EU Digital Framework
for Sign Languages

WHITE PAPER: MICROLEARNING

https://digitalsignlanguage.eu

Co-funded by the
Erasmus+ Programme
of the European Union

Microlearning © All right reserved

Authors: Enrique Varela from Funteso, David Tsenti from Emphasys Centre, Carolina Carotta from Istituto dei Sordi.
Graphic design: Maurane Populo and Iratxe Monge Chair from the European Digital Learning Network

https://digitalsignlanguage.eu/

TABLE OF CONTENTS

INTRODUCTION 6

CHAPTER 1: What is "microlearning"? 8

1.1 What does it contain? 10

1.2 Advantages and disadvantages 11

1.3 Quality or quantity 12

CHAPTER 2: Technologies used in microlearning 13

2.1 Aims, recipients, and tools 14

a) What are the aims and the benefits of microlearning? 14
b) Why microlearning is a better way of training? 15
c) Who are thie recipients? 15
d) What tools and methods does microlearning use? 16
e) New microlearning tools with examples 17

2.2 Are they accessible for all? 20

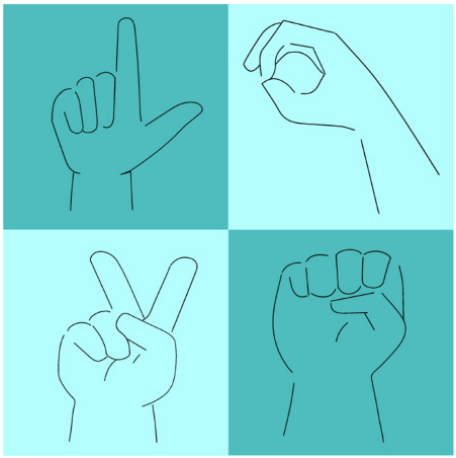
CHAPTER 3: Deaf community and microlearning 23

REFERENCES 27

INTRODUCTION

The Project White Paper was created by the EU Digital Framework for Sign Languages Erasmus + project consortium to present, develop and provide research in the digital field and its new expressions.

The "EU Digital Framework for Sign Languages" is an Erasmus+ co-funded project aiming to develop a **comprehensive and innovative** language framework in International Sign, related to semantic domain of digital ICT. The framework is to enhance the accessibility of deaf workers and deaf VET students to professional settings, favoriting their integration, a fair and equitable treatment.



The main goal of this guide is to explain a new "smart" and fast methodology, the "**microlearning**", that both can be applied in digital subjects and uses digital devices.
The guide is divided in three main parts:

- The chapter 1 will focus on the characteristics of the microlearning: the contents, the advantages and disadvantages, the challenges about quantity and quality points of view.
- The chapter 2 will provide a more specific outlook in the objectives, the target audience, the tools: which digital and technological devices and programs can be used and if they can be considered accessible by all.
- In the end, chapter 3 will focus on Deaf community and will try to define how much deaf community knows "microlearning" topic.

CHAPTER 1

What is “microlearning”?

Microlearning is a term that has been mentioned a lot in recent times, especially in the field of **corporate e-learning**. Because it answers questions that need an immediate response with micro training **knowledge capsules**. It is used in both in-company and individual employee training to quickly and efficiently learn any discipline.

It is becoming a major global trend.

It is an **educational strategy** characterised by the brevity of its lessons and learning units. In other words, it is knowledge encapsulated and concentrated in small knowledge pills Wthat serve to explain small concepts, tools or tutorials.

The training activities of this system can be of different sizes, depending on the course, pill, webinar, seminar, etc...

In this way, knowledge and skill sets are provided without giving large amounts of information and overwhelming the learner by using the learning units in a **more dynamic** way than the traditional way.

Thus, it is much easier for the ideas that you want to transmit to be fixed in the memory of students in formats that can also be infographics, podcasts or YouTube videos, the star platform with millions of tutorials.

There are also longer courses based on microlearning such as playlists or learning itineraries based on small capsules to be consumed at any time.
However, microlearning on its own should be accompanied by a **practical methodology,** which can also be learned through videos.

1.1 What does it contain?

Microlearning can refer to any kind of training material.

The training is distributed in small **learning capsules** which, as mentioned above, can take different formats. A microlearning course can also contain capsules of different lengths and in different formats.

