CONTENTS AND TEACHING PRACTICES FOR DIGITAL CITIZENSHIP: AN ACTION RESEARCH STUDY

CONTENUTI E PRATICHE DIDATTICHE PER LA CITTADINANZA DIGITALE: UNO STUDIO DI RICERCA AZIONE

Claudia Bellini[1]
University of Modena e Reggio Emilia
claudia.bellini@unimore.it

Katia Sannicandro[2]
University of Modena e Reggio Emilia
katia.sannicandro@unimore.it

Annamaria De Santis[3]
University of Modena e Reggio Emilia
annamaria.desantis@unimore.it

Tommaso Minerva[4]
University of Modena e Reggio Emilia
tommaso.minerva@unimore.it

Abstract

Is there a connection between active teaching methodologies and digital citizenship education?
We propose in this paper the results of an action-research conducted with 20 high school teachers in Reggio Emilia to analyse the issue. During the training path that is part of the research actions, made of co-design activities, participants experienced two active methodologies (Problem Based Learning and Episodes of Situated Learning) and discussed tips for producing digital learning contents. The paper presents the results of the project's first phase, aiming to encourage and support transforming teaching practices. The activities regard the interdisciplinary field of civic education, focusing specifically on digital citizenship, one of the three thematic cores of Law n. 92/2019. The changes related to technological development involve social, cultural, and educational implications to which the school responds by educating students with a critical sense and responsibility.
According to a design model already tested by the working group, the training was delivered in flipped mode with a mixture of synchronous and asynchronous online activities: teachers benefit from materials asynchronously before the live sessions in which experience and interaction are preferred. Live surveys, training activities, and focus groups provided teachers' perception.

Esiste una connessione tra metodologie didattiche attive e insegnamento dell'educazione civica? Con l'obiettivo di rispondere a questa domanda, proponiamo i risultati di una ricerca-azione condotta con 20 insegnanti in una scuola superiore di Reggio Emilia. Nel percorso formativo, organizzato come parte

---

[1] Author 1 of section "3.2 Teacher's opinions about multimedia content design for active methods"
[2] Author 2 of section "2. Method"
[3] Author 3 of sections "Introduction", "1. Digital citizenship and active teaching methods" and "3.1. Teachers' opinions about using active methods for digital citizenship"
[4] Scientific co-responsible for the planning of the research project

delle attività di ricerca e articolato attorno ad attività di co-design, sono state sperimentate due metodologie attive (Problem Based Learning e Episodi di Apprendimento Situato) e condivisi suggerimenti per la produzione di contenuti didattici digitali. Il paper presenta i risultati della prima fase di attuazione del progetto il cui obiettivo è stato quello di incoraggiare e sostenere la trasformazione delle pratiche didattiche.

Le attività hanno riguardato il campo interdisciplinare dell'educazione civica, in particolare in riferimento al tema della cittadinanza digitale che è uno dei tre nuclei tematici individuati dalla Legge n. 92/2019. I cambiamenti legati allo sviluppo tecnologico comportano implicazioni sociali, culturali ed educative a cui la scuola risponde educando gli studenti con senso critico e responsabilità.

La formazione, secondo un modello progettuale già sperimentato dal gruppo di lavoro, è stata erogata in modalità flipped con un mix di attività online sincrone e asincrone: gli insegnanti fruiscono dei materiali in modalità asincrona prima delle sessioni live in cui si privilegia l'esperienza e l'interazione. Live survey, attività svolte durante la formazione e focus group hanno restituito le opinioni e le percezioni degli insegnanti su temi e azioni.

Key-words

Digital Education; Active Methodologies; Digital Citizenship; Content Design; Action-Research, Teachers' Training.

Educazione Digitale; Metodologie Attive; Cittadinanza Digitale; Progettazione dei Contenuti; Ricerca-Azione; Formazione dei Docenti.

