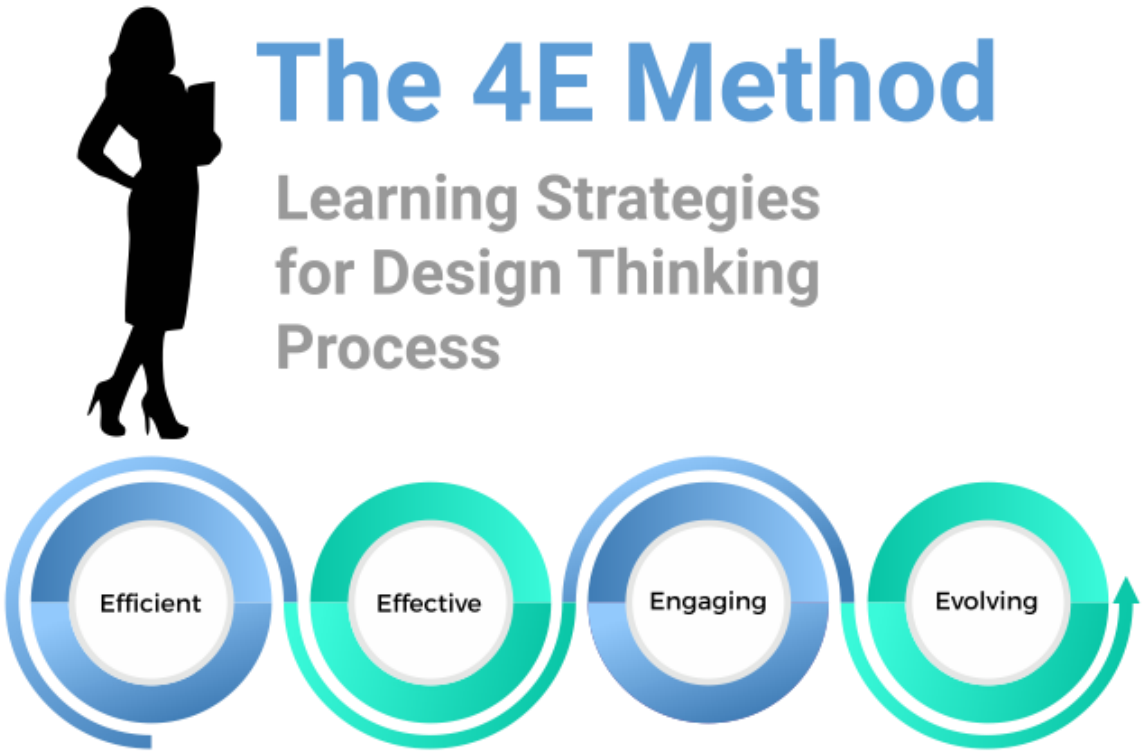
Paula L. Smith |2020 White Paper

Learning Strategies for Design Thinking Process: The Roadmap to Effective Learning



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Introduction

What is Effective Learning? Is it the way the instructor leads the classroom? Is it the curriculum developed? Is it the way a student comprehends the instructional content? There are many learning theories and concepts to describe effective learning. How can we improve the learner, instructor, curriculum, environment, learning activities, process, and culture, compared to historical and conventional methods? One of the essential learning paths is instructing the learner for student achievement.

When learning how to drive, my father told me always to keep a road atlas map in the car. The road atlas map helps when you are lost and guide you to your destination. The road atlas even gave you road options to take but led you to the desired destination. Now, this was before the advanced technology of the Global Positioning System (GPS). The white paper, "Learning Strategies for the Design Thinking Process: The Roadmap to Effective Learning," is like a road atlas. It is a guide to help you navigate the design thinking process to discover innovative options, approaches, and strategies for an effective learning program and student successes.

