

# Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education

Alessio Castiglione<sup>a</sup>

<sup>a</sup> University of Palermo, Italy, [alessio.castiglione@unipa.it](mailto:alessio.castiglione@unipa.it), <https://orcid.org/0000-0002-8225-1123>

---

## Abstract

*The use of social networking sites (SNSs) in teaching is of increasing importance, for it puts into question how what we have, until the digital revolution, understood formal education to be. The earliest social media came about and were developed parallel to generations Z and Alpha. This review analyzed at least 8 articles published between 2019 and 2023, found on the databases Web of Science and Scopus, and sorted into four categories of research cases focused on the main SNSs used in formal education. The selected studies show that Whatsapp, Twitter, Instagram, and TikTok can have a positive impact on student and teacher motivation, collaboration, and the reaching of learning objectives. Further, this paper brings to light the advantages that SNSs can bring to faculty's professional development and to learning, in addition to their value as motivating resources and community-forming structures.*

**Keywords:** Systematic review; Social media; Formal education; Virtual community of practices; Social learning network.

---

## Introduction

The spread of social media has had a significant impact on daily life and growth of generations Z and Alpha (McCrindle & Fell, 2021). Their habits and lifestyles have been strongly influenced by digital technologies and by the use of apps where young people seek refuge to communicate, express themselves and connect with others (Pira, 2020). These digital tools have been integrated into social life, work, entertainment, and represent an important source of information and knowledge. This historical moment is difficult to define, but a common denominator is the fact of living in a transition time, where the digital is continuously expanding, a digiland (Nowotny, 2021), that is difficult to explore without being connected. For earlier generations, this transition might be seen as a kind of migration (Prensky, 2009), while for the generations of digital natives (Ferri, 2011), and even more so for screenagers (Ziatdinov & Cilliers, 2022), it represents an unprecedented existential condition, that has also helped them to face the most complex challenges of recent years: the Covid-19 pandemic.

Digital technologies have proven to be helpful in responding to the needs of society and schools during these difficult circumstances, despite not being fully prepared for them (Artieri, 2021). Even before 2020 and the phenomenon of distance learning, though, the choice to integrate smartphones, tablets and social media was not an entirely new practice (Ghani et al., 2022): many experiences related to studies on Mobile Learning (e.g. Marcus-Quinn & Hourigan (eds), 2021; Paniagua & Istance, 2018; Christensen & Knezek, 2018; Ming et al., 2017; Krasilnikov & Smirnova, 2017; Uribe et al., 2017; Trust et al., 2016; Ranieri & Pieri, 2014; Salmon, 2012; Ertmer et al., 2012) and Media Education (e.g. Rivoltella, 2020; Vinogradova et al., 2018; Aroldi, 2016; Carpenter & Krutka, 2015; Wright et al., 2015; Trentin, 2012; Dabbagh & Kitsantas, 2011; Jenkins, 2009; Grollo & Nardo, 2007; Martin, 2006; Di Mele, 2004; Felini, 2004; Falcinelli, 2003; Buckingham, 2003; Hobbs, 2000; Giannatelli, 1998; Graviz, 1998; Gonnet, 1997) had already been established in the scientific field, demonstrating positive results.

However, the research on digital strategies and educational technologies is still under-theorized (Greenhow & Lewin, 2016a), often promoting strong and unfounded prejudices against the use of social media in the school environment (Alenezi & Brinthaup, 2022). Studies have already shown that since the advent of Web 2.0, social media has taken on a

# Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education

Castiglione, A.

decisive role in creating new online communities (Chawinga, 2017; Gülbahar, 2014; Susilo, 2014; Vanwysberghe & Verdegem, 2013), characterized by greater engagement, interaction, collaboration, and learning, capable of generating innovative ideas and practices for teaching and counteracting anti-community and anti-education attitudes online ((Marcia & Garcia, 2016; Malecela, 2016; Jita & Mokhele, 2014; Yang, 2009; McLoughlin & Lee, 2008).

The main question underlying this systematic review is whether social media can be useful for teaching and learning the current generations of school students, and be used to create and develop a practicing community between teachers and students in a digital environment. In light of scientific evidence and the specific backgrounds of a target like generations Z and Alpha, the answer to this question is an important means of officially reassessing mobile devices and SNSs as tools to renew education and create new virtual learning environments out of significant experiences in the fields of formal education. This systematic review will provide an overview of studies that have experimented with the use of SNSs in educational methodologies for a possible Social Learning Network (Huang et al., 2010) to be applied in the educational context and will evaluate their usefulness in improving effectiveness and efficiency in formal education contexts. The review will also provide a reliable knowledge base for further research and to support the choice of new stakeholders in justifying smartphones and social media in educational work with generations Z and Alpha.

