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Microlearning, a video series: A sequence of videos exploring the definition, affordances, and history of microlearning

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Microlearning, a video series: A sequence of videos exploring the definition, affordances, and history of microlearning

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Report

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Master of Arts

The University of Texas at Austin

December 2016

Abstract

Microlearning, a video series: A sequence of videos exploring the definition, affordances, and history of microlearning

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This purpose of this report is to explore research relating to the term microlearning through the creation of a series of animated videos designed in a microlearning-friendly format. Microlearning is an emerging paradigm that addresses a learner's need to receive the information they need, when they need it, and in the appropriate context. Each video in the series explores a different area of microlearning – introducing and defining the term, highlighting modern examples, describing why it is gaining popularity, outlining the affordances, tracing the roots and evolution, as well as outlining the requirements of a microlearning experience.

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Introduction

Microlearning is a relatively new paradigm without any widely accepted definitions. Microlearning is often strictly associated with eLearning when, in fact, it is more accurately associated with smaller, more focused units of content often supported by mobile devices. Nearly everyone engages in microlearning on a daily basis by reading emails and text messages, accessing a wiki, or simply Googling for information. The mobile devices we keep in our pockets ensures we are always connected to the latest versions of this information. Being constantly connected is driving a change in the way society works, learns, and educates. Microlearning allows learners to receive the information they need, when they need it, and in the appropriate context. Modern examples of microlearning include TED Talks, Khan Academy, Lynda, the app Duolingo, Twitter, and mini-games.

Educators, of all kinds, can benefit from incorporating microlearning into their daily lessons. Before educators can begin to incorporate microlearning into their lessons they need a more thorough understanding of the affordances and facets of microlearning. This report will address this need by creating and sharing a series of videos to help educators receive an introduction to the term microlearning by viewing small, bite-sized videos.

Here is a list of the animated videos created for this report.

- **Video 1 | Overview of Microlearning**
    - o **Description**: Receive an introduction to the term microlearning.

- **Links**:
  - https://goanimate.com/videos/0bHPB41eUCcE
  - https://youtu.be/QIneSsndae8

- **Video 2 | Defining Microlearning**
  - **Description**: Learn microlearning definitions that address the changes in knowledge consumption as society becomes increasingly more information-driven.
  - **Links:**
    - https://goanimate.com/videos/0xfbxSHbtoAM
    - https://youtu.be/jg8sYvUMohQ

- **Video 3 | Microlearning Examples**
  - **Description:** Learn modern examples of microlearning such as microlectures and mini-games.
  - **Links:**
    - https://goanimate.com/videos/05raxh5QOUgo
    - https://youtu.be/nX7Mt6rccls

- **Video 4 | Microlearning – Why it's Gaining Popularity**
  - **Description:** See why microlearning is gaining popularity by changing the way learners absorb new knowledge.

- **Links:**
    - https://goanimate.com/videos/09GVwNUN35I0
    - https://youtu.be/GN5AfYlKSK0

- **Video 5 | Microlearning Affordances**
    - **Description:** Learn some ways microlearning can help you in your teaching and learning activities.
    - **Links:**
        - https://goanimate.com/videos/0zaJtDtR7Oqs
        - https://youtu.be/icd96ih463k

- **Video 6 | The Evolution and History of Microlearning**
    - **Description:** See how microlearning has changed and evolved over the years.
    - **Links:**
        - https://goanimate.com/videos/0G0-lNJcsxW4
        - https://youtu.be/DG4O26lgX-k

- **Video 7 | Requirements of Designing a Microlearning Experience**
    - **Description:** See an outline of microlearning requirements to help guide you in the design of microlearning experiences.
    - **Links:**
        - https://goanimate.com/videos/057aCmcXMesM
        - https://youtu.be/mdWIYnJbdkw

State of Microlearning

Often, microlearning is disregarded as being "too late" as many already consider microlearning to be part of the "microteaching discourse" for decades (Hug, 2005, p. 10). Hug warns us that reducing microlearning to a "sub-type or derivative form of microteaching activity" would be a mistake as it would discount the recent developments in media and technology (Hug, p. 10). Many educators know the best way to reach students is to break content and lessons into smaller, more micro chunks. However, this fails to include the importance of technology and the growing need for learners to access up-to-date content on demand.

While the concept microlearning was not a scientifically-studied practice until the early 2000s, when computers and the Internet started to partner up, its focus can be thought of as a response to the growing needs of knowledge workers who request to have learning on demand (Bruck, 2005; Bruck, 2006). Today's workers are embedded in an environment where their jobs demand they be up-to-date on the latest technologies and software. These workers tap Massive Open Online Courses (MOOCs), YouTube videos, blogs, and other open sourced software to quickly learn specific on-demand skills.

Microlearning, and its innate focus on technology and microcontent, is primed to help educators create these new kinds of content. Microcontents are the bits society shares, absorbs, and recirculates in "new, loosely coupled formats and structures" (Bruck, 2006, p. 7). Bruck (2006, p. 9) introduces us to other new microlearning technology vocabulary– "microimpluses" as the flow of communications and tasks that can be ignored when the time just is not right, and "microactivities" as the micro ways we can

respond. In the new world of on-demand information and learning, traditional large-scale

learning is being proven to be expansive, outdated, and time consuming (Lindner, 2006).

Summary of Key Research

Gabrielli (2005) describes microlearning as a new research area "aimed at exploring new ways of responding to the needs of lifelong learning or learning on demand of members of our society, such as knowledge workers" (p. 45). In the creation of this microlearning video series several key pieces of research stood out. This section summarizes the key takeaways that are most relevant to the future of microlearning – in both research and practical applications.

Definition of Microlearning

Microlearning may not yet be a fully defined term however some definitions are worth noting. First, Hug (2010) describes microlearning in terms of time and specifically defines it as "from one second up to more than an hour" (p. 3). Second, Hug & Friesen (2005) define microlearning as learning that takes place in a series of small steps to help drive a new understanding of how learning and education take place outside of established and traditional arenas of education. Third, Langreiter & Bolka (2005) identify microlearning as an "ever-increasing fragmentation of both information sources and information units used for learning" (p. 1). Finally, Schafer (1999) makes a correlation between microlearning and technology by pointing out how computer technology inherently simulates the process of microlearning through its inherent modularity and versatility.

