



# VIRTUAL AND AUGMENTED REALITY: THE FUTURE OF MICROLEARNING AND E-LEARNING

Training session – Iraq, 14-17 April, 2019

Pedro Valente, PhD

[pedro.valente@ispab.pt](mailto:pedro.valente@ispab.pt)



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**ARE**

**YOU**

**READY?**



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# THE COMMON REALITY...

**stretch**  
**it should fit**

What we have now:

- Sessions at classroom/office
- Along side many other people
- Attend a certain place for a certain time
- Session last for a specified time length
- Fixed Schedule
- One-Size-Fits-All approach = easy to organize



# ONE-SIZE- DOES NOT -FITS-ALL APPROACH

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Effective learning can't be a one-size-fits-all approach.

Personalisation is becoming a key feature of the most effective technology, tailoring the experience to our preferences to make life easier.

We now take it for granted that Netflix offers us content suggestions based on what we've watched before.

Yet when it comes to learning, it's still not commonplace to see technology being used to offer a personalised experience.



# Did you know...



## Tick, Tock!

Adults spend **18 hours** a week online<sup>1</sup>



Each day, **1.9 billion** people are online, searching for what they need<sup>2</sup>



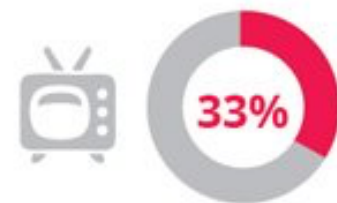
Users are exposed to an average of **30 Google Display Network ads** daily<sup>3</sup>



**77%** of smartphone users call or visit a business after looking for local info on their phones<sup>7</sup>



**71%** of smartphone users search because they saw an ad<sup>5</sup>



**33%** of smartphone users use their phone while watching TV<sup>5</sup>



Online video ads received **18.3% more** viewer attention than TV commercials<sup>8</sup>



In 2010, total U.S. **online ad** revenue overtook newspaper print ad revenue for the first time<sup>4</sup>

**You Tube**™

More video is uploaded to YouTube every **60 days** than the top three broadcasters have produced in **60 years**<sup>3</sup>



**85%**

**65%**

**81%** of global online users are reached by the **Google Display Network**<sup>3</sup>

**53%** of smartphone users on average made a purchase as a result of a mobile search<sup>7</sup>



**1 in 10** We're approaching a point where **1 in every 10 dollars** is spent online in the U.S.<sup>9</sup>



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# SMART PHONE = SMART CONTENT

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## Fun Facts:

- ✓ Mobiles are now considered at extension of ourselves.
- ✓ “Nomophobia” - separation anxiety that we feel when we're apart from our smartphones
- ✓ In 2018, 52.2% of all website traffic worldwide was generated through mobiles!
- ✓ Millennials and Gen Z are the first generations to have been raised on technology.
- ✓ Putting the learner experience at the heart of everything we create

More and more learners are demanding eLearning units that can be completed on their mobiles.

Learners want LMS that function just as well on smartphones as they do on PCs and laptops.

Making LMS responsive isn't enough. It may suit tablet use, but mobile phones will require a specialized app that is designed solely to make eLearning more accessible.

That's not to say that learners *only* want to learn on mobiles or tablets. The desktop PC and laptop still have their place in eLearning.

The option is there for learners to take their learning via any means they see fit – and this is something they really value.



# MEET THE MODERN LEARNER

As training moves to more digital formats, it's colliding with new realities in learners' jobs, behaviors, habits, and preferences.

Today's employees are overwhelmed, distracted, and impatient. Flexibility in where and how they learn is increasingly important. They want to learn from their peers and managers as much as from experts. And they're taking more control over their own development.

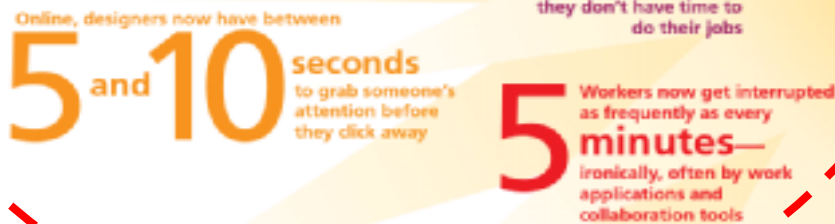
## OVERWHELMED...



## DISTRACTED...



## IMPATIENT...



**1%** of a typical workweek is all that employees have to focus on training and development

## UNTETHERED

Today's employees find themselves working from several locations and structuring their work in nontraditional ways to accommodate their lifestyles. Companies are finding it difficult to reach these people consistently and even harder to develop them efficiently.



