

Microlearning as a Tool to Engage Students in Online and Blended Learning

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Abstract: This best practices session focuses on exploration of the topic of using microlearning in both online and blended learning environments. The session will provide a definition of microlearning as well as the creation and location of microcontent, drawing on key ideas and principles from Theo Hug (2006; 2010). According to Hug (2010), microlearning overlaps theoretically and in practice with the topic of mobile learning. Microlearning experiences, for instance, can include short bursts of asynchronous learning such as brief readings of digital text(s), a brief video segment followed by a 2-3 question quiz, or a micropodcast. Instructors can use microlearning in flexible and fluid ways within, or in addition to the regular course content. Concrete examples of microlearning from across subject areas will be explored; teaching ideas and handouts will be provided.

Introduction

This best practices paper describes the topic of microlearning, including a broad definition and overview, as well as a few specific examples that draw from the authors' use of microlearning within online courses. However, the subject should be of broad interest to faculty across various teaching settings to include face-to-face, online-only, and hybrid/blended. It would apply to both K-12 settings and higher education. The authors have experience teaching and designing online courses at large public universities, as well as K-12 teaching experience. The theoretical work of Theo Hug (2010; 2012) serves as the foundation of this paper. He defines microlearning as, "...[a]n abbreviated manner of expression for all sorts of short-time learning activities with microcontent" (p. 2268). According to Hug, microlearning includes the use of media, the internet, and mobile technology, amongst other tools and mediums for learning. This paper includes several examples from diverse subject areas, mainly highlighting a teacher education focus on micropodcasts and a video-based example from the field of history. The authors also share and discuss specific links to multimedia platforms. Theoretically, the paper primarily draws upon notions of scaffolding (such as Vygotsky, 1978), mobile learning (e.g., Norris & Soloway, 2013), and the theoretical construct of heutagogy (Hase & Kenyon, 2007).

What is Microlearning?

According to Theo Hug (2010), microlearning is a newer concept that also overlaps theoretically with the topic of mobile learning. Therefore, instructors can use microlearning tools to create uniquely mobile-compatible content. The idea that instructors and students alike can use mobile devices for the production and use of microlearning is key point of focus. Microlearning is generally digitally-focused and multi-modal in terms of content creation (Hug, 2012). Hug states that microlearning content embodies short instances of learning from a few

seconds in time to up to several minutes (2012). For example, microlearning can possibly include short bursts of asynchronous learning like very brief readings of digital text(s), a brief video segment followed by a two-to-three-question quiz, or a micropodcast.

Instructors can use microlearning in flexible and fluid ways within or in addition to the regular course content. In this way, microlearning and microcontent can enhance previously developed materials or even replace longer learning modules to provide greater versatility in course design. Microlearning merits attention when designing online and blended courses. A key aspect of microlearning, according to Hug (2012), is that it can be used in flexible ways depending on the purpose of the learning. For instance, Hug suggests that it fits with on-demand types of learning needs, supports lifelong learning, and can connect to diverse learning theories and approaches. Additionally, the authors of this paper suggest it could work well in diverse teaching settings, such as face-to-face, “flipped” classrooms where course content can be partially reviewed and studied outside of the classroom, or in online-only or blended learning settings.

Intersection with Mobile Learning

Microlearning also allows students to take learning with them as they interact with the world around them. In this way, microlearning also becomes a context-sensitive interactive experience through mobile devices. Kloper, Squire, Holland & Jenkins (2002) further this idea by suggesting that the context sensitivity (the ability to gather data unique to a location) of mobile devices has the possibility of enhancing education. Norris & Soloway (2013) noted that:

Mobile technologies enable students to go directly to all manner of information, people, places, data, events and locations; the teacher (or the classroom textbook) no longer is the mediator. With a mobile device in each learner’s palm, each learner can be active and engage in a learn-by-doing pedagogy. (p. 111)

Bouillion & Gomez (2001) also note the importance of learning within the contexts of day-to-day living as an important factor of sociocultural learning of Lev Vygotsky (1978) and others in the constructivist tradition. Microlearning is one design method that allows for students to experience learning in the social contexts of day-to-day living

Student-Authored Content of Microlearning

While microlearning offers many opportunities for instructors to create content and activities, students themselves can also participate in the creation of microlearning content. Student-centered learning has gained considerable attention in recent years. Given this emphasis, a primary question to consider when creating student-centered microlearning is “How can we empower students to create their own content and own their learning?” Instructors can consider ways that students themselves can create microcontent (such as Vines, Twitter posts, other microblogging opportunities, micropodcasts, etc.)