Microlearning Technology

As pointed out in the previous section, microlearning and technology are connected. Twitter, one of the more recent examples of computer technology, is a social microblog with a 140 character limitation - perfect for delivering short bytes of learning content (Aitchanov, 2013). Another popular form of technology are user communities with a focus on teach-yourself knowledge - an often unrealized use of microlearning (Schafer, 1999). Microlearning allows for different media, such as video, images, sound, and text to be manipulated, customized and extended (Purushotma, 2005). These examples of technologies not only drive microlearning use, but allow educators to easily create their own microlearning lessons using everyday tools.

Microlearning Drives Solutions

Microlearning technologies can enable educators to quickly, and easily, create their own microlearning. This microlearning can often help educators create their own solutions. For example, Buchem (2010) states how the creation of short activities can be integrated into everyday activities and help facilitate self-directed learning. Microlearning can aid in the education and learning of highly specialized workers by providing content in a format that helps prevent information overload and promotes lifelong learning (Bruck, 2005).

Changes in the Way we Live and Work

Microlearning, with its connection to technology and its ability to help drive learning solutions, is changing how we live, learn and work. The invention of

technologies such as computers and mobile devices, paired with access to the Internet, allows us to learn anyplace and anywhere (Bruck, 2005). Within virtual communities, microlearning indicates a need for instantaneous information and information-related activities to connect to other social knowledge sources through the Internet (Bruck, 2006).

Future of Microlearning

As an increasing amount of learners and educators gain additional access to mobile devices, and create their own examples of microlearning, they will help drive the future of microlearning. When microlearning is embedded into the correct learning context or setting, microlearning steps can help drive a learner to create a new understanding (Peschl, 2007). Continued development, and use of personalized learning services, will to support individual learners in how they access information and allow learners to choose how they learn, where they learn, and how fast they will learn (Kahnwald & Kohler, 2005).

Microlearning, a video series: A sequence of videos exploring the definition, affordances, and history of microlearning.

To expand on this research, and present it in a microlearning-friendly way, I created a series of videos on microlearning and shared them on YouTube. The following pages contain a script for each of the videos, for reference.

Video 1 | Overview of Microlearning

Length: 4 minutes, 21 seconds

Links to Video:

- https://goanimate.com/videos/0bHPB41eUCcE

- https://youtu.be/QIneSsndae8
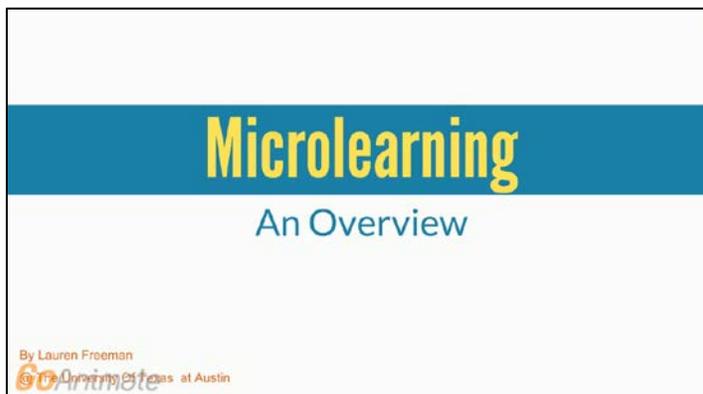
Title Screenshot:

Figure 1:   Title screen of *Video 1 | Overview of Microlearning*

SCRIPT:

Table 1:   Script for *Video 1 | Overview of Microlearning.*

	OUTLINE	SCRIPT	SOURCES
1	TITLE SLIDE	Microlearning | An Overview	
2	OVERVIEW	This video will introduce the term "microlearning".	

Table 1 (continued)

3	INTRO	You may be watching this video because you've heard the term microlearning and want to find out more. What you may *not* know is that each day you're already engaging in multiple microlearning activities. When you're reading an email or text message, accessing a wiki, or simply Googling for information - you're actively engaging in a small piece of knowledge consumption.	*Microlearning Techniques: Driving Results by Empowering Leaders*
4		But what do these four activities have in common? You guessed it - technology.	
5		The mobile devices we keep in our pocket ensures that we're always connected.	
6		The creation of computers, the Internet, and mobile devices have transformed the way we live, work and learn.	(Bruck, 2006)

Table 1 (continued)

7	TRANSITION: SUPPORTS NEW WORKING ENVIRONMENTS LIFELONG LEARNING	[Transition] In today's world, employees need to continuously acquire new information to stay current in their fields.	
8		The focus on microlearning can be thought of as a response to the growing needs of these kinds of workers, often called knowledge workers, to have learning on demand.	(Bruck, 2006) (Gabrielli, Kimani, & Catarci, 2005) (Abel, 2006) (Lindner, 2006, p. 18) (Eibl, 2007)
9		Many of these knowledge workers find traditional, macro-sized eLearning too time consuming and too static after they've become accustomed to using microlearning snippets embedded in the	

Table 1 (continued)

		Internet.	
10		Microlearning allows for learners to receive the information they need, when they need it, and in the relevant context. People learn better when information is broken into smaller, more attractive units.	
11		Particularly for "knowledge workers" who feel compelled to update their knowledge in "constantly accelerating succession, while the borders between working, learning and relaxing become blurred." (Eibl, 2007)	(Eibl, 2007)
12	INFORMATION SOCIETY FOCUS ON INDIVIDUAL	Microlearning helps to provide a form of teaching and learning where there is a focus on highly-specialized knowledge work and lifelong learning.	(Kahnwald & Kohler, 2005) (Bruck, 2005) (Chisholm, 2005)
13		Microlearning helps solve issues relating to information overload and has evolved	

Table 1 (continued)

		due to the need to focus more on individual learning needs.	
14	SHIFT TO MICROLEARNING	However, microlearning wasn't a scientifically-studied practice until the early 2000s when computers and the Internet started to partner up with learning.	(Bruck, 2006, p 15)
15		The shift to microlearning is characterized by three aspects: • First, New architectures of information created from the simplification of information and the structuring of content into small units • Second, Individuals dealing with large amounts of information that they want to learn and • Third New technologies that support learners ability to choose their time, place, and pace of learning	(Kahnwald & Kohler, 2005)

Table 1 (continued)

| 16 | LACK OF A SINGLE DEFINITION | As microlearning is an emergent paradigm, no single definition exists. However there are several defining characteristics. Microlearning is:

1. **Single Focused** - Geared towards a single performance, or knowledge,

2. **Single Activity** - Uses a single learning activity to achieve that objective.

