Erasmus+

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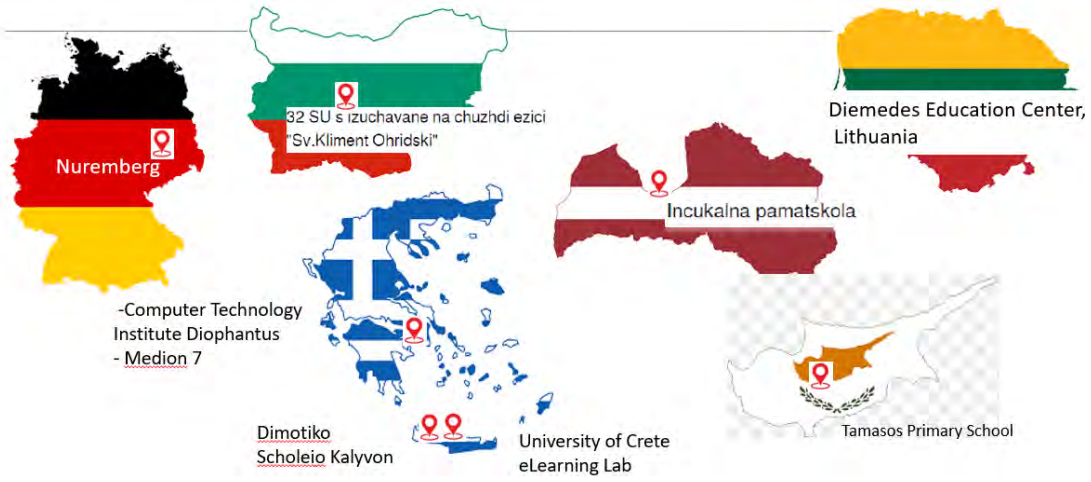
iLCD

Intelligent iLearning-eCreativity-eDiversity

RESULT 2
Interactive Content under the principles of distance learning (i Content)



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Erasmus+ Project 2021-1-EL01-KA220-SCH-000027791

Project Acronym:	**iLearning-eCreativity-eDiversity**
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CONTENTS

PART A

1. Description of the Interactive Content under the principles of distance learning (i Content)

The designing of an Interactive Content & Educational Material under the principles of distance learning (i-Content) should be based on pedagogical principles, the understanding of learning material and the set learning goals, and definitely, the awareness of the way advanced learning technologies can contribute to attaining these goals. The designing of i-Content requires special attention, as we need to adhere to DE principles when we develop the teaching material, plan our teaching strategy and decide on the combination of the technological means to support the attainment of the set learning goals In the proposed designing we follow the basic principles which should determine an Interactive Content to the methodology of the American Distance Education Consortium (http://www.adec.edu).

• A distance learning material, being in multimedia form, should be regulated by clear learning goals and focus on pre-defined expected outcomes, considering the special characteristics and needs of students within the context of an open, flexible and student-centered approach • The student should be encouraged to actively participate throughout the learning course, associating learning by doing, learning by reflection, case-learning study and learning by exploring. Relating learning goals with real life learning experiences consists a major priority.

• The educational material should combine the use of ict in order to attain the set learning goals considering the different learning styles of students. The selection of the ict tools depends on the nature of content, the access to technology of the learning group and the general educational philosophy of the teaching staff.

• The educational material should encourage interaction among the human resources by ensuring the appropriate conditions and actively supporting the development of communities which share common interests with the aim of achieving collaborative learning. Strong emphasis is placed on interaction, as it is regarded as one of the fundamental factors to achieve the learning objectives. The proposed interactive environment implements the theory of three types of interaction (Moore, 1989) and that of Paulsen's methodology (1977) Teachers of all levels and disciplines will acquire new knowledge and enhance their ICT Skills and their English language skills.

The University of Crete co-ordinated the whole effort: Interactive Content under the principles of distance learning (iContent), Principles of pedagogical Design of i-content, implementation methodology, and finally to build up up the evaluation methodology of the environment focus on the following points:1. Policy: The data are not publicly viewed but only by the entity

managing the IeSLE R3 2. Open source philosophy: In essence, this means that every learning entity can adapt it to their particular needs / demands. 3. Principles: [1]. Establish and maintain Regular Effective Contact. [2]. Create opportunities for student-centered learning. Principle. [3]. Create opportunities that have practical real world applications. [4] Provide support for each student's learning process and autonomy. [5] Ensure all course content is readily and easily accessible to all students.
The Protypa Diktya Polymeson took charge of the integration with IeSLE R3.
The teachers from Partner schools studied the Interactive Educational Material (iContent) during the Blended training course and then reviewed it highlighting the positive aspects and recommending improvements.

2. The IEM (iContent) Modules and Topics

Module 1	**Introduction to iLCD Project (based on APF Result 1)**
	Introduction to iLCD Project
	Introduction to iLCD Project: A Case Study
Module 2	**Digital Storytelling**
	Introduction to Digital Storytelling
Module 3	**Introduction to Stop Motion Animation**
	Introduction to Stop Motion Animation
	Kdenlive Tutorial for Animation I
	Kdenlive Tutorial for Animation I
Module 4	**Create a website**
	Build your Website
Module 5	**The e-me4all environment**
	How to Create a Hive in e-me4all
	Adding members in a Hive
	Conducting a poll in e-me4all
	The wall of e-me4all
	Filesharing in e-me4all
	The portfolio of e-me4all
	The e-me4all assignments tool
Module 6:	**The Use of Augmented Reality in Education**
	The Use of Augmented Reality in Education
	Creating an account and and a new AR project
	Uploading and adding assets to an AR project
	Preview an AR project

3. Evaluation of the IEM (iContent)

Evaluation form of Interactive Educational Material (IEM)		
	AVERAGE	%
1. The writing style of the interactive educational material is reader-friendly. (1=Not at all, 5=Very much)	4,769230769	95,38%
2. The language of the interactive educational material is simple and easy to understand. (1=Not at all, 5=Very much)	4,846153846	96,92%
3. The amount of information in the interactive educational material is satisfactory. (1=Not at all, 5=Very much)	4,846153846	96,92%
4. Navigation within the interactive educational material is easy. (1=Not at all, 5=Very much)	4,769230769	95,38%
5. The interactive activities of the Interactive Educational Material provided supportive feedback during my study. (1=Not at all, 5=Very much)	4,615384615	92,31%
6. The interactive educational material regarding iLCD project was complete and explanatory. (1=Not at all, 5=Very much)	4,692307692	93,85%
7. The interactive educational material regarding the methodology of the iLCD project (online interactive collaboration between schols/classes/pupils) was complete and explanatory. (1=Not at all, 5=Very much)	4,615384615	92,31%
8. The interactive educational material regarding digital storytelling was complete and explanatory. (1=Not at all, 5=Very much)	4,769230769	95,38%
9. The interactive educational material regarding e-me platform was complete and explanatory. (1=Not at all, 5=Very much)	4,538461538	90,77%
10. The interactive educational material regarding Augmented Reality was complete and explanatory. (1=Not at all, 5=Very much)	4,692307692	93,85%

11. The interactive educational material provided support during the implementation phase of iLCD project. (1=Not at all, 5=Very much)	4,461538462	89,23%
12. The interactive educational material relates theory to practice. (1=Not at all, 5=Very much)	4,692307692	93,85%
13. I will use the knowledge and skills gained by studying the interactive educational in other projects as well. (1=Not at all, 5=Very much)	4,307692308	86,15%
14. I will recommend studying the interactive educational material to colleagues. (1=Not at all, 5=Very much)	4,461538462	89,23%
15. In your opinion, what are the strenghts of the interactive educational material?		
Simplicity The IEM was explanatory and presented in segments. You can reach it from anywhere, any time. It can be used by many students and colleagues Long distance learning in you own pace n your opinion, what are the strenghts of the interactive educational material. More interesting Useful The possibility to join children around the world. Provide us new tools, ideas, knowledge and interaction in the learining process. The collaboration between teachers and pupils Friendly for users		
16. In your opinion, what improvements would you recommend?		
More enhancement More interactive activities. no ideas. No None I have nothing to offer. everything satisfied. Nothing. I think everything is good, everything is working.		

I am satisfied with the educational material. No improvements for me is necassary. None It needs to be more related with the daily school life

4. How to access the IEM (iContent)

IEM can only be accessible to those who are interested in studying the Course: Erasmus+ Intelligent Learning – eCreativity – eDiversity. In order to do so, they need to request access to edivea2@edc.uoc.gr .

For auditing purposes one needs to follow the next steps:

Go to IeSLE (Result 3): https://ielse.edivea.net/

Login with USERNAME: ielse-demo@edivea.net and PASSWORD: demouser12345

Click on the Course "Erasmus+ Intelligent Learning – eCreativity - eDiversity"

Select one of the available Learning paths on the list to view the Interactive Educational Material: Result 2: Interactive Content under the principles of distance learning (i Content)

PART B

PRINCIPLES OF IEM (iContent) DEVELOPMENT

EDIVEA e-labs' Framework for Material Design

- The framework describes principles of effective learning using technological tools to:
  - motivate students
  - encourage interaction
  - facilitate deep processing
  - promote meaningful learning
  - provide support during the learning process