Introduction

Effective teachers' training is made of experimenting with alternative methodologies, providing tools and strategies for designing courses and contents, working on collaboration among colleagues, reflecting on the roles of the involved actors. The activities and relationships built in each educational action can develop a democratic culture among students while affecting knowledge and skills. During the training activities, we work (even without stating it explicitly) on personal identity, participation in community life, collaboration among peers, assumption of duties and defence of rights, and ethical principles. In the actual social scenario, the aspects briefly listed above are equally relevant in both physical and virtual environments and represent a further reason (in addition to those well known) to focus attention on the design of teaching activities/contents and on (digital) citizenship.

From these premises, we planned the project "Digital citizenship and teaching innovation" carried out in a high school in Reggio Emilia (Italy) that aims at intervening in the teaching strategies and the design of digital citizenship paths in the classroom as part of civic education. The action-research here described started from two circumstances:

• the need for training on active methods and for ideas about digital citizenship education (and in general civic education) expressed by a small group of high school teachers (about 20) at Reggio Emilia;

• our considerations about the strict relationship existing between active teaching strategies and digital citizenship features and between teaching transformation and processes of design, delivery, and assessment of educational activities and contents.

The research experience, at the first moment planned only to support this group of teachers in transforming their practices, has become an occasion to analyse the elements that make teachers' training on digital citizenship effective.

Our goals, so, are the following:
1.   to support a group of teachers in the practises for transforming their teaching methods;

2.   to study the relationship between digital citizenship and active methodologies;

3.   to analyse the features of the elements that can characterise a training path on digital citizenship for teachers at high schools.

In paragraph 1 we describe a possible connection existing between active teaching methods and digital citizenship skills, on which to train teachers and motivate them to use these strategies in their classroom. In the following sections, you can find a description of the action-research method used to design the research that starts with the training path (described in paragraph 2) and results collected in the first phase of training plus a workshop on multimedia content (discussed in paragraphs 3.1 e 3.2).

1. Digital citizenship and active teaching methods

The framework on Digital Citizenship we chose to work together with teachers is proposed by the Council of Europe (2019). The definition of digital citizen and citizenship establishes the connection between this concept and the features of active methodologies: the digital citizen has to assume an active role in the (online and offline) community to which he/she belongs. As you can read in the following lines, the definition comprises the notion of competence and many verbs of action that can be chosen to describe learning outcomes and activities in active methods: "A digital citizen is someone who, through the development of a broad range of competences, is able to actively, positively and responsibly engage in both on- and offline communities, whether local, national or global. As digital technologies are disruptive in nature and constantly evolving, competence building is a lifelong process that should begin from earliest childhood at home and at school, in formal, informal and non-formal educational settings. Digital citizenship and engagement involve a wide range of activities, from creating, consuming, sharing, playing and socialising, to investigating, communicating, learning and working. Competent digital citizens are able to respond to new and everyday challenges related to learning, work, employability, leisure, inclusion and participation in society, respecting human rights and intercultural differences" (Council of Europe, 2019, p. 11-12).

We compared the basic elements of digital citizenship with the main features of active methods. The left column in Table 1 below shows the ten domains of digital citizenship listed by the Council of Europe and grouped into three categories: "being online", "well-being online", "rights online". The right column describes the elements (a not fully list of actions and goals) that characterise active methods and can regard three areas corresponding to the three categories above: "be active at school", "be well at school", "commitment at school". We associated in the rows similar issues: for example, speaking of access and inclusion let us think about active listening that is essential in every group activity; the idea of "learning in digital environments over life course" can be compared to the necessity of developing lifelong learning skills in the students; when using the term e-Presence, we think about the procedures related to the building of identity, self-esteem or self-assessment; we can easily compare the words, data and traces we generate by surfing the web with our behaviour in the community/group to which we belong; and so on.

We hypothesise that, as we can recognize the same mechanisms in the first and second columns, using active methods is a good fit with the topic of digital citizenship. Besides,

experimenting with these methods in the classroom (in lectures about the themes of digital citizenship but also about other disciplinary themes) is an opportunity for the students to acquire correct behaviours to use when they act in online environments. The correspondence between the active teaching methods and digital citizenship can be easily extended to the whole discipline of civic education.