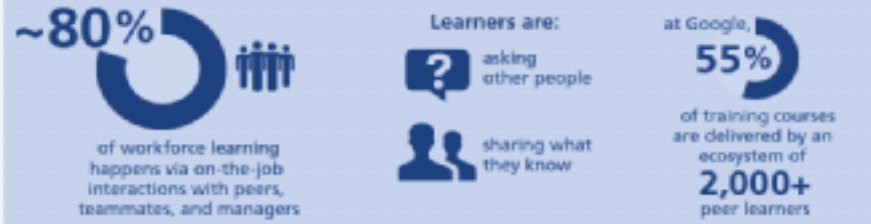
## ON-DEMAND

Employees are accessing information—and learning—differently than they did just a few years ago. Most are looking for answers outside of traditional training and development channels. For example:



## COLLABORATIVE

Learners are also developing and accessing personal and professional networks to obtain information about their industries and professions.



## EMPOWERED

Rapid change in business and organizations means everyone needs to constantly be learning. More and more people are looking for options on their own because they aren't getting what they need from their employers.



# WHAT IS MICROLEARNING? AND WHAT IS GOOD FOR?

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**Microlearning is all about small bits of learning**

A quick bite here, a short bit there, and suddenly you've delivered a whole lesson without overwhelming your learner with excess information.

It's easy to see why **microlearning has become one of the most talked-about strategies** for Learning & Development.

- ✓ Small pieces of information
- ✓ 5 minutes or less videos
  - ✓ Infographics
  - ✓ Newsletters
- ✓ Learners choose when, where, and how to view the material
- ✓ Data drives and supports implementation - The information is shared in multiple locations





# MICROLEARNING TOOLS ARE THE FUTURE OF LEARNING

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**ACCESSIBILITY:** You can't have flexibility without accessibility

**ENGAGEMENT:** It's not easy to make engaging content

**CONTINUOUS IMPROVEMENT:** With more time on their hands, trainers can continuously improve the training materials. Better Feedback to learners.



Microlearning  
online platform  
examples



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# EXAMPLES OF MICROLEARNING TOOLS

TO DRIVE YOUR  
LEARNER'S ENGAGEMENT



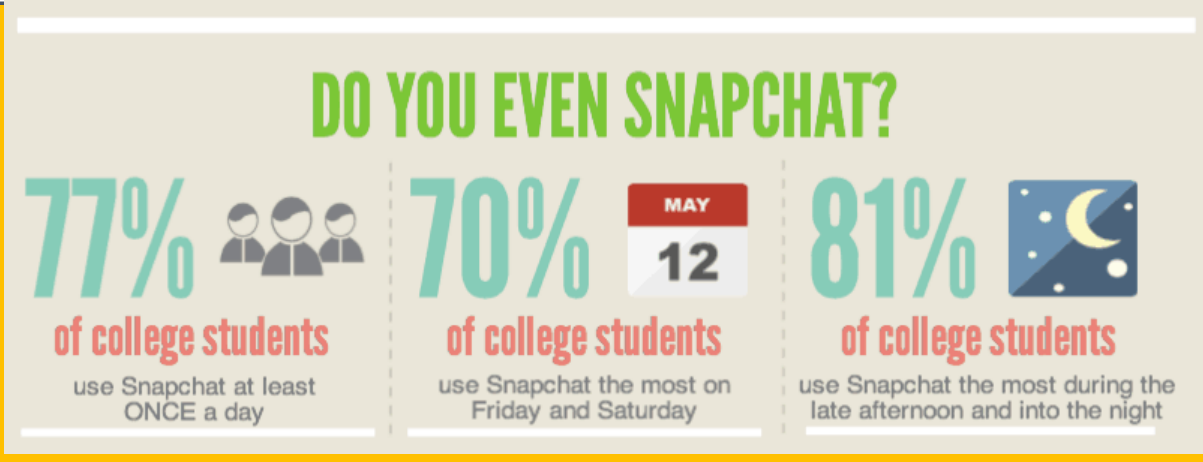
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# #1: SNAPCHAT



with over 60 Million daily users, the app holds exciting prospects for learning strategies.

The brevity of the medium, 15-second videos and photos, lends itself quite well to microlearning.

A 2015 study found learner retain 22% more information when it's received in short bursts, so try breaking up your lessons into ultra-short clips and delivering them through the app.

# #2 - YOUTUBE

Video eLearning is nothing new but **approaching it with a microlearning mindset** can **turn your longwinded training video into easily digestible segments.**

Many legacy LMS's might not support video uploads (server-side max size restriction), so think about **breaking up that training video into 3-minute chunks and uploading them YouTube so they're more accessible to your learners.**

**Uploading them to a video service** also ensures your content is **easily watchable with a smartphone or tablet.**

Fun facts:

- ✓ The very first video on YouTube was launched at 8:27 PM on **Saturday, April 23rd, 2005**
- ✓ The average number of mobile YouTube video views per day is **1,000,000,000**.
- ✓ There are over **7,000 hours** of full-length movies and shows on YouTube.
- ✓ More than **1.9 billion unique users** visit YouTube each month.

