
DIGITAL STORYTELLING FOR DIGITAL SKILLS DEVELOPMENT.

A PILOT EXPERIENCE WITH IN-TRAINING EDUCATORS

Maria Rosaria Re, University Roma Tre, Italy

Abstract

The present paper aims at presenting the results of a pilot experience of digital skills promotion within in-training educators carried out at the University of Modena and Reggio Emilia. The experience was realised in the academic year 2020/2021 through the use of the MOOC "Digital Storytelling" of the Erasmus+ DigiCulture project (Andone, 2019; Re, 2022). The MOOC, assigned to more than 100 students participating in the "Educational Research Methodology" laboratory, and designed in 5 modules, aims at soliciting the digital skills of Information and Data Literacy, Communication and Collaboration, Digital Content Creation according to the DigComp 2.1 model (Carretero et al., 2017) through the Digital Storytelling learning strategy. The pilot experience was carried as a response to the educational urgency of promoting digital competences in (future) teachers and educators for the development of the national social and educational context (Italian Law 107/2015, Observatory of Digital Competences, 2019; OECD, 2019; Digital Education Action Plan 2021-2027), especially following the spread of the Covid-19 pandemic that has brought the need to redesign and reconfigure learning processes and programmes through the use of digital technologies (Secundo, Rippa & Meoli, 2020), Distance Learning and Digital Integrated Learning. The results show that the self-perception of the competences of " Browsing, searching and filtering data, information and digital content", " Integrating and re-elaborating digital content" and "Collaborating through digital technologies" improved in a statistically positive way within the participants.

Keywords:

Digital skills, Educators, MOOC, Digital Storytelling, University.

Introduction

According to the indications and data presented by international and national reports, the promotion of digital skills in the educational and school context is an increasingly urgent need (Law 107/2015, European University Association, 2019; Digital Skills Observatory, 2019; OECD, 2019; Digital Education Action Plan 2021-2027). During the Covid-19 pandemic, it was observed how low levels of digital competence are associated with inequality and cultural marginalisation: the lower the development of skills such as Information and data literacy, Digital Communication and collaboration and Digital Content Creation, the greater the possibility of being excluded from the cultural and social life of a given local and national context (Azevedo et al., 2020).

In Italy, the spread of the Covid-19 pandemic led first to the use of Distance Learning at all levels of education, and then to the use of Digital Integrated Learning, i.e. the simultaneous presence of students both in presence and at a distance while the teacher was in presence. The processes of digitalization of the national school system, which have also affected the school-family and school-territory relations, have faced the low levels of digital skills in the Italian population: according to the Italian National Institute of Statistics (2019), among people aged 16-74, only 22% (compared to 31% in the EU) declared to have high digital skills, i.e. to be able to carry out different activities in the 4 domains of information, communication, problem solving and content creation. Most people have low (32%) or basic (19%) skills, while 3.4% have almost no skills and 24% say they have not used the internet in the last 3 months. In the European Skills Agenda (2021), one of the main objectives is to have 230 million adults, or 70% of the corresponding EU population, with at least a basic level of digital skills by 2025. This objective has so far only been reached in the Netherlands, Finland, Sweden, Germany and Denmark; Italy, with 42% of people with low levels of digital skills, ranks third last in Europe. Moreover, according to Eurostat, only 1% of Italian university graduates have an ICT qualification (the worst position in EU) and the percentage of ICT specialists - although it has increased over time and reached 3.6% of total employment - is still far from the EU average (4.2%).

Moreover, the growing social demand for education in relation to the continuous technological progress imposes the need from the university system to provide training courses that are as respondent as possible to these

educational needs, but which at the same time can promote the critical, creative and aware use of digital tools and methods, so as to stimulate cultural and social innovation. Redesigning university learning courses for future educators and teachers through the use of digital technologies (Secundo, Rippa & Meoli, 2020) is, therefore, urgent.

Starting from these assumptions, the pilot experience, described here, was implemented in the academic year 2020/21 at the University of Modena and Reggio Emilia. Participants were asked to register and attend the MOOC "Digital Storytelling", realised within the Erasmus+ KA204 DigiCulture project "Improving the Digital Competences and social inclusion of adults in Creative Industries, coordinated by Politehnica University of Timisoara (Andone, 2019) (www.digiculture.eu).

