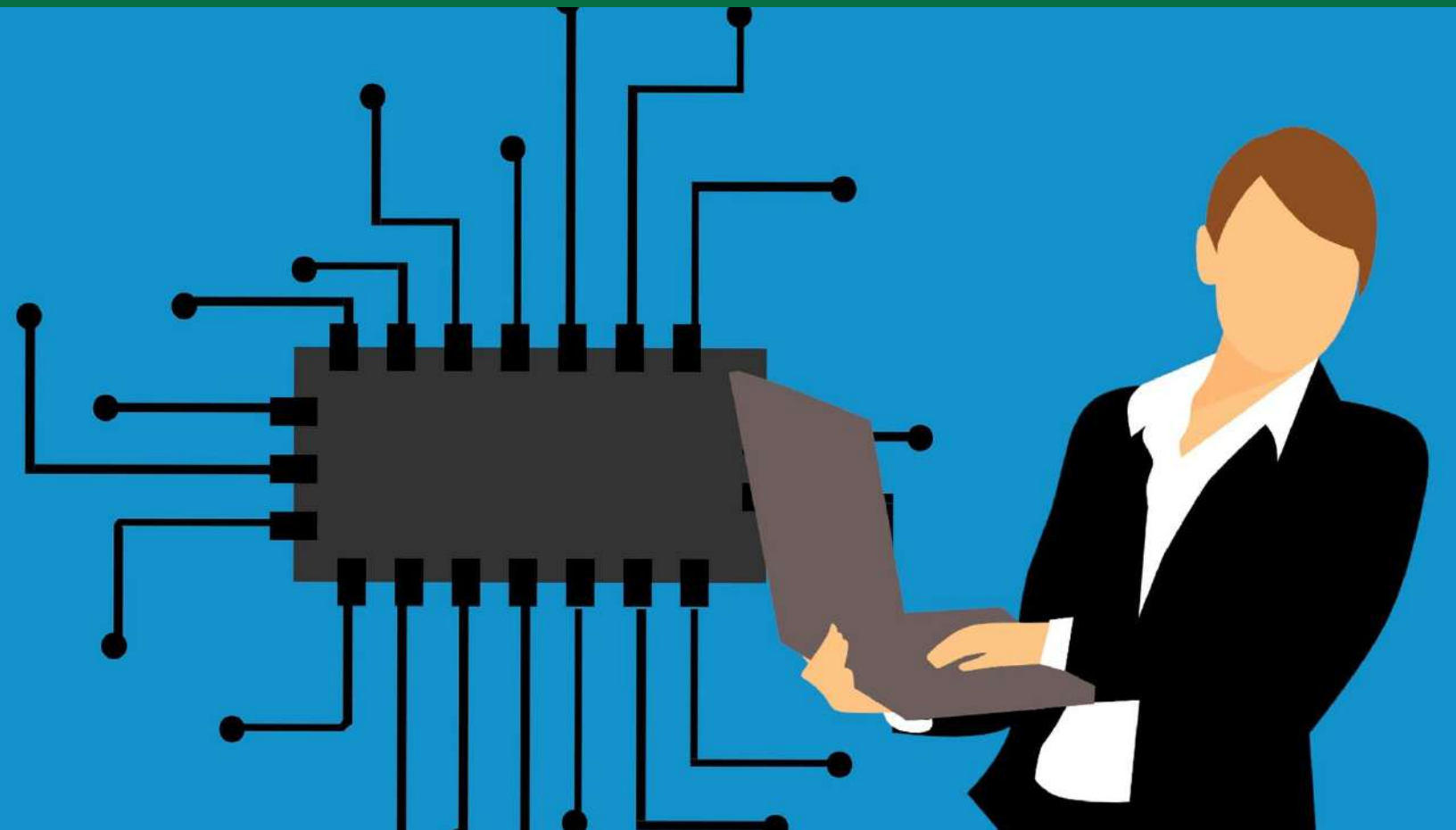
TeachME PROFESSIONAL DEVELOPMENT
CEUs for Teachers and Educators

Exploring Micro and Nano Learning



Introduction

The latest hot trend in education is here—and it's tiny. Micro and nano learning represent bite-size learning modules that students should find accessible and entertaining. Their teachers should find them easy and effective. Why are we focusing on brevity? Studies are showing us that particularly in the wake of the mass transition to remote learning that occurred in 2020, students' attention spans are dwindling. Children have Zoom fatigue, too—and teachers are scrambling to find ways to reach their students both in and out of the classroom to teach in the most efficient way possible.

Micro and nano learning may be the answer. With microlearning, students focus on 15-minute learning modules that have hyper-specific learning objectives. Nano learning takes it to a new, even smaller level with modules that are perhaps one to ten minutes long and focus on one to three very specific skills.

How are teachers supposed to teach effectively in these tiny segments? Is this learning philosophy really as effective as it seems? In this course, we'll examine the research underlying this most recent trend, talk about its benefits and drawbacks, and conclude with practical tips for teachers who wish to leverage this strategy in their classrooms.

Section 1: Why Microlearning and Nanolearning Are Important

We've covered the basic overarching definition of microlearning and nanolearning: The briefer, the better. It's likely just as key to understand why these trends are important, what benefits they could bring to your classroom—and whether they're here to stay. Is there a more defined descriptor of microlearning? What's the difference between microlearning and nanolearning? Can we dismiss this trend, or do we need to pay attention? We'll cover these questions in this first section.

What is microlearning?

Microlearning is a learning philosophy that leverages brevity to provide the most impactful learning experience possible for students of all ages, including children—as well as adults. The benefits of this teaching method have been recognized across professions. For example, many 21st-century businesses are reformulating their

processes and including microlearning strategies in corporate retreats, employee onboarding, and ongoing professional development (Andriotis, N, 2018).

Now, it's seeping into K-12 academia for students nationwide. Why? Microlearning works to provide effective learning in the smallest possible doses. Full of bite-sized learning units and very short-term activities meant to enhance comprehension and engagement, microlearning is all about providing as much educational value as is possible in as little time as possible (Andriotis, N, 2018).

Within microlearning modules, teachers provide students with many different types of content, including text, images, audio, videos, and games. Why? Not only does providing differentiated content reach students with many different learning modalities, but alternating the type of content also helps students stay focused for longer and provides variety among the many different tiny content units (Andriotis, N, 2018).

As microlearning is a burgeoning trend, particularly in the wake of the COVID-19 pandemic, there are many app-makers and software distributors that are building tools to help support bite-sized learning. While teachers can certainly embrace microlearning strategies on their own, the growing variety of creative, accessible, and affordable tools out there that help provide tiny quizzes and games for eager students can make this a lot easier (Andriotis, N, 2018).

Microlearning isn't necessarily a new phenomenon; ever since the invention and widespread use of the modern smartphone, we've been seeing forms of microlearning all over the place (think: daily language learning apps, or 10-15 minute podcasts with episodes that concentrate on a very small, specific historic event). One of the reasons this learning model has become so popular is because of the modern adult's inherently busy schedule—and, possibly, due to the shortening of our collective attention spans (Andriotis, N, 2018).

Regardless of why it is popular now, it's becoming the newest trend in grade school academics. This is because microlearning does confer specific benefits that are more difficult to obtain in more traditional, longer-form types of teaching and learning (Andriotis, N, 2018).

What are the benefits of microlearning?