## 1. Research question

In recent years, some systematic reviews have focused on intercepting pedagogical resources in social media for use in educational and didactic research fields (e.g. Ghani et al., 2022; Kim Hua Tan et al., 2022; Nacheva & Jansone, 2022; Radka & Jansone, 2022; Dennen et al, 2020; Al-Qaysi et al., 2020; Van den Beemt et al., 2020; Mutalib et al., 2018). For some time now, all over the world, there has been an informal transition of projects, teachers, educators, and academics into new channels used by younger generations, such as TikTok and Instagram (Jaeger, 2020). On the other hand, there is still a lack of scientific studies on social media as virtual environments. There are ways to develop learning communities among students and teachers connected to each other through a pedagogical intentionality. This study aims to try to fill a gap in how these communities are defined by researching cross-cutting methodologies, such as Social Learning Networks, Net Learning, Mobile Learning, e-Learning, Microlearning, and Distance Learning and identifying best practices for recognize SNSs as favorable platforms for establishing virtual learning communities with students and teachers. Is it possible to adopt smartphones and social media to develop online communities of educational practice with teachers and students of the Z and Alpha generations?

### 1.1. Method and search strategy

The literature review was conducted according to the PRISMA Statement, a guideline for conducting systematic reviews (Moher et al., 2015).

Some examples of how your references should be done are given at the end of this template in the ‘References’ section. In order to find the necessary sources for this systematic review, a rigorous and comprehensive search was conducted using the following databases: Web of Science and SCOPUS. The search was limited to studies published between January 1, 2008 and March 31, 2023. 2008 was chosen as the starting year for the search because it is the year when Social Media began to spread globally (Ortiz-Ospina, 2019). The search terms used are described in *Table 1*.

Table 1. Search limits

| Database       | Search strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PubMed         | ((Instagram) OR (Facebook) OR (WhatsApp) OR (TikTok) OR (Smartphone)) AND ((Learn) OR (Learning) OR (Teaching) OR (Education) OR (Digital education) OR (Mobile Learning) OR (Service Learning) OR (School) OR (Educator*) OR (Social Media Education) OR (Social Network Education)) AND ((Community of practices) OR (Educational virtual community) OR (Virtual environment) OR (Distance Learning) OR (Social Learning Network)) AND (Student*) OR (Teacher*) OR (Generation Z*) OR (Generation Alpha*) |
| Web of Science | (Instagram OR Facebook OR WhatsApp OR TikTok OR Smartphone) AND (Learn OR Learning OR Teaching OR Education OR Digital education OR Mobile Learning OR Service Learning OR School OR Educator* OR Social Media Education OR Social Network Education) AND (Community of practices OR Educational virtual community OR Virtual environment OR Distance Learning OR Social Learning Network) AND (Student* OR Teacher* OR Generation Z* OR Generation Alpha*)                                                 |

# Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education

Castiglione, A.

Scopus

"Instagram" OR "Facebook" OR "WhatsApp" OR "TikTok" OR "Smartphone" AND "Learn" OR "Learning" OR "Teaching" OR "Education" OR "Digital education" OR "Mobile Learning" OR "Service Learning" OR "School OR Educator\*" OR "Social Media Education" OR "Social Network Education" AND "Community of practices" OR "Educational virtual community" OR "Virtual environment" OR "Distance Learning" OR "Social Learning Network" AND "Student\*" OR "Teacher\*" OR "Generation Z\*" OR "Generation Alpha\*"

## 1.2. Study selection

All qualitative studies that described learning communities through SNSs and investigated how they are functional to formal education in populations belonging to the Z and Alpha generations, as well as teachers working with these generations of students, were included in the selection. The exclusion criteria were: (1) non-original articles (e.g., systematic reviews, quantitative research, conference papers, reviews or dissertations) and (2) articles that did not evaluate informal and non-formal education, (3) articles with a population sample different from the Z and Alpha generations. The inclusion/exclusion criteria for the studies are described in *Table 2*.