Capsules are prepared e.g., in the form of KEYNOTE or POWERPOINT presentations or small PDF documents. In all cases the information and concepts are given to the learner in short and concise formats.

They can also adopt formats such as short videos, very short webinars, concise and direct talks in podcast-type formats and, in general, any medium that ICT puts within our reach.

Here are some of the most important features of this learning method:

- **Brevity:** microlearning lessons tend to be **short**, depending on the format.

- **Variety:** the material or content of these lessons can be presented in **different ways** (games, videos, slides, questions, etc.). Gamification plays an important role in microlearning.

- **Granularity:** microlearning, due to its reduced time, focuses on a single topic or concept to **focus** the content. Therefore, it has a single training objective through diagonal reading.

- **Technological tool:** as a consequence of the demand for information here and now, the pills are offered through **different formats** or devices according to their visualisation (screen size, bandwidth, navigation, etc.). This flexible technology allows the learner to access more easily at specific times and conditions of the day, e.g., during breaks or while travelling.

- **Informal learning:** microlearning could also be described as informal learning as knowledge is acquired in a **micro-content structure**, micro-media or multi-area environment.

1.2 Advantages and disadvantages

Here are some of the advantages of microlearning for its consumers. In this case, the learner.

- One can learn what you need on the spot.
- It is cheap and, in some cases, free.
- It allows you to invest little time to learn a lot in a simple and fast way.
- Learning at the learner's own pace.
- Satisfactory for the brain.
- Facilitates study adapted to the short time available.
- Capsules of educational content can be tagged for quicker searches.
- Access to content at any time.
- Helps to find solutions for all problems.
- Covers different learning styles as a result of its diverse format.
- Allows self-consumption.
- Repetitive, active, reflective and dynamic learning style.
- A single driving idea is developed.

As for the disadvantages, if one has a basic knowledge of how to use the INTERNET and its tools, there are no major disadvantages to this type of learning. But we will mention some possible ones:

- **Lack of research:** there is not enough research to know if microlearning is an effective strategy to achieve long-term learning objectives.

- **Disconnected fragments of learning:** in the case of long-term learning objectives, microlearning interventions may end up as fragments of content that are not linked to each other.

- **Lack of cognitive synthesis:** we cannot be sure that learners will synthesise microlearning content well enough to build appropriate mental models.

- **Potential for confusion:** if a microlearning solution includes a wide variety of formats, some learners may have trouble switching from one format to another.

1.3 Quality or quantity

There is no debate, **high quality content** can be incorporated into small knowledge pills that the learner receives quickly, concretely and concisely. The fact that the contents are brief (pills, small presentations, etc.) does not have to be detrimental to their quality, and even less so if care is taken to ensure that the disadvantages mentioned above do not occur.

CHAPTER 2

Technologies used in microlearning

2.1 Aims, recipients, and tools

In the learning and workplace performance business, microlearning is both popular and controversial. Microlearning is essentially about presenting audiences with small, useful bits of content to assist them in learning a new skill or improving their performance. Microlearning is getting more popular in the teaching industry thanks to new technologies that can support it. But what microlearning is? According to a pioneer in the microlearning space and author, 2Carla Torgerson, "*Microlearning is a piece of learning content that can be consumed in no more than five minutes*" (Torgerson 2016). On the other hand, 3Shannon Tipton believes that "*Your microlearning creation will need to address the desire of people to learn any time in any place, placing people in control of their learning destiny. Microlearning is simple, short, and engaging. This is not to say we are 'dumbing down' learning for the sake of being short or narrow-focused. Quite the opposite. When appropriately applied, microlearning can allow for deeper encoding, reflection, and practice retrieval—all necessary for the successful exchange of knowledge and learning application*" (Tipton 2017). In the documentation which follows, microlearning will be analyzed.

a) What are the aims and the benefits of microlearning?

It aims to teach people about a subject through videos, text, or even video games. Microlearning is a method of **gaining new knowledge in a short period**. With the microlearning method, less time is needed to consume the content, due to the fact that a microlearning course will take up to 10 minutes to be completed. Also, microlearning increases learners' involvement because it makes the lesson more attractive. Moreover, microlearning improves knowledge retention. It is structured in such a way that the task is assimilated properly by the brain. A lot of people prefer microlearning because it enables learning everywhere devices are available, like mobile or

tablet devices. This benefit allows learners to be anywhere in the world and through a device, they can be trained in a specific task. Another important benefit is that can support 24/7 learning. Some people want to learn on their own time and microlearning gives the opportunity of **24/7 learning**. Last but not least microlearning enables **personalized learning**. Everyone can choose the way that they want to be trained.

b) Why microlearning is a better way of training?

