

Europeana Learning Scenario

Title

From muscle machines to smart machines

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Abstract

Nowadays we are living in tremendously new times. For the first time in history, humankind is challenged by smart agents concerning capabilities that we consider as exclusive to human beings. This is having an enormous impact on all components of our lives.

The way we work (workplace) will be one of the most affected. This learning scenario will explore the transformation in the workplace from the technology that replaces the human muscle force to technology that is replacing us on intelligent tasks. Students will be invited to compare the workplace of the past with the ones of today and the future and reflect on how this will impact their lives and what are the key competences to thrive in a Digital Automated Smart World.

Keywords

Work, Automation, Smart-Agents, AI, History, Skills

Table of summary

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Subject	History, Citizenship and ICT
Topic	Smart agents and the process of work automation: Promises and Perils.
Age of students	14-17
Preparation time	2 hours
Teaching time	4.5 hours
Online teaching material	<p>Padlet https://padlet.com/ - Online platform where students can share ideas about the work they will create.</p> <p>Tricider https://www.tricider.com/ - Used by teams to propose new ideas and brainstorming around them. Allows to comment ideas proposed and to vote on the best ones.</p> <p>Google Forms https://www.google.com/forms/about/ - This will be used by students to work collaboratively on their projects and also to evaluate the work of their peers.</p> <p>YouTube https://www.youtube.com/ - YouTube is a video sharing service where users can create their own profile, upload videos, watch, like and comment on other videos.</p> <p>How Cheap Labour Drives China's A.I. Ambitions https://www.nytimes.com/2018/11/25/business/china-artificial-intelligence-labeling.html</p>



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	<p>Robots Aren't Taking Over Yet! How to Prepare Your Students for Artificial Intelligence https://parlayideas.com/prepare-students-artificial-intelligence-education/</p> <p>The Future of Work https://www.gettingsmart.com/futureofwork/</p> <p>Robots And AI: The Future Is Automated And Every Job Is At Risk https://www.youtube.com/watch?v=rnBAdnNlIXk</p> <p>Visual exploration of Automation https://twitter.com/humanvsmachine</p> <p>What is the Fourth Industrial Revolution? https://www.youtube.com/watch?v=v9rZOa3CUC8</p>
Offline teaching material	none
Europeana resources used	<p>Industrial Heritage Collection https://www.europeana.eu/portal/pt/collections/industrial-heritage</p> <p>Orange-Growing Verpackung von 'Sunkist'- Orangen aus Kalifornien 1A https://www.europeana.eu/portal/pt/record/2059502/data_foodanddrink_http_www_bildarchivaustria_at_Preview_392917_jpg.html</p> <p>Welcome Packing Plant, South Africa https://www.europeana.eu/portal/pt/record/9200579/j6ngsntc.html?q=factory</p> <p>Fàbrica Gròber 1 https://www.europeana.eu/portal/pt/record/2024914/photography_ProvidedCHO_Ajuntament_de_Girona_342458.html?q=factory</p> <p>Fàbrica Gròber 2 https://www.europeana.eu/portal/pt/record/2024914/photography_ProvidedCHO_Ajuntament_de_Girona_342456.html?q=factory&channel=industrial-heritage</p>

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Integration into the curriculum

The contents of this learning scenario fit into three subjects of the curriculum: In **History** when addressing the contents of the industrial revolutions, in **Citizenship** through the impacts of hyper digitization on people's lives and in **ICT** in the construction and development of digital products to support differentiated content.

In History, this important theme can be debated within the topic of the *Expansion of the Industrial Revolution*, making the bridge in comparison with today's automation processes. Using this Learning Scenario as a collaborative and interdisciplinary one, the issues of impact, challenges and opportunities can be linked to the phenomenon of citizenship. At the conclusion of the interdisciplinary process, students with the data, information and content collected in History and Citizenship build digital artifacts that reflect their views and opinions on this theme.

Aim of the lesson

The aim of this lesson is to discuss and reflect on the impact of automation and smart agents will have on our lives fueled by Artificial Intelligence , mainly on the labor market and how this could result in new orders of social organization and structures.

Topics: Lack of employment (truth or myth?), Universal Basic Income, Skills for an AI world, Automation, Industrial Revolution.

Outcome of the lesson

The outcomes will be focused under different perspectives. One will be a **reflection document** created with the contributions of students on the discussions around the main topic of the Learning Scenario. Another one will be a **YouTube channel** called “From muscle machines to smart machines” On this channel, students will add videos in which they express their opinions about the automation of work and how it is impacting the labor market and how they consider they need to be prepared for a world in continuous change and so different from the one their parents and teachers lived in.

Another outcome will be a (simple) **framework document** with the key competences (identification, description, how to develop them) that students, after all the reflection done, consider as the most critical for them to thrive in an Artificial Intelligence world. Also, for each competence identified, students should propose a **school activity** that helps them develop that competence. So, the outcomes will be:

- a reflection paper about the impacts of smart automation;
- YouTube channel with videos in which they express their opinions;
- a framework with the competences considered as crucial by the students for an AI world.

Trends

PBL: Project Based Learning. Students learn by developing a project in groups, based on a driving question;

Collaborative learning: a strong focus on group work;

AI in education: exploring what is AI, where it is presented and how it affects our lives (mainly the labor market);

Peer Learning: students learn from peers and give each other feedback;

BYOD: Students bring their own mobile devices to the classroom.