The process of microlearning offers several advantages to both student and teacher. These benefits include (Andriotis, N, 2018):

- **Quick delivery times** - Microlearning involves much smaller, shorter lessons (or, as they're frequently termed, 'modules') that don't take long to develop; in many cases, instructors have reported building out an entire course within about an hour or so. This makes it very easy to create learning modules based on current events, the latest research, or updated direction from the administration if need be. This can, if leveraged well, also result in less work for instructors—particularly if some type of sharing or resource-pooling system is worked out.

- **Higher affordability** - Perhaps because of the previous point, microlearning courses tend to be much cheaper to make (and, usually, teach). Typically, teachers don't need any special tools to create content. If your school opts to invest in a microlearning platform or suite of resources, that may be associated with costs—but content creation and microlearning instruction itself should be a breeze.

- **Incredible versatility and specificity** - With microlearning courses, teachers can cater the learning experience of their students in many different ways. Teachers can create non-overwhelming lessons filled with basic information and support for beginners, modules that overview entire subjects with just the need-to-know information; or even niche microlearning courses that dive deep into a complex topic.

- **Great student responses** - Students of all ages tend to really appreciate the accessibility of the microlearning style—as, in many cases, the amount of effort associated with microlearning from the student perspective feels comparable to that of checking a preferred social media app. Even paper or in-person microlearning modules seem comparable to short activities, rather than arduous assignments. This type of learning doesn't feel as difficult or as intense, and even if the subject at hand is one that the student doesn't naturally like as much, the duration of the learning experience will only be about 10-15 minutes at most—making the entire event seem much more accessible in any case.

- **Higher levels of information retention** - These benefits may sound great so far—but does this style of teaching actually work? So far, according to the research reported by the microlearning community, it does appear that this type of bite-size, repetitive, and ultra-engaging educational style actually increases the learning ability of most students. Why? As it turns out, when you introduce information in a very accessible way, revisit it often, and iterate slowly with a great deal of strategic repetition, it becomes virtually impossible to forget the

information you're concentrating on—and it provides ample opportunity for clarification and comprehension.

- **Increased flexibility and student freedom** - If teachers are interested in giving students agency in their own learning experiences, they can do no better than investing in tiny stints of microlearning modules. The feel for students is similar to a buffet: They know they must eat something from the table, but they can often choose what and when. This results in higher enthusiasm and a more adventurous association with education.

With all of these benefits, it's easy to wonder why anyone wouldn't want to be on board with the microlearning trend! However, as with all new learning philosophies, there are downsides that may become apparent with time. To keep our review balanced, we'll next discuss the various limitations of microlearning (Andriotis, N, 2018).

What are the limitations of microlearning?

The limitations of microlearning are as follows (Andriotis, N, 2018):

1. **Microlearning might not be the best for highly complex subjects.** While it may be possible, in some cases, to deliver a targeted insight about a specific topic, theorem, or problem that relates to a higher-level subject, there are other instances in which it truly is better to be able to expound on a subject, take questions, or go over practice problems for a longer period of time. It's definitely possible to utilize shorter, choppier lesson segments to do so, but it may take larger amounts of creativity on the part of the teacher—for example, finding a way to break down a larger, more complicated subject into connected videos in a series).

2. **Microlearning may not be the best for every learning modality.** The idea behind microlearning should appeal to the ways that most students enjoy engaging with their studies. However, there will be some students who naturally prefer to spend a long time reading dense text, or who need to wrestle with information for a longer period of time before moving on to the next thing. Of course, one of the defining benefits of microlearning—its brevity—does allow students to repeat modules as they need for comprehension. In other cases, initial exposure to information in a microlearning module followed by one-on-one support from a teacher may be enough to resolve any issues that students experience.

As with all learning strategies, there are benefits and drawbacks of microlearning that teachers will need to understand and navigate if they are going to implement these practices. Next, let's discuss why microlearning is popular as a current educational trend. What was the trigger for creating short and highly focused lessons?

Why is microlearning coming into the spotlight right now?

Short answer: Microlearning works well with the attention span and focus that modern students tend to have.

There are many who argue that maintaining focus is a lost art. To a certain extent, they're right. Whether it be due to the increased stress and anxiety of the past few years, or because of the prevalence of social media and bite-sized communication, it's clear that the human attention span is diminishing. One recent study proposed that the average attention span of humans right now is only eight seconds long—a second less than that of an average goldfish (Elm Learning, 2021).

This may not be an entirely bad thing, although many education and behavioral health professionals will point to this stat and consider it one of the hallmarks of the crumbling of our society. As our collective ability to focus has decreased, our ability to multitask has increased. Our brain's capacity to process increasingly complicated information has also improved. We're doing more things with greater efficiency. The trade-off, seemingly, is that we can't focus on any one thing (easily) for more than a few moments (Elm Learning, 2021).

This has led some education researchers to hypothesize that we have two choices before us: We can try to fight our natural tendencies to tackle multiple projects at once and take in shorter and shorter content—or we can leverage this hyperactivity (Elm Learning, 2021).

Enter: Microlearning. If this trend becomes more mainstream, we may see fewer hefty textbooks, day-long workshops, and the types of educational or training sessions that most people would term "tedious." Instead, much of teaching will focus on crafting the perfect nugget of relevant, strategic learning information and delivering it in the most effective way possible (Elm Learning, 2021).

One of the tenets of microlearning outside of the classroom is that a person can access the knowledge they want when they want it: Think 10-minute TED-Ed videos, or a 6-minute language lesson on a handy, beautifully-animated app (Elm Learning, 2021).

When bringing these strategies into the classroom, you necessarily remove some of that agency: Your students are not adults, and you do have curriculum-driven goals that you and your students need to accomplish. How can you leverage this learning philosophy when the truth of the matter is that, sometimes, your students may need to tackle complex topics that may require more than 10 minutes of introduction (Elm Learning, 2021)?

We'll discuss how to integrate microlearning principles into your teaching technique in a later section of this course. For now, let's discuss the main forms that microlearning takes on in modern classrooms.

What are the most common types of assets used in effective microlearning (Elm Learning, 2021)?

Fortunately, microlearning as a concept is easy to adapt to many different platforms. Consider the following popular forms that microlearning has taken just over the past few years:

- **Videos.** Whether they are hosted on a paid platform or freely available on YouTube (or a similar service), the Internet abounds with quick, easily-digestible videos consisting of filmed presentations, animations with narration, or other brief overviews of topics ranging from the very simple to the very complex. Of course, as with anything found on the internet, there's also a definite range in quality.

- **Educational applications.** It's hardly relevant to talk about apps as if they're a new trend, but phone and tablet applications are one of the most-used conduits of education for students of all ages. In 2019 alone, there were 204 billion downloads of various applications, and every year brings with it different portable opportunities for education and entertainment. With different program-building apps, educators and school systems can also create custom-feeling applications that cater to their own students' specific needs—or just find very targeted ways to reach their students where they are through the social media application du jour. It can take work to get up-to-date and fluent with these applications, but doing so can help schools increase their accessibility for their students.

- **Gamification.** Adding elements of competition or gameplay to academic settings helps boost motivation and interest. It also boosts performance. One recent study found that increased gamification made the performance metrics in one

community soar by approximately 35%. When you put together strategies from both microlearning and gamification theories, it's easy to review already-presented ideas or introduce new information in as little as five minutes, while keeping your students engaged in a relatively easy manner. This doesn't have to involve high amounts of teacher investment at all times, either: For example, assign your students a hands-off challenge, promise some type of reward to the person who achieves the highest score or the quickest time, and watch even the least-interested student get involved.