The most common format for e-learning materials is a piece of content followed by an assessment question. Some experiments were performed, to investigate if students responded better to these questions after watching multiple tiny bits of content with many suitable questions or after watching huge volumes of content with fewer assessment sections. According to a report by Software Advice, The LMS Features that Drive Employee Engagement IndustryView,[1] microlearning generates 50% **more engagement** because the majority of trainees find the teaching more attractive. [2] Moreover, it can be developed three times faster than a traditional teaching session due to a shorter content, so courses can be delivered faster. Also, compared to traditional learning, microlearning can be up to 50% less expensive, because no books or transportation is needed. A very important factor is that a three to seven minutes session can be **more productive** due to the brain's working memory ability. According to RPS research[3] , Microlearning improves focus and supports long-term retention by up to 80%.

c) Who are thie recipients?

Everyone who has access to books, mobile phones, or tablets can use microlearning technologies. More specifically, the people who

will be benefited the most from microlearning tools, are those who have **limited time** to study and they want to get the knowledge and the skills fast. Also, people with disabilities like deaf people can learn **from** their **homes**. Last but not least are the people with attention issues that cannot participate in a traditional class. Some technologies that are mentioned below, need further hardware and software support, but some normal microlearning activities can be implemented through the above-mentioned methods.

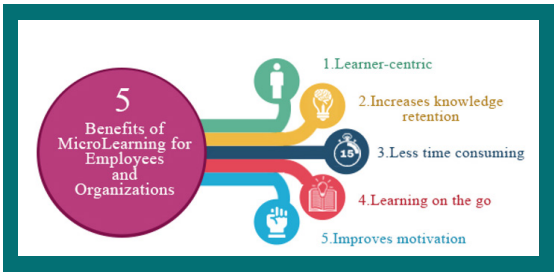


Figure 1: https://playxlpro.com/wp-content/uploads/2018/04/benef-microlearning.jpg

d) What tools and methods does microlearning use?

Microlearning can be delivered through various tools. Firstly, short, targeted, highly contextual messages or hints, that can be found online through **e-platforms** to help users learn. Some e-platforms examples are www.skytap.com and https://axonify.com. A really powerful tool is microlearning videos. Short, focused videos that are designed to meet a specific learning outcome. The most common tool for microlearning videos is YouTube videos and tutorials. Anyone can find easily a lot of videos for a variety of subjects. The newest microlearning technology is **Microlearning apps** or mobile apps using Augmented Reality. There are some free applications for

Augmented Reality (AR) like Adobe Aero and soIAR, and some paid as well, for example, the complete anatomy 2022 and the sky guide app. Similarly, to AR, there are Micro-challenges and game tool that is used through Virtual Reality. Some applications are ImmerseME and Mondly. Finally, social media may be considered as microlearning tools, because through Instagram, Tik-Tok and Facebook millions of people every day can learn instantly about a specific task like cooking fast and easy.

e) New microlearning tools with examples

In this section, we will investigate microlearning tools and we will give some examples of those tools and how people can use them.

E-platform / E-learning:

- E-learning is a wide well-known **training method** that is getting more popular nowadays. A great number of people are trained every day using online platforms. There is a plethora of free or paid microlearning-based learning management system (LMS) applications or websites. Some examples are 5 Udemy, Skillshare, MasterClass, and Udacity. Those platforms can train everyone online after signing into their account.

Short videos (tutorials):

- In the past several years, a lot of people are using tutorial videos for **learning and training purposes**. The technology needed for this tool to be implemented is a computer or telephone device. **Tutorial short videos** are preferable in many cases rather than to read a topic in a book and they are more understandable for the majority of people because they combine **images and audio**. People with disabilities (deaf people) can also use short videos

to familiarise themselves with a specific topic. A video without audio but full in the description can be used for that purpose, which includes sign language. For example, young deaf children can learn about how various plants grow through a combination of text, images and sign language, as it following YouTube video shows: https://www.youtube.com/watch?v=nHUM09qMAaY

Virtual Reality (VR):

- This is a **high-tech microlearning tool** and is used increasingly in our era. You can learn in Virtual Reality a specific topic that you are interested in and get familiar with that topic more easily. People with disabilities (deaf people) can see through a Virtual Reality headset in a 3D environment. They can learn faster by using this technology, but the main drawback is that it is expensive. Some applications that are used for learning purposes are Adobe Captivate 2019 and Number Hunt.