Flipped Classroom: Flipping the classroom is a “[pedagogy-first](#)” approach to teaching. In this approach in-class time is “re-purposed” for inquiry, application, and assessment in order to better meet the needs of individual learners.

21st century skills

This Learning Scenario aims to facilitate educational contexts where students will develop a set of crucial competences that today are defined as a key factor for their professional and personal life.

Collaboration: by working in teams, students will need to interact, plan, make decisions as a group to develop the tasks and create the products suggested within the context of the Learning Scenario.

Creativity: students will have some “freedom” to create final products. So, they will need to apply their creativity to find the best solutions for that.

Communication: students will have to present the work developed to their peers. This will allow them to develop communication skills.

Critical Thinking: is all about thinking about problems with an open mindset trying to find solutions to new problems or challenges. In this learning scenario, students will have to reflect on what competences will be crucial for an AI world.

Curiosity: another important skill that our students must develop is curiosity. The learning scenario must be presented in a way that students are eager to investigate the topics of the learning scenario, involving them on the activities and guide them through the process and keeping them always motivated and engaged to learn more.

Activities

Name of activity	Procedure	Time
1) Presentation and general discussion	The history teacher presents to students the main idea of the activity. Show them the Europeana portal (explains how to search for information) and the Industrial Heritage Collection . Students are invited to reflect about work and professions decades ago by exploring some of the pictures provided in this document. The teacher could make some connections with aspects of the Industrial Revolutions, for example the movement of the Luddites.	30 min
2) Big group discussion (curiosity and critical thinking)	In Citizenship class, students will have to explore the resources provided and to take notes comparing the work in the past with what is expected from us during the time of digital transformation (e.g. by comparing the Twitter source referred to in the section “Online Materials” and also images of the workplace today and in the past). Their main conclusions should be added to an online live brainstorming tool, such as Tricider . A whole-class discussion should be moderated by the teacher.	50 min
3) Teams creation and roles (Collaboration and investigation)	With the ICT teacher, teams should be created taking into consideration the expected outcomes, we will need teams for the development of: <ul style="list-style-type: none"> - A reflection document; - A YouTube channel; - Framework competences for an AI world. <p>Create teams with roles according to students’ profiles. Assign a team manager responsible for the communication of the team with the teacher. Also define the basic structure for each product and the tools and platforms to create them.</p>	30 min
4) Research and investigation (collaborative work and critical thinking)	Each team will have to research information about the general topic and about the product they must create. Students should use the resources provided by the teacher and use others that they considered reliable such as the Europeana platform. For this work, students should do most of the work in a Flipped Classroom approach using collaborative tools such Google Docs. The team manager is responsible to create a shared document where all members should add their contributions. The	50 min

Name of activity	Procedure	Time
	document must be shared with all the teachers. The main ideas of each team should be added (as a resume) in a digital online tool such as Padlet so all can have access to them.	
5) Product development (ICT skills, creativity)	With all the information collected and organized, the teams should move to the next step: development of the final products . The products could be created using an interdisciplinary approach, that means that they can be developed on any of the subjects involved according to the characteristics of the product using the tools and platforms decided with the ICT teacher.	80 min
6) Project Presentation (communication)	Each team will present the result of their work . During the presentation the peers will evaluate the other teams' work using an online form. Results will be published after all the presentations and evaluations have been made.	30 min

* Another very interesting activity that can be promoted in the context of this learning scenario is to invite students to take part in the **initiative Europe at Work**: Share your story <https://contribute.europeana.eu/europe-at-work>. They even can use this initiative as a source of information for the activities presented in the learning scenario. This will be also a way to involve all the educational and local community. Even a final presentation of the different professions could be considered.

Assessment

The teacher should ask the students involved in the implementation of this Learning Scenario to do their own reflection about the contexts discussed. Each of the reflections should be “evaluated” by a colleague using the approach “**3 stars and a wish**”. Each star is a positive feedback and the wish is something that should be improved. This approach promotes a context of collaboration and positive feedback concerning the work done by the students.

***** AFTER IMPLEMENTATION *****

Student feedback

Ask students how this activity was important for them in order to understand the impacts and opportunities of the Digital Transformation and Artificial Intelligence. Each of them could record a short (1 minute) a feedback video using a platform like **FlipGrid** (<https://flipgrid.com/>) or just by adding it to the YouTube channel created.

Teacher's remarks

Concerning the context of this learning scenario, the teachers from the subjects involved should do an integrated reflection on the work produced and reflect on the impact of the activities on the students' mindset concerning this topic. They should also share the reflections on platforms (i.e. social media, school website) through which other teachers could reach them in order to know the most and less positive aspects of this educational mini-project.

About the Europeana DSI-4 project

[Europeana](#) is Europe's digital platform for cultural heritage, providing free online access to over 53 million digitised items drawn from Europe's museums, archives, libraries and galleries. The Europeana DSI-4 project continues the work of the previous three Europeana Digital Service Infrastructures (DSIs). It is the fourth iteration with a proven record of accomplishment in creating access, interoperability, visibility and use of European cultural heritage in the five target markets outlined: European Citizens, Education, Research, Creative Industries and Cultural Heritage Institutions.

[European Schoolnet](#) (EUN) is the network of 34 European Ministries of Education, based in Brussels. As a not-for-profit organisation, EUN aims to bring innovation in teaching and learning to its key stakeholders: Ministries of Education, schools, teachers, researchers, and industry partners. European Schoolnet's task in the Europeana DSI-4 project is to continue and expand the Europeana Education Community.