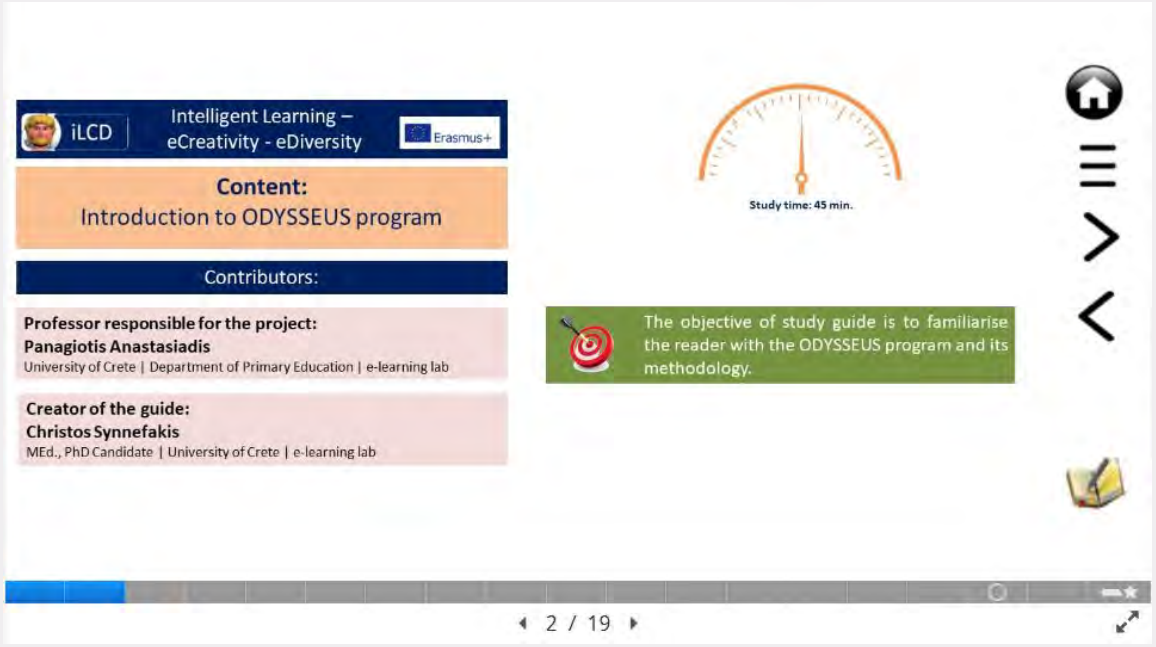
Theoretical Principles for Material Design

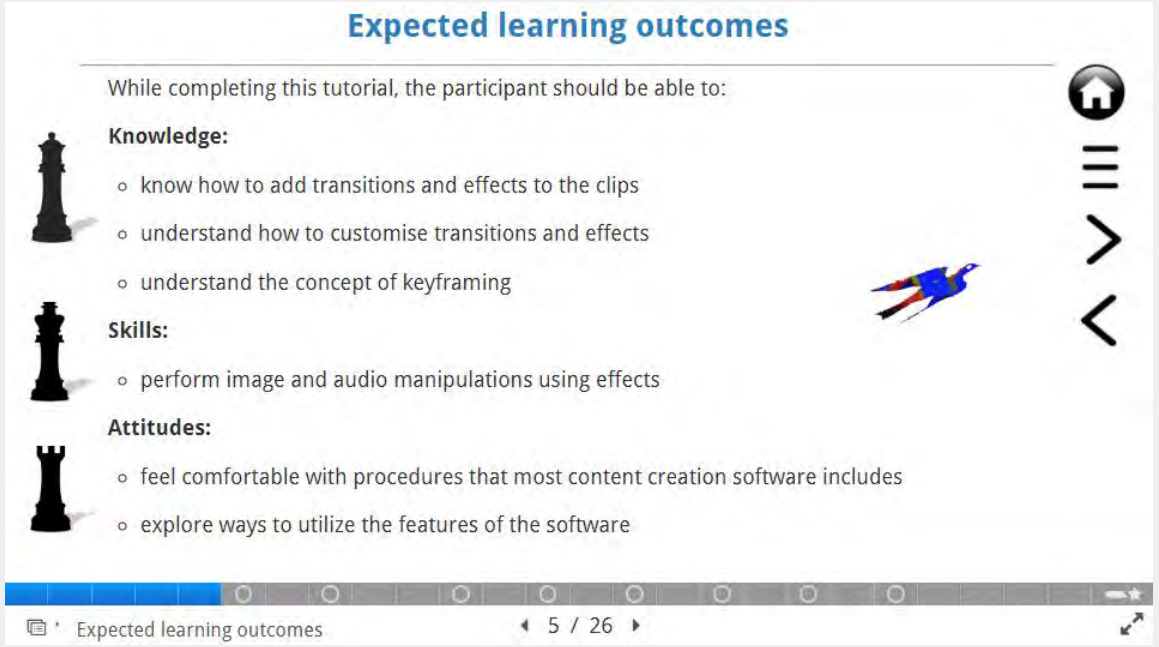
- The **main theories** suggest models showing the important learning components that should be used when designing content and activities.

Behaviorist Learning Theories – Implications for EM Design

Learning is an observable change in the behavior of the learner that originates from external conditions. (Thorndike, 1913, Pavlov, 1927, Skinner, 1974)	• Students should be told the explicit outcomes of the learning. • The learning materials must be sequenced appropriately to promote learning. • Students must be tested to determine whether or not they have achieved the learning outcome. • Students must be provided with feedback so that they can monitor how they are doing and take corrective action if required. • Online testing or other forms of testing and assessment should be integrated into the learning sequence to check individual learners' achievement levels and provide appropriate feedback.

Implications for e-Learning Material Design





Implications for e-Learning Material Design

1 Introducing accessibility and disability

With the use of computers and the web becoming widespread in most parts of the world, many disabled people now could potentially have better and more independent access to information and communication. New technology developments can make this access easier, but they can also raise new barriers. These barriers can often be removed by considering the needs of disabled users when designing and implementing electronic or online educational materials.

Previous | Next

Learning outcomes | 1.1 Why is accessibility important?

https://www.open.edu/openlearn/education-development/education-careers/accessibility-elearning/content-section-0?intro=1

1.4 Usability and accessibility

Figure 5 Smiley face

Show description

In general terms, and business terms, it is good practice to make a product available to as wide a market as possible. A design that incorporates the requirements for disabled students is likely to be more accessible and useful for non-disabled students than a design without such consideration. To design something (eLearning materials, for example) with the needs of disabled people in mind is termed 'accessibility'. To design something to make it as easy to use as possible by all potential users, regardless of what impairments they may have or what assistive technologies they may use, is termed 'usability'.

In practice, when designing eLearning materials, the goals of both are broadly similar. But consider one rather silly example to highlight the difference: a page of white text upon a white background could be 'accessible' to blind users, because their screen-reading technology will recognise the text. However it is hardly 'usable' by most people (and inaccessible to other groups of disabled people too). So in that case the person creating the white-text-on-white-background material could be accused of ignoring usability in favour of one very narrow aspect of accessibility. Similarly McNaught, Evans and Ball (2010) found, when testing ebook delivery platforms for accessibility with a range of disabled users, that certain tasks (such as finding and opening a particular ebook title) could sometimes technically be achieved by vision-impaired students using screen reading technology (so one could argue the process was accessible) but that in some cases it took over 150 key presses to get there (and so one could argue the process was not usable in any practical sense – particularly when a sighted person could get there with less than a dozen mouse clicks).

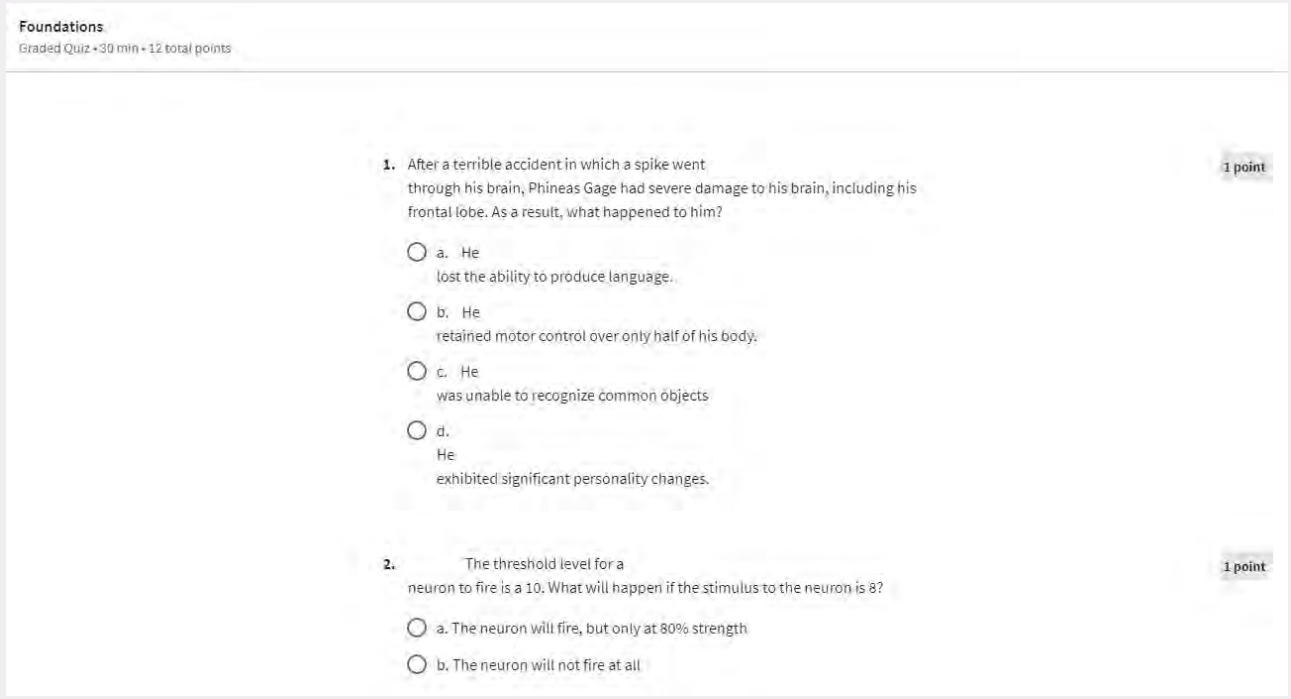
Mike Wald from the University of Southampton gives a few more examples of accessibility vs usability in this short video clip.