Augmented Reality (AR):

- This method is one of the **most modern and not so well common tool to everyone**. Using your mobile or tablet device and downloading the required software (a simple software is free, but an advanced software may cost from €5 to €100), you can see an **enhanced version** of the real physical world. This technology can be used in a variety of industries such as medical, manufacturing, environmental, and many more. Some AR examples are JigSpace and Complete Anatomy 2021.

Comics – short chapters:

- This tool is the most well-known **learning method**. It does not require any technical knowledge; it is cheap and everyone has

access to this. It is quite an old microlearning tool but is efficient most of the time. Learners can see different tasks through images and explanations. For example, on the following website, they can learn about biology through comics. https://blog.oup.com/2020/03/learning-microbiology-through-comics/

Social media:

- So in this century, social media appear in our lives. They can be **very helpful if we use them right**. Social media can be used in microlearning to **teach people a specific task**. Usually, they used short videos from 15 to 60 seconds. Some applications that use microlearning are Tik-Tok and Facebook, which use short clips that teach you a variety of subjects.

Figure 2: https://virtualspeech.com/blog/learn-language-vr-scenarios-apps

Figure 3: https://blog.oup.com/2020/03/learning-microbiology-through-comics/

2.2 Are they accessible for all?

Finally, all the above-mentioned technologies will be analysed to see which technologies are expensive or need further equipment to be functional and if those technologies are accessible for all.

E-platform / E-learning:

- E-learning is the **most popular microlearning tool**. The main advantage that makes it so powerful is that is an inexpensive online tool. That means it needs only a device (phone, tablet, or desktop) to have access to the Internet. It can be used all over the world at any time (24/7 learning).

Short videos (tutorials):

- For short videos, no expensive hardware is needed, only mobile or computer devices. Also, it is free and the only requirement is to have a connection with the Internet. **People can use this tool at their own time and place**.

Virtual Reality (VR):

- It is the most expensive microlearning technology and not a lot of people can afford to buy this equipment. Virtual Reality headset and software needed. **This learning method can only be accessible for those who have the VR software and hardware installed**. Some VR devices are Oculus Rift S and Quest, and Valve's Index VR. The price fluctuates from €200 to €1000.

Augmented Reality (AR):

- Augmented Reality **requires an AR application and mobile**

device or tablet to be functional. The price for this software sometimes is free if the software is simple and the price sometimes can go to €100 for more advanced and specialised applications.

Comics – short chapters:

- This method is used for many years with good results. The main advantage of this tool is that is cheap and no equipment or knowledge is needed. **This method can be accessible for everyone**. People can find online comics instead of books. For example, through a comic, learners can be taught about complex biology terms.

Social media:

- Social media are **free for everyone and accessible through smartphones, tablets or PCs**. It is easy to create a short Tik-Tok video for microlearning purposes, so no additional expertise is needed for this microlearning tool.

Challenges to use microlearning with the above-mentioned technologies

For this task, an expert is needed to write the lesson material, as well as, some **microlearning tools** which require an expert in the field of technology to implement them. The vast majority of the tools above, need an expert to design the method that will be exported to the learners. For example, for a VR and AR application, a software developer is needed and for comics, a graphic designer is needed. Those are some of the challenges that may occur during the design of microlearning content. On the other hand, learners on some occasions will use some advanced hardware like a **Virtual Reality headset** or an **Augmented Reality application**, so they will need to

have some technical knowledge.

Conclusion

In the era of technology, students and employees will be more **technologically savvy** than prior generations and will use microlearning tools for their improvement. Also, a lot of people with disabilities can take advantage of it. Using **microlearning technologies**, learning can be **easier and more productive for some people with difficulties**. Deaf or disabled people can use the above-mentioned technologies and the applications that are applied through their mobile phone, tablet or if they have the ability their VR headset, to learn fast and easy.

CHAPTER 3

Deaf community and microlearning

Is Deaf community aware that microlearning exists? Are there platforms and tools available in SLs? How do the Deaf community would approach to this kind of "smart and fast" methodology?