Digital citizenship domains (Council of Europe, 2019)	Activities and goals of active methods
BEING ONLINE - *access* to digital environments and *inclusion* of every kind of minorities and different opinions - *learning* in digital environments over their life course and expression of *creativity* and competences in different ways with different tools in a technology-rich society - *media and information literacies* as the ability to interpret, understand and express creativity through digital media, as critical thinkers	BE ACTIVE AT SCHOOL - active listening in peer-group and discussions - lifelong learning skills in different contexts - autonomy in research and study - exercising creativity and problem solving to tackle the tasks required - development of critical thinking in dealing with content - recognition of reliable sources - *and more*.
WELL-BEING ONLINE - *ethics and empathy* for creating positive online interaction - awareness of issues related to *health and well-being* in virtual and real spaces - development of abilities to manage one's *e-Presence* (identity), positive *communications*, data and traces	BE WELL AT SCHOOL - interacting with respectful and empathetic approaches when carrying out projects and discussions - self-regulation in studying and managing one's activities - building of identity and healthy relationships by actively participating in learning activities and getting involved in activities - awareness of the impact of one's actions on the community and on the construction of one's self - *and more*.

RIGHTS ONLINE	COMMITMENT AT SCHOOL
- *active participation* and responsibilities in the digital environments - *rights* of privacy, security, access etc. and *responsibilities* to ensure a safe digital environment for all - *privacy* of one's own and others' online information and actions and behaviour to keep *security* also in unpleasant situations - *consumer awareness* to maintain one's autonomy as digital citizens	- responsibility in managing one's study and in completing tasks - recognising the roles in the group - improvement of self-esteem - activation of self-assessment processes - understanding the connection between study topics and the real context - managing challenging situations - *and more*.

Table 1. Digital Citizenship domains and actions/ goals carried out using active teaching methodologies.

The use of different methods obviously influences the design and assessment in learning processes. The macro-theme of the design of teaching activities also includes the design of multimedia content used during lectures. The multimedia format in relation to the theme of digital citizenship brings to analysis the selection of materials and reliable sources, the rules relating to accessibility and copyright. Teachers, even before students, have to deal with these issues. A focus on this theme is in paragraph 3.2.

2. Method
The processes of didactic innovation should be at the centre of both initial teacher training and the various moments of continuing education for in-service teachers. The distance between the context of educational research and teachers' needs and training sometimes appears as an element of criticality because training is unrelated to teaching practices in the classrooms.
Can action-research be the link between educational research and the school practices? What can be the ways to encourage processes of design (and co-design)?
As said Massimo Baldacci (2014), in action-research "knowledge is required not of a merely given reality, but of a transformation of reality, [consequently] it is necessary to define what kind of reality is the educational reality" (p. 390, our translation).
Action-research is a collector of ideas, experimentations, and research that can be used not only to enhance teaching practices, innovation, rethinking and redesigning, but especially to develop reflective attitudes that can drive toward "the constant questioning and defining of one's behaviours, intentions, and purposes" (Kaneklin et al., 2010, p.11, our translation).
In the studies carried out by Efron and Ravid (2019) we can identify some of the elements that characterise – and at the same time differentiate – action-research from traditional research In Table 2 we compare these features with some elements of research in the school context applied in the project we are describing: for example, processes of educational innovation such as paths of experimentation and introduction of teaching methodologies; actions of re-design; creation of communities of practice.