Table 2. Article inclusion and exclusion criteria

| Criteria          | Inclusion                                                                    | Exclusion                                                                                                                                    |
|-------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Language          | English                                                                      | Not English                                                                                                                                  |
| Time Period       | 2008-2023                                                                    | < 2007                                                                                                                                       |
| Publication phase | Final                                                                        | Article in process                                                                                                                           |
| Education type    | Formal Education                                                             | Non-formal and informal education                                                                                                            |
| Target            | Students in generations Z and Alpha, teachers working with these generations | Students outside of generations Z and Alpha, teachers working with other groups                                                              |
| Literature form   | Reviews (only qualitative research articles)                                 | Quantitative research, systemic research, meta-analysis, meta-synthesis, article reviews, volumes, books, manuals, posters and book chapters |

## 1.3. Screening study

The results of the search from each database were initially exported to EndNote, a product by Clarivate Analytics, where duplicates were identified and removed. Subsequently, articles were subjected to a manual screening of titles and abstracts. Texts that did not conform to the objective of the systematic review were excluded. Finally, full-texts were checked for eligibility criteria and the references of the included studies were manually reviewed to obtain any additional articles. A first screening of 1,145 titles was performed, from which 990 articles that did not meet the pre-selected criteria were eliminated. The remaining 155 articles were then evaluated by reading the entire article to understand their relevance to the inclusion criteria. From the reading of the entire article, a final selection of 8 articles was made, considered in line with the objectives of this systematic review (Figure 1). The following information was extracted from the studies: authors, year of publication, country and sample characteristics (sample size, type of sample, average age, type of social media, type of comparison, data collection method, type of outcome measure and study results). The characteristics of the selected studies are reported in *Table 3*.

***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

*Castiglione, A.*

Table 3. Study Features

| <b>Title and Years</b> | <b>Title</b>                                                                                                                                             | <b>Country</b> | <b>Type of Analysis</b>                                                                                                                             | <b>N</b> | <b>Sample Group</b>                          | <b>Age</b>                                 | <b>Variables</b>                                                                                  | <b>Social Media analyzes</b> | <b>Summary of findings</b>                                                                                                                                                                                                                                              |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Allela et al., 2020    | Effectiveness of Multimodal Microlearning for In-Service Teacher Training                                                                                | Africa         | Mixed method with questionnaire compilation and participatory classroom observation                                                                 | 150      | Generations Z and Alpha teachers             | Na                                         | Use of social media platforms, especially WhatsApp, smartphones, and TIC instruments with faculty | Whatsapp                     | Teachers are willing to engage in collaborative learning through the sharing and exchange of knowledge. They prefer to use WhatsApp over other e-learning platforms for delivering micro-learning content                                                               |
| Ajani, 2021            | Teachers' use of WhatsApp Platforms as Online Communities of Practices for Professional Development                                                      | South Africa   | Netnographic approach (Pegem & Ozudogru, 2014; Kozinets, 2010) and focus group with interviews and convenient sample group (Miles & Huberman, 1994) | 27       | Generations Z and Alpha teachers             | Na                                         | Use of Whatsapp chat as a community of virtual practice in teacher training                       | Whatsapp                     | WhatsApp can be a useful tool for teachers' professional development, and to benefit from mutual support through the sharing of materials, content, and strategies. The CoP helps in solving educational problems and implementing new school practices.                |
| Castiglione, 2023      | Edu-social Algorithm: a methodological model for using smartphone and Instagram in Generation Alpha's education through a community of virtual practices | Italy          | Research-action (Lavanco & Novara, 2014) examining mediaeducational posts as a case study on best practices.                                        | 155      | Generation Alpha students and their teachers | 13 years (students) and 45 years (faculty) | Use of Instagram as a teaching tool in the experimental classrooms.                               | Instagram                    | This project developed a virtual community of practice among teachers and students, creating a new methodological model. To experiment with it, evaluation sheets, activities, and strategies were produced that can be replicated to use Instagram as a teaching tool. |