Previous | Next

1.3 The ethical and legal imperative for accessibility | 1.5 Special resources or universal design?

Implications for e-Learning Material Design

- **Quizzes**



Foundations
Graded Quiz • 30 min • 12 total points

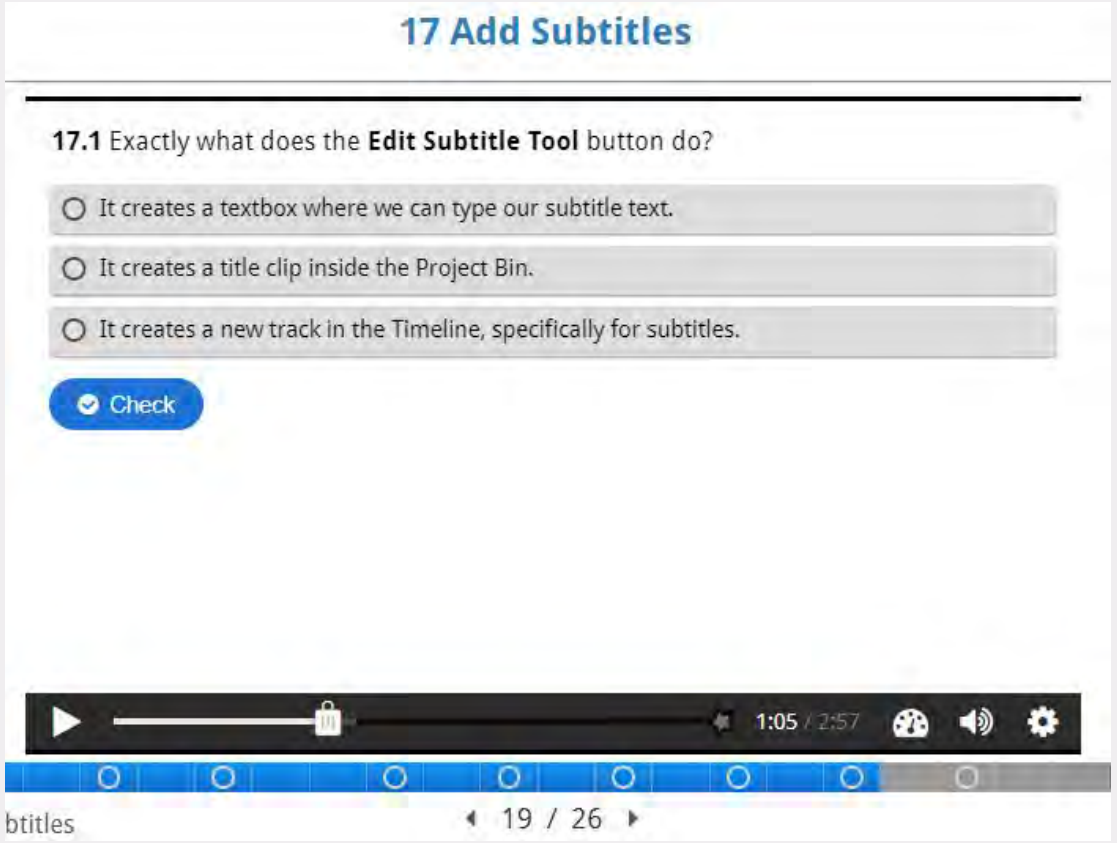
1. After a terrible accident in which a spike went through his brain, Phineas Gage had severe damage to his brain, including his frontal lobe. As a result, what happened to him? — 1 point

- a. He lost the ability to produce language.
- b. He retained motor control over only half of his body.
- c. He was unable to recognize common objects
- d. He exhibited significant personality changes.

2. The threshold level for a neuron to fire is a 10. What will happen if the stimulus to the neuron is 8? — 1 point

- a. The neuron will fire, but only at 80% strength
- b. The neuron will not fire at all

https://www.coursera.org/learn/introduction-psychology/home/week/1



17 Add Subtitles

17.1 Exactly what does the **Edit Subtitle Tool** button do?

- It creates a textbox where we can type our subtitle text.
- It creates a title clip inside the Project Bin.
- It creates a new track in the Timeline, specifically for subtitles.

Check

1:05 / 2:57

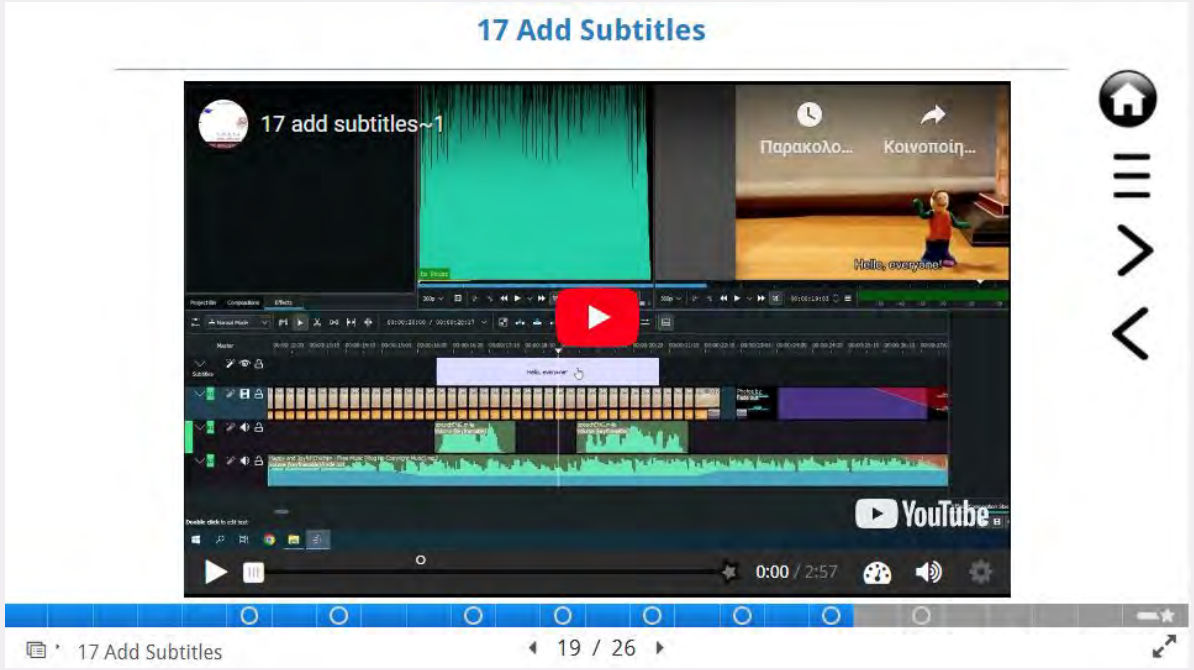
btitles

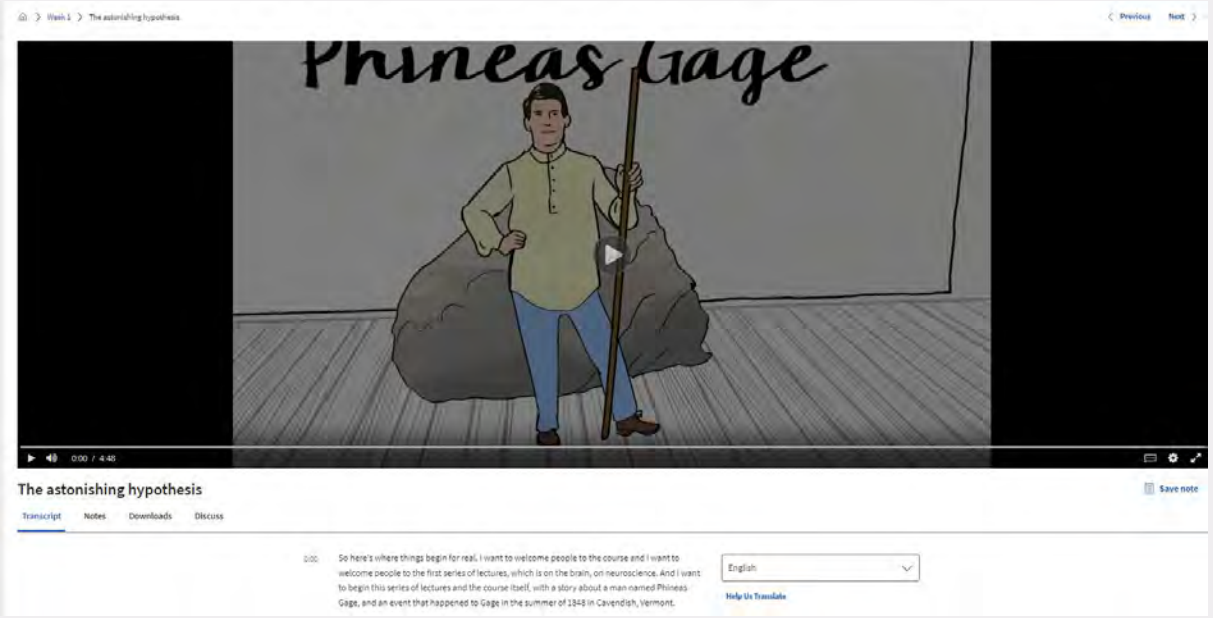
19 / 26

Cognitive Theory – Implications for EM Designs

Learning involves different kinds of memories, motivation, and thinking. (Craik & Tulving, 1975, Ausubel, 1974)	• Strategies should be used that require learners to apply, analyze, synthesize, and evaluate to promote higher-level learning • A variety of learning strategies should be included in online instruction to accommodate individual differences and learning styles • Strategies should focus on attention, relevance, confidence, and satisfaction for motivating learners during learning • Strategies that facilitate the transfer of learning should be used to encourage application in real-life situations (simulations and real-life applications)

