Microlearning

Paula Marcelle & Anuoluwapo (Anu) Brahim

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Just-in-time Learning | Microcontent | Instructional Unit | Small Unit | Short Courses

Microlearning is a strategy of delivering short, stand-alone instruction with one or two knowledge or skill-based objectives as part of or within formal, non-formal and informal learning environments through any modality. There are varying definitions of the term microlearning in the literature. Paul (2016), for example, refers to microlearning as a form of e-learning delivered in small chunks, focused on delivering skill-based and just-in-time learning, which is competency-based and immediacy-focused (see Figure 1). Others define the term from a problem-centred, and connectivist view that engages students to "solve a problem, direct their own learning, apply their knowledge or connect with others" (Major & Calandrino, 2018, p. 2). From a connectivist view (De Gagne et al., 2019), microlearning prioritizes the development of learners' capacity to connect and associate multiple ideas and resources from different microlearning objects. As a result, learners can connect with diverse sources of information and their peers, leading to a deeper understanding of the subject matter.

Have you ever tried to carry a cup of coffee in one hand while using your phone with the other hand, and also trying to unlock your front door at the same time? You're juggling so many tasks that your brain starts to feel overwhelmed, and you end up spilling the coffee all over yourself! That's an example of extraneous cognitive load—you're trying to process too much information at once, and it becomes difficult to complete any of the tasks successfully.

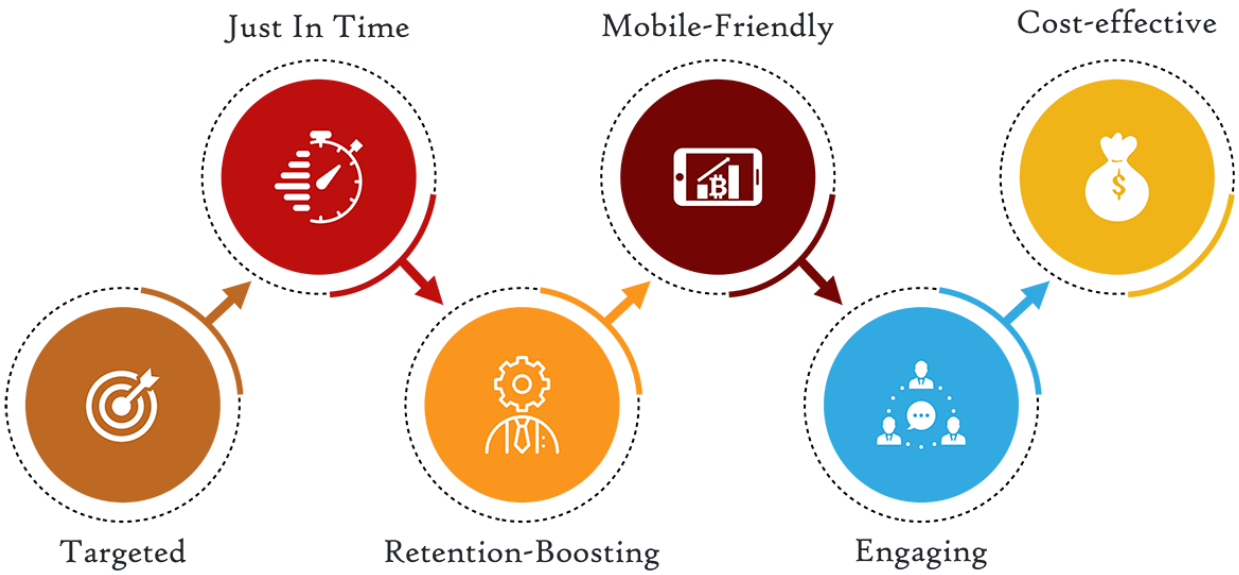
The purpose of microlearning is to reduce extraneous cognitive load, which is dependent on the "way the instruction is designed, organized and presented" (Moore et al., 2004, p. 989). Cognitive learning theory buttresses this purpose. It is like trying to run a marathon while carrying a heavy backpack full of rocks—the extra weight slows you down and makes the task much harder than it needs to be! Thus, to make effective instruction, one must limit the number of objectives and quantity of information in any learning resource. For effective coverage of microlearning objectives without compromising extraneous cognitive load involves keeping instruction short. Still, the duration of the time is debatable, as (Tipton, 2018) stated "as long as necessary and as short as possible."