- **Social media.** Social media gets a great deal of negative attention these days, but these types of strategies may be the way to go when you want to reach your students. This doesn't have to be a bad thing. Finding creative ways to curate and influence your students' social media feeds—having them follow museums and scientific organizations, asking a student to create a social media profile as a historical figure or to disseminate literary quotes, and just making sure that your school's profiles are accessible can provide tiny nuggets of knowledge that your students won't be able to miss.

What is nanolearning? Is it the same thing as microlearning, or is it any different?

Nanolearning, or bite-sized learning, espouses the same general philosophy as microlearning…just in an even smaller package. Where a microlearning module would likely be around 10-15 minutes in length, a nanolearning capsule would be less than ten minutes long—as short as a two-minute chat with an expert on one very discrete, specific bit of information (Arpana, 2021).

One formula, one logical point, one piece of trivia, or two to three questions about something that your students learned yesterday: Nanolearning offers a way to tap into the short-to-long-term memory cycle in a very brief but effective way (Arpana, 2021).

Nanolearning usually depends on digital media for at least the initial connection, although an in-person (or real-time remote) instructor can use the same strategies during class (Arpana, 2021) .

Many of the same pros and cons apply to nanolearning that are present with microlearning. For example, two minutes may simply not be long enough to dive deep into a very complex subject; it's perhaps used better as a mental break between other

concepts, or to provide a quick summary or assessment about a concept covered earlier in another (perhaps longer or more traditional) way (Arpana, 2021).

Nanolearning is currently applied outside of the classroom for professional development, edutainment, and even corporate training. In these instances, companies will administer training and development through brief pieces of text and short videos sent directly to employee phones. On a similar note, there are those who predict that our learners will "learn more from Snapchat than school, more from YouTube than libraries, and more from TikTok than the NY Times." Quippy quotes aside, it does appear that in some cases traditional schooling systems could, perhaps, benefit from leveraging the type of short content that easily targets the short attention span of a modern student (Arpana, 2021).

For the purposes of this course, as the primary distinction between microlearning and nanolearning is the length of time involved, we'll refer to the general concept as microlearning. Many of the same principles, underlying scientific rationale, clinical research, and strategies apply to both teaching tactics.

Why is microlearning here to stay?

Microlearning is coming to the rescue now, as we're all dealing with the Zoom fatigue accelerated by the pandemic. However, at some point, the pandemic will be over. Many will return to in-class schooling—and even those who decide to continue with remote learning programs won't necessarily need pandemic strategies to effectively gain knowledge (Chandramouli, 2021).

Microlearning is far more than simply a pandemic learning strategy, as it turns out. We'll discuss in the next section how microlearning works with a student's neurobiology to help learn in the most efficient way possible—pandemic or not (Chandramouli, 2021).

In short: Microlearning does not appear to be a trend; rather, it seems like it's an effective strategy that will continue to be beneficial in the future. Educational researchers believe that, moving forward, microlearning will endure as a viable strategy for instructors who leverage it in a valuable and productive way (Chandramouli, 2021).

Skeptical? Here are several reason why microlearning (and nanolearning) will be around for a long time (Chandramouli, 2021):

1. **Microlearning can cater the learning experience precisely to a student's specific learning needs.** Whether students need to study a specific concept for an

upcoming exam, prefer one type of media over another, or prefer (or need) to perform their studies in bite-sized chunks or between other activities, offering your students microlearning modules is much more flexible and personalize-able for all students in each step of their unique learning progression. As the future of education will likely continue to prioritize engaging, often-individualized learning opportunities, microlearning will persist as a good choice to make that happen.

2. **Microlearning teaches according to the Pareto Principle.** The Pareto Principle states that 80% of the effect comes from 20% of the effort. It is a principle that is used widely in many different fields. In education, the concept that the vast majority of true learning comes from a small portion of the time and effort invested mirrors the value add of microlearning perfectly. This ideology can be attractive for both students and teachers as well - the idea that they can achieve good results with less time, as long as that time is very strategically spent.

3. **Constant learning reinforcement is built into microlearning.** When students are learning something effectively, they need to be introduced to the subject initially —and then re-introduced, as they are presented with summaries, assessments, and opportunities for incorporation of and engagement with the new information. With microlearning and nanolearning, a student can jump very quickly from the introduction of one subject to the reinforcement of another, all within a very short time period. This type of fast-paced learning is agile, effective, and able to provide different iterations of learning for students who may require more or less reinforcement for learning to 'stick' effectively.

4. **Microlearning helps students and teachers alike set and monitor realistic goals.** Within a given microlearning module, the goals and expectations (as well as the targeted information to be learned) will always be very specific and well-defined. Therefore, assessing whether a student has become familiar with the needed information will be a much easier task than in larger, more unwieldy types of subject assessments. For example, instead of taking a quiz that covers biological concepts learned over the past month, an assessment might only have to focus on how well the student understands one specific principle. A few questions, a quick conversation, or another similarly-brief assessment activity should make the student's familiarity of the subject clear - instead of an entire test bank, one that will have to be taken by the student and then graded by the teacher.

5. **Microlearning helps fight learning fatigue.** We're all familiar, now, with the term 'Zoom fatigue'; it's key to remember that, particularly in a post-pandemic world,

students tend to suffer from 'learning fatigue' as well. Even before the pandemic or long after it, we've all recognized the learning fatigue that comes at the end of a long semester. (Similarly, the learning overwhelm that happens at the beginning of the school year or just after a long break can create a significant obstacle for many children). By breaking up lessons into small, manageable sessions that a student can take or retake as often as is needed, learning becomes less overwhelming, more accessible, and less likely to cause fatigue. One reason involves the brain chemistry that is associated with getting things done: Once students successfully complete one 10-minute module, they will experience satisfaction for having accomplished something—and therefore be more likely to move willingly toward their next accomplishment.

6. **Microlearning tends to be budget-friendly.** With the scarcity of teachers supporting America's students as well as the distinct possibility that education may not be a priority for increased government funds over the next several years, it's more important than ever that we can provide students with stellar educational opportunities without breaking the bank. Microlearning is surprisingly affordable, especially when you consider the amount of personalization it offers to the student. By selecting microlearning modules from a prepped bank of media offerings or quick activities, learners can choose their own educational adventures, often without many required resources at all.

Section 1 Reflection Questions

- How long do you think your attention span is? Do you think that it's gotten longer or shorter over recent years?
- Do you already engage with microlearning in any way? Perhaps through a fun social media follow, or through an educational app on your phone?
- Which of the benefits of microlearning do you think would work best for you and your students? Which limitations might most closely apply?
- How do you think you would use nanolearning—e.g., extremely short microlearning—to your advantage in your classroom?

Section 1 Key Points

- Many corporate and professional companies are using microlearning for onboarding and development.
- Microlearning works with the realities of our ability to focus and our attention spans.
- Microlearning and nanolearning can be very effective and efficient ways to teach—but we do have to make sure that we leverage them in the correct way.

Section 1 Summary and Conclusion

Even though microlearning might be a trend spurred along by Zoom fatigue, it's definitely an educational strategy that has a great deal of exciting potential that we can harness for the benefit of our students. However, it's also easy to see how it could be difficult to get stakeholders on board: Can students really learn effectively in ten minutes or less?

In the next section, we'll work toward an answer to that question by diving deep into the research underlying this educational philosophy.

Section 2: The Research Behind Microlearning and Nanolearning

Why do all the work to make the change to microlearning teaching techniques? How would you justify ten-minute lessons to your community, if you had to? If you're interested in updating your teaching techniques and maybe saving some time and mental effort, it can be a good idea to think about incorporating at least some microlearning tactics. However, since it can be a bit of a revolutionary concept, it's a good idea to go in with a good understanding of the science involved. That's what we'll cover in this section.