Implications for e-Learning Material Design





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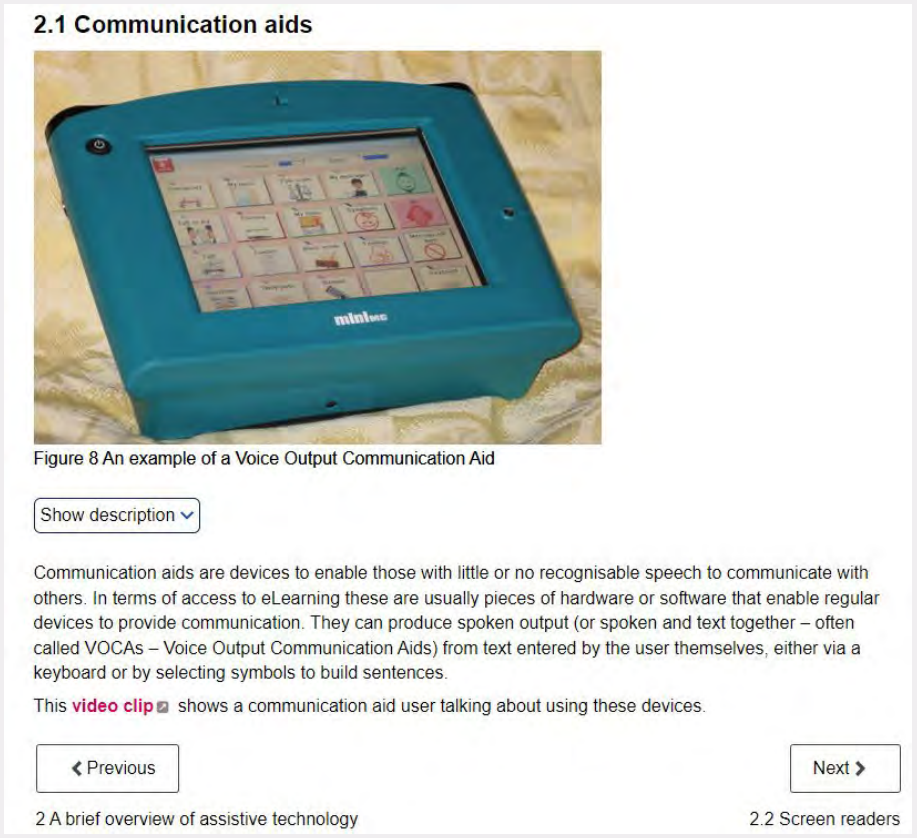
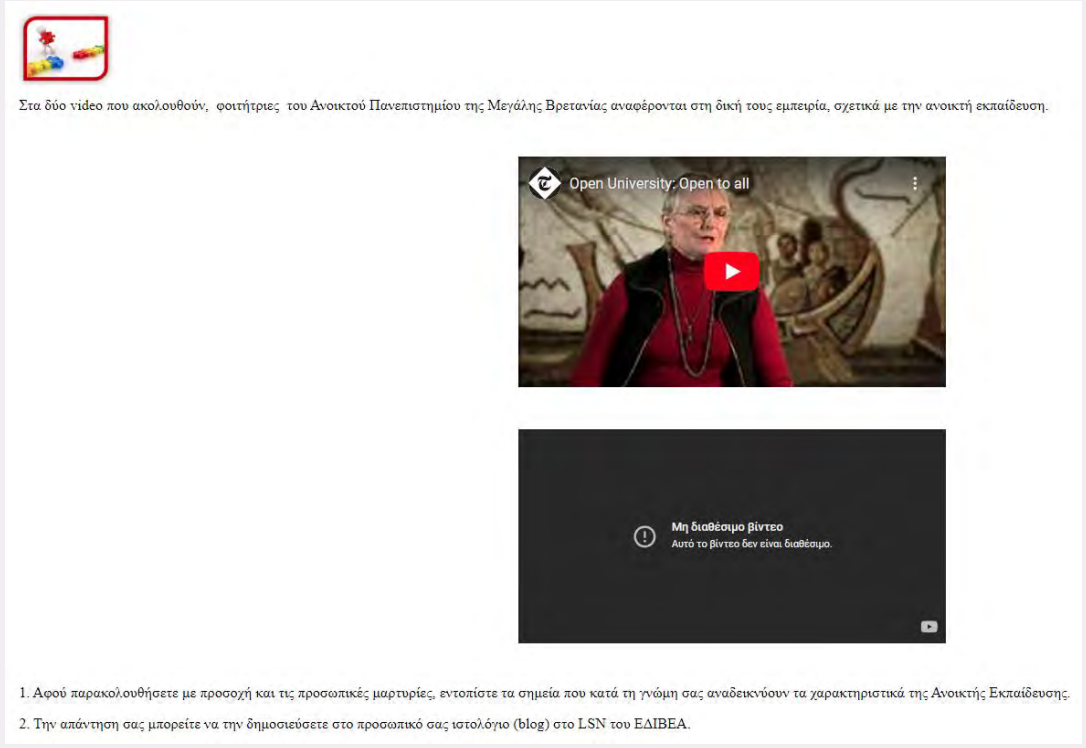
Implications for e-Learning Material Design





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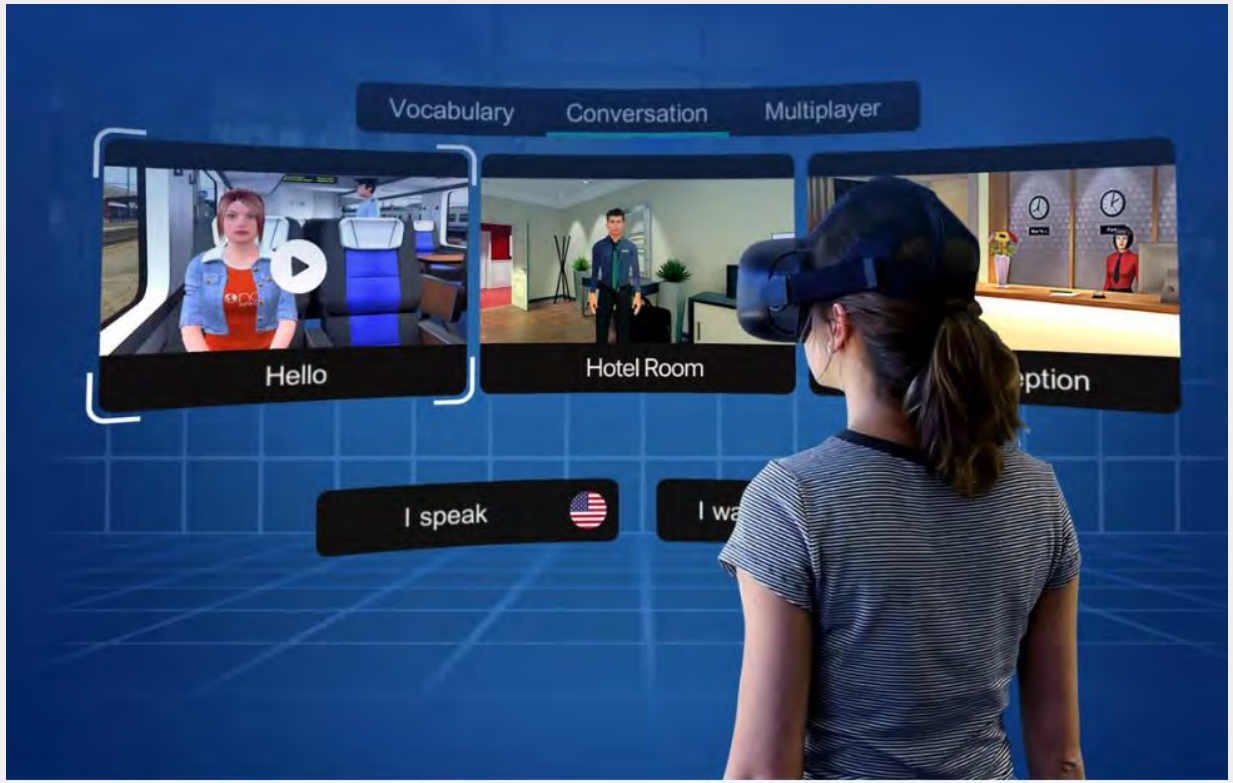
Implications for e-Learning Material Design



https://www.mondly.com/vr

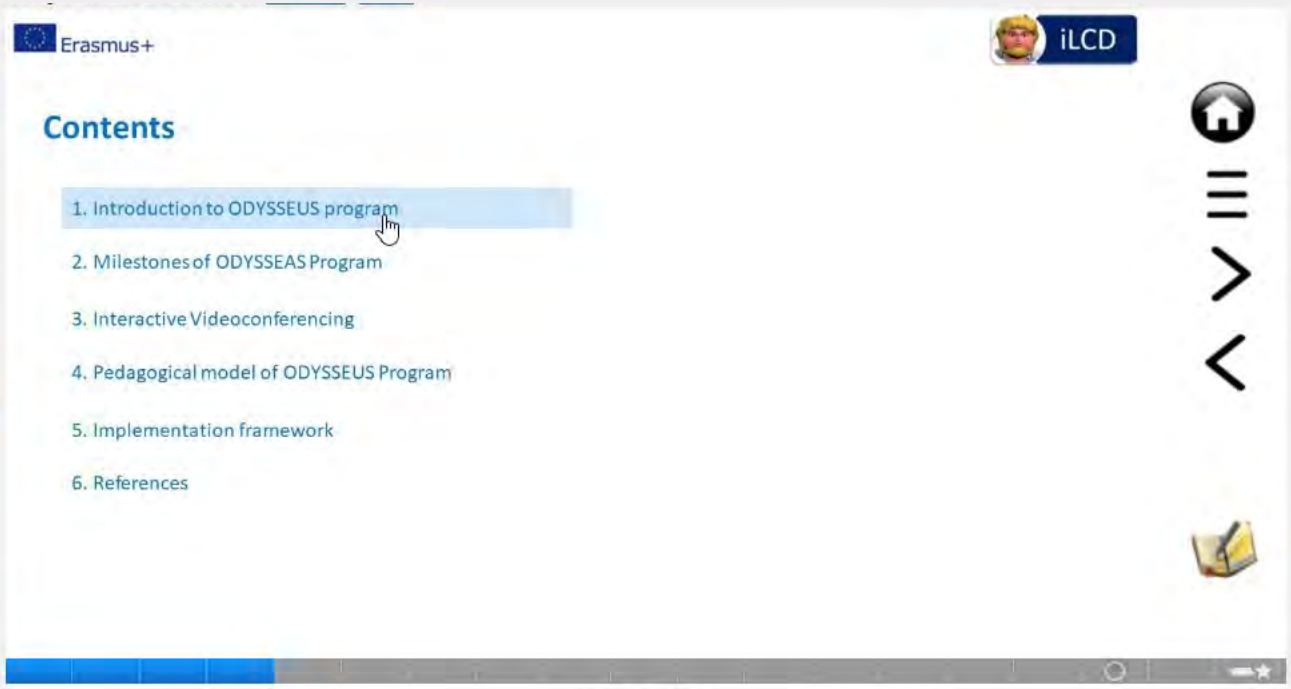
https://vection-technologies.com/solutions/industries/educ
n/