Problem Statement

Instructors have struggled for years in addressing effective learning in the classroom. The struggle is due to the constant evolution of learning theories and research concepts, lecture-style teaching, poor planning, inadequate curriculum, and lack of strategies to measure learning program outcomes. Due to these numerous reasons, a student can have a minimal or no learning experience at all. How do we empower students to learn? The most significant contrast today in 21st-century learning is the traditional teacher-centered approach versus a student-centered approach.

Teacher-Centered Approach

There has been lots of controversy around who oversees the learners during the teacher-centered or the student-centered approach. No matter what method the instructor takes, they are in control (Varatta, 2017). The teacher-center process is about students ingesting knowledge as the teacher instructs from the front of the class. He or she lectures as the students receive the knowledge (Agola, 2004). Most teachers have an accompanying black-board or large note pad as they talk.

When comparing the teacher-centered versus student-centered approach, other drawbacks are causing less usage of this approach. The differences are more focused on the teacher than the student. Whereas in the student-centered approach, the focus is on the student and the teacher. Other drawbacks of the teacher-centered approach are the student works alone, the instructor

answers students' questions, the teacher gives knowledge by way of lectures and textbooks, evaluates students' learning by assessment test, and the classroom usually is quiet (Agola, 2004).

Student-Centered Learning Approach

In the student-centered approach, the teacher is in charge but acts more like a coach or facilitator as the student interacts in a collaborative and active learning environment. The student-centered method is becoming more useful in the 21st century as more students learn online. The student-centered principle is like the constructivism theory. The learner is an active participant by formulating and structuring their ideas and conveying their comprehension to peers in a collaborative learning environment (Vygotsky, 1978). The learner can interpret or evaluate the information if given in a credible format.

One method of student-centered learning is experiential learning. Kolb's model explains learning as "the process whereby knowledge is created through a transformative experience." The founder of experiential learning, David Kolb, concluded with a learning cycle of abstract conceptualization, active experimentation, concrete experience, and reflective observation (Kolb, 1984). *See Figure 1 below.*

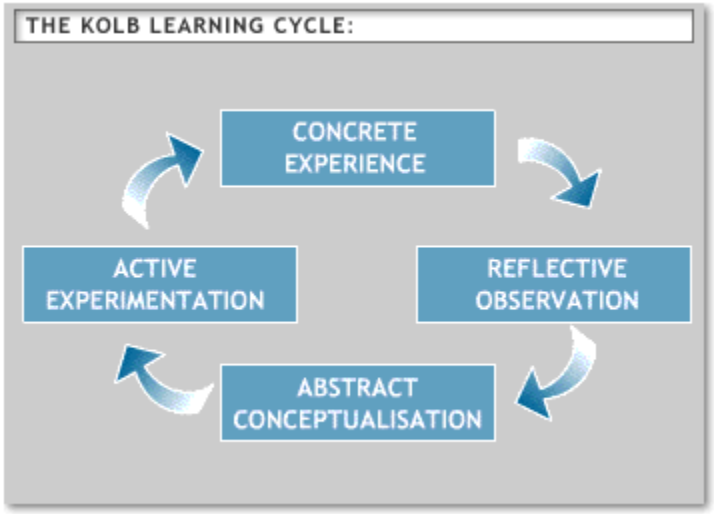

Figure 1 – Kolb, 1984

The second method of student-centered learning is cognitive Theory. The cognitive approach is how a student performs and retains information (Jonassen, 1991b). The transfer of knowledge occurs when a learner understands how to apply knowledge in different contexts (Schunk, 1991).

The third method of student-learning is meta-learning. According to Maudsley, when students internalize their intentions and control perception, inquiry, learning, and growth are meta-learning (Maudsley, 1979). The student takes on a meta-cognition on learning their knowledge and processes.

The fourth method is a combination of constructivism and meta-learning. The connectivism Theory relies on learners to pursue exchanging ideas and learning from their peers. The connectivism approach is social learning in an online collaborative environment while the instructor act as a facilitator or mentor.