# #3 - INFOGRAPHICS

Infographics, although not techy, **are exceptional at delivering knowledge in small bites.**

Our brains are hardwired to **understand and retain what we see**; we can get a sense of a visual scene in **less than 0.01 seconds.**

Delivering visually appealing content ensures your learners are more likely **actually read it.**

So instead of keeping your lessons in a plain-text document, **try laying it out in an infographic.**

Resources Available:

- [Biteable](#) (from Free)
- [MURAL](#) (Trial)
- [BeFunky](#) (from Free)
- [Visme](#) (from Free)
- [Cacoo](#) (Trial)
- [Snappa](#) (from Free)
- [Google Charts](#) (Free)
- [Canva](#) (from Free)

[\[Link+\]](#)

# #3 - INFOGRAPHICS - EXAMPLES

From LMS  
Lecturers/trainers

## ELEARNING INFOGRAPHICS

### PROS

**EASY TO UNDERSTAND**

80% of people retain what they learn visually

20% of people retain what they learn by reading

**EASY TO SHARE**

NO ONE TEMPLATE

QUALITY = TRAFFIC

BRAND AWARENESS

### CONS

**TIME CONSUMING**

NOT SEO FRIENDLY

**DATA OVERLOAD**  
Keep data in a logical order

**MISSING INFORMATION**

WHERE ARE THE GRAPHICS?

## 6 MUST KNOW ACRONYMS to Do with E-LEARNING

The e-learning industry is full of acronyms. Even the word e-learning itself is the shorthand for electronic learning. It is important to be familiar with various acronyms used in the field of e-learning.

### LRS (Learning Record Store)

It is a repository of learning records. An LRS can be accessed by a reporting tool or an LMS.

### RLO (Reusable Learning Object)

A unit of learning content that is independent and stand-alone.

### GUI (Graphical User Interface)

It is a way to present the training programs content, functions, and features using visual elements (such as icons, menus, controls and many more).

### CMS (Content Management System)

It is a way to present the training programs content, functions, and features using visual elements (such as icons, menus, controls and many more).

### ADDIE (Analysis, Design, Development, Implementation, Evaluation)

It is a software application that manages the process of designing, testing, approving, storing, and publishing e-learning content.

### SAM (Successive Approximation Model)

This model was first proposed by Michael Allen and is an agile or iterative instructional systems design model. Taking small and quick steps, instead of giant leaps to complete each milestone.

Find more at: [www.commlabindia.com](http://www.commlabindia.com)



# #3 - INFOGRAPHICS - EXAMPLES (1)

From LMS Administrators

## WEBADVISOR: Entering Final Grades

### Login

Login to the portal and click the WebAdvisor icon.

Dual Enrollment Faculty - Click on the WebAdvisor link on the right column of the portal.



### Accessing Grading

Click > WebAdvisor for Faculty > Faculty Information > Grading.

### Term

Click the drop-down arrow in the "Term" field, select a term, and click "Submit."

Click the drop-down arrow to select "Final."

Note: Click "Grading Policy" if you are unsure of acceptable entries for grading.

### Entering Grades

Click the radio button next to the course you want to enter final grades and click "Submit."

In the Grade Column enter the appropriate letter grade for each student.

Note: If you enter FS (Failure Stopped Attending) for a student grade, enter the date the student last attended in the "Last Date Attendance" field in MM/DD/YY format.

### Submit

Click "Submit" to enter final grades in WebAdvisor. If done successfully, you will receive a "Thank You" message on the screen.

Help Desk  
6495 - helpdesk@mc3.edu

## 10 UPLOADING SYLLABI

### The Portal

- 1 SAVE YOUR SYLLABUS**  
Save your syllabus in electronic format (ie. Word, PDF, etc) on your computer.
- 2 LOG IN TO THE COLLEGE PORTAL PAGE**  
Log in with your College username and password.
- 3 CLICK ADDITIONAL REQUEST FORMS**  
On the right hand side of the portal page, click Request Forms. Then click Additional Forms.
- 4 CLICK SYLLABI TAB**  
Click Syllabus Forms tab and then click Syllabi form - All Divisions
- 5 FILL OUT THE FORM AND ATTACH FILE**  
Complete the information on the form and click to attach your syllabus. Click Submit when finished.

### Blackboard

- 6 LOG INTO BLACKBOARD**  
Log into Blackboard and into your course.
- 7 CLICK THE SYLLABUS BUTTON**  
The syllabus button in your course menu is a good place to add your syllabus.
- 8 CLICK BUILD CONTENT**  
Click Build Content and then click Item.
- 9 ATTACH YOUR SYLLABUS**  
Name the Item, click Browse My Computer to locate your saved file and attach your syllabus.
- 10 CLICK SUBMIT**  
When finished, click Submit.

## CLEAN UP YOUR COURSE after a course copy

Note: If you teach multiple sections of the same course, to save time, course copy to one new section, perform the steps below, then course copy to the remaining course sections.