Leveraging technology, microlearning can be delivered online through e-learning or mobile learning, providing opportunities for self-directed learners to pursue lifelong learning quickly. Although popularized in the early 2000s, the

earliest use of the term microlearning was in 1963 (Correa, 1963). However, different names were often used for microlearning, such as short courses, just-in-time learning, microcontent, etc. (Hug & Friesen, 2007).

Figure 1

Characteristics of Microlearning



Skyline Graphics. (2023). Six benefits of Microlearning with icons and description placeholder in an Infographic template [Infographic]. Adobe Stock.

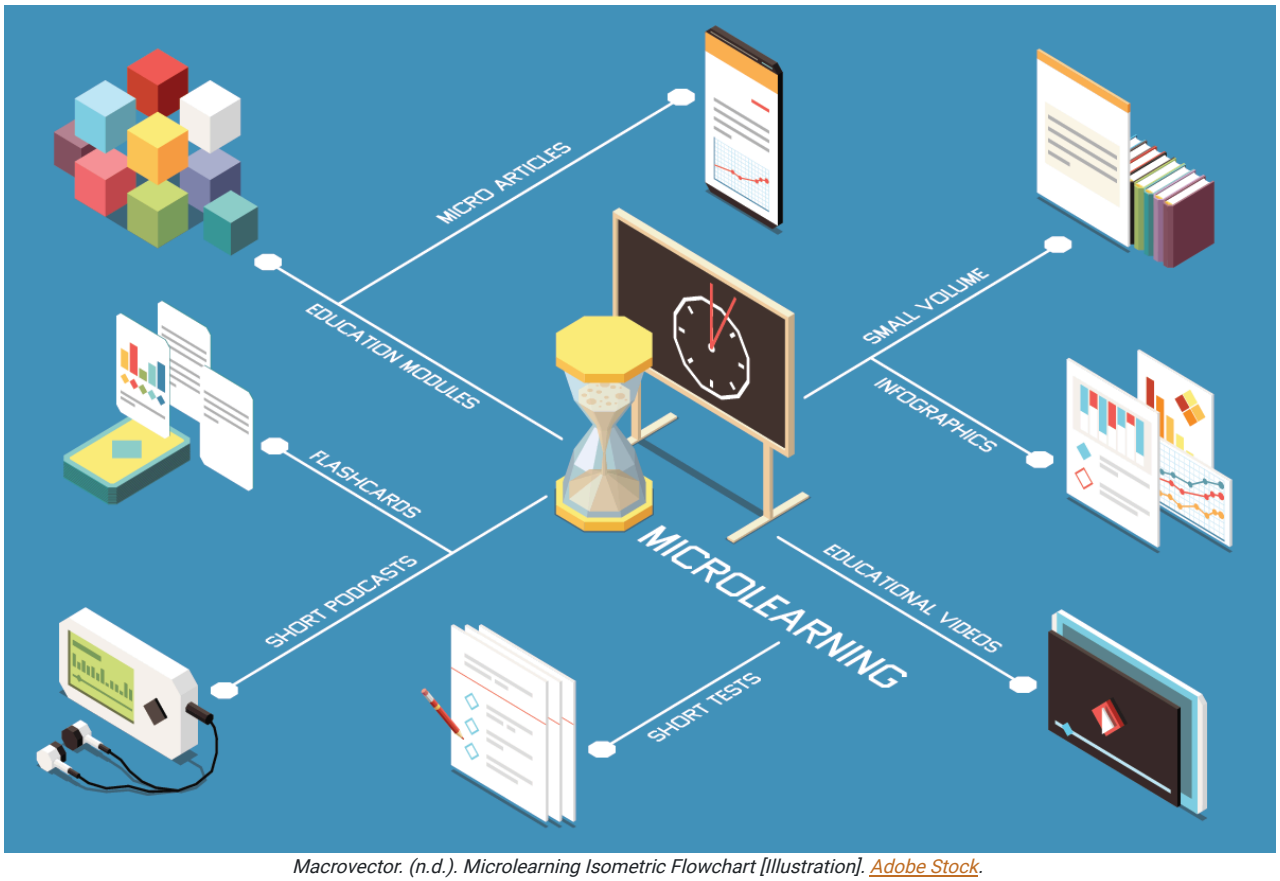
Microlearning is a versatile learning approach that can be integrated into any educational setting. For instance, higher education can be utilized as a supplementary resource to the traditional curriculum, allowing students to personalize their learning experience and receive prompt guidance and feedback (Kohler et al., 2021). Similarly, Kohler et al. (2021) suggested that microlearning can deliver cross-curricular, co-curricular and open-curricular opportunities in higher educational settings. In professional settings, microlearning can be used to deliver continuous professional development (CPD), e.g., through professional associations and regulatory boards for teachers and project managers.