The “Digital Storytelling” MOOC of the DigiCulture project

The Erasmus+ KA204 “DigiCulture” project (2018-2021) aims to create a sustainable and efficient education program devoted to adult learners with low digital skills and low-qualified adults involved in the Creative Industries sector. The partnership of the project, composed by eight Educational Institution and Association from 7 different EU Countries, was involved in the design of the DigiCulture MOOCs, whose main objective is to fill in the digital skills gap of people who operate in CI sector, promoting social inclusion, media literacy, intercultural competences and 4C skills (critical thinking, creativity, communication and collaboration). The DigiCulture MOOCs (<https://digiculture.eu/en/courses/>) provide important new opportunities for adults to access knowledge, gain new digital skills and inter-cultural competences and improve their chances of finding employment or performing better in their current employment. The DigiCulture project had the following priorities:

- to enhance awareness of the need for adult training in digital skills for the CI;
- to design and validate cross-country Guidelines for Digital Competences for CI;
- to create an Integrated Virtual Learning Hub as an online and mobile MOOC platform for developing digital competences in the culture and heritage sector using Open Educational Resources (OERs), Tools and Practices;
- to design, develop and deliver Digital Skills and Social Inclusion for Creative Industries Courses, translated into all partners' languages, aimed at promoting digital competences and social inclusion in adults involved in the CI sector;
- to improve the achievement and recognition of digital skills through formal and informal learning by introducing Digital Skills e-assessment and Open Badges for adult education in CI;
- to provide engaging and effective learning experiences in the context of Digital Skills promotion for CI adult employers;
- to enhance collaboration between education providers, universities, cultural and heritage institutions and associations, cultural actors, workers and volunteers;
- to verify how achievement, assessment and validation of digital skills contribute to the uptake of new skills in adult learners.

One of the DigiCulture MOOC is the “Digital Storytelling” MOOC (<https://digiculture.eu/en/digiculture-course/?id=18>). This course will introduce attendees to the methodology of digital storytelling (DST) which should help to increase the effectiveness of creative and educational working activities. At the end of the course, participants will be able to design, create and evaluate a digital storytelling video to promote the organisation their work for, or communicate the artistic and cultural heritage you help to preserve, or to realize learning experiences with the use of this DST learning strategy. Attendees learn storytelling content development through the use of digital skills and other general skills such as communication, collaboration, creativity and critical thinking. The main topic of the “Digital Storytelling” MOOC are the following:

1. The art of Storytelling;
2. Digital storytelling as learning and teaching methodology;
3. DST to promote 4C skills (Creativity, Communication, Collaboration and Critical Thinking);
4. Digital tools for the design, creation and assessment of Digital Storytelling videos;
5. DST for culture and heritage (museums, archaeological sites, libraries).

At the end of this module, participants will be able to:

- describe the main features of DST methodology;

- outline the educational aims of the DST methodology in terms of communication, collaboration, creativity and critical thinking development;
- use digital tools for the creation of a DST video;
- design a DST video;
- evaluate a DST video;
- promote information and data literacy and digital content creation;
- reflect on DST as a tool of social inclusion.

Organised in 5 different modules, the “Digital Storytelling” MOOC presents different learning activities: OERs, forum of discussion; searching activities; video DST realisation, evaluation activities. The Digital storytelling MOOC is available in English, Italian, Romanian, Danish, German, Lithuanian and Irish.

Research questions and methodology

The main aim of the pilot experience is to verify the possibility to use the “Digital Storytelling” MOOC, created for Creative Industries employees, in developing digital skills at university level, especially within in-training educators.

The experience was realised during the academic year 2020/2021, with the participation of 108 Educational Science students attending the Laboratory on Educational Research Methodology, at University of Modena and Reggio Emilia. The MOOC was assigned to the participants as online learning activity within the Laboratory. The students had 4 weeks to complete the course. The language course assigned during the pilot experience was Italian.

The course evaluation tools were used to collect data on digital skills development and course contents acquisition within participating students.

Evaluation tool and phases

The “Digital Storytelling” MOOC requires participants to answer a task-based questionnaire on digital competences (Nunan, 2004) and a final assessment test (Hougaard & Knoche, 2020).

The task-based questionnaire is administered to participants before and at the end of the course activities: composed by 3 different questions, it is designed to collect data on the perception of the level of three specific digital skills, “Browsing, searching and filtering digital content”, “Integrating and re-elaborating digital content” and “Collaborating through digital technologies”.

