

**How People Learn in the 21st Century**

Beth Pennington

When developing content for web-based instruction, it is essential to include opportunities for students to obtain information and then apply it to authentic, real-world scenarios. Students who can apply knowledge creatively can recall and apply specific content knowledge over the life of a course and beyond when they use the knowledge to solve problems, rather than simply doing rote memorization. Thus, online instruction is a “move away from the traditional teacher-fronted classroom to a setting in which students assume creative control over their learning experience” (Neokleous, 2019). Thus, digital learning experiences must keep in mind critical educational theories that teach students to be active in acquiring new knowledge and lead students to formulate new connections between concepts.

Individual learning styles or preferences are unique to the individual. “Individuals differ in their choice of access to information, their processing of information, the sources of information they want to use, and their learning styles'' (Purbudak 2021). Despite these apparent differences in how students develop understanding, there are commonalities in instructional techniques that allow students to attain success regardless of their preferred learning method. E-learning has “ allowed for a dynamic interaction that enabled [students] to take responsibility of their learning” (Neokleous, 2019). Presenting students with open-ended, higher-order challenges that encourage self-expression and creative solutions to enhance learning is vital to student success. “Creating authentic learning situations has been one of the goals of classrooms across the world, as it is believed to enhance learning” (Lever-Duffy, McDonald, & Mizell, 2002)

The online environment does not need to be isolating. While working in isolation at a keyboard demands a great deal of resilience from the student and the teacher, this process does not have to be alone. It is vital to create an online environment where students can interact with one another. “Social exchange is required for learning and social interaction is necessary to function and become fully developed” (Yarbrough, 2018). One interesting outcome is that “the online learning environment boosted [students] self-confidence because it prompted them not to “be afraid to participate” as they were able to express themselves “without fear or judgment” (Neokleous, 2019).

Setting up an environment that connects instruction directly to real-world scenarios will allow students to see the purpose and application of the new skills.. “Students must have an innovative mindset as future value that will enable them to fit into the next decade of economic and environmental development” (Wong, 2020). The constructivist and connectivist theories of learning are the cornerstone of my most successful online educational experiences. Constructivism is the belief that people construct meaning and knowledge from their experiences (Bada, 2015). When teaching and learning, I have found that when information is applied to real-life problems, students must find a solution and draw conclusions that demonstrate a deeper understanding of the concept. As pedagogy, constructivism consists of teaching methods focusing on the students' active learning (Krahenbuhl, 2016).

Activating a student’s natural curiosity to explore solutions to complex problems leads to resilience in problem-solving. Measuring student success means monitoring the students' ability to create new ways to approach and solve the issues presented. The online environment has led to “the idea that everything can be learned online through a website or by watching a video” (Turnbow, 2020). While this is true, it is essential to keep in mind that simply watching is not doing. Learning must be active and engaging. Vygotsky's theories focus on making the student an active participant who makes connections through meaningful interactions with others in constructing new knowledge. For example, when I began teaching, I faced a complex issue. How do I teach hands-on science when there is minimal equipment and no funding to acquire new materials? When presented with the necessity of obtaining financing to improve my classroom instruction, I used online web tools such as blogs, websites, and interactive messaging boards to search for solutions that others in the same situation had discovered. Then took that new information and knowledge and put those solutions to work in the real world. Through trial and error and constant adjustment and assessment of success and failure, I successfully wrote, submitted, and received funding to support my version of constructivism in my classroom.

Today’s students require unique, engaging, and meaningful problems to solve. They want to know upfront why they are learning this new knowledge and how they will use it in the real world. Feedback from students in a recent study revealed that students found great success and meaning when connecting and building links that took them outside of the traditional classroom mindset (Neokleous, 2019). Students who take ownership of their acquisition of new skills and knowledge work towards becoming lifelong learners with autonomy and intrinsic motivation to succeed. Furthermore, when working towards a solution using these methods, the depth of understanding develops more completely. “Teachers cannot simply transmit knowledge to students, but students need to actively construct knowledge in their own minds” (Vesela, 2020). This constructivist view of learning considers the learner as “an active agent in the process of knowledge acquisition” (Bada, 2015). When setting up an online course, students must be permitted to learn through trial and error. Authentic learning experiences with open-ended outcomes can lead to a deeper understanding and recall of information regarding future events.

The educational theorist Dewey concluded that students must learn by doing. When acquiring knowledge without real-life practical applications, information is more difficult to retain. Connectivism states that this type of application creates new pathways in the neural network of the brain. Connectivist ideas encourage students to find the order within instructional concepts, find and manage information from the Internet, cooperate to find solutions to complete assignments, see connections among the nodes of their knowledge in lectures, forums, chats, and blogs, and how to coordinate their efforts to create a meaningful piece of information in the glossary, or a video published as a solution of an assignment task (Vesela, 2020).