The stand-alone aspect of the definition suggests that microlearning is not simply chunking content, as chunking breaks information into smaller pieces, and each piece is necessary to understand the whole picture. Rather, with microlearning, each learning resource is created and can be used independently of other resources.

Microlearning can be used in traditional in-person contexts to deliver short courses or other learning solutions. Video is a popular medium for delivering microlearning, but other media can be used, such as flashcards, games, infographics, and checklists (see Figure 2). And, since media use for instruction is commonplace in most learning environments, microlearning objects should conform to research-based multimedia design principles (Clark & Mayer, 2016; Mayer, 2021).

Figure 2

Examples of Microlearning Formats



Macrovector. (n.d.). Microlearning Isometric Flowchart [Illustration]. Adobe Stock.

The content delivered through microlearning can either be content-knowledge-focused or competency-skills based. Thus, microlearning objects can be used either in traditional academic settings, informal learning scenarios such as social media, and workplace learning. In corporate settings, learning is repeated for reinforcement at intervals because training retention decreases with time from the event, as time increases according to the concept of the forgetting curve (Ebbinghaus, 1885; Murre & Dros, 2015).

Some myths have been assumed as elements of Microlearning. For example, several authors have argued on the ideal length of training time (Torgerson & Iannone, 2019) to qualify as micro and assumed it is time-dependent (Tipton, 2018). Tipton (2018) suggested the content should be as short as possible and long as necessary. Other myths are that it has to be video-based (infographics and images can also be used), require technology (job aides, checklists), one-size fits all (based on learner needs and context analysis).

The future of microlearning is likely to be driven by advances in technology, such as the increasing use of artificial intelligence (AI) and machine learning (ML) to personalize learning experiences. With the help of AI and ML, microlearning can be tailored to the specific needs of individual learners, providing them with the most relevant and effective learning content.

Another trend that is likely to shape the future of microlearning is the use of gamification techniques. By adding game elements to microlearning modules, learners can be engaged and motivated to complete the learning activities.

Mobile devices are another key factor driving the growth of microlearning. As more people use their smartphones and tablets to access learning content on-the-go, microlearning will become an increasingly important part of the overall learning experience.

Related Terms

Micro-learning, informal learning, lifelong learning, micro-credentials or badges, mobile learning, nonformal learning, online learning, personal learning environment, social media, knowledge bytes or bite-sized learning

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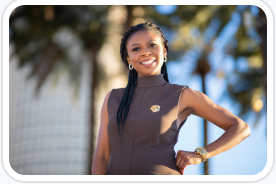
Paula Marcelle

Indiana University, Bloomington

Paula Marcelle is an emerging scholar and practitioner. She is an instructional designer and adjunct faculty teaching courses in the design of instructional materials, and foundational science. Her research interests include self-regulated learning, micro-credentials, educational policy, STEM education, and equity in secondary education. She has multiple research projects in various stages of development in the research process and in different kinds of analyses (qualitative, quantitative and mixed methods).



Anuoluwapo (Anu) Brahim

University of Tampa, Florida

Anu is an Instructional Designer (MS. Instructional Design & Tech) currently working in the healthcare sector. Her career background is in education and training. Her inspiration for course design is to keep the learner at the center. This inspiration led her to author a research where she shared her design decisions - Two culturally situated instructional design cases for beginner English language learning in Haiti. During her downtime, she enjoys taking walks, watching documentaries, and try out hot spicy food across cultures.