3. **Modular** - Tied to a larger strategy or catalog of information. Easy to design, produce, update and organize

4. **Accessible** from a variety of devices (mobile devices, laptops, phones) | (Langreiter & Bolka, 2006, p. 79)

Microlearning Techniques: Driving Results by Empowering Leaders

Grovo Training the Trainer: How to Create Microlearning

(Schafer, 1999) |
| 17 | | 5. **Flexible** by allowing learner to view or skip specific content

6. **Holistic** - allowing learners to get a full view of a topic. | *Microlearning Techniques: Driving Results by Empowering Leaders* |

Table 1 (continued)

		7. **Recursive** - allowing learners to attain a broad view of content before focusing on individual parts.	*Grovo Training the Trainer: How to Create Microlearning* (Schafer, 1999)
18		Langreiter and Bolka (2006, p. 79) define microlearning as :"a term that reflects the emerging reality of the ever-increasing fragmentation of both information sources and information units used for learning, especially in fast-moving areas which see rapid development and a constantly high degree of change."	(Langreiter & Bolka, 2006)
19		It's important to note that microlearning can also describe a method of knowledge acquisition where learning and consuming take place in small steps to form a broader and deeper connection to the new knowledge.	
20	HOW MICRO	Theo Hug, one of the pioneers of	(Hug, 2010)

Table 1 (continued)

	IS MICRO?	microlearning research, describes microlearning "In terms of time, the range goes from less than a second up to more than an hour."	
21	DIFFERS WITH TRADITIONAL LEARNING	The way adults, and children, interact with computers is much more like microlearning than traditional learning through handbooks and formal curriculum.	(Schafer, 1999)
22	SOURCES	A special thanks to all of these sources which helped me to create this great video for you!	
23	CONCLUSION	Now that you're more familiar with the concept of Microlearning, watch the next video "Microlearning	defining".	

VIDEO SOURCES

Abel, M. H., Moulin, C., & Lenne, D. (2006). Learning organizational memory and

microlearning (Semantics for microlearning). In T. Hug, M. Lindner & P.A.

Bruck (Eds.), *Microlearning conference 2006, 2006a* (pp. 273-287). Innsbruck,

Austria: Innsbruck University Press.

Bruck, P.A. (2006). What is microlearning and why care about it? (Introductory note). In T. Hug, M. Lindner & P.A. Bruck (Eds.), *Microlearning conference 2006, 2006a* (pp. 7-10). Innsbruck, Austria: Innsbruck University Press.

Chisholm, L. (2005). Micro-learning in the lifelong learning context (Foreword). In T. Hug, M. Lindner & P. Bruck (Eds.), *Microlearning: Emerging concepts, practices and technologies after e-learning. Proceedings of microlearning 2005. Learning & working in new media* (pp. 5-6)*.* Innsbruck, Austria: Innsbruck University Press.

Eibl, T. (2007). What size is micro? - Using a didactical approach based on learning objectives to define granularity. In T. Hug (Ed.), *Didactics of microlearning - Concepts, discourses and examples* (pp. 125-138). New York: Waxmann.

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learning arrangements. In *Fourth media in transition conference* (pp. 6-8).

Retrieved from: http://web.mit.edu/comm-forum/mit4/papers/hug.pdf

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An explorative analysis of changing information behaviour (Changing patterns of
learning: Schools, universities, vocational training). In T. Hug, M. Lindner & P.A.
Bruck (Eds.), *Microlearning conference 2006, 2006a* (pp. 156-172). Innsbruck,
Austria: Innsbruck University Press.

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from: http://www.bolka.at/pubs/2005/snips.pdf

Lindner, M. (2008*).* Micromedia flow experience design. A conceptual framework for
designing microcontent-driven applications for peripheral view and partial
attention. In K. Habitzel, T. D. Märk, S. Prock & B. Stehno (Eds.), *Microlearning
and capacity building proceedings of the 4th international microlearning 2008
conference* (pp. 37-56). Innsbruck, Austria: Innsbruck University Press.

Microlearning techniques: Driving results by empowering leaders (n.d.)*.* Available from
http://resources.allencomm.com/microlearning-techniques-ebook\

Sanchez-Alonso, S., & Sicilia, M. A. (2006). From microcontents to micro-learning
objects – Which semantics are required? (Semantics for microlearning).
Microlearning conference 2006, 2006a (pp. 295-303). Innsbruck, Austria:
Innsbruck University Press.

Schafer, J. B., Konstan, J., & Riedi, J. (1999). Recommender systems in e-commerce. *Proceedings of the 1st ACM conference on electronic commerce*, 158–166.

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Video 2 | Defining Microlearning

Length: 3 minutes and 1 second

Links to Video:

- https://goanimate.com/videos/0xfbxSHbtoAM

- https://youtu.be/jg8sYvUMohQ
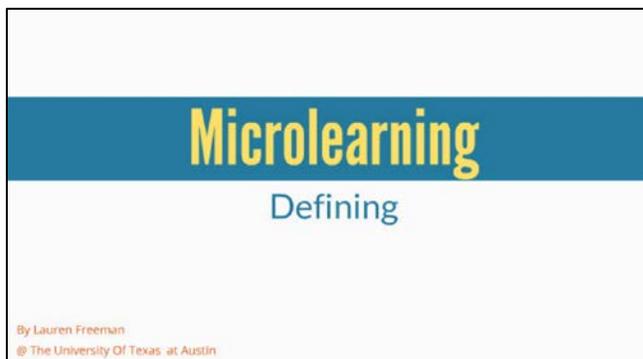
Title Screenshot:

Figure 2:   Title screen of *Video 2 | Defining Microlearning*

SCRIPT:

Table 2:   Script for *Video 2 | Defining Microlearning*.

	OUTLINE	SCRIPT	SOURCE
1	TITLE	Microlearning | Defining	
2	OBJECTIVES	Now that you have some familiarity with the concept of Microlearning, it's time to dive into more detail.	