Constitutive characteristics of action-research (Efron & Ravid, 2019, p. 5)	Activities carried out in the project "Digital citizenship and teaching innovation"
The purpose of research is to improve practice	- Analysis of teaching practices (e.g. What teaching methodologies are most commonly used?); - Reflection on instructional and methodological design activities (e.g. use of shared design sheets, focus groups etc.).
Research is conducted by insiders who are involved in the context	- Needs analysis and sharing of research phases; - Preparation of small group activities, plenary feedback activities (e.g. small group simulation of teaching methodologies).
Researchers are subjective, involved, and engaged	- Observation and collection of data related to an instructional context; - Compilation of checklists, development of rubrics.
Research questions arise from local events, problems, and needs *Participants are a natural part of the inquiry setting*	- Live surveys and focus groups on collecting problems, critical issues and points of development (teachers' opinions and perceptions on issues and actions).
The action researchers' findings are directly applied to their practice *Educational changes occur bottom-up in a democratic process*	- Construction and simulation of the teaching methodologies covered by the training (e.g., differences between different disciplines, personalization of teaching interventions, tools for collecting students' opinions etc.).

Table 2 - Distinguishing characteristics of action-research (Efron & Ravid, 2019, p. 5) associated with activities performed by the research team in the project.

Action research is also distinguished by being constructivist, situational, practical, systematic, and cyclical (Efron & Ravid, 2019). In Winter's (1989) proposal taken up by Rory O'Brien (2001), moreover, it is possible to identify six specific key principles (Table 3).

Six key principles	Brief description
Reflexive critique	Focus on reflection related to processes and problems.
Dialectical critique	Focus on sharing and dialogue/confrontation towards dialectical critique.
Collaborative Resource	Participants as co-researchers. Recognition of the importance of ensuring parity for everyone's ideas.

Risk	Change opens up "risk" but is vital to bring learning to life. It becomes necessary to clarify doubts and perplexities related to processes that will necessarily modify established practices.
Plural Structure	Research is characterised by a multiplicity of ideas, points of view, criticisms and actions to be put in place.
Theory, Practice, Transformation	"For action researchers, theory informs practice, practice refines theory, in a continuous transformation" (p.3)

Table 3 - Synthesis of "Six key principles" (O'Brien, 2001, p. 3, our synthesis).

In this complex scenario, theory and practice are closely intertwined, pushing research toward a transformation that we can describe as "continuous" (O'Brien, 2001).

Our project is designed to follow the principles of action-research, understood as a cyclical process based on diagnosing, planning, acting, evaluating, and making learning explicit (see Figure 1).
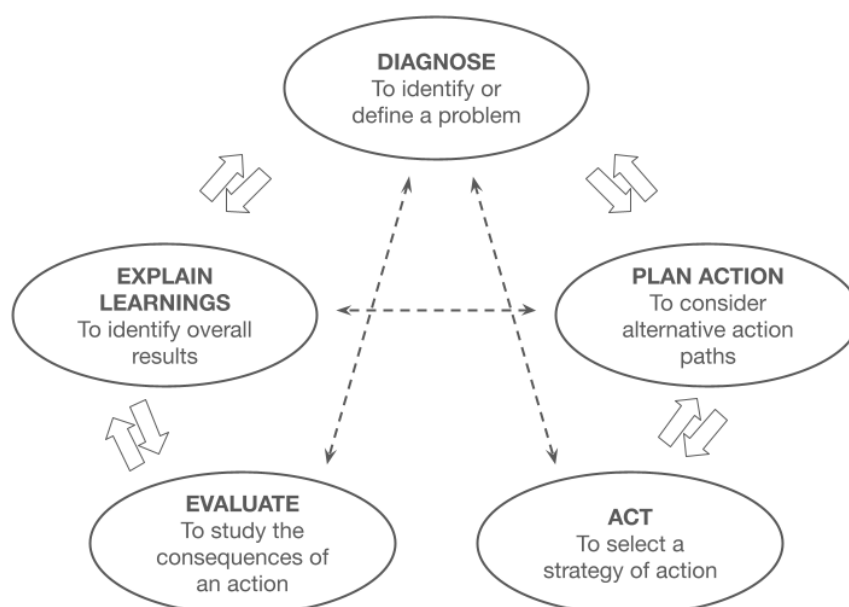

Figure 1. Cyclical and reflexive process of action research (Kaneklin et al., 2010, our translation).