Table 1: Task-based questionnaire of the Digital Storytelling MOOC

No.	Prior to the course	After the course	Type	Skill under evaluation
	<i>How well do you think you can complete the following task while learning online?</i>	<i>How well do you think you can complete the following task at the end of the course?</i>		
1	“I can select digital tools to create scripts for digital storytelling products”	“I can select digital tools to write and edit a script in a collaborative way”	Likert Scale 1 - Not at all 2 – Poorly 3 - Adequately 4 - Well 5 - Very Well	Browsing, searching and filtering digital content
2	“I can use online tools to realize digital storytelling videos”	“I can use image editing programs to realize digital storytelling videos”		Integrating and re-elaborating digital content
3	“I can collaboratively create a storyboard through online tools and app”	“I can collaborate in recording the audio of a digital story”		Collaborating through digital technologies

The final assessment test of the course is composed by 11 closed questions aimed at evaluating the acquisition of the course contents: DST characteristics as learning strategy; DST for 21st century skills development; tool and phases for DST realisation; DST for different communication purposes and contexts; best practices and case studies. The maximum score for this assessment tool is 10 points.

The collected data were analysed through basic statistical analysis.

First results

Results show a very good level of contents acquisition by the participants. The average of the final assessment test is 8.99 points out of 10 (DS=1.52), with a kurtosis index of 2.13. Cronbach's Alpha of the test delivered into Italian language is 0.772. Almost all questions received more than 80% right answers: the question with the lowest percentage of right answers (63%) is question number 6, which aimed at investigating the lineal or non-linear narrative characteristics of a DST video. The histogram of the frequency of the final assessment test scores shows a j-shaped curve, highlighting the good performance of the participants.

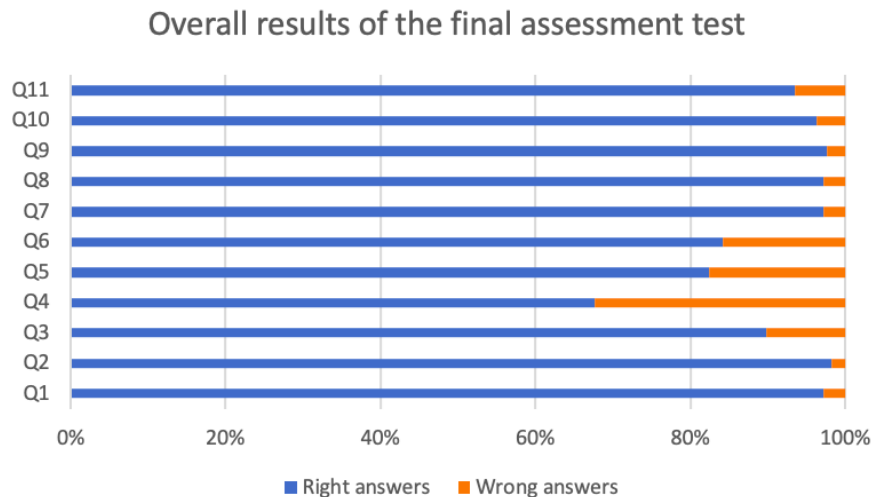


Figure 1. Percentage of right and wrong answers for each question in the final assessment test of the MOOC