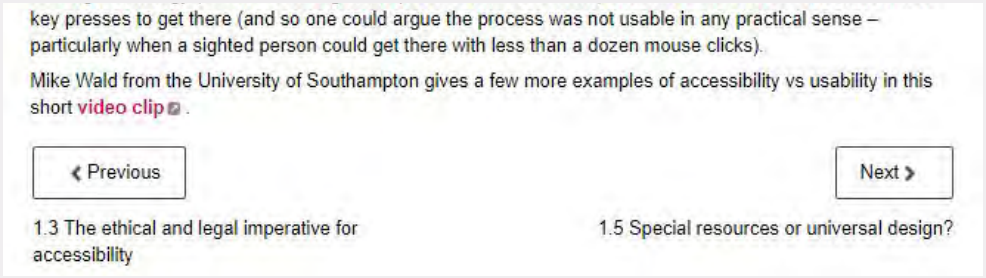
Constructivism Theory – Implications for EM Designs

Learners interpret and encode the information based on their perceptions and experiences. (Cooper, 1993, Wilson, 1997)	• Learners should be given control of the learning process • Learning should be an active process. • Learners should construct their knowledge. • Learners should be given time and the opportunity to reflect. • Learning should be interactive to promote higher-level learning and to help develop personal meaning

Implications for e-Learning Material Design

- **Navigation buttons**





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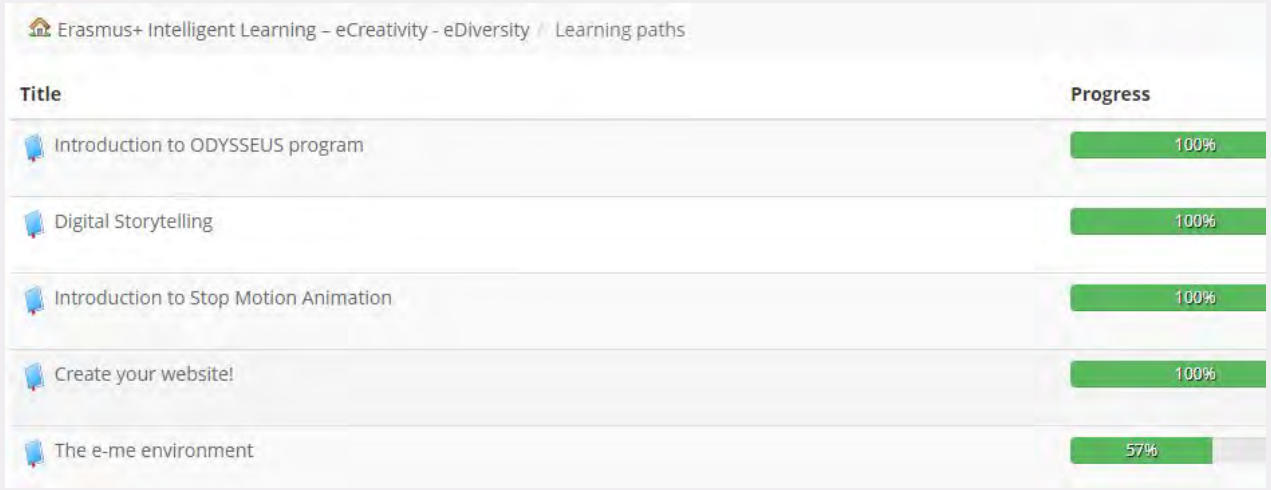
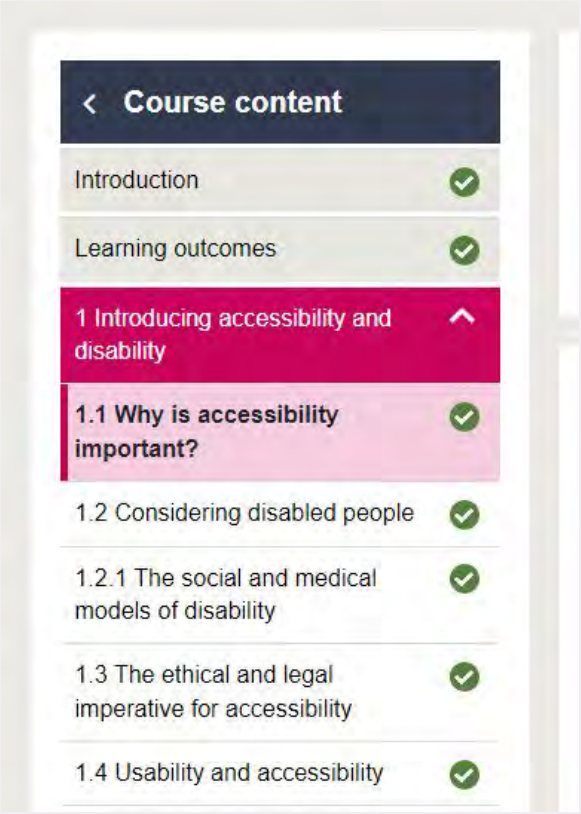
Implications for e-Learning Material Design

- **Learning paths**





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Implications for e-Learning Material Design

- **Open type activities**

1.6 Activity 1: Anticipating needs

Before we continue to examine assistive technologies and the ways in which people interact with eLearning materials, it would be useful to undertake a short exercise to anticipate needs. Rather than reacting to the needs of disabled students who interact with our eLearning materials, it is good practice to anticipate those needs and build in as many measures as possible to enable students to work with the eLearning without problems.

Activity 1

1. Identify some eLearning materials you are familiar with. You may have written them, taught them, or even studied them (you can think about this course if you have no examples of your own).
2. Identify the different elements of the materials – there will almost certainly be text, but are there images, videos, forms or boxes to enter text, drag-and-drop exercises, quizzes etc.? List all of the different types of element.
3. For each item on the list try to identify where students with particular disabilities might experience difficulties, and try to suggest possible ways (if you can think of any) that these barriers may be removed. It does not matter if your list is incomplete, or if you cannot think of solutions to some of your identified issues. We will revisit this task later, after you have worked through more of the course materials.

Use the box below to record your thoughts.

Save Reset

‹ Previous Next ›

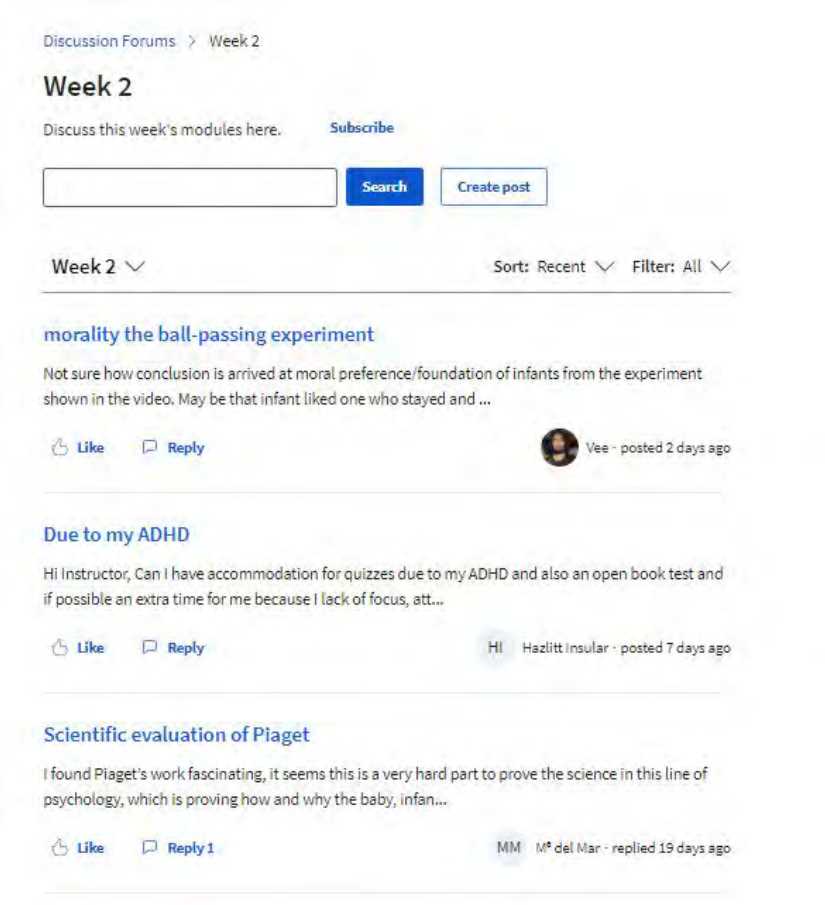
https://www.open.edu/openlearn/education-development/education-careers/accessibility-elearning/content-section-0?intro=1

Connectivism Theory – Implications for EM Designs

Connectivist theory is for the digital age, where individuals learn and work in a networked environment. (Siemens, 2004)	• Learners should be allowed to explore and research current information. • Learners must be allowed to connect with others around the world to examine others' opinions and to share their thinking with the world. • Learning should be delivered in a multi-channel system to deliver the learning materials to facilitate learning