Table 2 (continued)

3	INTRO On the slide display: "Microlearning is generally characterized by low time commitment, small chunks, short effort and narrow topics -- but it is complex as a whole." Hug & Friesen "Didactics of Microlearning"	Microlearning has become fueled by the idea that as we become an information-driven society, abundant with knowledge workers, there is increased demand for quicker, more agile learning. Microlearning can help meet this demand by breaking information down into smaller, more focused units.	(Bruck, 2005) (Hug & Friesen, 2005)
4	ROOTS IN TEACH YOURSELF PROCESSES	The division of complex knowledge into smaller pieces has its roots in teach-yourself processes in user communities as well as in the development of open source software projects.	(Schafer, 1999)

Table 2 (continued)

5		This is especially true in areas where technology is evolving so quickly that learners need to rely on each other as relevant documentation is not available. Such as the introduction of new mobile devices and apps where user communities are active.	(Schafer, 1999)
6	DEVELOPMENT OF ON-DEMAND LEARNING	Pairing up the development of small chunks of information with flexible technologies can enable learners to easily access specific kinds of content in specific work contexts, at specific times of days, and even on breaks or when they're on the move.	
7		For example, SPECIFIC CONTEXTS • Finding out how to use a tool in Microsoft Office • Viewing a course syllabus before a	

Table 2 (continued)

		class lecture	
		SPECIFIC TIMES OF DAY	
		• Reviewing a To-do list before starting work	
		EVEN ON BREAKS	
		• Catching up on social media outlets	
		• Sending a text to a friend	
		ON THE MOVE	
		• Directions to a restaurant	
		• Grocery list while at the store	
8	MICROLEARNING AS PEDAGOGICAL APPROACH	Microlearning has also been considered a specific pedagogical approach that focuses on the use of microcontents as a "special, small, and subjective account of the concept of "learning resource.""	(Sanchez-Alonso, 2006)
9	SEPARATE, CONCURRENT, OR INTEGRATED INTO OTHER ACTIVITIES	Microlearning content can be designed in three main ways as shown by the yellow dot: First, as a single, or **separate**, learning task. Second, delivered **concurrently**.	(Hug & Friesen, 2005, p19)

Table 2 (continued)

		Or third, **integrated** into other activities.	
10	USE DIFFERENT TECHNOLOGIES	Microlearning can also involve the use of different technologies. For example: • Reading a single essay from a book • Listening to a short podcast on a specific topic or • Tweeting a quote from conference	(Hug & Friesen, 2005, p18)
11	MEDIA MANIPULATION	Thanks to its single-minded focus, microlearning allows media, such as video, images, sound and text to be manipulated, customized, and extended.	(Purushotma, 2005)
12		**Manipulated:** Due to the popularity, and accessibility, of home-use media production tools learners can practice editing, mixing, and reshaping of media.\	(Purushotma, 2005)

Table 2 (continued)

		Customized: Until recently, media formats such as television broadcasts, couldn't be manipulated or customized to suit learning goals. Educators would need to create supplemental materials, such as a worksheet, to be filled out after a video.	(Purushotma, 2005)
		REMIXED AND EXTENDED: Now educators can remix and reuse content based on the needs of their class.	(Purushotma, 2005)
13	SOURCES		
14	CONCLUSION	Please watch the next video Microlearning | Examples	

VIDEO SOURCES

Aldrich, C. (2007, July). Engaging mini-games find niche in training. *T&D*, 22-24.

Bruck, P.A. (2005). Microlearning as a strategic research field: An invitation to

collaborate. In T. Hug, M. Lindner & P. Bruck (Eds.), *Microlearning: Emerging*

concepts, practices and technologies after e-learning: Proceedings of

microlearning conference 2005: Learning & working in new media (pp. 13-18).

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Hug, T., & Friesen, N. (2005). Outline of a microlearning agenda. In T. Hug (Ed.), *Didactics of microlearning - Concepts, discourses and examples* (pp. 10-13). New York: Waxmann.

Kahnwald, N., & Kohler, T. (2005). Microlearning in virtual communities of practice? An explorative analysis of changing information behaviour (Changing patterns of learning: Schools, universities, vocational training). In T. Hug, M. Lindner & P.A. Bruck (Eds.), *Microlearning conference 2006, 2006a* (pp. 156-172). Innsbruck, Austria: Innsbruck University Press.

Peschl, M. F. (2007). Challenges for a microlearning-driven process of knowledge creation. Modes of knowing and creating knowledge in microlearning environments. In T. Hug, M. Lindner & P.A. Bruck (Eds.), *Micromedia and e-learning 2.0: Gaining the big picture* (pp. 62-77). Innsbruck: Innsbruck University Press.

Purushotma, R. (2005). When remix culture meets microlearning. In T. Hug (Ed.), *Didactics of microlearning - Concepts, discourses and examples* (pp. 218-235). New York: Waxmann.

Sanchez-Alonso, S., & Sicilia, M. A. (2006). From microcontents to micro-learning

    objects – Which semantics are required? (Semantics for microlearning).

    Microlearning conference 2006, 2006a (pp. 295-303). Innsbruck, Austria:

    Innsbruck University Press.

Schafer, J. B., Konstan, J., & Riedi, J. (1999). Recommender systems in e-commerce.

    Proceedings of the 1st ACM conference on electronic commerce, 158–166.

Video 3 | Microlearning Examples

Length: 2 minutes and 39 seconds

Links to Video:

- https://goanimate.com/videos/05raxh5QOUgo

- https://youtu.be/nX7Mt6rccls
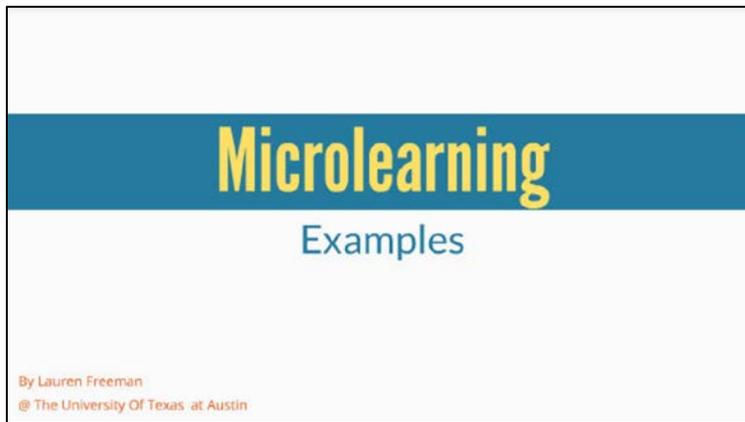
Title Screenshot:

Figure 3:   Title screen of *Video 3 | Microlearning Examples*

SCRIPT:

Table 3:   Script for *Video 3 | Microlearning Examples*

	OUTLINE	SCRIPT	SOURCE
1	TITLE	Microlearning	Examples	
2	OBJECTIVES	Now that you have some familiarity with the concept of Microlearning, let's give	

Table 3 (continued)

		some examples.	
3	NORTHWESTERN UNIVERSITY EXAMPLE	Recently, Northwestern University decided they wanted to teach high school students and teachers in STEM (science, technology, engineering, and mathematics) how to talk about information that many deem to be too technical. They created a microlearning course called the *Principles of STEM Education* that could easily be taken in any classroom.	*Microlearning Techniques: Driving Results by Empowering Leaders*
4		The course consisted of a series of short modules that broke down complex information. Each of these sections is broken down into: • The Why section explains the reason • The How section gives context, a video, and a PDF outlining additional tips	