One new concept that has potential for creating a microlearning-focused structure that empowers students is heutagogy. Heutagogy is a newer idea that is generally described as the process of learning how to learn, mainly through self-direction that combines formal with informal learning (Hase & Kenyon, 2007). The main goal of heutagogy is to empower learners to take control over their learning by moving from instructor-guided lessons to self-determined goal creation. Microcontent could provide a scaffolded way for learners to step into self-determination by creating smaller, focused assignments. Blaschke (2012) best pinpoints where heutagogy and student-created microcontent can intersect by stating that, “By incorporating heutagogical practice, educators have the opportunity to better prepare students for the workplace and for becoming lifelong learners, as well as to foster student motivation” (p. 67). Therefore, smaller, more focused student-created content could be an important scaffold towards the goal of creating life-long learners.

Microlearning Scenarios: Mobile-Driven-Examples

Various microlearning scenarios (e.g., both online and blended settings) that both teachers and students can implement fall into the following categories: 1) mobile learning as a primary vehicle for microlearning content, 2) instructor-authored content versus open education microlearning possibilities, 3) audio-based microlearning (e.g., micropodcasts), 4) microlearning as remediated learning (e.g., building background knowledge) and as extended learning (for students who need an extra challenge). The use of these broad categories presents possible places of examination and exploration across several content areas. Examples from literacy studies in teacher education and history provide additional ways for participants to get started with this practice.

Mobile Learning as a Primary Vehicle

Instructors and students can utilize several mobile learning tools in microlearning. Popular websites such as WordPress, Evernote, YouTube, and Twitter all have mobile applications that work with all mobile device platforms. Content created on these services allow for easy consumption on mobile devices in the context of everyday life. Additionally, there are other mobile applications that can also connect with content in microlearning lessons. For example, students can use popular visual applications such as Instagram or Vine to capture images or video of everyday objects or scenes that relate to daily lessons. The instructor could create a short video lesson on YouTube and embed that in a WordPress blog with text instructions. These instructions would tell learners to look for artifacts in their daily life that relate to the lesson. Students would then capture images and videos, and then share these with other students without describing what they are. Students would comment on each other's' visuals to see if they can guess how the shared visual relates to the daily microcontent. Alternatively, if students need to explain their visual in more detail, mobile applications also allow users to create content and visuals through the application itself, which could link or tag back to the instructor for feedback.

Instructor-Authored Content versus Open Education Resources (OER)

A compatible approach to microlearning involves the use of open educational resources. Open education and sharing of resources is an increasing paradigm shift within teaching and learning (e.g., Bonk, 2009; Walsh, 2011). Some instructors choose to create their own content (instructor-authored content). However, instructors can share open educational resources outside of the confinement of the password-protected learning management system (LMS), where it is available for reuse and possible remix, depending on the type of permission the creator provides. Additionally, as the instructor "builds" and create her or his own content, they can possibly share the microcontent on open sharing platforms such as cloud-based tools or open repositories. An example of cloud-based tools that would work well with microcontent includes SoundCloud™ for podcasting (<https://soundcloud.com>), where users can create up to three hours of podcast content without charge. Alternatively, MixCloud (<http://www.mixcloud.com/>) provides free and unlimited file size and content. For various reasons, not all instructors create their own content, so instructors can locate openly shared content (e.g., YouTube) and microcontent on the Internet in open-access repositories.

Audio-Based Microlearning (e.g., Micropodcasts)

An example of an easy-to-replicate format of microlearning is the micropodcast. The format for microlearning entails creating short micropodcasts that are one to five minutes in length. The duration of these can vary according to the desired length of unit of study; for instance, a micropodcast can be as short as a recording of a definition of a word or it can be a longer mini-lecture that explains a concept and perhaps poses a few open-ended reflective questions. In the example presented below, the mini-podcasts were primarily conceptual. They were intended to define one key concept that was essential knowledge relating to the English Language Arts Reading standards (akin to competencies) identified by the State of Texas. The English Language Arts Reading elementary standards can be found at this link: <http://tea.texas.gov/WorkArea/DownloadAsset.aspx?id=2147484419>. That is, to keep the content tightly focused and relevant to student learning and potential for their use for later review, each micropodcast was strategically aligned with one specific standard or sub-standard for educators in Texas.

Additionally, within the standard, the first author created several micropodcasts that aligned with specific key sub-standards. The goal of the project was to create an archive of podcasts that aligned with all sub-standards. Approximately five to eight micropodcasts per two-week session in a regular semester-length online course

(possibly more, depending on length of the podcast) took place. The micropodcasts were fairly quick to script and produce through the use of speech recognition software to compose the initial script. The procedures for creating them are identified in the steps below. An archive of some of the micropodcasts from this example is viewable at the following link on the audio platform SoundCloud: <https://soundcloud.com/peggy-semingson>.