Implications for e-Learning Material Design

- **Forum, wikis και blogs**



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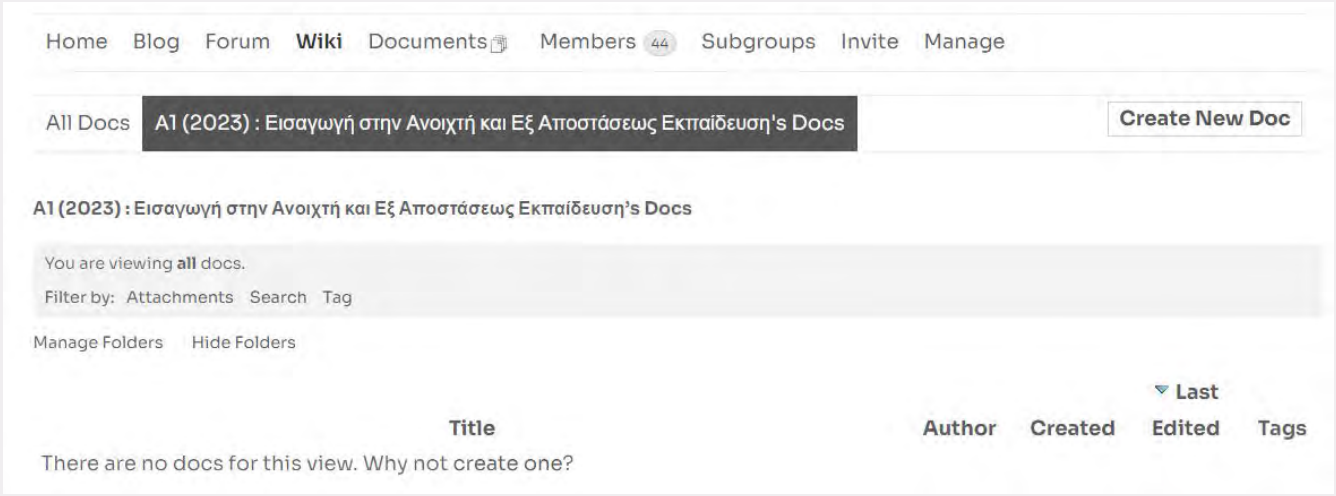
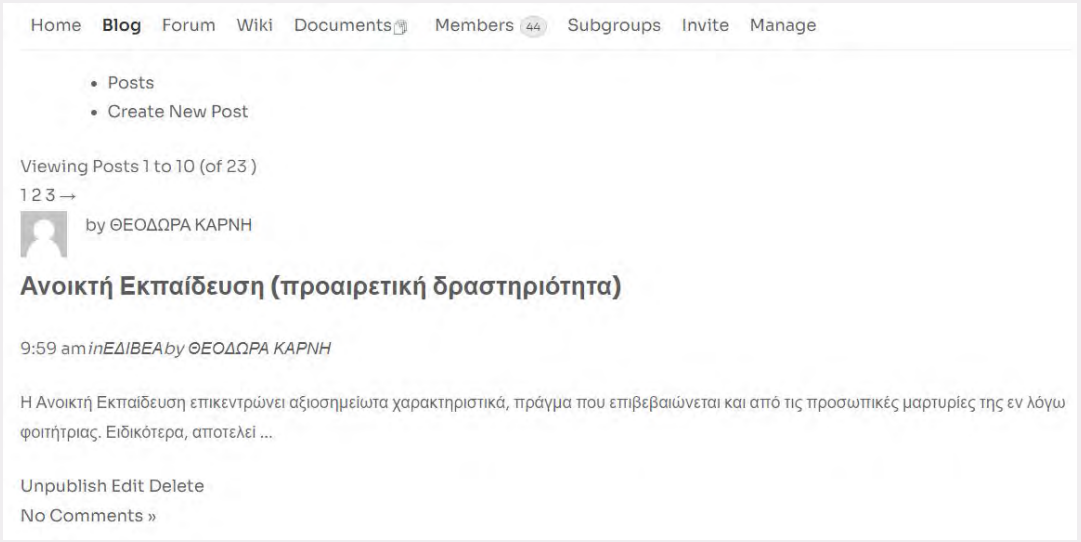
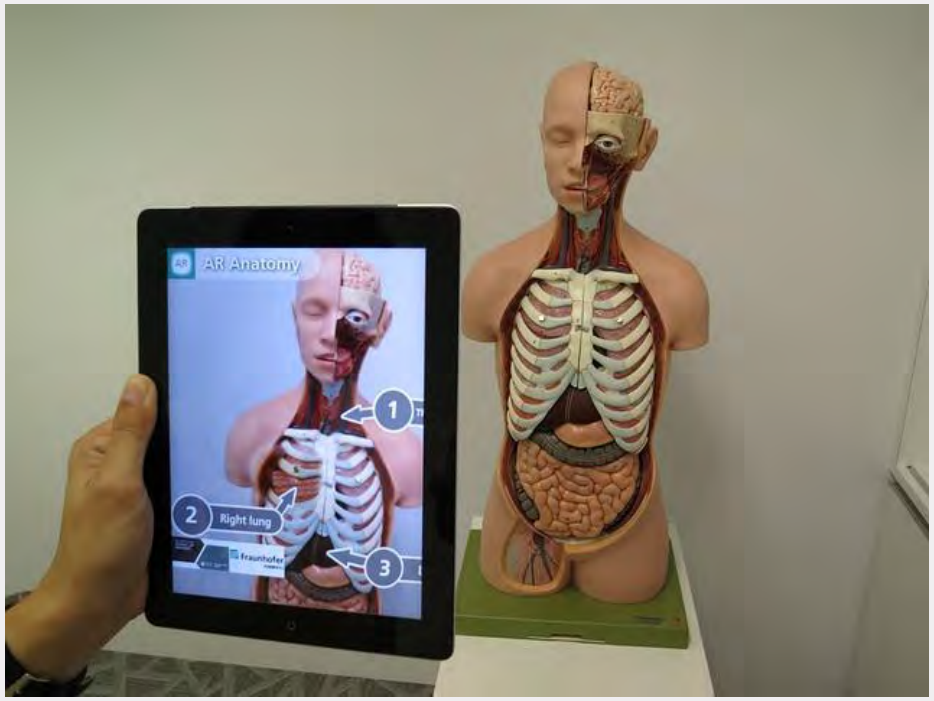




Implications for e-Learning Material Design

- **AR apps**



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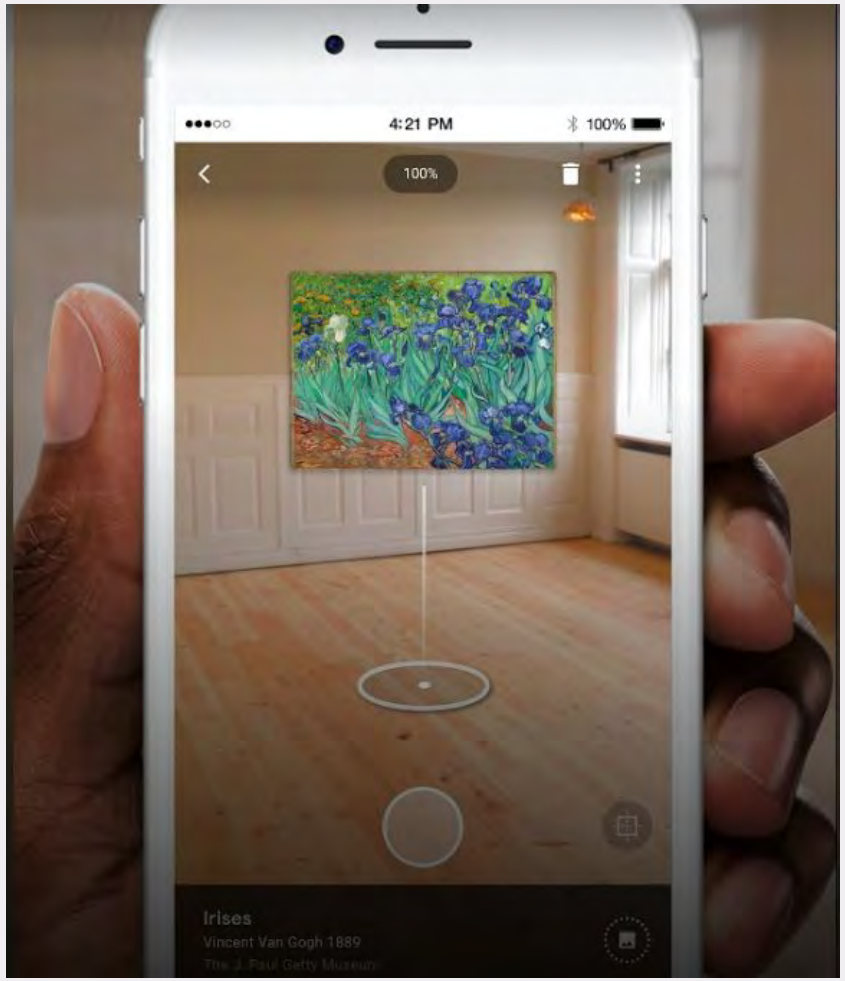
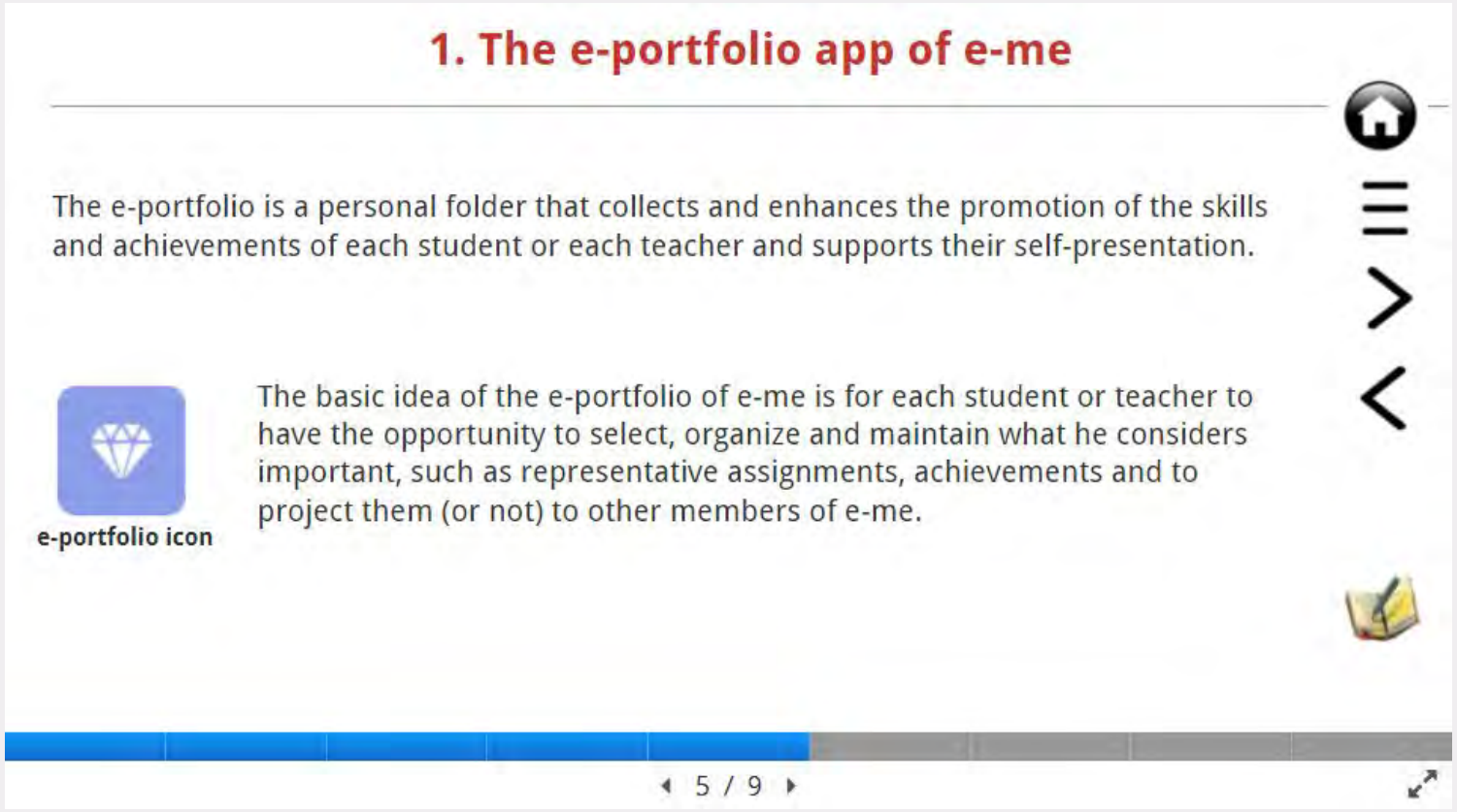