What does the research say about why microlearning works?

Microlearning is certainly a novel idea; and it can perhaps be clear why it might, simply for that sense of novelty, be able to engage students with its format—at least initially.

However, the hope is that microlearning is a sustainable way to see good results with your students and reduce the effort that goes into a teacher's day. It's very possible that this statement sounds too good to be true. In order to understand why this has a hope of helping, we'll take the next section to delve into just why microlearning works—and how that knowledge should influence our teaching styles (Elm Learning, 2021).

There are measurable benefits associated with putting students in charge of their own educational experiences. While students won't be able to have complete autonomy over their learning journeys, introducing a microlearning framework gives them the opportunity to make their own decisions. This increases interest, drives engagement, builds confidence, and promotes valuable conversation between students after they've each experienced microlearning in their own way (Elm Learning, 2021).

Studies have clued us into the reality of a student's attention span. More traditional educational frameworks have required us to lecture for a half hour (or more) at a time, assuming that children are actively listening or taking notes. Even more engaging activities, such as experiments or discussions, often rely on the assumption that a child is able to stay focused on that activity for a relatively lengthy period of time. Contrast that supposition with the latest data coming out of student-focused studies, which demonstrate that a student's in-class attention—even focused attempts at renewed attention spans, which typically don't last longer than a few minutes—wanes after approximately 18 minutes of one activity. Largely speaking, the student never recovers focus after those first few moments (Elm Learning, 2021).

To paraphrase an analogy expressed by one of the researchers in the study: students today are looking for snacks. We tend to prioritize feeding them Thanksgiving dinners, in the form of courses that drag throughout warm afternoons and discussions that could be completed within a few minutes instead taking hours to get through (Elm Learning, 2021).

Researchers theorized that short spurts of microlearning with targeted mental breaks in between—which doesn't have to mean actual rest, but rather a different activity; a 'palate cleanser,' if you will—will be the answer to the shortened attention spans we're seeing. By strategizing with these actions, we'll see learners that may be perceived as lazy or overstimulated become the hyper-efficient learners they can be (Elm Learning, 2021).

Analyzing the recent studies focused on elucidating the ways in which microlearning is good for us results in the following revelations:

Our brains literally light up when we engage in microlearning activities. One of the selling points of microlearning is that it is based on sound neuroscientific principles. Focused spurts of activity should harness the way our brains are wired to learn, despite our receding ability to focus as our ancestors might have been able to. Here's a quick map of the brain as it relates to microlearning well (Elm Learning, 2021):

- Your brain's prefrontal cortex is the part of your brain that works to intake new information and make new decisions while enhancing goal-directed actions.
- On either side of your prefrontal cortex is your hippocampus and your amygdala, which co-modulate and balance each other.
- When faced with a microlearning prompt—the challenge, in other words, to learn something new in the most efficient way possible, these parts of your brain light up, as your brain thrives on efficiency.
- Your hippocampus filters through the various pieces of information you're seeing. It then makes a quick judgement about the importance of each piece of information. If you're in microlearning mode, the information should *all* be perceived as important—which means that it will all get mental priority. (When your brain knows that it has more time to digest information, it ranks the information in order of perceived importance and sends less-crucial information to storage, essentially).
- Your hippocampus also has a constraint or challenge of its own: It can only hold about twenty minutes' worth of information at maximum capacity. Before that time is up, the hippocampus needs to know where to "send" that information in your brain, or your brain will discard it and it will become irrelevant.
- With the typical microlearning framework—in which a concept is introduced, re-stated, reviewed or tested in 10-15 minutes—your hippocampus has enough time to understand and route the information, but not enough time to become complacent and de-escalate information that should be prioritized.

We can see evidence for this chain of events in our tendency—for both us and our students—to multi-task. If we're doing something for, say, an hour, once our hippocampus gets full and completes a cycle of routing or dismissing information, it will naturally seek something else—something different from that hour-long activity—to latch onto. This natural limit, once our hippocampus fills, about twenty minutes in, is

when we tend to take out our phones or get really invested in selecting a good playlist to work to. It isn't a sign of laziness; it's a neurobiological imperative (Elm Learning, 2021).

We can choose to fight that or work with it. There isn't a right answer; both systems of productivity have pros and cons, especially for different people with differing goals. With microlearning, we seek to leverage the benefits of working with our brains, and around our ability to focus (Elm Learning, 2021).

While the hippocampus is acting as the gatekeeper and director of new information, the amygdala is also getting involved. The amygdala is the part of the human brain that controls the processing of new emotions and regulates sensory experiences. The amygdala and the hippocampus work together by ensuring that new emotional or sensory experiences help improve retention of new knowledge (Elm Learning, 2021).

We can hack this natural pathway by stacking our microlearning experiences to provoke alternating informational and emotional or sensory experiences. For example, after a brief (micro!) presentation on a new subject, the next microlearning module would invite the student to experiment with the new idea, preferably by walking around or interacting with a physical object; or, alternatively, asking the student to engage with the idea on an emotional level—perhaps by connecting something that happened in literature or history to something that happened in their own lives, or by imagining in detail how scientists and philosophers felt when they first discovered new theories (Elm Learning, 2021).

Using short stories, beautiful art, or witty humor can help provoke an emotional response. One way to jumpstart the amygdala is to pair a good story or piece of art with required new information. The key? That the story or art involved is short and accessible. This "stacked" learning style will also help students feel more accomplished—they're learning art in addition to science!—which, in turn, will help them be interested in working further. Our brain tends to hold onto things that make us smile and laugh; later, when we recall the joke, we'll recall the lesson as well. Triggering the amygdala in this way will also put us in a positive mood, which can strengthen an association between learning and positive emotions (Elm Learning, 2021).

The duration between micro-lessons may matter

If the goal is to expose your learners to new information and then give their hippocampus enough time and stimulus to convert that information to long-term memory (instead of deleting it due to fatigue, boredom, or over-exposure), it's key to give the brain adequate time to recover between lessons. After all, the brain is a muscle,

much like our heart or biceps. If we're training our brains to do a significant amount of work, they will require down time to build and strengthen their neural pathways (Elm Learning, 2021).

Studies into human psychology suggest that placing a 12-hour gap between learning sessions concentrating on the same (or similar) material can help the brain understand what it's learned and prepare for more information in the most efficient way. (Fortunately, this works with the popular model of daily recurrent lessons for most students). One 2009 study published in *Applied Cognitive Psychology* reported that the performance of their surveyed participants improved by an incredible 90% when they allowed for a significant period of time between study sessions, instead of cramming for hours the night before a test. Again, this is hardly shocking (Elm Learning, 2021).

Microlearning gives us the opportunity to take this accepted fact to a whole new level. For example, another study into students and their reading habits found that digesting information in short spurts—a few minutes, nothing more—and doing mindless filler tasks in between led to much better recall of the covered information a full week later than students who had sat down and read the assigned passage in one fell swoop (Elm Learning, 2021).

The specific length of microlearning sessions may matter

We've discussed the neuroscience behind focus and retention; does this mean that there is some type of (scientific) guidance for just how long a microlearning module should be?

Yes. Each microlearning module should be about ten to fifteen minutes—and should concentrate less on packing as much information as possible into those fifteen minutes, and more about telling compelling information in an easy-to-remember way. Then, you can stack those 15-minute sessions together with short, active breaks in between. According to the scientific studies we have available in this arena, this will have a deeper impact on your learners than a more typical 75-minute soporific presentation (Elm Learning, 2021).

