Beyond Chunking

Microlearning Secrets for Effective Online Design

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Introduction

If we are to consider the cognitive load of learning in online higher education, today's distance students learn similarly to any adult learner at a brick and mortar institution. Of those Americans enrolled in postsecondary institutions, 85% are nontraditional (or contemporary) learners (Online Learning Consortium, 2016). Adult learners acquire information in a method that comes naturally: self-directed, in that they seek information as problems present themselves, connected to a vast amount of information and various social networks, and in a timely manner. Timely in regards to when they need the information, when they have a moment to pay attention, and within short bursts of time, regardless of their location. This modern learner is overwhelmed, distracted, and impatient; attains knowledge from multiple locations on multiple devices; and prefers to learn on-demand and with others through networks (Deloitte Development, 2014). Modern learning occurs through inquiry, self-directed searching, and social learning (Olsen, 2013).

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Faculty members taking into consideration their adult learners' needs should consider their learners and create information nuggets that are just the right size for cognitive processing, linked to relevant larger learning objectives, and designed to be attainable through multiple devices. They could deliver and create opportunities for microlearning in their online classrooms.

Microlearning

Microlearning is simply a term that refers to any pedagogy encouraging learning in short segments, and it can be supported through many platforms. Derived from the practices in teacher education, microteaching involved teachers in training delivering short lessons, recording it for playback, critiquing both individually and as a group, and receiving feedback from their peers (Kourieos, 2016; Orlova, 2009). The professional development professional eponymizes this practice as microlearning and defines it more broadly.

Microlearning has been defined as small units of learning intended for application and paired with a learning objective as a step toward a larger goal, easily accessed by learners, therefore, often associated with device learning, and retrieved through tags and keywords (Khurgin, 2015; Poulin, 2013; Singh, 2014). Microlearning pulls together the overarching picture of the learning concept, providing contextual factors, and allowing the student to reflect on how the knowledge fits into the world.

Microlearning Enables Enhanced Cognitive Processing

The idea behind microlearning is to deliver material in short, manageable, readily attainable bursts for learners to consume. Additionally, it engages the learner in a manner that capitalizes on adult learners' needs, to, perhaps, solve a problem, direct their own learning, apply their knowledge, or connect with others. It is often used to reinforce or supplement formal learning, as a just-in-time learning tool, to replace formal learning or a course, to prepare learners for formal learning in a professional setting (Cole & Torgerson, 2017). Theoretical concepts of cognitive load and how quickly the working memory of an online student may be overloaded with the input causes, the knowledge acquisition to slow down or even completely halt. Thus, long-term memory is left empty despite all the effort. When information is sliced into frequent microlearning opportunities, cognitive load is decreased tremendously and the long-term knowledge is easily attained and used.

Microlearning Design and Delivery Methods

Many methods for designing and delivering microlearning allow the faculty member to choose a method that best fits within the curriculum and their range of expertise. Students need a design that gives them easy access to the information, smaller contexts that keep them engaged, allows for remediation as needed, quick assessments that build on the whole, and a course engagement that allows for the students to apply the knowledge they have gained or draw conclusions. A faculty member may deliver this as a stand-alone nugget of information in a learning management system or as a prompt for activity.

Activities could be set up as a short individual or group assignment with prompts to analyze, solve, or discuss.

> A significant part of what makes microlearning so effective is the interactive aspect that allows learners to practice their skills and apply new knowledge. Professors may also use microlearning to administer small quizzes, review content, and conduct other short assignments to evaluate their students. (Trowbridge, Waterbury, & Sudbury, 2017, para. 27)

Faculty members may decide to use microlearning as an assignment asking students to curate their own and share with the group for critique. An example of this might be using Google Translator to conduct a short interview and submit your reflection on the experience. As a short segment of information delivered through various platforms and through various methods, microlearning serves as an interactive learning object. As in this example, the design will inform faculty members' selection of a tool or platform to create or display the segment of microlearning.

Which tool to choose depends on the intent of the microlearning delivery. Currently, organizations predominantly deliver microlearning using video, self-paced e-learning, visuals (e.g., memes, infographics, images, or visual presentations), podcasts or audio, and messaging requiring short durations of attention from learners (Cole & Torgerson, 2017), as well as interactive forums. In practice, faculty might decide to deliver content, using a clip from a lecture or a 5-minute video from open educational resources, like Vimeo, YouTube, or Merlot II. Perhaps other visuals will be used to convey information to students, like a voice over Powerpoint, meme created from using Recite or PicMonkey, concept map from Creately, infographic via Easel.ly, animation created using Voki or Powtoons. Podcasts or audio, like Vocaroo or Audacity, could be utilized to deliver the short audio message. It could very well be written on a text-based platform, examples of written messages could be a 300–500 word article for students to read, a short written problem, or a short scenario. Faculty could address the social needs of adult learners by delivering content via an interactive tool or on social media (like Twitter and Facebook) for students, comment and for others' reading to create meaning with others through incorporation of resources or their own experiences.

> A few ideas that have been successful include using course or topic hashtags, requiring weekly posts focusing on course topics to social media as part of participation, and creating a microlearning assignment as part of the course" in which students create their own microlearning to share with the class. (Trowbridge et al., 2017, para. 67)

Learners may collaborate around a topic within any collaborative tool, like Slack or Yammer or a discussion forum on a learning management system.

Microlearning can be designed to coincide with other trends in higher education learning: mobile learning, flipped learning, active learning, personalized learning, and fostering a learning community. For example, microlearning is ideal for designing learning to use with mobile applications. According to Ryan Seilhammer, program director of mobile learning at the University of Central Florida, 99% of online students at the university are accessing courses from a smartphone (66% via iPhone; 33% via Android devices), and 63% from a tablet or iPad (R. Seilhammer, personal communication, January 21, 2018). Aitchanov, Nussipbekov, and Zhaparov (2012) describe microlearning coinciding mobile learning:

> To develop such a mobile application [will enable the] possibility for students to learn material easily and quickly. This idea is realized on web programming lectures in Suleyman Demirel University. Android operating system is used to make an application to be available for most students. The main purpose of it is ability to access it everywhere and anytime. It is very mobile. But being a mobile application is not enough. In application we try to take into account following important things:
>
> - Time: relatively short effort, operating expense, degree of time consumption;
> - Content: small or very small units, narrow topics;

- Curriculum: small part of curricular setting, parts of modules, elements of informal learning;
- Mediality: electronic media; and
- Learning type: repetitive, activist, reflective, constructivist. (p. 149)

Effectiveness/Benefits of Microlearning Design

The more the faculty member can tie the microlearning experience to a contextualized, applicable experience aligned with learning goals, the more impactful and meaningful the learners should find the experience. One essential aspect related to the effectiveness of microlearning is that it must be the right size for processing information. Professional development practitioners suggest delivering in segments of at least 2 minutes, up to 10 minutes (Cole & Torgerson, 2017). Additionally, it must be accessible. Any learners should be able to access the microlearning at a convenient time, through any available device. It should also be packaged for application with, relatedly, contextualized content. In this respect, adult learners need to access it when they are ready to use the content, tie it to larger applicable goals, or readily perceive the applicable benefits of consuming information. Because of its effectiveness, 92% of organizations plan to increase the use of microlearning (Cole & Torgerson, 2017). What can your institution, instructional designers, and faculty do to capture the advantage microlearning offers in enhanced cognitive processing of the adult, modern learners?

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