On the strength of the verbs in Figure 1, we put in place two actions:

1.   co-design of teaching activities for digital citizenship (and more) during a flipped course that gives teachers an active role;

2.   analysis of the strategies of contents design by teachers through a workshop and a focus group.

A training program was co-designed (Figure 2) in the research-action process starting from this theoretical and methodological framework. The training themes have been chosen and designed with the teachers involved in the path also considering the experience in the previous school year (Sannicandro et al., 2021a; 2021b).

In particular, it was decided to focus on two teaching methodologies: Problem Based Learning (Lotti, 2018; Lambros, 2002; Barrows & Tamblyn, 1980) and Episodes of Situated Learning (Rivoltella, 2013; 2015); the focus remains on reflection and rethinking linked to instructional design and evaluation.
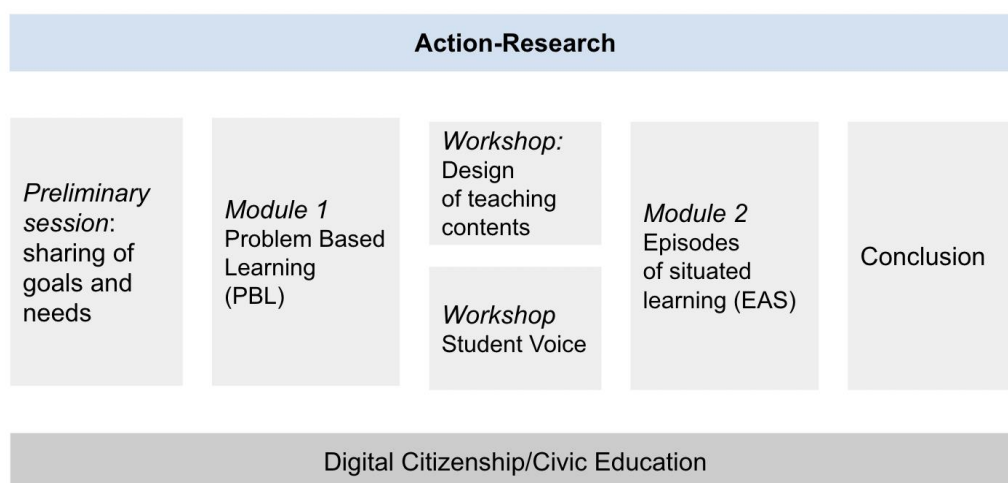

Figure 2. Training path

The training path was carried out in online mode; there were moments of asynchronous training with pre-recorded videolectures, available before the synchronous meetings, and sharing of materials and resources and moments of synchronous training, in which we realized activities in small groups for experimenting and planning of teaching activities using the two methodologies indicated. Both methodologies allow us to experiment with fundamental aspects of educational re-design, such as the role of Lesson Planning in EAS (Rivoltella, 2013) or the need to rethink tests, tasks, etc., from authentic assessment.

In addition, the research group organised two workshops and a focus group on issues central in the processes of innovation and teaching practice: design of multimedia content; evaluation, and student voice.

The choice of the two methodologies has considered the connection to the macro-theme of Digital Citizenship and Civic Education. We could have chosen many other methods, but organisational issues and teachers' requests guide the selection.

3. Results

3.1 Teachers' opinions about using active methods for digital citizenship

In the experience we describe here, active methods are both the training themes and mode of delivery of the course for teachers. Teachers in the project define active methods as useful tools

for teaching digital citizenship and civic education. They gave us several reasons during a live survey. Active methods:

-       make the pupils responsible for their study processes;

-       involve students operationally, bring them into the topics, and activate problem solving activities, elements that the students very much appreciate;

-       increase student autonomy;

-       encourage students to think, design solutions and proposals aimed at improving our society, to find practical solutions that give shape to their ideas and imagination;

-       force students to work in groups, oblige them to cooperate, mediate and share;

-       make students capable and aware that each of them, really, can give a contribution in their own way and really make a difference;

-       allow in some cases to experience digital citizenship firsthand;

-       convey other competences (soft and specific).