It's also a good tactic, in order to make those fifteen minutes as impressionable as possible, to focus on exciting a specific sense with each session. For example, in one session, go visual with your information, and discuss paintings, give your student an infographic, or present a brief video elucidating a complex topic. At the end of the microlearning session, take two to three minutes to recap the key points or themes from the painting/graphic/video, and then let your students walk around for five minutes

before returning and (in a second microlearning module for the same general topic), listening to something, working on a tactile project, or performing a role-play related to the topic (Elm Learning, 2021).

Timing, in addition to duration, may matter for microlearning strategy

In order to take advantage of the exposure-to-retention information cycle in the average learner's brain, it's often a good idea to juxtapose exposure and retention activities relatively quickly. For example, an exposure activity might be a video about a new topic; the retention activity—performed shortly thereafter—would be a short, low-pressure quiz, an improvised skit, or an open discussion about what students remembered from the video (Elm Learning, 2021).

Alternatively, waiting until the end of the day (or a few hours later) can also work to send information from the brain's staging area to long-term memory; for example, pushing a quiz to your student's devices at the end of the day to ask a few "bonus" questions about a conversation you had earlier in the day (Elm Learning, 2021).

Ultimately, the takeaway here is that microlearning is at its best when it's performed often. Why? This primes the brain to be constantly whirring—and constantly ready—while your students are at school. Preparing small mini-lessons that your students can truly absorb anywhere also helps remote learners and parents at home: If they know there's a specific infographic to review or video to press 'play' on when there's a down moment after dinner, students can integrate learning more easily into every part of their day (Elm Learning, 2021).

The macro results that often accompany microlearning

As a rule, students tend to love microlearning.

No one loves the prospect of sitting down for a 90-minute lecture; by contrast, playing a 9-minute game, having a 12-minute conversation, or watching two short videos and writing a brief summary seems like an easy task (because it is). What's more, children today are busier than ever. Giving them tasks that they can easily fit between sports practice and dinner makes it far more likely that they'll actually be able to get more done (Elm Learning, 2021).

What's more, microlearning comes with several perks for teacher, learner, and family alike. These include (Elm Learning, 2021):

- The ability to provide quick, relevant, and continuously-updated new material: If you've built a 90-minute presentation or 30-page handbook for your students, you're not going to want to frequently update these toolst—it's simply too large of a task. With micro-learning, if something new or innovative happens in the area that you're teaching, you can easily swap out an updated video, edit a small, easy-to-manage PDF, or decide to play a different game for those ten minutes.
- The ability to further education no matter where you are: Educators, families, and students alike should be able to access many of the materials most popular in microlearning from their phones or other devices. With the applications available today, educators may even be able to produce teaching materials no matter where they may be.
- Increased learner interaction: When your students engage more with what they're learning, they will retain more. Short videos, audio recordings, games, quizzes, and discussions—in short, varying the learning activity as much as possible!—will help your students engage more. This results in more efficient learning, as well—which means that you can do more meaningful learning in a shorter amount of time.
- Increased learner autonomy: With many different types of learning activities, learners will likely be more willing and able to identify the types of activities that work well for them. In addition, students should be able to take ownership over their learning—requiring less and less help over time from their teachers and peers. (In other words, this allows students to find the "path of least assistance" much faster than more traditional teaching and learning methods).

Section 2 Reflection Questions

- Imagine that one of your students' parents or a member of your school's administration is asking you to defend your microlearning choices. What neuroscientific principles would you present as evidence? How would you succinctly describe why microlearning works?

Section 2 Key Points

- Microlearning and nanolearning are successful because they specifically work with the way that your students' brains work. Controlling the flow of information

into digestible nuggets and allowing your learners to have control over that flow improves recall of relevant information and drives engagement.

- Microlearning specifically engages the parts of the brain that influence the ability to pay attention, keep the learner emotionally invested, and convert short-term memory to long-term memory.
- Although a variety of shorter times may work for a range of people, microlearning is at its best when the required information is broken down into 10 to 15 minute modules. In addition, it's key to incorporate microlearning into a repetitive routine, using modules to introduce, review, and cement new information over an extended period of time.

Section 2 Summary and Conclusion

Our attention spans are getting shorter; we can choose to work with that or fight it. The microlearning educational philosophy chooses to work with our brain's prerogatives. By understanding how our brains work, we can hack our neurobiological processes to get more done in less time—leaving more time for one-on-one support, more creative lessons, deeper conversations, or anything else that's on our educational wish lists.

One question remains: How can we incorporate microlearning into our current curricula? Is there a way to efficiently and effectively use microlearning some of the time, so you don't have to revamp your entire teaching system but still can take advantage of what microlearning has to offer?

That's what we'll discuss in the third and final section of this course.

Section 3: Incorporating Microlearning Strategies in Your Classroom

If you've ever jumped to the end of a recipe blog to get to the important information or skipped past a chatty introduction on a YouTube video or podcast, you're aware that not all content—even educational or informational content—is equally weighted in terms of value. Moreover, with the screen and schedule fatigue that all of us (even our youngest students) are experiencing today, it's clear that we need to optimize every moment of our teaching and learning structures to be as accessible and effective as possible.

What is the typical structure of a microlearning or nanolearning course?

When microlearning and nanolearning courses are used for corporate training, professional development, or for opt-in courses offered through phone applications (think: Noom for the science behind weight loss and healthy eating, Duolingo for language studies, or other similar and popular applications), they typically follow this structure (Arpana, 2021):

- The microlearning or nanolearning course will range in duration anywhere from five to thirty days.
- Each lesson (or 'module', or 'capsule', as several different units may join together to form a traditional 'lesson') will last five to fifteen minutes, with any outliers being rare. Longer lessons, if any are essential, may include some disclaimer or even warning about their length.
- Each lesson will center around one of the following activities or pieces of media:
    - An image, quick video, or GIF
    - A singular concept
    - An illustrative case study
    - A simple exercise or question
    - An elicited response from the student—e.g., a quick paragraph, drawing, or other type of assessed input
    - Course, instructor, or subject feedback from the student

While this type of learning structure is very different from longer, traditional, more consistent-in-content coursework, it does seem to be immensely popular. One reason? Its accessibility. However, as noted elsewhere, microlearning and nanolearning may not be a good fit for some more complex subjects or for students whose learning preferences are better matched with longer, more in-depth conversations or presentations (Arpana, 2021).

Additionally, due to the relative novelty of microlearning and nanolearning in K-12 education, it's easy to use it in a way that fits your learning environment and style and that will allow you to incorporate its strengths and benefits into your existing

educational strategy. Later, we'll discuss ways to subtly add microlearning into a more traditional teaching framework.

What are the best practices for microlearning?

As you may imagine, it's easy to implement microlearning poorly—resulting in students who are merely confused and overstimulated instead of happy, effective learners.

Let's make sure that doesn't happen. Before you invest in microlearning infrastructure or a considerable amount of content planning, consider the following recommendations for microlearning success (Andriotis, 2018):

1. **Check to see whether microlearning is actually best for you and your students.** No educational trend is a one-size-fits-all solution. As attractive as the benefits associated with microlearning might sound, that alone doesn't mean that you should jump in blindly and hope for the best. Instead, take your time to research and assess whether you and your specific class of students would likely benefit from this type of strategy. If your students exhibit frustration with microlearning or are constantly asking to repeat modules, or if you consistently go over the 10-15 minute limit, or if anything else happens which makes it clear that this is more of a burden than it should be, it may be the case that microlearning is not the preferred or primary strategy to use for that specific class. Furthermore, microlearning can certainly function as a supplemental or review form of learning in almost any case.