These are the questions that makes this topic so interesting. Microlearning is quite widespread and it's becoming more and more popular thanks to platforms and apps well-structured and easy to use that sells knowledges in a wide range of possible costs.

The research on the net about already existing platforms built for Deaf people using Sign Language (and so in the framework of deafness and Deaf needs) produced only two results:

1. CSD LEARNS - https://csdlearns.com/learners/

2. Introduction to the Singapore Deaf Community and Language (Micro-learning Course) - https://sadeaf.org.sg/micro-learning-course/

The first website (CSD Learns) works in the sustain of deaf people who wants to improve their **equity in workplaces**: the main subjects deal with the managing of the budget, the writing of a business plan and the investments.

All these lessons are in American Sign Language and when visiting the site, it's possible to ask for assistance both in written form and in Sign Language.

The second link is an internal page of “The Singapore Association for the Deaf”. It’s addressed both to deaf and hearing people: the proposal is to **learn Sign Language and Deaf culture** through little lessons built in the view and with the characteristics of microlearning:

- be quickly usable;
- be concise;
- they have to get straight to the point;
- they must present links or references that refer to further information for those who want other details;
- they must last no more than 5/10 minutes;
- they must be usable from any device, both fixed and mobile;
- they must guarantee constant, but diluted learning.

To conclude, we can state that the microlearning is **still something new for the Deaf community**. Make accessible videos and materials for the online learning is a goal that all businesses must have. The respect of all people and target groups is also at the base of the Agenda 2030: in order to reach quality in education, decent work and economic growth, reduced inequalities, the delivery of inclusive material and learning is necessary.

REFERENCES

- Microlearning: Short and Sweet | Karl M. Kapp; Robyn A. Defelice
- The Microlearning Guide to Microlearning (1st Edition) by Carla Torgerson Paperback, 192 Pages, Published 2016
- Microlearning: The Misunderstood Buzzword July 17, 2017, By Shannon Tipton
- https://www.softwareadvice.com/resources/top-lms-features-employee-engagement/
- https://www.talentcards.com/microlearning-definition-benefits-examples?aff=dsa&utm_source=google&utm_medium=cpc&matchtype=&network=g&keyword=&cid=14245881536&grpid=127432052042&gclid=Cj0KCQiA0eOPBhCGARIsAFIwTs5-Pd2Bdr6W5k6xF65iHiY21e0rSaptPGj6bjoBQpx7dA0CiMEREk0aAmj3EALw_wcB
- https://www.shiftelearning.com/blog/numbers-dont-lie-why-bite-sized-learning-is-better-for-your-learners-and-you-too
- https://www.g2.com/categories/microlearning-platforms/free
- https://www.udemy.com
- https://www.youtube.com/watch?v=nHUM09qMAaY
- https://www.teachthought.com/technology/augmented-reality-apps/
- Microlearning: Emerging Concepts, Practices and Technologies after e-Learning: | Theo Hug, Martin Lindner, Peter A. Bruck
- www.oculus.com
- MICROLEARNING AN EVOLVING ELEARNING TREND: | Luminia GIURGIU
- https://www.valamis.com/hub/microlearning
- Figure 1: https://playxlpro.com/five-benefits-of-microlearning/
- Figure 2: https://virtualspeech.com/blog/learn-language-vr-scenarios-apps

- Figure 3: https://blog.oup.com/2020/03/learning-microbiology-through-comics/
- https://csdlearns.com/learners/
- https://sadeaf.org.sg/micro-learning-course/
- https://www.un.org/sustainabledevelopment/

Icon accreditation:

- Video icon by Nawicon
- E-learning icon by Freepik
- Virtual Reality icon by Roundicons Premium
- Augmented Reality icon by Freepik
- Comics icon by Freepik
- Social media icon by Freepik
- Knowledge retention icon by Freepik
- Learning on the go icon by Smashicons
- Less-time consuming icon by Freepik

EU Digital Framework for Sign Languages

The white paper: “Microlearning” was created by the EU Digital Framework for Sign Languages Erasmus + project consortium to present, develop and provide research in the digital field and its new expressions.

ISTITUTO DEI SORDI DI TORINO

Co-funded by the Erasmus+ Programme of the European Union

This project has been co-funded with support from the European Commission. This communication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein. Project number: 2020-1-IT01-KA202-008386