Table 3 (continued)

5	MICROLECTURE	Another example of Microlearning is what is known as "Microlecture." Almost everyone is familiar with this type of microlearning - TED Talks - a popular non-profit devoted to spreading ideas. TED talks are limited to 18 minutes and focus on one single idea.	www.ted.com
6	MICROLEARNING EXAMPLES	Several other examples of Microlearning include: • TED X a local version of Ted Talks • Khan Academy...which offers free online courses • and Lynda which teaches a variety of skills	
7		Some apps that engage in microlearning include: • Jiyo which offers content to help enhance your wellbeing • Audible which streams audiobooks and other texts	

Table 3 (continued)

		• Twitter - • Duolingo - uses microlearning to teach foreign languages • Chegg - allows users to create flashcards and • Lrn - which takes a micro approach to learning programming	
8	ENGAGING MINI-GAMES	Mini-games, also known as casual or micro games, are an example of immersive microlearning simulations that last between 5 to 20 minutes. They are an especially useful to help employees learn skills best taught through repetition. Mini-games are highly engaging because they have quick sprints of engaging content and are easy to consume.	(Aldrich, 2007) (Bruck, 2005)

Table 3 (continued)

		Mobile devices are the perfect interface for mini-games because that type of content works well on a small screen.	
9	OTHER EXAMPLES OF MICROLEARNING	Here are additional examples of Microlearning that may surprise you:	*Just One Thing - Microlearning A Practitioner's Guide* by Todd Kasenberg
10		- One to two question quizzes or polls - Infographics - Activity notifications from online communities of practice	
11		- RSS feeds (titles more than content) - Flashcard "pushes" - Challenge-type interactivities - Brief games - Microblogging exercises	
12		Brief videos, including interactive	

Table 3 (continued)

		videos	
		• Single question case studies	
		• Question and response	
		• Learner recording of a brief audio or video response to a question	
13	SOURCES		
14	CONCLUSION	Please watch the next video "Microlearning | Why it's gaining popularity"	

VIDEO SOURCES

Aldrich, C. (2007, July). Engaging mini-games find niche in training. *T&D*, 22-24.

Bruck, P.A. (2005). Microlearning as a strategic research field: An invitation to
    collaborate. In T. Hug, M. Lindner & P. Bruck (Eds.), *Microlearning: Emerging*
    concepts, practices and technologies after e-learning: Proceedings of
    microlearning conference 2005: Learning & working in new media (pp. 13-18).
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    A research agenda. In T. Hug, M. Lindner & P. Bruck (Eds.), *Microlearning:*
    Emerging concepts, practices and technologies after e-learning. Proceedings of
    microlearning 2005. Learning & working in new media (pp. 45-54)*.* Innsbruck,
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    learning: Schools, universities, vocational training). In T. Hug, M. Lindner & P.A.

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Video 4 | Microlearning – Why It's Gaining Popularity

Length: 3 minutes and 6 seconds

Links to Video:

- https://goanimate.com/videos/09GVwNUN35I0

- https://youtu.be/GN5AfYlKSK0
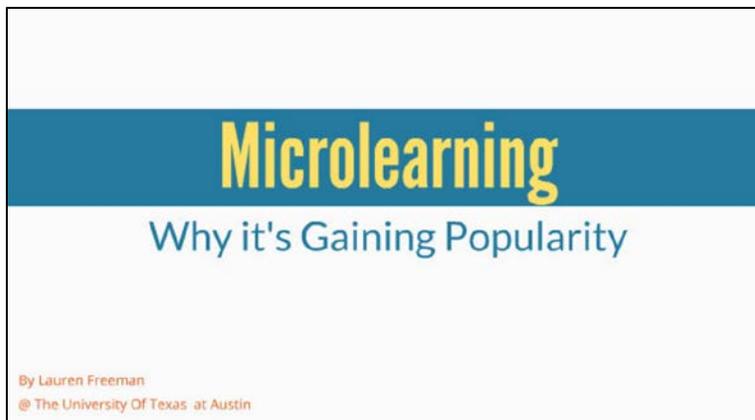
Title Screenshot:

Figure 4:   Title screen of *Video 4 | Microlearning – Why It's Gaining Popularity*

SCRIPT:

Table 4:   Script for *Video 4 | Microlearning – Why It's Gaining Popularity*

	OUTLINE	SCRIPT	SOURCE
1	TITLE	Microlearning	Why It's gaining popularity	
2	INTRO	In the previous modules you learned some	(Hug & Friesen,

Table 4 (continued)

		basics about microlearning. In this module we'll discuss why microlearning has gained popularity.	2005)
3		Here are a few of the main reasons: First, microlearning allows for flexible and changeable content in a world where technology and information are fluid. Second, it allows learners to be in control of what they're learning. Third, it helps capture knowledge gaps. Fourth, it works with our decreasing attention spans. And, finally, it promotes engagement and knowledge retention.	(Hug & Friesen, 2005)

Table 4 (continued)

4	1 - FLEXIBLE CONTENT

"Allows for flexible content" | Flexible content allows for quick and relevant updates. | (Hug, 2010)

(Hug & Friesen, 2005) |
| 5 | | Like many others, the medical, financial, and environmental fields are facing a challenge. Their content is constantly changing and becoming outdated.

Through the creation of microlearning, content can be easily updated whenever a regulation or law goes into effect. | |
| 6 | 2 - ALLOWS MORE TIME FOR LEARNING\

"Learners are in | Having, or making time, is becoming one of the most critical elements for learning and knowledge acquisition. | |

Table 4 (continued)

	control of their learning"		
7		Microlearning allows for a different way of handling time. Instead of delaying learning until the learner has a large chunk of time, 7.0 microlearning is done in small steps which takes little time.	(Bruck, 2005)
8		In fact, microlearning uses "inter-spaces", defined as the time between different activities, to take small learning steps.	(Bruck, 2005)
9		One of the most popular examples of this is the language learning apps Duolingo. Where you can practice languages, via bite-sized skills, and improve over time.	
10	3 - HELPS CAPTURE KNOWLEDGE GAPS	People gain their main knowledge from the learning materials provided in books, courses and school. However, gaps in personal knowledge always exist.	(Kovachev, 2011)

Table 4 (continued)

11		Microlearning consists of a fast, convenient, and instant capture of self-identified knowledge gaps. Through the use of online resources a learner can create their own learning object and integrate the learning object into small learning activities interwoven into our daily life.	(Kovachev, 2011)
12		These gaps can only be identified through real-life experiences when we feel the difference between what we know and what we don't know. The information we gain to fill these gaps is called "micro-knowledge".	(Kovachev, 2011)
13	4 - WORKS WITH SHORTER	Attention spans are dropping while technology is advancing.	