2. **In microlearning, every word matters.** Act like it. As teachers are putting together microlearning modules, it can be tempting to just copy and paste large swathes of text originally meant for longer-form teaching methods. While this may work in some cases, it may not be the best strategy for hyper-brief modules. If you don't rewrite the content to be very focused and to succinctly address the essence of the point you're trying to get across, you'll end up diluting the content too much. Your students may miss your point, and your targeted learning modules will be much less effective.

3. **Take advantage of multimedia and differing learning formats.** Just because you're leveraging brevity doesn't mean that this is the only thing that should influence your planning decisions. Teachers who are used to varying their lesson structure and teaching strategies to keep their students engaged and to reach students who learn in different ways should continue to do this. Pepper your

short presentations with illustrations, videos, quizzes, animations, and brief activities. However, the same point about the inefficacy of extraneous words applies here: You only have enough room for a few visual assets, so make sure to choose those that enhance comprehension instead of distracting.

4. **Consider investing in gamification.** For young students particularly, the concept of gamification adds a strong layer of engagement and motivation to almost any subject. Layering in a point or competition system with your brief, to-the-point lessons will ensure that your students remain hyper-focused on the content.

5. **Pair brief lessons with brief assessments.** Your microlearning strategies should apply to your entire educational structure, at least for that specific subject. In other words, if you're using microlearning to help your students comprehend biology, don't make the biology exam a 150-minute affair. Instead, incorporate very quick quizzes, writing prompts, and other assessment activities in your flow of brief learning modules. This will help expand learning on the go, reduce the anxiety that comes with tests, and keep everything bite-sized so your students have a consistent learning experience.

Now that we've covered a few general best practices for microlearning, it's time to talk about onboarding. What are the best ways to slowly incorporate microlearning aims? What about ways to start microlearning from scratch, or apply microlearning initiatives in special circumstances such as remote learning programs? We'll get into that now, starting with a few quick steps that will help you jumpstart microlearning relatively quickly, if you're excited and want to build a microlearning module right away!

What's a relatively quick way to create a microlearning or nanolearning course so my students can experience these benefits sooner, rather than later?

Are you ready to start implementing microlearning or nanolearning into your curriculum, to whatever extent you think would work best for you and your students? Consider these steps to make sure you're able to do so as non-confusingly as possible for everyone concerned (Vojnovski, 2020):

1. **Start by identifying the primary need and parameters of your microlearning or nanolearning course.** For teachers, this may begin relatively easily—as you may have a curriculum to follow or other standards that you know you need to meet.

Refine your teaching or learning "ask," and think of it as a lesson that can be broken down to its most basic, bare-bones details. In order for you to meet your standards, determine what the key points are that you are hoping to get across? Think about the necessity of any supplementary information: If you present a microlearning course about a specific subject, will you need to be able to point your students toward further information?

2. **Think about the specific needs of your students.** Consider their backgrounds and ages, what you know about any special circumstances they may be experiencing, and any specific idiosyncrasies which may inform the specific ways that is best to reach them. If you already know your students and the particular learning modalities they may bring to the table, consider which types of media may be most effective to reach them. What types of assessments would be helpful? What types of activities do they enjoy doing? Which subjects are going to be easier or more enjoyable for them to grasp, and which are going to take more effort?

3. **Consider the platforms available to you for microlearning.** When implemented in the corporate world for training or extracurricularly for applications such as language learning, microlearning and nanolearning tend to rely heavily on phone applications, SMS, and email. This may or may not be applicable or appropriate in your classroom or with your particular group of students. Will you have to rely on mostly traditional teaching techniques and resources, and simply alter the focus and timing to achieve the benefits of microlearning? Or will your school invest in resources that tend to work specifically well with nano learning? Do you have access to a school Twitter account that you can use to tweet interesting info for your students? Does your main communication platform with your students support a large number of tiny, bite-size modules?

4. **Consider the different types of media you're able to offer your students.** Come at this from an extremely realistic and practical angle. In this day and age of screen fatigue, it's key to be very discerning when you pick the videos, podcasts, sections of text, and other types of content that you send to your students. Additionally, you'll need to think about the parameters in your school or district—or within your remote learning system, if you offer distance learning. For example, there are some schools or remote systems that discourage YouTube videos, or the use of social media during the workday. If you teach in person, are you going to be able to (or want to) play podcasts or videos in the classroom? Are

you going to request that your students peruse this media on their own after school or during breaks? If so, it needs to be extremely safe and accessible.

5. **Think about how to "sell" your learners on the concept of micro or nanolearning.** Because micro and nanolearning can seem like a big pivot from, perhaps, more traditional types of education, it can be easy for learners to discount it as a serious form of education. Additionally, parents, fellow educators, and administrators may have similar concerns as they are becoming more familiar with these strategies. Since this may be the case, it's key to have the science behind effective micro and nano learning strategies at your disposal. (Please see this information in the second section of this course). Then, you'll need to strategize ways to engage your learners with microlearning from the very first module, and design assessments that make it very clear that they will be responsible for retaining the information you are teaching, no matter how quickly the material may be presented.

6. **Have strategies in place to keep your lessons short!** This may feel like an unnecessary reminder, given that the entire focus of micro and nanolearning is the brevity. However, if you're a teacher, you're well aware that planning for short lessons and actually administering them successfully are two different things. Remember, if you're choosing to pursue a microlearning strategy, it's in your students' best interest (on a neuroscientific level) to keep the lessons as brief as you mean them to be. This means that you will have to develop and implement policies and strategies for handling unexpected student questions, spin-off discussions, or anything else that may occur to extend a specific module outside of that magical 10-15 minute window. For example, it may be an effective policy to build in Q&A sessions every third module, or something to that effect.

7. **Make sure that you have a very clear system for keeping your content index easy to reference.** One challenging impact of teaching students using several smaller modules is simple: There are numerous modules to keep track of! If you give your students access to these modules for their own reference, they'll need to have some way to know which module is the most relevant for an assignment or question. Whether you implement a tagging system, you make sure that the content within your modules is easily-searchable, you create some kind of index, or you simply work with media that has this type of reference or index attached, it's key to keep the vast amounts of information as organized and accessible as possible.

8. **Keep your expectations for micro earning realistic.** As we've noted, microlearning may not be the best choice for every learner or every academic subject. If you choose to implement some microlearning practices, it's key to know precisely what your goals are for those modules—and to stick to realistic goals as well as realistic execution. Each microlearning goal should have only a few objectives. It can take some time to transition to microlearning practices, especially if you enjoy lecturing, like to promote stimulating discussions, or if you're used to working with curious students. Although it can be difficult to remain hyper-focused and brief while covering specific topics, don't discount microlearning entirely on the strength of a few frustrating learning curves, particularly in the beginning.

9. **As much as possible, collaborate and curate; don't recreate.** One of the benefits of microlearning can be a reduced workload for the teacher. This will not be the case if you approach microlearning (or micro "teaching," if you will) with a completely DIY attitude. In order to keep your effort levels low (so your energy levels can remain high), see if you can work with your fellow teachers to create banks of microlearning resources, or simply curate pieces of media or text from your student's textbooks that you can leverage for microlearning modules.

Are there ways that I can help my students embrace microlearning without revamping my entire curriculum?