https://www.housebeautiful.com/room-decorating/a319803 google-arts-culture-app/

Distance learning theory

Principles	Implications for Multimedia Learning Design
Rowntree's model (1994)	• Clearly stated objectives • Advice about how to study the material • Friendly, "You" & "I" style of writing • Shortish chunks of learning • Fewer words than usual per page (or screen) • Plenty of examples • Quoted remarks from other learners • Illustrations used where they are better than words • Heading to help learners find their way around • Links to other media where appropriate • Relating the material to learners' needs • Activities that get the learners to do something • Space for learners to write down their ideas

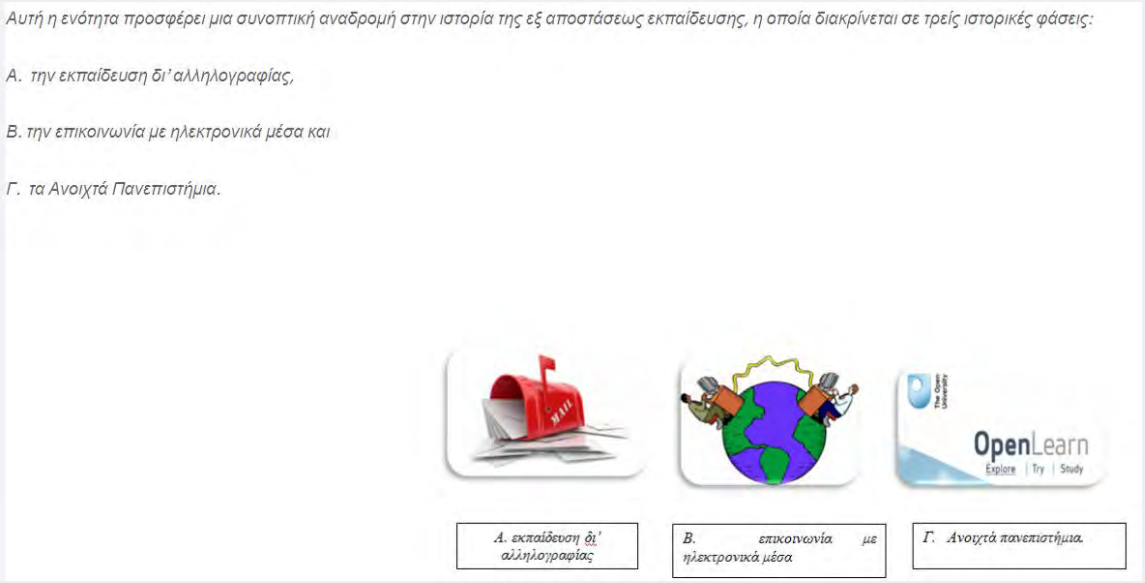
Implications for e-Learning Material Design



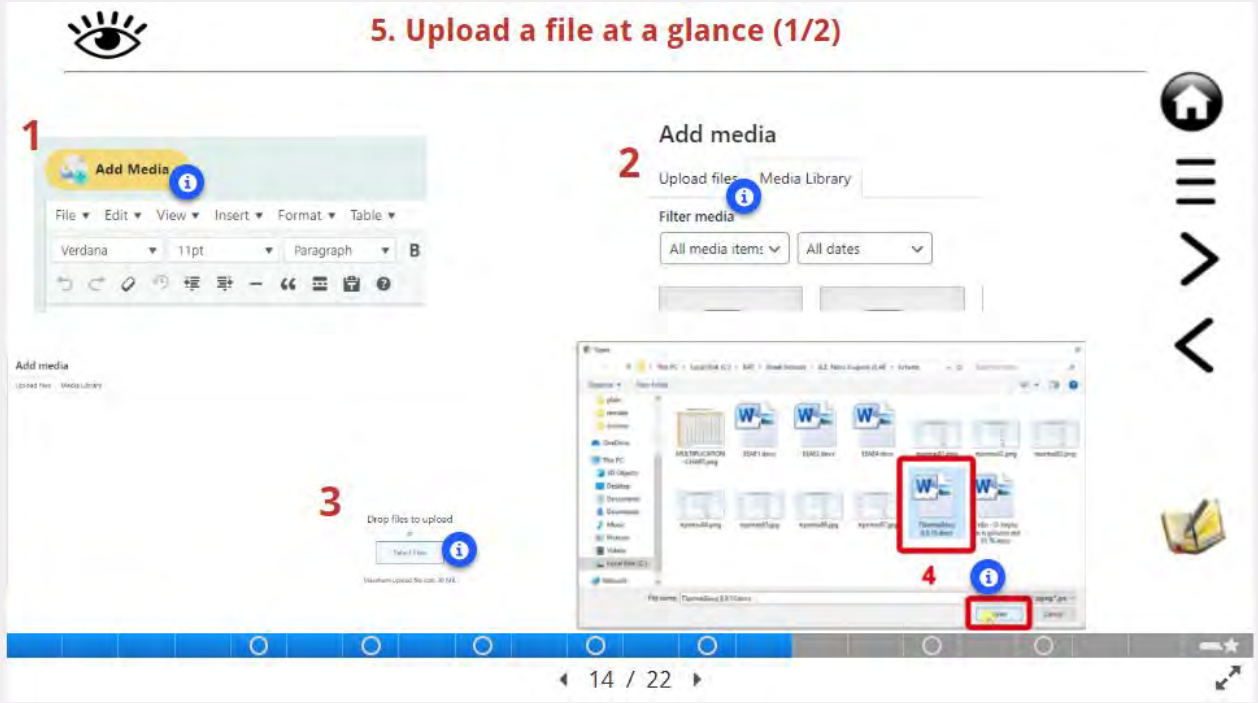
Mayer's Multimedia Learning Theory

Principles	Implications for Multimedia Learning Design
Multimedia Principle	• People learn better from words and pictures than from words alone
Pre-Training Principle	• People learn better from new lessons when they have pre-requisite knowledge
Signaling Principle	• People learn better when cues that highlight the organization of the essential material are added
Spatial Contiguity Principle	• People learn better when corresponding words and pictures are presented near rather than far from each other on the page or screen
Temporal Contiguity Principle	• People learn better when corresponding words and pictures are presented simultaneously rather than successively
Segmenting Principle	• People learn better from a multimedia lesson is presented in user-paced segments rather than as a continuous unit
Personalization Principle	• People learn better from multimedia lessons when words are in conversational style rather than formal style
Redundancy Principle	• People learn better from graphics and narration than from graphics, narration, and on-screen text.
Modality Principle	• People learn better from graphics and narrations than from animation and on-screen text.
Coherence Principle	• People learn better when extraneous words, pictures, and sounds are excluded rather than included.