We tried different ways to encourage teachers to use new methods during the training, reflecting with them on the obstacles and the opportunities in applying them.
Teachers filled out a SWOT analysis related to the use of Problem based Learning in their daily practices. In Table 4, you can find a summary of their opinions categorised in some groups. The in-class resources (strengths) refer to students, technologies, and design options. Students' passive behaviours represent one of the in-class threats (weaknesses), together with the management of spaces and timing and teachers' approach. Some elements, such as the use of personal devices, can be considered a resource and a threat. How they are used makes the difference.
Resources and threats out of class (opportunities and risks) can refer to the school and the external environments as family, friendships, local resources etc. Dialogue and collaboration among the teachers of the same school can be an opportunity to use active methods; in the same way, the presence of laboratories or adequate spaces can be helpful. Low teachers' skills in applying the methods or the suspicion of other colleagues are some of the risks at school. At a broader level, the main risks identified are the absence of connection or spaces dedicated to libraries or personal study.

Controlled in-class resources (strengths)	**Controlled in-class threats (weaknesses)**
Students' role Agency of the student in the construction of learning (motivation, critical spirit, problem solving, engagement, activation of personal interest, assumption of responsibility) Use of personal devices by students Good classroom climate	*Students' behaviour* Lack of student engagement (distraction, lack of self-control, passivity, lack of cooperation and motivation) Inability of students to critically engage with the information sought Students' use of personal devices

Technologies Use and production of multimedia materials Presence of an interactive whiteboard and internet connection in the classroom *Activities Design* Effective design of activities Group work Collaboration between colleagues-teachers Interdisciplinarity	*Spaces and Timing* Time management/time scarcity Lack of appropriate equipment/devices Organisation of classroom spaces and furniture *Teaching Issues* Ineffective collaboration between colleagues Topics not suitable for a specific approach
Uncontrolled resources out of class (opportunities) *School opportunities* Moments of sharing, dialogue, co-design, discussion among the teachers of the same class / Collegiality of the teaching activities made explicit in the programming Presence of laboratories in the school *External opportunities* Involvement of families and other well-known adults Involvement of external experts in the field of study Use of external sources (web searches)	**Uncontrolled threats out of class (risks)** *Issues by teachers* Insufficient teacher training Institutional commitments of teachers that take up their time Lack of confidence of teachers in the management of new methodologies Suspicion of colleagues regarding the effectiveness of the new methodologies Time and effort in preparing teaching materials *External issues* No or insufficient network connection Inability to access school or external libraries Time and space constraints due to COVID-19 pandemic regulations

Table 4. SWOT analysis by teachers: resources and threats that can motivate or prevent teachers from using active methodologies in teaching digital citizenship and other disciplines.

An initial apprehension, not attributable to the teachers' motivation or approach, was overcome by experimenting with the methodologies themselves and working in small groups with researchers on designing the activities to be carried out in the classroom.

After the training, half of the teachers experimented with active teaching activities in the classroom with the students; the teachers reported that the students gained confidence in using the methods after knowing that their teachers had experienced the methods themselves and had spent time on their training before using them.

3.2 Teacher's opinions about multimedia content design for active methods
With a focus group conducted with eight teachers, we aimed to investigate the perceptions and opinions of participants at the training.

The focus group was conducted following the workshop on "Producing and evaluating multimedia content for training". The workshop started with a presentation on three topics:
1.   multimedia content design;

2.   content accessibility criteria;

3.   copyright rules.