Proposed Solution

One of the pathways to effective learning is the 4E method. The 4E method is an improved way of the design thinking process for learning programs. Many versions of the learning design thinking process have arisen. Still, I want to present an alternative solution for a learning designer or design team to manage a learning project. It is essential to have excellent leadership skills, conflict management resolution, project management, and change management; however, strategic thinking skills are crucial to innovative learning solutions. The learning strategies provide efficient, compelling, engaging, and evolving confidence in implementing learning programs. When one manages the learning design project, the project manager or instructional designer should become the strategic thinker and planner through every learning design thinking process phase.

Whether K-12, higher education, corporate training, workforce development, reskilling or upskilling, learning programs need an evaluation from a holistic perspective. During the 21st century and COVID-19 pandemic, the rise of online learning has risen above its expectation. According to the Forbes report 2017, 98% of companies will use eLearning by 2020 (Forbes, 2017). The learning design's future has no limits as evolving technology is multiplying, and traditional methods are left behind. According to the Duffin report, a survey showed that 52% of graduate students in the U.S. found their online college-level education to provide a better learning experience than their college-level classroom education (Duffin, 2019). The 4E method gives an innovative concept of learning strategies for the design thinking process. *See Figure 2 below*. The 4E method provides a way to evaluate or assess a learning program for effective learning and process improvement. Each learning strategy step, "Efficient, Effective, Engaging and Evolving (4E)", is implemented in each design thinking process phase. *See Figure 3 below*. The 4E method concept unfolded while developing a critical analysis of our team's approach to a capstone project use case in 2019. The project was a team collaboration. We were to identify a problem and create a learning solution using the design thinking process.

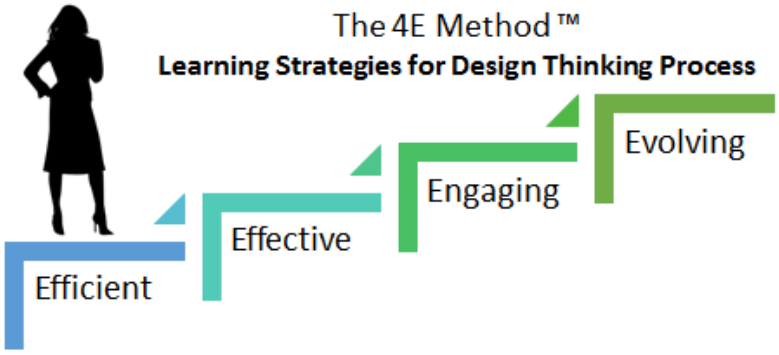

Figure 2 – The 4E Method, 2019

As I reflect on what went right and what went wrong during the team class project, the 4E method helped me to step through the design thinking process with ease. The learning strategies provide process improvement through the iterative refinement of every phase of the design thinking process. The learning strategies' looks at the whole picture while framing the problem, developing the focus statement, identifying learning solutions, prototyping the resolution, calibrating, and then implementing the final learning program.

The first learning strategy is efficient. Efficient when learning environments achieved maximum productivity with minimal wasted effort. When identifying problems in learning programs, how do we measure domains conducive to the learning experience? Are we efficient in identifying solutions to the issues with good comparative data analysis? Are the students engage or disinterest? Are there regular checkpoints for the instructor to be interactive with the student? How are we presenting course content, lecturing, or micro-learning media? Is the infrastructure uptime 99%? Is the support service quick and resolving issues in a timely matter?

The second strategy is to be effective. Practical when instructional courses are measured and clear learning objectives aligned with assessments for student's achievement. The checks can be formative and summative. Are assessments interactive and engaging? The learner is clear of expectations to meet the outcomes and has consistent reinforcement. The instructor adjusts the instructional material to meet the immediate need of the learner. Recently, more instructional material has become personalized to help the student to succeed. Adapting to meet the student where their at in knowledge and skills

The third one is engaging. Engaging when learners are directly involved in information gathering, communicating with peers, presenting their work, and gaining new knowledge. The engagement can come from the learner to be an active participant in a collaborative environment. While in this collaborative environment, the learner can learn from one another through feedback, team projects, peer reviews, observation, discussion boards, etc. Bandura's Theory for social learning is all about self-regulation. He believes that observing others and interacting in a social environment helps change one's cognitive thinking. One can learn, watch, or imitate others (Nabavi, 2012).