It's easy to get overwhelmed when you first start thinking about introducing micro or nanolearning processes into your curricula. However, it definitely doesn't have to be that stark. Instead of completely overhauling the way that you teach, consider just adding a few of the benefits of microlearning, as it seems both strategic and easy for you to do so (Volz, 2020).

For example, you could use microlearning subtly in any of the following ways (Volz, 2020):

1. **When students are struggling and their grades are sinking, use microlearning as a targeted solution.** Think about it: In many traditional teaching and learning models, when students are falling behind and getting bad grades, they're tasked with completing large amounts of review or remedial work. The strategy behind this is clear: The student obviously needs to re-learn (or remember) the tested information. However, we also know that grades can drop simply because a

student is overwhelmed. In this case, giving the struggling student a lot more work will hardly fix the issue. Instead, it may be a more effective strategy to give the struggling student access to a series of microlearning modules, perhaps short videos you see online or a string of 7-10 minute conversations with you (or whatever might work with that student's preferred learning practices). This is much less intimidating, and may help lower the student's stress level in addition to delivering all of the other benefits of microlearning.

2. **Leverage microlearning to make resources and learning available to your students on a 24/7 basis.** As a teacher, you likely only spend a small amount of time with each of your students during the day and throughout the week. Even if you spend the majority of the schooldays with one set of students, they may not have access to your expertise or attention in the evening, during lunch, on the weekends, or when you're away. By providing microlearning modules to your students, you're giving them access to an easily-understood library of resources that they can watch, listen to, or read in a few minutes of downtime after dinner, during their lunch break, or on the weekends if they're struggling with their homework. This also promotes an attitude of constant learning. If you bring resources to your students, where they are—e.g., short pieces of media consumable on their mobile devices—it'll make it much more likely that they will learn when it is convenient or necessary for them.

3. **Reduce the amount of time you spend grading assignments with microlearning.** As a teacher, you're incredibly busy. In addition to teaching and designing curricula as well as numerous other tasks, you've got to spend time grading papers and overseeing assignments. While it may be difficult or unnecessary to replace all assessments with microlearning modules, it can certainly help to replace some pop quizzes with activities or smaller lessons (or online quizzes or assessment-style games) that offer automatic grading. Some microlearning applications and systems can even send you data over time—for example, a specific student's answering trend, or how long it takes your class to play a particular game.

4. **Introduce personalized learning with micro and nano learning.** Not every student in your class is going to have the same level of aptitude or enthusiasm for every subject. With a variety of microlearning resources at your disposal, you can help students who want to explore deeper have the ability to do so. You can also give students who aren't interested in a current topic the opportunity to delve

into something that's more to their taste after they've completed the essentials for the current subject. With microlearning at your side, you can equip your students to take an initiative in and a responsibility for their own learning—perhaps by allowing students to explore microlearning modules during reading time in class.

5. **Use microlearning to help your students engage with their education outside of class.** If you aren't ready or able to swap out your primary teaching techniques for microlearning modules, no problem. Focus on using microlearning principles for homework or as supplementary study resources, instead. For example, you could assign a microlearning lesson prior to one of your classes, just to assess your students' comfort level with a certain subject. You could offer your students access to microlearning modules during school breaks, as part of summer learning programs, or for any accelerated learning programs your school may offer.

6. **Use microlearning techniques as part of your regular teaching strategies.** In addition to a longer presentation or lengthier discussion, you can use a smaller microlearning lesson to break up a longer class period, provide a natural assessment for your students, or to allow your students to engage with each other. For example, if you have a 50-minute class session, consider incorporating a more traditional 30-minute lecture as well as a 10-minute microlearning module featuring a different form of media or type of activity. Your students will thank you for this—and their brains will actually retain all of the information better!

7. **Whenever your students do small group work, use microlearning to encourage collaboration and keep them on track.** Group projects can be tough for everyone who is involved—students and teachers alike. It's often difficult to balance workloads and match skillsets effectively. With small microlearning activities and group projects that are relatively quick instead of those that span weeks, the pressure is lower—and students develop a range of communication skills more quickly.

As microlearning is a relatively new teaching strategy for K-12 students, there's a significant amount of buzz about it in online communities (e.g., Pinterest, for starters). There can be an overwhelming amount of examples that show some ways to leverage microlearning well. To help reduce confusion, we'll dive into some of our favorite successful microlearning strategies next.

What are some examples of effective microlearning strategies I can use for inspiration in my classroom?

Although the concept is simple—shorter lessons, delivered strategically—it can be difficult to see just how a practical course of tiny microlearning modules might play out in real life. Next, we'll explore how people are using microlearning both in and out of K-12 education. Consider whether any of the following examples of effective microlearning in real life might be worth transforming, modifying, and applying in whichever way you see fit (Greany, 2021):

1. **Present a menu of relevant, focused topics for your learners.** One company created a website with large, linked buttons that each contained a microlearning module surrounding an actionable piece of advice, demo video, or practical tip relating to professional development or new hire onboarding. The developers focused on easy navigation, very organized resources, and attractive titles for each microlearning module that made it very clear to the learner what the microlearning module contained. This worked because it required essentially no introduction: The learner could access the microlearning menu, easily find a subject that was relevant and interesting, and start a short, non-overwhelming lesson within seconds. This enabled the learners to get going with very little time wasted—and presented them with a comprehensive resource to use throughout their training or learning journey. This also reduced stress and helped learners feel less overwhelmed, because they didn't have to worry or wonder about how they'd find the answer to a question later on—it was all clearly laid out in their learning menu. Whether you're able to build some type of similar website within your learning resources or you use an actual, physical "menu" of activities and learning engagements in your classroom, menus are an attractive option. Build a menu of learning activities for your students early on in the year, and make it accessible to them either for the bulk of their learning or for them to keep themselves occupied in down moments during or between class time.

2. **Use microlearning for specific development of needed practical skills.** In virtually every field, there are specific repetitive activities that your students will need to master—whether it's correctly citing a resource in a bibliography, using units accurately in a mathematics problem, or cleaning and organizing their supplies after an art project. Teaching these skills to an entire class may feel tedious, and there are always going to be a few students who may need reminders from time to time. Instead of using your valuable time and energy to teach (and re-teach)

these types of essential but, perhaps, not very interesting activities, create a how-to menu of resources that clarify the steps behind these types of tasks. If your school system allows YouTube as a resource, this should be very easy. Linking these types of short videos in an extremely accessible FAQ-type menu for your students, and then pointing them to this document so that they can feel self-sufficient when they wonder how to complete an activity not only helps them take responsibility for their own projects—it also helps them understand how to recognize and rely upon good information online, a key facet of digital literacy.

3. **Keep your microlearning menus or resources focused on very practical information.** What; why; how. If you give your students a resource—a worksheet, a folder in your learning management system, a set of activities—that includes a resource answering each of these basic questions surrounding your subject, you'll be able to provide a comprehensive and easily-digestible primer on your topic that includes built-in redundancy and practicality. Find or brainstorm a ten-minute media resource or learning activity focusing on what a learner needs to do, memorize, or retain; why that piece of information or process is so important; and how to complete the process (or how the information works in real life). Students are practical people. Easily-digestible content that answers those three questions and does not distract with technically-irrelevant information (like the history of how the process was derived, or adjacent information that should probably be in its own module) will be attractive to students who only want to know what they need to know.