Table 4 (continued)

	ATTENTION SPANS		
14		In 2015, Microsoft released findings from an attention span study stating the human attention span is officially shorter than the average goldfish.	
15		It's likely that microlearning is the solution for newer and better ways to teach, learn, and train the short attention span workplace.	
16		Our attention span has shrunk from 12 seconds in 2000 to 8 seconds in 2005.	*Attention Span Research Report,* Microsoft Canada, 2015
17	BETTER FOR ENGAGEMENT AND KNOWLEDGE RETENTION "Promotes	Short, focused sessions avoid mental burnout and suit the brain with respect to energy and alertness.	

Table 4 (continued)

	engagement and knowledge retention"		
18		Microlearning drives over 20% more information retention than long-form training.	(Kapp, 2015)
19	THANK YOU	Hopefully these reasons will help you realize the importance of microlearning. Watch the next video on the affordances of Microlearning to gain a better perspective.	
20	SOURCES		

VIDEO SOURCES

Bruck, P.A. (2005). Microlearning as a strategic research field: An invitation to

collaborate. In T. Hug, M. Lindner & P. Bruck (Eds.), *Microlearning: Emerging*

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Video 5 | Microlearning Affordances

Length: 3 minutes and 24 seconds

Links to Video:

- https://goanimate.com/videos/0zaJtDtR7Oqs

- https://youtu.be/icd96ih463k

Title Screenshot:
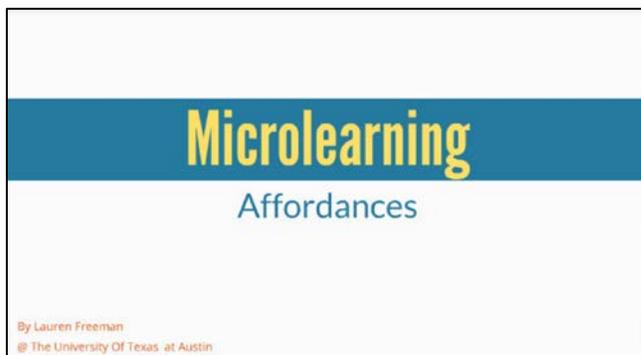

Figure 5:   Title screen of *Video 5 | Microlearning Affordances*

SCRIPT:

Table 5:   Script for *Video 5 | Microlearning Affordances*

	OUTLINE	SCRIPT	SOURCE
1	TITLE	Microlearning	Affordances	
2	INTRO	Now that you have microlearning basics down, let's cover how microlearning can help you in your teaching and learning activities.	

Table 5 (continued)

3	USED IN DIFFERENT ENVIRONMENTS		
4		Microlearning can be designed to be used in informal learning settings, in the classroom, in corporate environments, and in continuing education.	(Hug, 2010) (Hug & Friesen, 2005)
5	SUPPORTS INFORMAL LEARNING		
6		In informal learning settings, microlearning can easily take place outside of formalized learning but within digital learning environments.	(Robes, 2009) (Lindner, 2006) (Kuhlman & Sauter, 2008) (Buchem, 2010)
7		Short informal learning activities from a few	(Robes, 2009)

Table 5 (continued)

		seconds to 15 minutes can easily be integrated into everyday activities. Other characteristics of informal learning include activities that: - Take place outside of educational establishments - Do not follow a specified curriculum - And are often spontaneous and creative	(Lindner, 2006) (Kuhlman & Sauter, 2008) (Buchem, 2010)
8	SUPPORT OF ON-DEMAND LEARNING		
9		Microlearning allows for on-demand learning as it does not' require long attention spans or long time commitments. Learners can gain access to knowledge based content in real time, anywhere, and at any time.	
10	GAP BETWEEN INFORMAL AND FORMAL		

Table 5 (continued)

	LEARNING		
11		Microcontent, as an "input and output of microlearning" can be created and used to bridge the gap between formal and informal learning.	(Robes, 2009) (Lindner, 2006) (Kuhlman & Sauter, 2008) (Buchem, 2010)
12		Examples of Microcontent include: • Instant messaging • Blog Posts • RSS Feeds • Abstracts	
13	HELPS CREATE MICROTRAINING AND WORKPLACE LEARNING		

Table 5 (continued)

14		The term microtraining is used to describe short, work-based training - as it can support informal workplace learning or self-contained training. Microlearning can add value to organizations by enabling flexible learning, less demands on time, and other resources.	(Robes, 2009)
15	PROVIDES Anytime-Anywhere Access to Learning Resources		
16		Microlearning activities provide access to learning resources during a learner's work break or gaps in their day-to-day schedule. Since these gaps may take place in many different space locations and moments of time, microlearning can support anytime-anywhere learning.	(Gabrielli, Kimani, & Catarci, 2005)
17	SUPPORTS		

Table 5 (continued)

	CONTEXTUAL LIFELONG LEARNING PROCESS		
18		Microlearning is thus to be considered a contextual lifelong learning process, that is most effective when it can enable activities such as: i) the construction of knowledge, by means of finding new solutions to problems or creating connections between past and current experiences, ii) conversation with both the social and `physical world and with oneself (like in reflection, experimentation in the world and interpretation of results) as well as, iii) learner control over any continuing cycles of experimentation and reflection. (Gabrielli, Kimani, & Catarci, 2005)	(Gabrielli, Kimani, & Catarci, 2005)

Table 5 (continued)

19	FACILITATES SELF-DIRECTED LIFELONG LEARNING		
20		Microlearning can help facilitate self-directed learning, as short activities can be integrated into everyday activities. These curated activities can be used for learning in-between and on-demand. It enables individuals to stay up-to-date with today's knowledge and offers a supplement to more traditional and time-consuming modes of learning (such as classroom and web-based trainings.	(Buchem, 2010)
21	CONCLUSION	Watch the next video to get information on the evolution and history of microlearning.	
22	SOURCES		

VIDEO SOURCES

Buchem, I., & Hamelmann, H. (2010, September). Microlearning: A strategy for ongoing

professional development. *eLearning Papers, Nr. 21*. Retrieved from:

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micromedia and microknowledge environments. In D. Whitelock & S. Wheeler

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    designing microcontent-driven applications for peripheral view and partial

    attention. In K. Habitzel, T. D. Märk, S. Prock & B. Stehno (Eds.), *Microlearning*

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    Fallstudien (pp. 1-20)*.* Köln: Fachverlag Deutscher Wirtschaftsdienst.