Active methodology and methodological elements of the content design model that can help teachers maximise multimedia content's usefulness in the classroom are cognitive load; student involvement; active learning.
One of the most common mistakes made when designing learning is to underestimate the role played by the cognitive load. So, it's important to know that increased cognitive load, the excessive amount of non-hierarchical information, such superficial or unclear instructions (especially in asynchronous situations), excessively long and articulate descriptions, text that lacks paragraphing and markup. On the contrary, decrease cognitive load the use of cognitive aids, use of small group and collaborative work, preparation of scaffolding activities, specifically using the work of an e-tutor (Rivoltella, 2021).
A self-assessment activity was proposed after the training session. Previously, we asked teachers to choose multimedia content for the meeting and compile a checklist on design, accessibility, and copyright issues. The activity aimed to support reflection on the practices and principles implemented in creating multimedia content. Because of the limited production experience, most of the teachers were not able to complete all the fields of the checklist, but they all agreed that it was useful to understand "what should be" a content object. Mostly they analysed powerpoint products, and just one proposed a Padlet.
At the end of the self-assessment exercise, the focus group started and deepened the experiences and opinions of the teachers involved on the three topics presented at the beginning of the workshop.
Data collected from the focus group are discussed following an inductive content analysis that generated three macro themes:
1.   Multimedia content

2.   Time

3.   Copyright

On theme 1 almost all participants declared to have realised powerpoint presentations as multimedia content for the classroom, some to make up for the complexity of textbooks, others to provide insights and study support.
All teachers didn't follow a content design method but "just" the logic of the discipline and based the evaluation of products on students' use of them. Also, on the accessibility rules of the products in the design phase, one teacher evaluated the degree of accessibility through the students' continuous use of the products and improved them in this direction during the learning process.
Their focus was mostly on choosing images and colours to match. One of the teachers expressed the desire to explore this topic further to have suggestions regarding the choice of font, colours, and techniques to be used.
The perception of most, then experienced as a real disincentive difficulty, was that the design of a multimedia training content involves a large investment of time. Many said to give up

production for lack of time. Others acted in the direction of perpetual reuse of materials, both to save time and as a way to improve products. Someone said "product design and production take a lot of time, in fact I did it in the summer".

On copyright, two teachers responded by stating that they do not pose copyright as an issue since they only use their products in the classroom.

Conclusions and future directions

The research on "Digital citizenship and teaching innovation" allowed us to work empirically on the strict relation that exists among digital citizenship, active methods and design. The project involved a small group of teachers, this is a limit of the study. The activities carried out have given us some insight into the three initial objectives.

In particular, about the first one - to support teachers in the practices for transforming their teaching methods - in the process that is still ongoing, some teachers of this particularly motivated group began experimenting the use of these methodologies. We are focusing at the moment on the obstacles that can prevent teachers from using the methods. The opinions collected through a life survey and the activity on SWOT analysis give us some answers on which to work in action research activities for supporting teachers' actions. The workshop and focus group on content design raised our awareness of the need for training on multimedia content production, accessibility, and copyright, issues that have an important role in constructing digital citizenship in the classes. We think that investigating the level of digital citizenship of teachers (Choi et al., 2017; 2018) could be an effective way to improve the transforming procedures. We'll begin this action by administering teachers the DigCompEdu questionnaire (European Commission, 2017) to increase their awareness of their digital competence before all. At the same time, as a long-term objective, we plan to collect students' perceptions and level of digital citizenship by monitoring their participation and opinions in the use of active methods.

The second research goal in the paper is related to the study of the relationship between digital citizenship and active methodologies. We worked on this element in an empirically way with the teachers collecting their and our considerations and defined a framework to be explored further.

The last goal deals with the analysis of the features that can characterise a training path on digital citizenship for teachers at high schools. The training that we are realising is flipped, online, based on laboratorial activities where the teachers have assumed the role of students. This change of perspective, just as in role-playing, allowed them to experience firsthand the differences between participating in a frontal lesson and an active teaching activity. Their own experience showed them how active teaching methodologies enable mechanisms related to learning, collaboration, motivation, and sometimes even fun. Agency and flexibility in online spaces can represent the appropriate characteristics on which to design training for teachers on digital citizenship and more.