### DELETE OLD CONTENT

Delete any unwanted course content or duplicated items/assessments:

Documents (ex. old Syllabus)  
Discussion Board Forums and Posts  
Outdated Video Files  
Broken Web Links  
Journal or Blog Entries  
Old menu tabs, e.g., Student Support Services and College Information

### UPLOAD NEW CONTENT

Add new content to your course for the current semester:

Upload new Documents  
Create Discussion Board Forums  
Add new Video Files  
Create new Web Links  
Add Journals or Blogs

### UPDATE OLD DATES

It is very important to update any dates you have in your Blackboard course. Old dates can be very confusing to students and create questions regarding assignment due dates. Using the Date Management Tool, update all of the Display After, Display Until, and Due Dates for all Items, Files, Tools, and Assessments - any Due Dates you add will appear on the Calendar for students

### UPDATE GRADE CENTER

Delete any Grade Center columns you do not want to have included in your grades for the current semester  
Remove duplicate Total or Weighted Total Columns  
Set the External Grade  (Total or Weighted Total Column)

### REVIEW CONTENT

Make sure all of the content in your course is up-to-date, accurate, available, visible, and will open in a file format accepted on student computers. Use the "Preview User" button to view your course as a "student"

HELP DESK - HELPDESK@MC3.EDU  
215-641-6495  
HTTP://SUPPORT.MC3.EDU  
KB.MC3.EDU

## CONNECTING TO WIFI MC3SECURE

### iPhone

1. Tap Settings.
2. Tap WiFi.
3. Tap MC3Secure.
4. Enter your MC3 Username and Password.
5. Tap Join or Next.
6. Tap Accept or Trust to verify.
7. Open a browser and go to [connect.mc3.edu](http://connect.mc3.edu).
8. Follow the directions to complete.

### Android

1. Swipe down from the top.
2. Tap the gear icon in the upper right to access Settings.
3. Tap WiFi.
4. Tap MC3Secure.
5. Verify the Settings: Phase 2 - Change to MSCHAPV2.
6. Identify: Enter your MC3 username.
7. Scroll down to enter your MC3 Password.
8. Tap Connect.
9. Open a browser and go to [connect.mc3.edu](http://connect.mc3.edu).
10. Follow the directions to complete.



# #4.-FACEBOOK

Buzzfeed’s hugely popular “Tasty” videos are **probably the best showcase of microlearning on Facebook.**

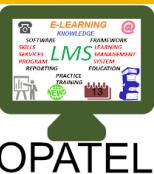
The **1 minute-ish cooking videos** have garnered **over 80 Billion views.**

That taps into the essence **microlearning**; content that’s **fast, easily digestible, and fun to watch.**

Copying the concept above with your team members can be an **effective and fun way to distribute your learning** through Facebook.



[\[Facebook Link\]](#)





# #5 - PODCAST

With more than **29 Billion minutes** of podcasts being produced each year, finding **one which fits your training needs** is easier than ever.

Take the time **explore podcasts** that are **relevant to your subject** and **repurpose** them in your training.

Grab **sound-bites** that are relevant to your **training topic** and **make them available** to your learners.



# IS POSSIBLE TO INNOVATE IN THIS AREA?

And yes, exist space to innovate in microlearning, allowing learners to consume training at their own pace, in a ubiquitous way.

Microlearning (and the tools mentioned above) are a great way to supplement your learning strategy.



# A UBIQUITOUS WAY...

In the past year, the majority of conventional learning schemes have **been transformed offline**, gradually **adapting E-Learning and M-Learning** through the evolution of IT technology.

Existing static schemes of **learning must be transformed in all domains**, to deliver **true personalized learning** depending on various user characteristics.

**Ubiquitous learning exists in the physical space of everyday life**. It is possible to compose learning components existing in the **activity space of an intelligent network**.

Adaptive learning in such ubiquitous environments is a **significant learning step**.

Ubiquitous learning and human-computer interaction (HCI) areas are tide



# VIRTUAL REALITY (VR)

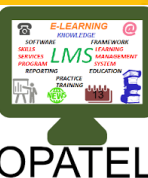
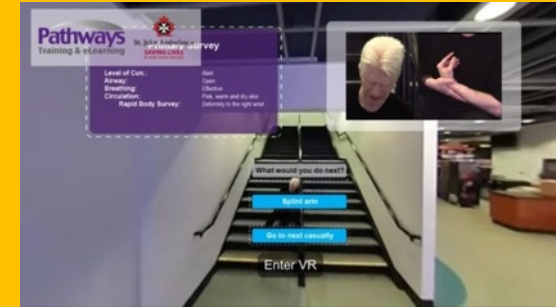
Virtual Reality (VR) is the use of **computer technology** to create a **simulated environment**.

Virtual Reality's most immediately-recognizable component is the **head-mounted display (HMD)**.

Human beings are **visual creatures**, and **display technology** is often the single biggest difference between immersive Virtual Reality systems and traditional user interfaces.

Major players in Virtual Reality include **HTC Vive, Oculus Rift and PlayStation VR (PSVR)**

By simulating as many senses as possible, such as **vision, hearing, touch, even smell**, the computer is transformed into a gatekeeper to this artificial world.



# USING VIRTUAL REALITY IN THE CLASSROOM

22

Just a few years ago, **virtual reality was a sci-fi concept** for most of us.

If a decade ago we **were still using the home phone in order to communicate**, nowadays we **can instantly send messages through the use of smart devices**.

The **virtual reality market is one of the fastest growing markets** (they estimated growing 5.2 billion dollars, in 2018).

we can definitely state, that **virtual reality could be useful to our day-by-day activities**.