The fourth learning strategy is evolving. When learners are growing in acquiring skills and knowledge, it should be an evolving process. The evaluation and assessment for the learner should be personalized to equip them for achievement. There should be checkpoints along the learner's path and adaptable strategies to their instructional content. As instructors evolve in helping the students discover learning through project-based, social learning, gamification, and interactive practice assessments, they become more professionally developed. The teacher and the student both are participatory in the learning.

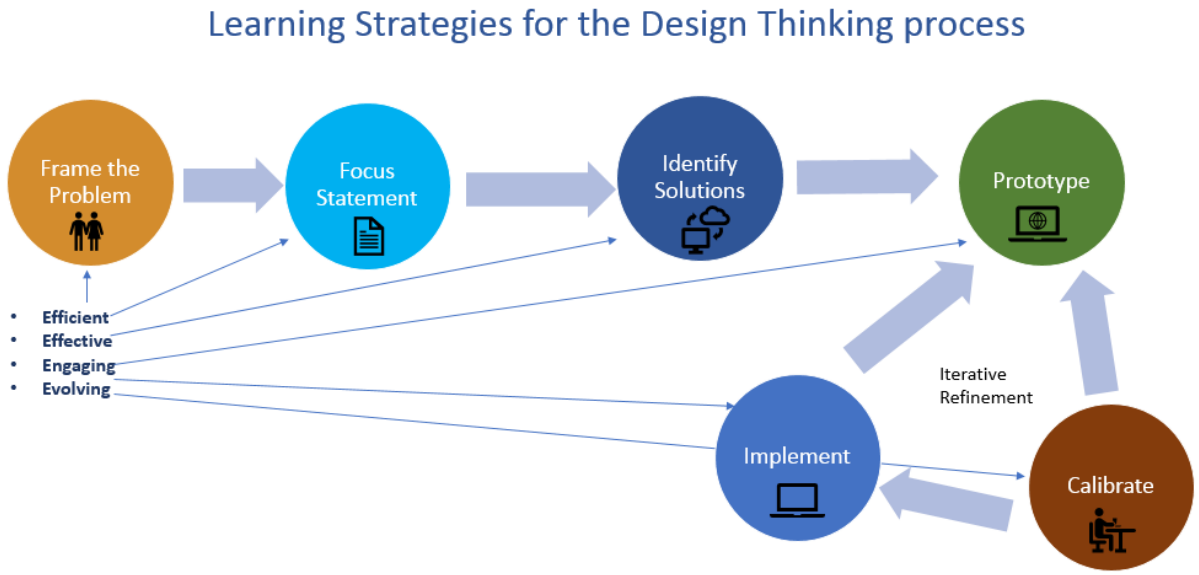

Figure 3 – The 4E Method, 2019

Conclusion

The student-centered learning approach opens new ideas for more innovative ways to improve the overall learning experience. Whether positive or negative, prior learning experiences help me view the experience from a different perspective. One will become a better instructor and learner, drawing from your own learning experiences, improving how to learn, and ensuring the culture and learning environment helps achieves the learner's success.

One of the great things about learning, you have choices and decisions. The learner's behavior can influence the cognitive load of the information. The learner plans to study, intake, and process the data; they learn and meet the desired outcome of students' achievement. When a learner is self-regulated, improving goal setting, self-discipline, relationship skills, and drawing from one's think tank could make the student better.