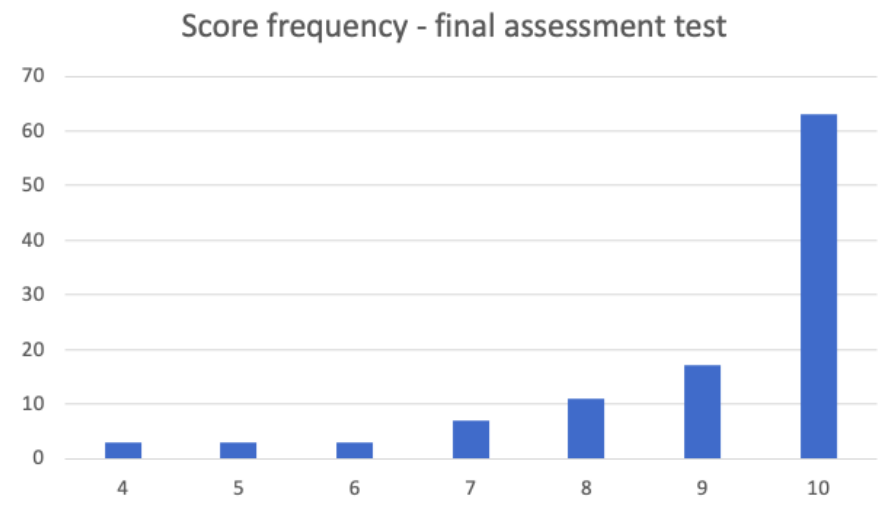


Figure 2. Frequency of scores assigned to the final assessment test of the MOOC

The most encouraging results of the pilot experience are related to the self-assessment of digital competences. The paired t-test is conducted on the averages of the scores assigned by the participants at the beginning and at the end of the MOOC through the task-based questionnaire. The results show a statistically significant difference between the incoming and outgoing task-based questionnaire in all three assessed skills: Browsing, searching and filtering digital content: prior to the course (M=1.98, SD=0.93); after the course (M=3.42, SD=0.77) $t=1.46$ $p<0.001$; Integrating and re-elaborating digital content: prior to the course (M=1.97; SD=0.94); after the course (M=3.31; SD=0.88) $t=6.01$ $p<0.001$; Collaborating through digital technologies: prior to the course (M=1.96; SD=0.91); after the course (M=3.30; SD=0.88) $t=1.80$ $p<0.001$.

Cronbach's Alpha of the task-based questionnaire delivered before the course into Italian language is 0.901; while Cronbach's Alpha of the task-based questionnaire delivered at the end the course into Italian language is 0.885.

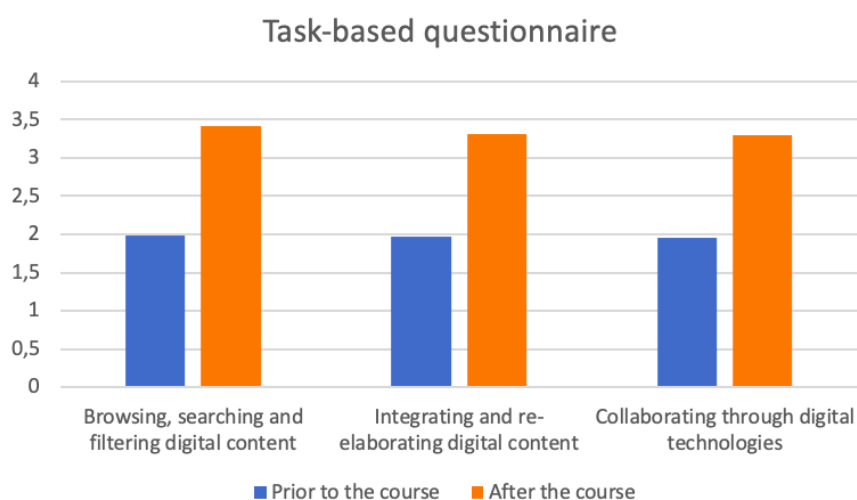


Figure 3. Perception of digital competence levels before and after the “Digital Storytelling” MOOC

Conclusions

The pilot experience, here described, was realised in response to the educational urgency of promoting digital skills in in-training teachers and educators for the development of the national social and educational context (Italian Law 107/2015, European University Association, 2019; Digital Skills Observatory, 2019; OECD, 2019; Digital Education Action Plan 2021-2027), especially after the spread of the Covid-19 pandemic that brought the need to redesign and redefine learning processes and programmes through the use of digital technologies, Distance Learning (DAD) and Digital Integrated Learning (DDI).

The results of the pilot experience, which cannot be generalised, show a statistically positive increase in the perceived competences of Browsing, searching and filtering digital content, Integrating and re-elaborating digital content and Collaborating through digital technologies within the university students attending the “Digital Storytelling” MOOC ($p < .05$). The average score assigned to the final assessment test of the MOOC (8.99) was also very good, highlighting the good achievement of the learning objectives by the attendees.

The limitations of the pilot experience are the absence of a probability sample of the in-training educators attending the MOOC and the absence of validation of the Italian language assessment tools used. On this last point, the Cronbach’s Alpha results are however good.

Future developments of this research may be the implementation of the experience in other training contexts, such as with the participation of in-service educators and teachers, as well as the use of validated digital skills assessment tools in Italian. An in-depth study of the assessment of 21st century skills and the analysis of possible correlations with digital skills levels is also hoped for.

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