4. **Leverage microlearning to speed up onboarding when you're beginning a school year, ramping up after a break, or introducing a new topic.** It can be hard to level the playing field after time off—for teachers and students alike. In those difficult first few days and weeks, use a microlearning menu to help students get on a similar page—and to provide engaging supplemental resources for students who may have the time and ability to delve further while you help students who may require more assistance get up to speed. You can even use microlearning principles to help students build healthy relationships and behaviors: For example, if you're in need of a way to engage most of your class while you help a struggling student one-on-one, you can give them a microlearning menu that has communication-focused activities so they're still practicing essential skills while your attention is occupied elsewhere.

5. **Consider making your microlearning menus as question-and-answer based as possible.** Draw upon your experience as a teacher (perhaps pooling your memories and experiences with those of your colleagues) to make a bank of the most common questions you get about a subject—for example, the differences between specific species, models of atoms, or styles of music. Brainstorm as widely as you can: What are the types of questions that your students might have tucked in their brains as they study for your exams (or, indeed, are the types of questions you might ask on exams)? Provide your students with this list of questions, and link microlearning resources under each group of questions instead of text-based answers. That way, your students will have a practical indication of which resource they need to examine in order to fill the gaps in their own knowledge. Your goal should be to supply a practical, useful, and succinct answer to the most common questions your students may have.

Can I leverage microlearning effectively for my remote students?

Although it was already a trend in education prior to the COVID-19 pandemic, remote learning began to become much more desirable after the 2020-2021 educational year. As teachers, we need to be prepared to deliver learning strategies that can be flexible enough to move with students through in-person, remote, or even other types of instruction over the years (Bowley, 2020).

Microlearning is an adaptable educational strategy that will be able to deliver on this type of flexibility. However, as varying microlearning content with activities can be more challenging when you're not in the same classroom, it's key to be very thoughtful in how you administer microlearning modules from afar. Here are a few ideas that may make the transition easier (Bowley, 2020):

1. **Instead of in-person activities to demonstrate learning, use challenge-based learning to engage.** Give your students a problem with an interesting scenario-based challenge. Ask them how they would find their way out of this problem—one where the answer would require a basic knowledge of a topic that you've introduced recently—and challenge them to find a good solution through a group discussion in ten minutes or less. If you would like to get multiple microlearning modules out of this type of scenario, give your students a module to discuss, a module to prepare a quick presentation on the answer, and then have one student (or a few) give the presentation to the rest of the class. Having to do these types of quick-thinking and quick-performing activities regularly will help

your students in their later careers, and they will force your students to gain a working familiarity with your subjects in much the same way an in-person activity would.

2. **Take advantage of the fact that your remote student might have a slightly different learning schedule.** Instead of having your students sit in front of a camera for an hour while you give a presentation, give them three ten-minute microlearning modules and ask them to complete them over the course of the day. This is less time overall invested, and the natural spacing and repetition of the information will help the student learn the concept far more effectively than one 45-minute lecture would. This also helps students gain a sense of responsibility for their own education—the freedom to choose when, if not what—that will naturally engage them in their studies.

3. **Use the coaching tools that often come along with microlearning apps and activities.** Especially if you're using a pool of microlearning resources that are already-made (e.g., ones that you find online, or resources that you and your colleagues created together in advance), invest your teaching energies and any extra time you may have to one-on-one coaching instead. Try to see remote education (and the downtime offered by strategically-administered microlearning) as an opportunity to provide students with more personalized attention—not less. While the class is absorbed in a media presentation or a discussion about a situational challenge, use that time to send individual messages to your students, film quick video responses, create dashboards based on the microlearning data you have about each student's performance, or reach out to students' parents if needed.

Let's keep it simple as we close out the course.

What are four key components of microlearning that's effective, efficient, and ready to roll out for my students?

Whether you're interested in going all-in on the microlearning trend or you think you'd just like to offer one or two modules to your students as an optional study aid, it's important to do it right. While we've covered many different ways to use microlearning in your classroom or remote study program, it all boils down to four elements of instructional design that will make microlearning more effective than you could have thought possible. These elements are (Gautam, 2021):

- **Making sure that your content is interactive and engaging.** This will be dependent on the age and specific needs of your students, in your classroom; however, students of all ages will need to engage with their learning, so it's never a bad strategy to vary the content and include strategic, engagement-driven activities. These activities may include gaming elements, simulations, quizzes, and competition. Your goal should be to stimulate curiosity with every activity! With that said, it's important to realize that these activities are parts of microlearning, not breaks between microlearning. They teach students as much as a block of text does, and allow you to assess their performance in powerful ways. It's important to realize that these activities are parts of microlearning, not breaks between microlearning. They teach students as much as a block of text does, and allow teachers to assess their performance in powerful ways.

- **Using real-life examples to make your teaching relevant and vivid.** One way to help students integrate and remember concepts well is to enable them to relate to the content as quickly as you can. Nothing accomplishes the mission of building a relationship between your student and your content more quickly than real-life examples. Give your students a reason to care—whether it's relating a scientific concept to the weather they experience, a social studies example to something that their ancestors went through, or an art concept to a structure that exists in your school. Draw the connecting lines for them, and they'll hold on to the information much more easily.

- **Offering your students flexibility with your microlearning resources.** One of the benefits of the microlearning philosophy is that, to some extent, students can take these courses anywhere, at any time. If you teach a room of students on-site, you may not have that level of flexibility; however, students should be able to have some degree of choice regarding their education to promote an essential sense of engagement. At the very least, the resources you offer should be freely and easily available for flexible, accessible review and study even (or especially) when a student is not in your classroom. One practical endpoint to work toward in this arena? Make sure that your resources are easily available on multiple types of devices, including handheld and mobile devices. Bring your resources to the place your students will most likely use them!

- **Use microlearning strategically.** There's a good chance that, no matter how excited you may be about microlearning, you won't be able to use microlearning modules for everything. Microlearning will likely be best used as a part of your

larger teaching strategy. Whether you decide to use microlearning primarily as a learning reinforcement tool, as a resource for students while they study, or as an option for students to peruse after they've completed the required coursework of the day, make sure that you fit it strategically into the rest of the educational activities and support that you offer—not necessarily as a replacement for other vital components you use to promote your students' growth.

Section 3 Reflection Questions

- Think about the current ways that you teach. Is there anything that you do that you know is longer than it needs to be—or that could reasonably be swapped out with a shorter activity?
- Do you have resources available for your students that are easily-accessible across a variety of platforms?
- Do you think that other teachers at your school would be interested in working together to create a pool of microlearning resources? Why or why not?

Section 3 Key Points

- If you think about it, your learners are already far more familiar with many of the processes that microlearning encompasses than you are, as they already use them for engaging, entertaining, and connecting with their peers. This means that you already have the tools to implement microlearning for your young students—you just have to start strategically.
- There are many ways to start microlearning with your current curricula in place. For example, you can use microlearning as a review system, or for teaching specific recurring, practical tasks to your students.
- If you're able to do so, it's always easier to implement microlearning systems if you can do so with a few of your fellow teachers by your side! That will allow you to spend more time implementing, instead of recreating, strategies that may already be in place elsewhere.

Course Summary and Conclusion

Although microlearning strategies might seem unfamiliar and may take some time to embrace, the fact that its methods are based on scientific principles will hopefully lend credence to its possibilities. By harnessing the specific way our brains process and retain information through microlearning, we can choose to work less and learn more! If this sounds too good to be true, it's also key to remember that microlearning is not necessarily simple; there's a great deal of strategy that goes into keeping leesons brief but effective. Regardless, as long as our attention spans remain short, it seems like microlearning is here to stay as a viable learning strategy. Consider adding microlearning in some way to your educational framework, and see how your students benefit!

Resources

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