Being a **universal technology**, it **can be applied to almost any type of domain of activity**. Education included!

In 1968, renowned computer scientist Ivan E. Sutherland unveiled The Sword of Damocles, a device many experts tout as the world's first augmented and virtual reality head-mounted display (HMD). Sutherland's headset laid the groundwork for 50 years of painstakingly slow advancement toward mass adoption of virtual reality. This is the story of that pioneering device, told in the inventor's own words.

### The Inventor

"We live in a physical world whose properties we have come to know well through long familiarity . . . A display connected to a digital computer gives us a chance to gain familiarity with concepts not realizable in the physical world. It is a looking glass into a mathematical wonderland."



**Ivan E. Sutherland**  
The Father of Computer Graphics

**Born**  
May 16, 1938

**Education**  
MIT (Ph.D., 1963)  
Caltech (M.S., 1960)  
Carnegie Institute of Technology (B.S. 1959)

**Other Accomplishments**  
Inventor, Sketchpad (1962)  
Recipient, Turing Award (1988)  
Recipient, Kyoto Prize (2012)

The world 1st VR headset –  
Ivan Sutherland, 1968



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# ADVANTAGES OF USING VR IN THE CLASSROOM

23

Provides Outstanding Visualizations That Aren't Possible In The Traditional Classroom.

Creates Interest.

Increases Students' Engagement.

Doesn't Feel Like Work.

Improves The Quality Of Education In Different Fields

Eliminates The Language Barrier



# DISADVANTAGES OF USING VR IN THE CLASSROOM

24

Deteriorates Human Connections.

Lack Of Flexibility

Functionality Issues

Addiction To The Virtual World

Quite Expensive.

- ✓ the virtual reality environment is consistently evolving.
- ✓ It could bring dozens of benefits to almost any field, but it can also prove to be harmful..



# AUGMENTED REALITY (AR)

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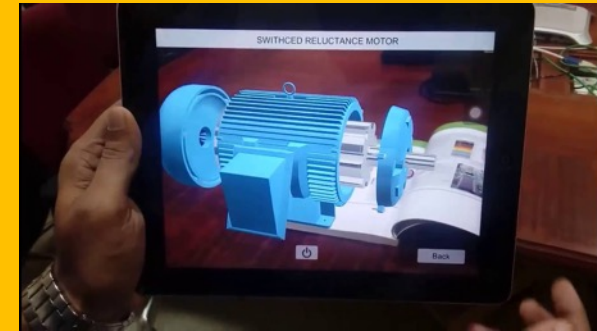
Virtual Reality and Augmented Reality are two sides of the same coin.

AR simulates artificial **objects in the real environment**; Virtual Reality creates an **artificial environment to inhabit**.

In AR, the computer uses **sensors and algorithms** to determine the position and orientation of a camera.

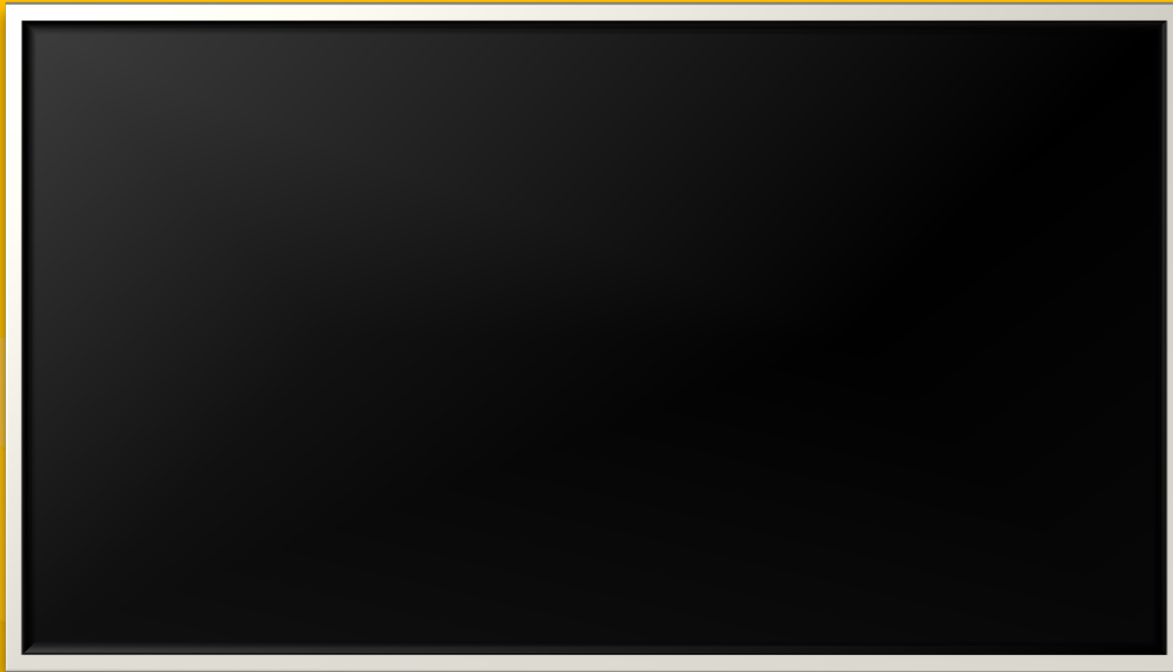
AR technology then renders the **3D graphics as they would appear from the viewpoint of the camera**, superimposing the **computer-generated images over a user's view of the real world**. mine the position and orientation of a camera.