Implications for e-Learning Material Design



Multimedia Principle example



Signaling Principle example

Implications for e-Learning Material Design

2.2 Screen readers

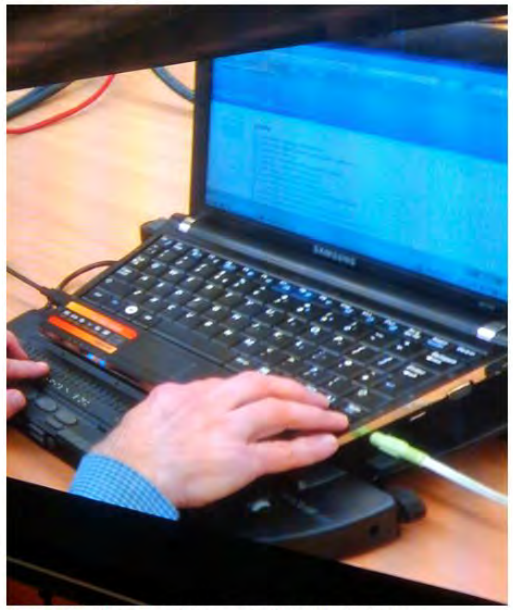


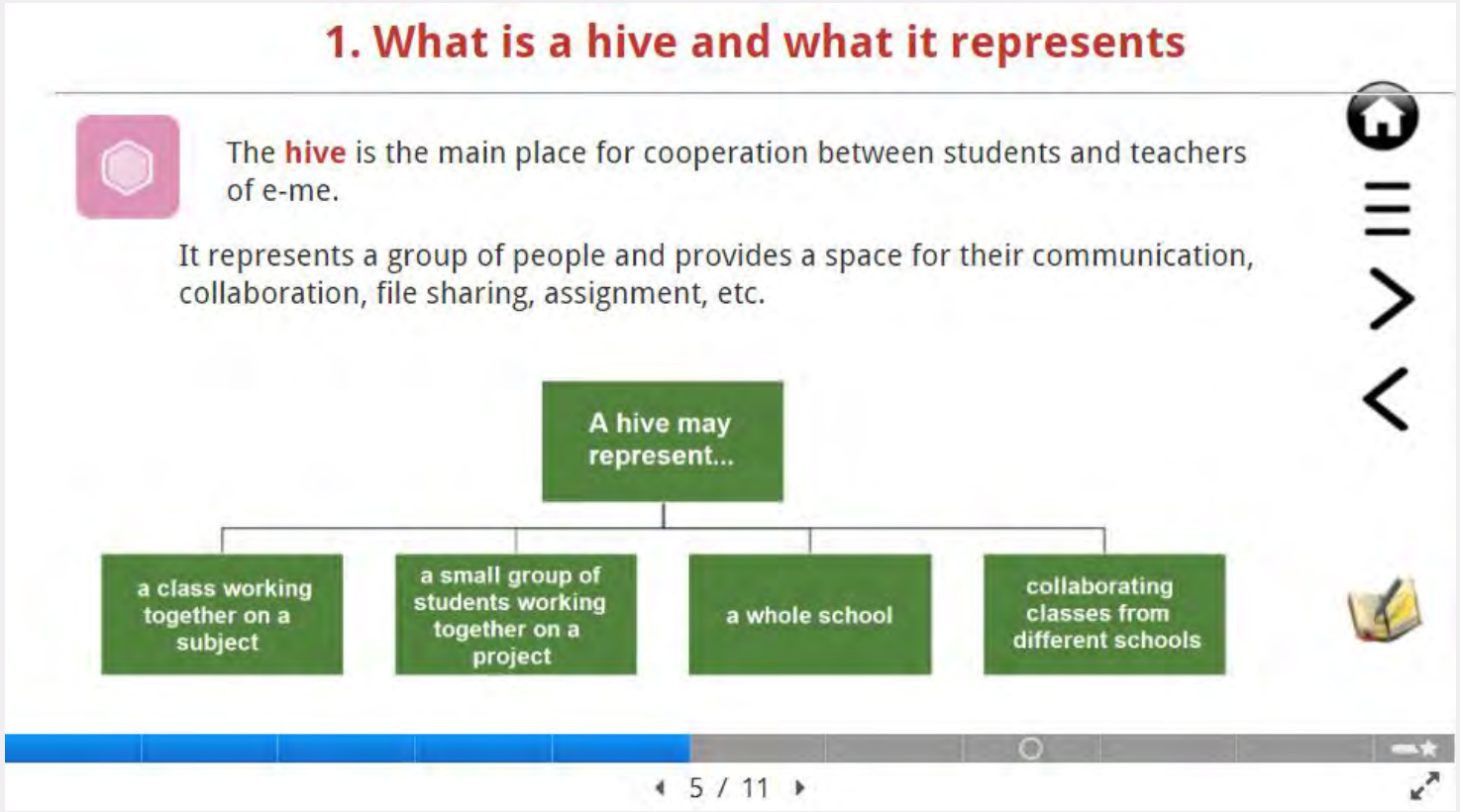
Figure 9 A laptop connected to a refreshable Braille display

Hide description

A laptop connected to a refreshable Braille display

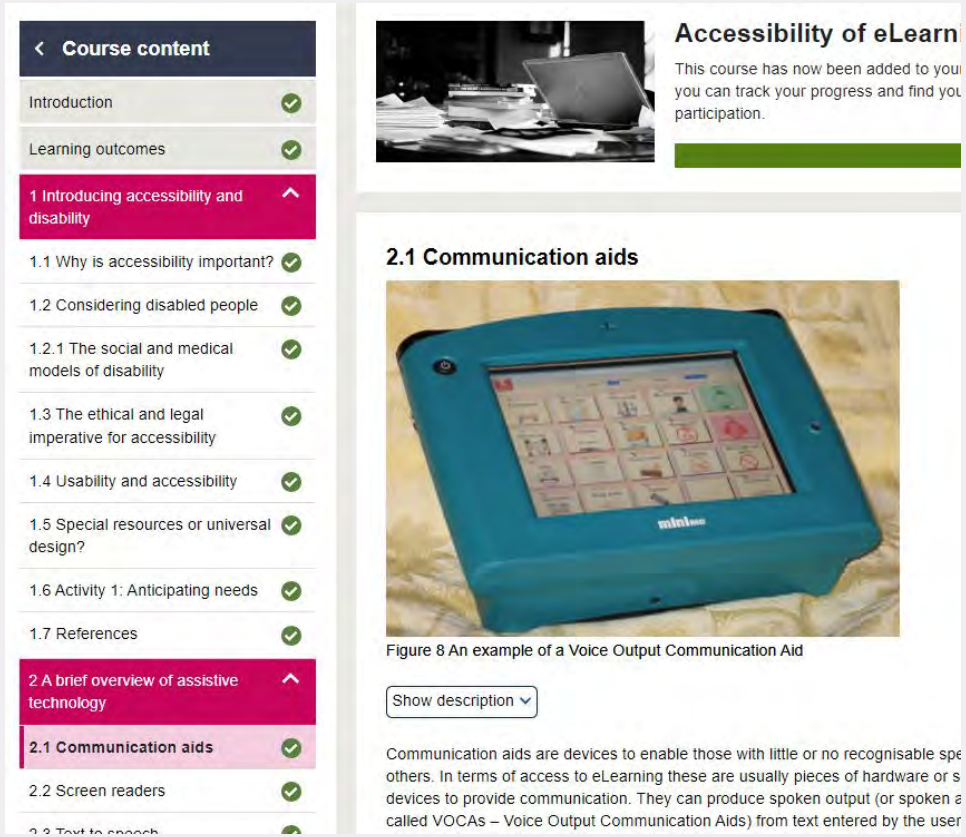
Screen readers are software applications that not only read text from the screen, but also allow a user with little or no sight to navigate in a logical way via the keyboard, using auditory cues, to the information they need.

Spatial Contiguity Principle example

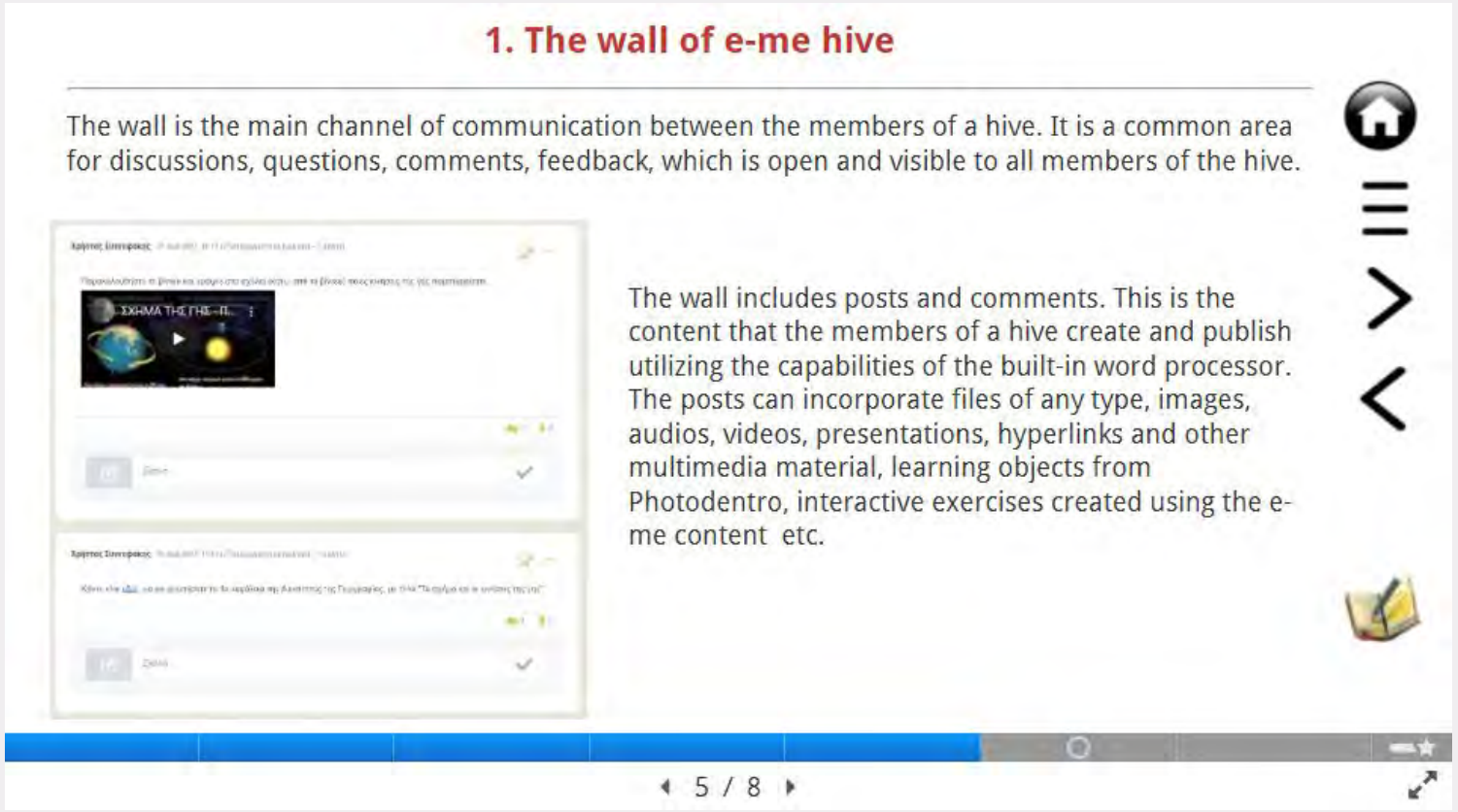


Temporal Contiguity Principle

Implications for e-Learning Material Design



Segmenting Principle Example



Coherence Principle example

Key aspects of e-learning methodology

Educational materials design should be sophisticated in the use of different types of media and levels of interactivity

- **Learning Content**

Digital content resources such as PowerPoint presentations, documents, and audio and/or video files.

- **Learning Activities**

Quizzes, assessments, drag & drop, multiple choice, true/false or knowledge checks that are an essential component of the learning process

Interactive educational material

Developed according to a set of **learning theories**

- content
- activities
- Interactivity
- Knowledge Transfers