Socrates and Plato felt that it was crucial for successful learning to ask questions and develop the mind through the pursuit of knowledge through questioning and inquiry. The Socratic seminar is a practice of asking questions in the quest for knowledge. “Using Socratic method in teaching, giving students questions and not answers, we simply force students’ reasoning and the logical relationships of their existing knowledge and experience” (Delic, 2016). Since critical thinking skills cannot be directly taught, the Socratic method using the Socratic method of instruction to develop higher-order thinking skills can be engaged and cultivated, and students are fostered to improve this skill (Lam, 2011). Plato felt that it was essential to not only develop the mind but the character of the individual. By focusing on real-world problems and searching for answers, the individual would develop skills and persistence characteristics and instill a love of lifelong learning.

“Innovative, technologically advanced learning environments still benefit from a solid foundation in adult learning theory” (Yarbrough, 2018). The widespread availability of knowledge via multiple channels is unprecedented. “We've become comfortable with the idea that everything can be learned online through a website or by watching a video” (Turnbow, 2020). Therefore, teaching students to be self-motivated, seek out answers, and learn independently is essential to their future success. Using techniques that require students to solve complex, real-world problems will encourage students to become autonomous learners who never stop learning and questioning. Teachers must challenge students through engaging and explorations that require accessing prior information and applying newly taught concepts. The role of the teacher must be that of a facilitator rather than a leader in the classroom to allow students to discover connections between the skills and content. “we actually have to do something in class and not just listen to our teacher and, you know, copy stuff from the blackboard” (Neokleous, 2019)

Throughout my personal history of acquiring and communicating knowledge, I have experienced many different approaches to instruction. In my experience, students learn more effectively through hands-on, inquiry-based educational practices. I have found that knowledge acquisition is directly related to the method of presentation and assigned application or use of that knowledge. The most impactful and successful ways of instruction were both constructivist and connectivism in the assessment of the new skill. Today’s educational system must shift to better prepare students to solve complex problems by applying the presented knowledge. The key to this successful implementation is “creating environments and implementing practices that are conducive for fostering habits of practices that are crucial for future ready outcomes ” (Wong, 2020).

**References**

Bada, & Olusegun, S. (1970, January 01). [PDF] Constructivism Learning Theory: A Paradigm for Teaching and Learning: Semantic Scholar. Retrieved from https://www.semanticscholar.org/paper/Constructivism-Learning-Theory-:-A-Paradigm-for-and-Bada-Olusegun/1c75083a05630a663371136310a30060a2afe4b1

Karagiorgi, Y., & Symeou, L. (2005). Translating Constructivism into Instructional Design:

Potential and Limitations. Educational Technology & Society, 8 (1), 17-27.

Lam, F. (1970, January 01). The Socratic Method as an Approach to Learning and Its Benefits: Semantic Scholar. Retrieved from https://www.semanticscholar.org/paper/The-Socratic-Method-as-an-Approach-to-Learning-and-Lam/22a0e53c51085694a61ef8392dc43c2843545ab5

Lever-Duffy, J., McDonald, J., & Mizell, A. (2002). The 21st-century classroom: teaching and learning with technology. Addison-Wesley Longman Publishing.

Mattar, J. (2018). Constructivism and connectivism in education technology: Active, situated, authentic, experiential, and anchored learning. *RIED. Revista Iberoamericana De Educación a Distancia,* *21*(2), 201. doi:10.5944/ried.21.2.20055

Neokleous, G. (2019). Interpreting technologically fluent classrooms: Digital natives’ attitudes towards the use of technology in primary schools in Norway. *Professional Development in CALL: A Selection of Papers,* 117-129. doi:10.14705/rpnet.2019.28.874

Pürbudak, A., & Usta, E. (2021). Collaborative Group Activities in The Context of Learning Styles on Web 2.0 Environments: An Experimental Study. *Participatory Educational Research,* *8*(2), 407-420. doi:10.17275/per.21.46.8.2

Socratic Method as an Approach to Teaching. (2016). *European Researcher,* *111*(10). doi:10.13187/er.2016.111.511

TURNBOW, D., & ROTH, A. (2020). Putting the Ed Before the Tech: Evaluation and Assessment of Elearning. Computers in Libraries, 40(6), 32–36.

VESELÁ, K. G., & PUSCHENREITEROVÁ, J. (2020). Web 2.0 Tools Serving Needs of

Generation Z. Ad Alta: Journal of Interdisciplinary Research, 10(2), 336–342.

Wong, C. P., & Ng, D. (2021). The roles of school leaders in developing future-ready learners: The case of Singapore. *International Journal of Educational Management,* *35*(1), 249-269. doi:10.1108/ijem-06-2020-0283

Yarbrough, J. R. (2018). Adapting Adult Learning Theory to Support Innovative, Advanced, Online Learning -- WVMD Model. Research in Higher Education Journal, 35.