Effective learning is not achieved with a finite approach because each student learns differently and acquire skills at a various pace. Traditional methods are dying as more educational institutions utilized online to instruct their classes. For learning to be effective, the student must be effective. His or her learning experience needs to be useful as the learner is an active participant, interactive with others, and utilize the learning platform with navigational ease.

The 4E method was developed at a crucial time as the academic and k-12 school systems learning and the COVID-19 pandemic has impacted development. Educational systems are struggling as critical impacts on students who do not have equal resources. I mean not having internet availability consistent in the home or adequate devices and updated software tools. The Smith Model is a great technique to review and analyzed learning programs from a holistic view.

The model helps to ensure proper infrastructure, technical support, updated software and devices, 508 compliant, and a contingency plan for disaster recovery.

The 4E method is instrumental in addressing anti-oppressive structures for the less fortunate or minority, or other communities. It can force learning programs to dive into evaluating a fair and equal learning environment where every learner matter. It can help low-income communities ensure software and devices are provided as learning tools to those who cannot afford them. It can help administrators, educators, and policymakers recognize the injustices of equal access to technology resources and correct them.

The strategic 4E method provides a way to refine the design thinking process through every phase, causing process improvement with Efficient, Effective, Engaging, and Evolving learning strategies. Today, it is more needed as instructors, schools, higher education, and other institutions are challenged by the COVID-19 pandemic. The 4E method provides a way to promote high-quality courses and learning programs, ongoing assessment and evaluation, student support services, and most importantly, students' success. The 4E method could be an effective solution where no student is left behind to obtaining an excellent learning experience.

References

Agola, E. (2004). Constructivist versus traditional methods in language education. *Perspectives In Learning, 5* (1). 46-49.

Biggs, J. B. (1985). The role of metalearning in study processes. British Journal of Educational Psychology, 55: 185–212. doi:10.1111/j.2044-8279.1985.tb02625.x

Biggs, J (Ed.) (1991). Teaching for learning: the view from cognitive psychology, Victoria: ACER.

Duffin, E. (2019). Opinions of online college students on the quality of online education U.S. 2019. https://www.statista.com/statistics/956123/opinions-online-college-students-quality-online-education/

Forbes. 10 workplace trends you'll see in 2018. https://www.forbes.com/sites/danschawbel/2017/11/01/10-workplace-trends-youll-see-in-2018/#2d71a4e94bf2. November 1, 2017

Huitt, W. (2001). Humanism and open education. Educational psychology interactive. Valdosta, GA: Valdosta State University. http://chiron.valdosta.edu/whuitt/col/affsys/humed.html.

Jonassen, D.H. (1991). Evaluating constructivist learning. Educational technology, 28 (11), 13-16.

Kirkpatrick, D. L. (1976). Evaluation of training. In R. L. Craig (Ed.), Training and development handbook: A guide to human resource development (2nd ed., pp. 301–319). New York: McGraw-Hill.

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice-Hall.

Maudsley, D.B. (1979). A theory of meta-learning and principles of facilitation: An organismic perspective. University of Toronto, 1979. (40, 8,4354-4355-A)

Mayer, R. (2009). Multimedia learning (2nd ed.). New York: Cambridge University Press.

McGriff, Steven J. (2000). Instructional Systems, College of Education, Penn State University.

Novak J D & Gowin D B (1984). Learning how to learn. Cambridge: Cambridge University Press.

Piaget J (1967). Biologist Connaissance (Biology and knowledge). Gallimard, Paris.

Schunk, D. H. (1991). Self-efficacy and academic motivation. Educational psychologist, 26, 207-231.

Siemens, G. (2004). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3-10. doi:http://www.itdl.org/Journal/Jan_05/article01.htm

Tadayon Nabavi, Razieh. (2012). Bandura's social learning theory & social cognitive learning theory.

Varatta, K. (2017). Teacher-centered versus learner-centered learning. https://knowledgeworks.org/resources/learner-centered-learning/.

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Cambridge, MA: Harvard University Press.