In VR, the computer uses **similar sensors and math**. AR technology then renders the 3D graphics as they would appear from the viewpoint of the camera, superimposing the computer-generated images over a user's view of the real world.

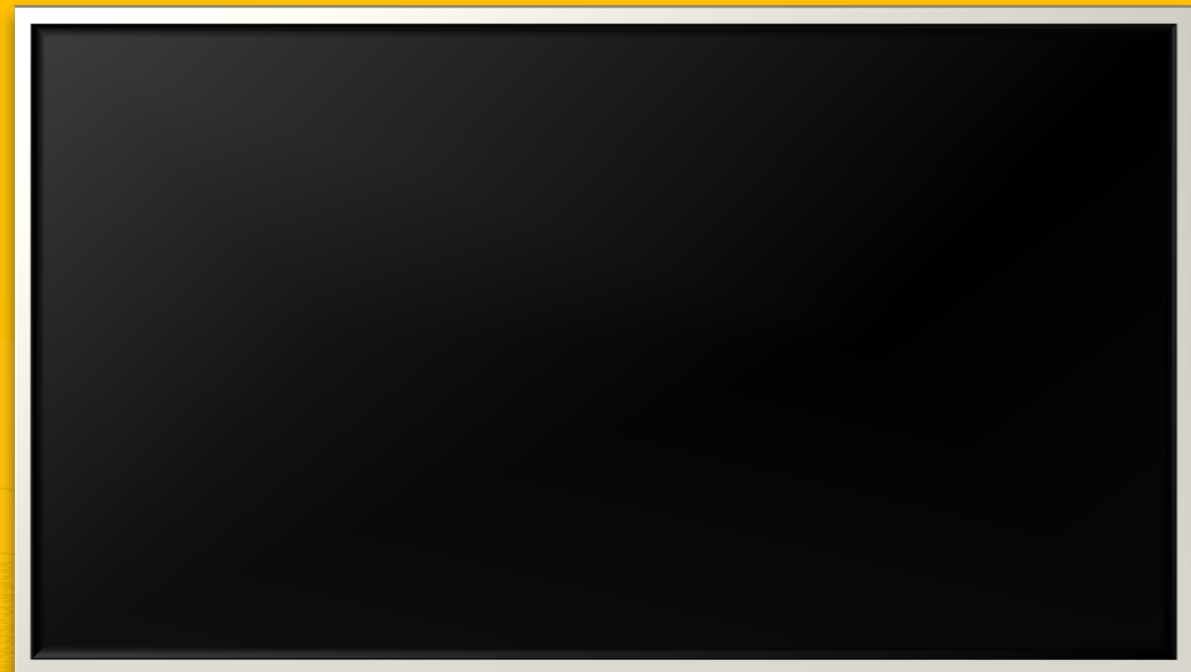




# AR EXAMPLES - MICROSOFT HOLOLENS

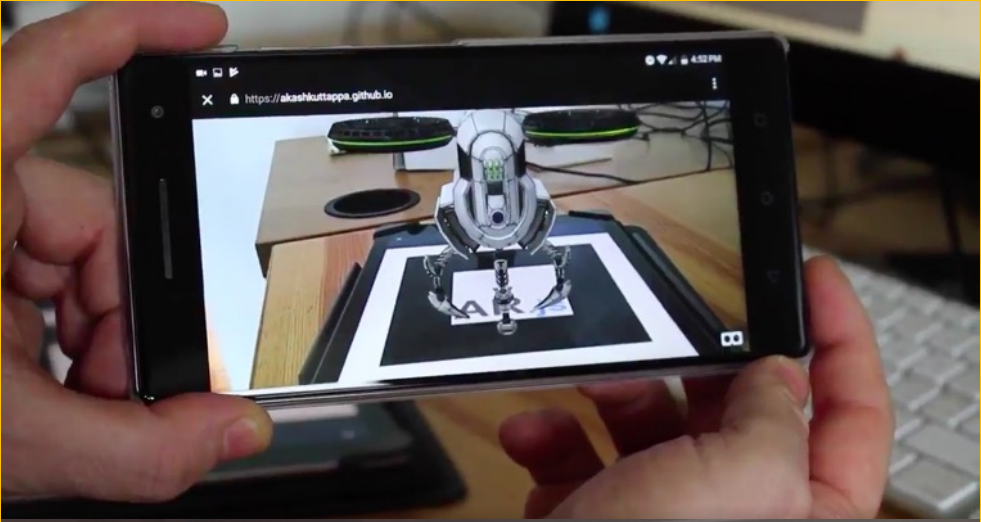


[\[Youtube vídeo\]](#)



