Ten Ways People Learn from Technology

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In most parts of America, technology is omnipresent, and this prevalence allows informal education and well as traditional school learning. Informal education refers to activities outside the classroom, including technology such as video games, streaming video, web applications, and social media. Such activities provide a range of learning opportunities, including general knowledge content, problem-solving, motor skills development, language acquisition, and social-emotional learning. Although some applications such as language learning apps like Duolingo focus on explicit instruction, others enhance knowledge or skills secondarily while the primary function is entertainment or gameplay (Greenfield, 2009). Other technologies afford self-education driven by self-interest. Rather than acquiring knowledge through physical locations like libraries and schools, those who show interest can discover information communicate with others on almost any topic from their computers or mobile devices. Additionally, people can participate in activities or play games that provide instant feedback (Collins & Halverson, 2018). Communities that develop around social learning spaces enable deep knowledge acquisition, as they are examples of situated learning. However, this report will not explore any one modality in-depth but will quickly introduce ten of many different ways people learn from technology.

1. "Just-in-time learning"

Collins and Halverson (2018) characterize targeted information seeking, such as accessing a tutorial video on how to do an Excel table pivot when needed for data analysis, as "just-in-time-learning" (p. 14). Just-in-time learning is skill-based: learning how to craft a proper google search is valued over storing facts that may not be required again. Just-in-time learning develops knowledge-seeking skills. Just-in-time learners know how to find the information they

need outside of a classroom (Collins & Halverson, 2018). Many students use just-in-time learning to supplement their in-school education as well.

2. Fitness Gaming

Active video games (AVG), also known as exergames, teach the players a myriad of activities, including how to dance and how to box. Nintendo Switch games such as Fitness Boxing, Just Dance 2020, Ring Fit Adventure, and Zumba Burn It Up, are all popular AVGs targeted at users seeking home workouts. While the games teach fitness movements, they can also be entertaining and encourage incidental learning. Ring Fit Adventure, for example, is primarily a role-playing game (RPG) "marketed as a game first and exercise second" (Hood, 2020). Through this immersive experience, users become fitness literate and learn a variety of exercises, muscular anatomy, proper posture, and nutrition.

3. Language learning apps

There are a variety of web and phone apps aimed at language acquisition. Much less expensive than formal schooling, these apps range from free to subscription and target multiple languages with deep learning or merely conversational travel phrases. Language learning apps can use gamification, repetition, videos, and study plans to assist the user develop proper grammar, build vocabulary, and achieve fluency. (Brown, 2020). Duolingo, for example, contains gamification with streaks and mastery, which can shatter if the users do not continually practice the skills.

4. Social media

Social media such as Twitter, Facebook, Instagram, and TikTok provide a platform for communication and community that can afford interactive and social learning for its participants. In addition to accessing shared news files and memes, which may or may not be substantiated,

social media acts as an information exchange. Posters can ask questions and elicit responses. Even within a community, the style and level of learning vary. Prestridge (2019) finds that expert teachers' participation in social media varied according to their preconceptions of professional learning in those online platforms.

5. Communities of interest

Similar to social media, there are forums where participants can exchange information and knowledge. Collins & Halverson (2018) use an example of a 15-year-old girl who learns through online communities how to produce Sims fan fiction she eventually publishes. Professionals are encouraged to subscribe to trade listserves to learn about the latest innovations, trade knowledge, and notify one another of calls for papers or upcoming professional conferences. Even conspiracy theorists can learn and exchange complex information through online communities such as 4chan.

6. Video games

Video games use real-world and fantastic situations to allow players to participate in adventures while creating a role for themselves and learning new skills (Collins & Halverson, 2018). Games can instruct on physical skills, such as flying a plane. However, video games are highly effective at teaching critical 21st century "soft skills" like critical thinking, decision making, problem-solving, and teamwork. Additionally, some games, including Assassin's Creed, teach "scholarly" information such as Greek mythology.

7. Companion chatbots

Another way to learn interpersonal skills and self-regulation is that AI companion chatbots. For example, Replika (www.replica.ai) is a chatbot the user must teach and nurture through interaction. The AI is programmed to love the user unconditionally but can still emulate

feelings such as hurt, distress, or confusion. This kind of interaction assists users with underdeveloped communication skills and patience to experiment in a safe place. Additionally, there are scripted interactions for social-emotional learning, like dealing with anxiety, insomnia, negative thoughts, and stress.

8. Adaptive learning

While the previous examples illustrate ways people learn through informal use of technology, it is essential to note some methodologies are used in formal education, such as adaptive learning. Adaptive Learning Systems are a tool for instructors to aid in student learning and performance. The technology does not replace the instructor but works within a system of instruction, learning, and application. Adaptive learning adjusts to the level of course content based on the individual user's ability signalizing instructor intervention and providing a sequential learning path to mastery. (Pugliese, 2016). While this does not replace an instructor as intervention is necessary, it ability to instantly assess and re-assess a student's skill level is integral to 21st century scaffolding.

9. Online/Remote Courses

Over the past twenty years, higher education has seen a dramatic rise in remote instruction, with an increase of universities providing both online courses and full degree programs (Jarvie-Eggart et al., 2019). Some non-traditional students, particularly those who are more mature or who work full-time and have family commitments, are searching for more versatile programs and, therefore, better tailored to their overall life and lifestyle (Berry, 2018). While these courses offer convenience, the level of instruction varies, as they remain teacher-driven. In addition to university and college offered courses, MOOCs, and a variety of professional development programs are available to learners.

10. Project-Based Learning

While Project-Based Learning (PBL) does not need to include technology, they are a fitting vehicle for multimedia publications and technology use. PBL can incorporate technology as part of the research, utilizing online databases or online forms for data gathering. Data can be processed using technology such as Google sheets. And certainly, the final products can be presented in or a reflection offered through video, which are published through the web. All steps require the learning of essential 21st-century skills.

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