but with a special focus on building connections between entrepreneurs, technologists, and educators. There's a particular reason that I'm suggesting in-person Meetups first. These kinds of conversations are really incredible to have in-person. It's an opportunity to make a truly deep connection with someone over a passionate topic. Sometimes you get that when talking tech alone, sometimes not. Typically, I find the most passionate and interesting people in tech are the ones doing something meaningful with their tech skills. And I'm super bored by most conversations about pure tech unless it's based on a question I asked. My best advice is to let yourself be interested in asking questions, and finding people who have great answers embedded in their experience and perspectives. It's also worth noting that even if you're not naturally curious, that's a pretty good indicator that EdTech might not be for you, and that's perfectly fine! That's really valuable information to have, so you can pivot and find something you really love. You can also join some EdTech communities online, and introduce yourself as someone who's interested in the field. See if forums have pinned posts with useful information for newcomers looking to network or build their skills. For a good hack I've been using, you can also search the entire forum's domain in Google for terms like "new" or "first time" to read feedback others have gotten. Doing this also shows others in the community that you know how to utilize information that is already available to you, which will make any community at least a bit kinder in response to a newcomer. Networking is STILL the best way to get a job — far more effective than applying to jobs online. Plus, you get to establish some wonderful connections with forward-thinking, creative people. It's important to note that EdTech needs even more diversity than tech in general, both as educators and technologists. Every product created to promote education stands the potential to be a game-changer, and reach millions of people. Many of them are children, who are still learning the world. This is not just an important — but a critical responsibility — of educators and technologists alike, that often goes overlooked. EdTech is also an amazing field for entrepreneurship opportunities. If you create a solution that solves the pain points of the education world, you could be on the path to a very successful (and lucrative) entrepreneurial career. Grants are often available to individuals and organizations looking to solve problems with their tech skills. The Office of Educational Technology is dedicated to helping anyone interested in contributing to EdTech get informed, and make the connections they need to get started. My current career has pivoted from freelancing in front-end web development, to building web development courses using a web-based Learning Management System (LMS). Rather than recreate the wheel and build my own LMS at this point, I'm using Teachable. Learning Management Systems are an amazing example of a successful business idea, and one that fosters individuals' abilities to share information they possess — thus promoting education. Personally, I blazed my own entrepreneurship trail. For the past year, I have been gradually making progress after committing myself to closing the information gap between self-educated students and traditionally-educated, 4-year CS degree students. Educational Technology is an exciting, relevant field for developers and engineers to explore. The capacity for massive worldwide change begins with increased access to education. And the rewards are worth it. Nicole Archambault is the creator of La Vie en Code, and host of the La Vie en Code podcast. She is also the instructor of 30 Days to Web Development, an online course + coaching program to guide and support self-taught web development career changers to their first paid opportunities. She has built her business around the intersection of technology, education, psychology, and the ways they affect self-educated web developers.