1. *Break down the curriculum into smaller chunks or units.* The unit of curriculum can center on a specific word or concept (e.g., “balanced literacy”), a specific standard or sub-standard, a competency or sub-competency, or a key question such as, “What are ways to involve families in developing comprehension?” Consider creating a micropodcast around your toughest and/or more technical topics.
2. *Create a script and sequence.* Although users can create micropodcasts “on the fly”, due to their concise nature and format, it helps to carefully script it. Include technical terms while adding context and clear definitions. If doing definitional or conceptual micropodcasts, one might consider adding a brief example, an application, and/or possibly pose a critical thinking question to provoke thinking. Include a few Internet sites or resources that students can explore independently as a follow-up. Consider having a predictable format such as a one-sentence statement of the learning objective and then delve into the content right away.
3. *Write the script.* Voice recognition software such as Dragon Naturally Speaking™ is one way to quickly create a script. Google also has a free version of speech recognition called “Online Dictation” (<https://dictation.io/>). Keep the script tightly focused.
4. *Record the micropodcast using the script as a guide.* There are several “free” ways to do this. The audio program Audacity (<http://audacity.sourceforge.net/>) can record and edit content. Alternatively, depending on one’s own access to a mobile device, a voice recording app (such as iPhone’s built-in Voice Memo app) can record micropodcasts.
5. *Download the recording.* The user should save the digital recording through a USB cord if using a digital voice recorder, or send it via email. Edit the recording, if needed. Consider adding a few seconds of music from the public domain as an intro.
6. *Upload the recording to a cloud-based streaming service* (such as SoundCloud or MixCloud, for instance) or directly to an LMS.
7. *Consider how the microcontent will be organized.* One option is to create “playlists” and group the content either thematically, by session (e.g., the first two weeks, the next two weeks, etc.), by module, by competencies, or other format. Also, post the transcript to the LMS (if used) as a PDF document (for accessibility) and also within the cloud-based streaming system.
8. *Consider follow-up tasks* such as exploration of a related website.
9. *Promote the use of the microcontent.* Promote content within the class by posting and/or emailing links and/or by embedding content within the LMS. Also, consider whether this content will be required or optional. If making it a requirement, consider creating a reflection component to the assignment where students summarize their understanding and applications of the microcontent.
10. *Consider if and how to share the content as an open educational resource (OER).* An easy way to share micropodcasts and other microcontent is to post it to repositories and to license it through Creative Commons (<http://creativecommons.org/>). Sharing links to cloud-based content via social media (both professionally and personally) is another way to promote content for wider use. Using tags within SoundCloud or MixCloud can make it more accessible when people do searches by tags.
11. To emphasize student-centered learning, students themselves can create content with access to student-friendly tutorials.

Video-Based Segments and Quizzes

Video-based segments permit the opportunity to present information in a concise, topical manner. A common presentation tool like Microsoft PowerPoint™ allows for the integration of video snippets and checks for knowledge in the same location by using applications like iSpring (<http://www.ispringsolutions.com/>). A simple alternative could include a topical video in the LMS followed up by a brief quiz. These should be low-/no-stakes assessments meant to help students self-check their knowledge, quickly return to the video if they missed specific objectives, and then move forward to the next topic. Later comprehensive assignments can formally assess mastery of the objectives.

Microlearning as Remediated or Extended Learning

Students can use microlearning as review material as well as enrichment for those who seek to go above-and-beyond the course content. By aligning content with standards or competencies, it becomes easier to potentially create a targeted review session tailored to the unique needs of the individual student; students can identify learning needs through a self-assessment quiz, feedback on assignments, or other type of self-assessment. For instance, in the case of any professional area, typically a certification exam comes at the end of the sequence of study or completion of the degree or certificate program. The student may have knowledge gaps in specific areas. By reviewing only microcontent in that area, supplemented by any additional resources, specific review can help focus learning on needed areas. Students can also create review content on their own to be shared with other students using the mobile-compatible (and desktop-friendly) sites Quizlet (<http://quizlet.com/>) and the Flashcardlet app available on iTunes for free (https://itunes.apple.com/us/app/flashcards*/id403199818?mt=8). Alternatively, this can function as “above-and-beyond” content that explores a topic more in depth.

Conclusion

Microlearning provides opportunities for instructors and students to produce meaningful content in face-to-face, online-only, and hybrid/blended course formats. This content can have relevance to everyday life, engage in brief, measurable chunks, and provide opportunities for self-assessment and reflection. Along with instructor- and student-created content, multimodal resources are also widely available through open repositories and cloud-based sharing platforms. The authors encourage such sharing of instructor-created content. Students can also create content as well utilizing mobile applications, allowing for great versatility in assignments. Finally, microcontent works well for remedial and enrichment purposes.

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