References

Baldacci M. (2014). La realtà educativa e la ricerca-azione in pedagogia. *Educational, Cultural and Psychological Studies*, 9: 387-396.

Barrows, H.S., & Tamblyn, R.M. (1980). *Problem based learning in medical education*. New York: Springer Publishing Company.

Calvani, A. (1998). Ricerca azione on-line: nuovi modelli per l'innovazione e sperimentazione educativa. Italian Journal of Educational Technology, 6(3), 27-27.

Choi, M., Glassman, M., & Cristol, D. (2017). What it means to be a citizen in the internet age: Development of a reliable and valid digital citizenship scale. Computers & Education, 107, 100-112.

Choi, M., Cristol, D., Gimbert, B. (2018). Teachers as digital citizens: The influence of individual backgrounds, internet use and psychological characteristics on teachers' levels of digital citizenship. *Computers & Education*, *121*, 143-161.

Clark, J. S., Porath, S., Thiele, J., & Jobe, M. (2020). *Action research*. New Prairie Press.

Council of Europe (2019). Digital citizenship education handbook. Retrieved from https://rm.coe.int/16809382f9.

Efron, S. E., & Ravid, R. (2019). *Action research in education: A practical guide*. Guilford Publications.

European Commission, Joint Research Centre (2017). European Framework for the Digital Competence of Educators: DigCompEdu. https://ec.europa.eu/jrc/en/digcompedu

Kaneklin, C., Piccardo, C., & Scaratti, G. (2010). La ricerca-azione. Cambiare per conoscere nei contesti organizzativi, Raffaello Cortina Editore, Milano.

Lambros, A. (2002). *Problem based learning in middle and high classrooms*. Thousand Oaks (CA): Corwin Press.

Lotti, A. (2018). Problem-based Learning. Apprendere per problemi a scuola: guida al PBL per l'insegnante. Milano: FrancoAngeli.

O'Brien, R. (2001). Um exame da abordagem metodológica da pesquisa ação [An Overview of the Methodological Approach of Action Research]. In Roberto Richardson (Ed.), Teoria e Prática da Pesquisa Ação [Theory and Practice of Action Research]. João Pessoa, Brazil: Universidade Federal da Paraíba

Winter, R. (1989). Learning From Experience: Principles and Practice in Action-Research Philadelphia: The Falmer, 43-67

Risoluzione del Consiglio su un quadro strategico per la cooperazione europea nel settore dell'istruzione e della formazione verso uno spazio europeo dell'istruzione e oltre (2021-2030) 2021/C 66/01. Retrieved from https://eur-lex.europa.eu/legal-content/IT/TXT/?uri=CELEX3A32021G022628029

Rivoltella, P.C. (2013). *Fare didattica con gli EAS. Episodi di apprendimento situati*. Brescia: La Scuola.

Rivoltella, P.C. (2015). *Didattica inclusiva con gli EAS*. Brescia: La Scuola.

Rivoltella, P.C. (2021), Apprendere a distanza. Teorie e metodi. Raffaello Cortina Editore: Milano.

Sannicandro, K., De Santis, A., Bellini, C., & Minerva, T. (2021a). Formazione online degli insegnanti tra pratiche didattiche e confronto con i colleghi: un progetto di ricerca-azione. In P. Lucisano (Ed.), *RICERCA E DIDATTICA per promuovere intelligenza comprensione e partecipazione – II TOMO* (pp. 218-233). Lecce: Pensa Multimedia.

Sannicandro, K., De Santis, A., Bellini, C., & Minerva, T. (2021b). Competenze digitali e di (ri)progettazione didattica: proposte di formazione per gli insegnanti. *Q-TIMES WEBMAGAZINE*, 2, 292-309.

Trondsen, M., & Sandaunet, A. G. (2009). The dual role of the action researcher. Evaluation and program Planning, 32(1), 13-20.