Video 6 | The Evolution and History of Microlearning

Length: 5 minutes and 56 seconds

Links to Video:

- https://goanimate.com/videos/0G0-lNJcsxW4

- https://youtu.be/DG4O26lgX-k
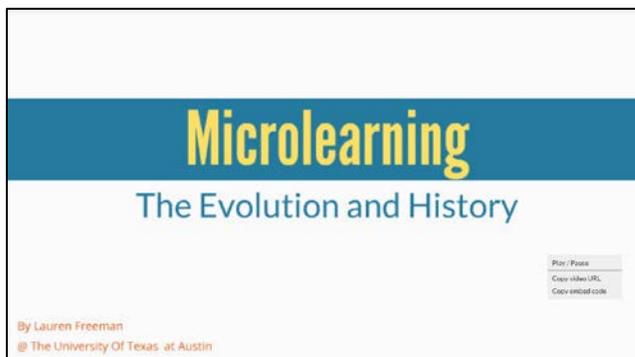
Title Screenshot:

Figure 6:   Title screen of *Video 6 | The Evolution and History of Microlearning*

SCRIPT:

Table 6:   Script for *Video 6 | The Evolution and History of Microlearning*

	OUTLINE	SCRIPT	SOURCE
1	TITLE SLIDE	Microlearning	The Evolution and History	
2	INTRO	The term Microlearning has only around since 2002. However its roots can be traced to early human history and to its partnership with	(Hierdeis, 2005) (Liedtke, 1991)

Table 6 (continued)

		evolving technology.	(Hug & Friesen, p 16)
3	DEFINITION	Hierdeis in *From Meno (mino) to Microlearning* defined microlearning as "the line between the sharing and acquiring of civilization skills, and the comparatively shorter history of the media" (Hierdeis p 38).	(Hierdeis p 38)
4		One can even describe human history as the history of learning (Liedtke 1991). Hierdeis expands on this by defining microlearning as the times when there's "visible evidence of culture transfer". The idea of learning by a series of small steps has impacted civilization over the years. It's possible to see how "step-by-step" learning made cultural evolution possible.	(Liedtke 1991)
5	OBJECTIVES	To explain this, this video will: • Trace the roots of Microlearning and • Show how technology and microlearning	

Table 6 (continued)

		have always been partners	
6	FIRST NON-BIOLOGICAL MEMORY	The very first example of microlearning could be when the first humans scratched signs and symbols into bone, stone, and wood to create the first "non-biological memory".	(Fassler, 2005, p29)
7	EARLY HUMANS	These early humans survived on basic knowledge such as gathering food, escaping from the elements and enemies, and some sort of social competency. The urgent need to survive guaranteed that the process of knowledge transfer, and learning, had to be simple and short.	(Hierdeis, 2005, p39)
8	SOCRATES - CREATION OF DISCIPLINES	Through the creation of grammar, rhetoric, dialectics and geometry disciplines it shows sufficient evidence that the method practiced by these teachers was that of small step.(Marrou 1957). One of these early teachers was Socrates who	(Marrou, 1957) (Hierdeis, 2005, p39)

Table 6 (continued)

		did proceed step-by-step through the spelling out of ideas and concepts by a means of a "dialogic process" which called upon people to debate and discuss with each other.	
9	PLATO - STRUCTURING OF KNOWLEDGE	After Socrates, Plato helped define the structuring of knowledge and started to consider the "receptivity of students" and this rendered a new quality to the transmission of knowledge.	(Hierdeis, 2005, p 41)
10	ST. THOMAS Aquinas (1225-1274)	Aquinas contributed to the development of microlearning by ensuring God's teaching was "brief and clear". He also created a list of arguments for a specific question, and labeled each argument "confirmation or refutation". In his view, in the smallest of steps, there should be a pattern of argumentation.	(Hierdeis, 2005, p 41) (Aquiinas 1920)
11	COMENIUS (1592-1670	Johann Amos Comenius, known as the "Great Didactic" of the 17th century, published his idea that a life-long school be carried out in	(Hierdeis, 2005, p 41) (Comedius,

Table 6 (continued)

		progressive stages. He believed all persons created by God should be returned to their maker, but couldn't do this on their own merits. To do this, each person should be assisted by their appropriate school and proceed "slowly, step-by-step, and progress from easy tasks to difficult ones. Doing this linked singular pieces of knowledge to great contexts."	1977)
12	Jean-Jacques Rousseau (1712-1778)	It would take another 200 years before Rousseau would initiate a pedagogic development that would impact the 20th century. He believed children should follow his or her own curiosity and educators would observe the child's behavior and harmonize the environment to this development.	(Hierdeis, 2005)
13	Johann Friedrich Herbert (1776-1841)	Herbert was the first to draft a theory of instruction that begun with a collection of elementary experiences and observations, and as individual fields are introduced and developed the starting point is at their smallest elements.	Johann Friedrich Herbert (1776-1841)

Table 6 (continued)

14	B.F. Skinner	In the 1920s and 1950s there was an emergence of "programmed learning" by B.F. Skinner. In retrospect, this can be seen as an attempt to perfect the traditional small-step method. It offered learners information and provided them with tasks and feedback. To acquire a behavior, the student must first go through a carefully designed sequence of steps - each step being small enough to be executed and with every following step the student must advance to the complete goal behavior.	(Hierdeis, 2005, p 47)
15	TRANSITION FROM AGRICULTUR AL/industrial SOCIETY	Historically, agricultural and industrial society workers engaged primarily in repetitive work. With emerging technologies, this repetitive work is becoming automated- leaving individuals to do work that is "more interesting" but demands more learning.	(Bruck, 2006) (Purushotma, 2005)
16	1990s move to learning objects	In the mid-1990s, there was a move to use learning objects (defined as small chunks of	(Hug & Friesen,

Table 6 (continued)

		learning content) as a response to the complaints that macro-level content design and development was unsuitable.	2005)
17	FOCUS ON INFORMAL LEARNING	As the formal world around us accelerates, we're virtually submerging ourselves in rich learning opportunities. However, educational structures from past centuries are woefully ill-equipped to keep pace.	(Purushotma, 2005)

18	BEGINNING OF INFORMATION SOCIETY	This information society is the result of humankind's success in overcoming lacks of information and as the amount of information increases, it has become a major field of research to master its use and acquisition.
		