[\[Youtube vídeo\]](#)

# AR EXAMPLE - AR FOR WEB: DEMO

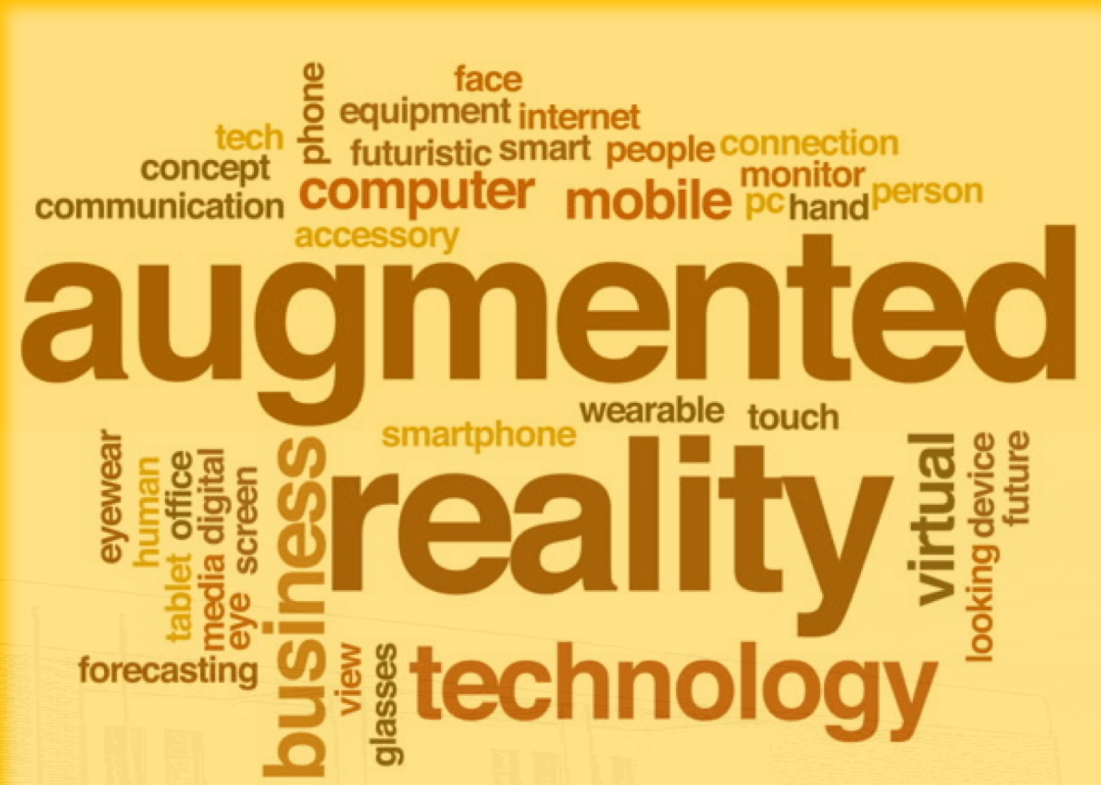
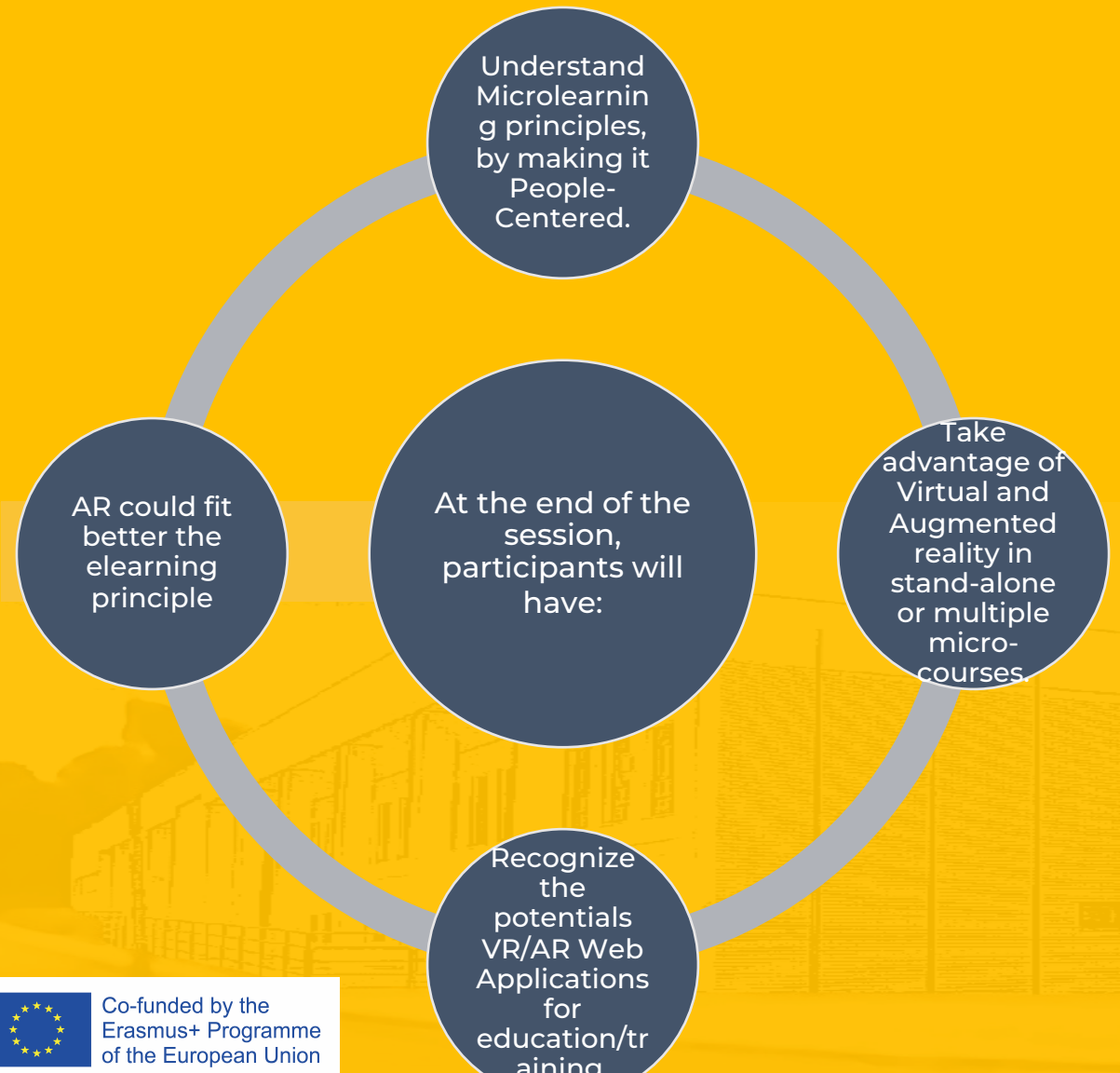


```
ARWE.registerComponent('markerhandler', {  
  init: function() {  
    const animatedMarker = document.querySelector("#animated-marker");  
    // every click, we make our model grow in size  
    animatedMarker.addEventListener('click', function(ev, target) {  
      if (animatedMarker.object3D.visible == true && ev.detail.cursorEl) {  
        const entity = document.querySelector('#animated-model');  
        const scale = entity.getAttribute('scale');  
        Object.keys(scale).forEach((key) => scale[key] = scale[key] + 1);  
        entity.setAttribute('scale', scale);  
      }  
    });  
  });  
});
```