		The beginning of the information society thus marks the end of two key features of human history:
		  1. The fact that information was scarce and
		  2. communication difficult
		These have structured all past civilizations and
			(Bruck, 2006)

Table 6 (continued)

		shaped the behavior of peoples and their social organizations and has decided the rise and fall of empires.	
19	TODAY - SOCIAL TRANSFORMATION	Today, we're part of a social transformation where information has become abundant and communication global. The Internet as a common medium of information absorption and communication has penetrated all social and economic life in all developed countries. The flip from information scarcity into information abundance is one of the main factors making learning an integral part of everyday activities.	(Bruck, 2005)
20	CONCLUSION	Learning by small steps has a tradition that reaches behind the development of civilization. It's possible to see how "step-by-step" learning made cultural evolution possible.	(Hierdeis, 2005)

Table 6 (continued)

		From the early human's transfer of survival skills to the first intentional application of teaching in the Middle Ages we've learned from each other. And in the 20th century access to computers and mobile devices have superseded all previous media and allowed the method of learning through small steps to be perfected.	
21	SOURCES		
22	THANK YOU	To learn more about designing microlearning, watch the next video: Requirements of Designing a Microlearning Experience	

VIDEO SOURCES

Bruck, P.A. (2005). Microlearning as a strategic research field: An invitation to
collaborate. In T. Hug, M. Lindner & P. Bruck (Eds.), *Microlearning: Emerging
concepts, practices and technologies after e-learning: Proceedings of
microlearning conference 2005: Learning & working in new media* (pp. 13-18).
Innsbruck, Austria: Innsbruck University Press.

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Fassler, M. (2005). *Erdachte Welten. Die mediale Evolution globaler Kulturen*. New York: Springer.

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Marrou, H. (1957). *Geschichte der Erziehung im klassischen Altertum*. Freiburg: Alber.

Purushotma, R. (2005). When remix culture meets microlearning. In T. Hug (Ed.),

Didactics of microlearning - Concepts, discourses and examples (pp. 218-235).

New York: Waxmann.

Video 7 | Requirements of Designing a Microlearning Experience

Length: 2 minutes and 31 seconds

Links to Video:

- https://goanimate.com/videos/057aCmcXMesM

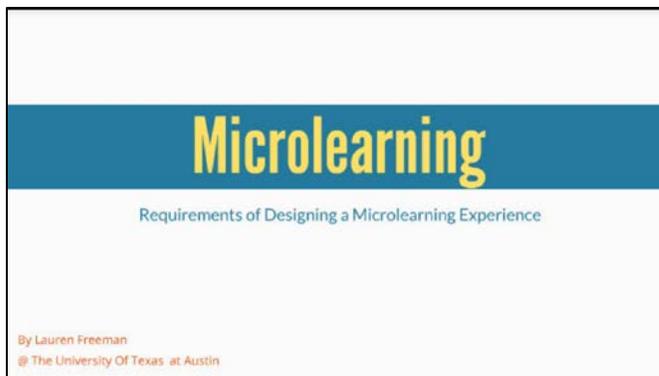- https://youtu.be/mdWIYnJbdkw

Title Screenshot:

Figure 7:   Title screen of *Video 7 | Requirements of a Designing a Microlearning Experience*

SCRIPT:

Table 7:   Script for *Video 7 | Requirements of a Designing a Microlearning Experience*

	OUTLINE	SCRIPT	SOURCE
1	TITLE SLIDE	Microlearning	Requirements of Designing a Microlearning Experience	
2	INTRO	In the previous video's I've covered the history	(Gabrielli,

Table 7 (continued)

		and affordances of microlearning.	Kimani, & Catarci, 2005)
		In this video I will outline a list of requirements to help guide you in the design of microlearning experiences from an interaction design perspective. I'll also include tips on interface design for each requirement.	
3	REQUIREMENT 1 | HIGHLY TRANSFERABLE AND UNOBTRUSIVE OF THE LEARNERS ACTIVITIES		(Gabrielli, Kimani, & Catarci, 2005)
4		Learners have access to the most updated version of the learning material and can easily download or upload materials from one device to another.	
		Ideally, the user interface would support	

Table 7 (continued)

		multitasking, hands-free or eyes-free interaction, and defense against exposure to noise and interruptions from the surrounding environment.	
5	REQUIREMENT 2 | EASILY AVAILABLE AND USER-FRIENDLY		
6		Content is user-friendly and easily available. All content would support the use of mobile phones, tablets, and other wireless devices. From a usability aspect, the used microlearning technologies should be intuitive and straightforward and usable by people regardless of their technology experience.	(Gabrielli, Kimani, & Catarci, 2005)
7	REQUIREMENT 3 | PERSISTENT		
8		Content is persistent meaning independent from	(Gabrielli,

Table 7 (continued)

		specific devices and available to a user at any time. Having content, and process, attached to a user's device will help ensure learning can take place through any of the user's devices.	Kimani, & Catarci, 2005)
9	REQUIREMENT 4 | USEFUL		
10		Content and activities are useful and contribute to the achievement of the learning goals. To achieve this, technologies and design need to be simple, even when the content is complex.	(Gabrielli, Kimani, & Catarci, 2005)
11	REQUIREMENT 5 | INDIVIDUAL AS WELL AS SHARABLE		
12		Content can be sharable and enable the learner to get or receive feedback from peers, teachers,	(Gabrielli, Kimani, & Catarci,

Table 7 (continued)

		and tutors.	2005)
		Communication features will be essential in	
		order to support individual learning.	
13	REQUIREMENT 6 | ADAPTABLE AND/OR ADAPTIVE TO LEARNER'S NEEDS		
14		Content will need to be adaptive to learner's needs and accessible depending on their preferences or skills.	(Gabrielli, Kimani, & Catarci, 2005)
		Personalization features should be designed to avoid making user interaction more complex and to allow for a more natural and consistent interaction of the learner.	
15	THANKS	Thanks to Silvia Gabrielli, Stephen Kimani, and Tiziana Catarci for their article "The Design of Microlearning Experiences: A	

		Research Agenda" for providing these requirements.	

VIDEO SOURCES

Gabrielli, S., Kimani, S., & Catarci, T. (2005). The design of microlearning experiences:

A research agenda. In T. Hug, M. Lindner & P. Bruck (Eds.), *Microlearning:*

Emerging concepts, practices and technologies after e-learning. Proceedings of

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  Physics: Conference Series*, *4*. http://dx.doi.org/10.1088/1742-
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