[\[AR.js tutorial\]](#)

[Augmented reality in ten lines of code \[explained\]](#)

# TO SUM UP...



# ACTIVE LEARNING REFLECTIVE ASSIGNMENT EXAMPLE

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 [Optional Weekly assignment] Learning How to Learn: Weekly Student ePortfolio

Learning from your Research (and Mistakes). It is a challenge and also an opportunity to excel at course technical and personal skills. It is not part of Participation evaluation.

In a weekly based (till every sunday), each student reply in his wiki page, to the following questions:

1. **What was the development activity?** (summary of the topic covered in that week, in students words)
2. **What have I learned/practise?**
3. **How will I apply this learning? (could be code example, online training enrol)**
4. **supported Bibliography (e.g. webpage, forum discussion)**

It gives the opportunity to both the student and the teacher to fill doubts and individualized learning pathways to topics related.

## Highlights for individual Learning diaries (ePortfolio):

- #1 - 17/02 - revisões HTML5/CSS3
- #2 - 24/02 - revisões JavaScript/DOM
- #3 - 03/03 - Js - funções anónimas e execução automática
- #4 - 10/03 - Interrupções Carnaval
- #5 - 17/03 - Modelo web clássico vs. modelo AJAX
- #6 - 24/03 - A importância das políticas de Segurança na Web
- #7 - 31/03 - Web API's e Widgets
- #8 - 07/04 - Consolidação AJAX e API's
- #9 - 28/04 - Introdução ao NODE.js
- #10 - 05/05 -
- #11 - 19/05 -

Web Systems –  
undergraduated  
informatics course,  
provided in Moodle

- A technique to have continuous student/teacher feedback
- A way to assess classes quality

It fits to me...you need to evaluate the impact of it, in your classes, course goals.





# VIRTUAL AND AUGMENTED REALITY: THE FUTURE OF MICROLEARNING AND E-LEARNING

**THANKS FOR YOUR  
ATTENTION**

**ANY QUESTION,  
FEEDBACK, COMMENT?**

**FEEL FREE TO CONTACT**

Training session – Iraq, 14-17 April, 2019

Pedro Valente, PhD

[pedro.valente@ispab.pt](mailto:pedro.valente@ispab.pt)

- ✓ This educational material is developed within the project "OPATEL: Online Platform for Academic TEaching and Learning in Iraq and Iran", under the contract 73915-EEP-1-2016-1-DE-EPPKA2-CBHE-JP.
- ✓ The OPATEL project is funded by the Erasmus+ programme of the European Union.
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