***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

*Castiglione, A.*

|                         |                                                                                                                      |              |                                                                                                                                                             |    |                                              |          |                                                                                                                       |          |                                                                                                                                                                                                                                                                                 |
|-------------------------|----------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dasoo, 2022             | The Innovative use of social media for teaching and learning: A case study at the University of Johannesburg         | South Africa | Grounded theory (Strauss & Corbin) and inductive analysis with comparative studies; online questionnaires via Google Forms and subsequent thematic analysis | 80 | Generation Alpha students and their teachers | 19 years | Use of TikTok as a tool and an environment for developing communities of virtual practice with the experimental group | TikTok   | TikTok is a stimulating and familiar learning environment for students. The experience provides unlimited access to varied learning content. This study has shown improved consistency and creativity, two skills that should be highlighted to promote self-formation.         |
| Dewi & Tarwiyah, 2022   | EFL Teacher Experiences in a Digital Technology-Based Community of Practice as a Continuing Professional Development | Indonesia    | Qualitative research methods (Creswell, 2009) data from various sources (responses and focus group reflections, WhatsApp conversations)                     | Na | Generation Alpha students and their teachers | Na       | Use of WhatsApp to create communities of practices and discussion forums to share teaching materials                  | Whatsapp | In WhatsApp conversations, there were reflections on educational strategies to apply other educational technologies in the classroom. However, the participation of teachers in online forums fluctuated due to a lack of institutional contract or binding training agreement. |
| Jerónimo & Martin, 2020 | Twitter as an online educational community in the Spanish literature classroom                                       | USA          | Research-action and descriptive analysis of discussions on Twitter                                                                                          | 41 | Generations Z students                       | Na       | Use of Twitter as a learning tool in literature and second language teaching                                          | Twitter  | Twitter has been shown to encourage and reinforce language learning both inside and outside the classroom. Moreover, the platform can be used for creating communities of virtual practice among students and teachers to be fostered in the school context.                    |
| Moodley, 2019           | WhatsApp: Creating a virtual                                                                                         | South Africa | Thematic analysis (Braun &                                                                                                                                  | 20 | Generations Z                                | Na       | Use of WhatsApp as a community                                                                                        | Whatsapp | The use of SNSs as a fa-                                                                                                                                                                                                                                                        |

# Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education

Castiglione, A.

|                         |                                                                                            |     |                                                                                          |    |                                  |    |                                                                                   |           |                                                                                                                                                                                                                                                                                            |
|-------------------------|--------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------------|----|----------------------------------|----|-----------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | teacher community for supporting and monitoring after a professional development programme |     | Clarke, 2006) and data extraction from conversations on WhatsApp using Nvivo 10 software |    | and Alpha teachers               |    | of virtual practices for teachers to confront problems and concerns in their work |           | avorable environment for the development of an online community of practice and professional development depended on teachers' understanding of the virtual context and their willingness to participate. The data show socially shared suggestions in the chat regarding problem-solving. |
| Newton & Williams, 2021 | Instagram as a Special Educator Professional Development Tool: A Guide to Teacher-gram     | USA | Case study and descriptive analysis                                                      | Na | Generations Z and Alpha teachers | Na | Use of Instagram as a useful vessel for teacher development and training          | Instagram | Thinking on the title of Teacher-gram, the research offers reflections on how to use Instagram for professional development, building relationships, and developing online collaboration opportunities among local and international educators united by common interests.                 |

Note: Na = not applicable.

## 2. Quality assessment

The methodological quality of the included articles was evaluated with a modified version of the Critical Appraisal Skills Programme (CASP, 2011) (see Table 4) for qualitative studies. A maximum of 9 “Yes” votes were attributed to each study. All studies were evaluated as low risk of bias (with a total score between 7 and 9). The quality assessment was conducted by \_ and \_. Any disagreements between the reviewers were discussed until an agreement was reached. No study in this review was excluded due to poor methodological quality. In reviewing studies on the use of social media in formal education, we noticed that there is not one prevailing research methodology in this area. The same is true for conceptual frameworks, which offer multiple perspectives. However, they all aim to develop virtual communities of practice or online learning communities according to the same markers of success, albeit with different criteria and literature. Among the various conceptualizations, Bandura’s social learning theory (1977) and Wenger’s Community of Practice (CoP) models (2011; 2002; 1998) stand out as the main theoretical bases, later reshaped by authors who examined the term virtual within teachers’ communities of practice (Marcia & Garcia, 2016; Gülbahar, 2014; Susilo, 2014; Alakurt & Keser, 2014; Vanwinsberghe & Verdegem, 2013; Wesley, 2013).

In the results that follow, new educational technologies and social media were the most researched tools, along with Web 2.0 for supporting teaching and learning, with particular attention to teachers’ professional development (Dewi & Tarwiyah, 2022; Newton & Williams, 2021; Ajani, 2021; Moodley, 2019) and the integration of new pedagogical methods

# *Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education*

*Castiglione, A.*

with digital platforms (Castiglione, 2023; Dasoo, 2022; Jerónimo & Martin, 2021; Alella et al., 2020). What follows are the gathered results, organized chronologically by the order in which the selected SNS emerged.

Table 4. Study quality evaluation

| <b>AUTHOR AND YEAR</b>   | Were the re-search objec-tives clear? | Were the qual-itative method-ologies appropri-ate? | Is the reasearch project consistent with the research objec-tives? | Were the re-cruit-ment pro-cesses appropri-ate? | Was data collec-tion ap-propri-ate? | Were ethical ques-tions consid-ered? | Was data ananal-ysis rig-orous? | Is there a clear declara-tion of results? | Is the re-search valid? | <b>TO-TAL</b> |
|--------------------------|---------------------------------------|----------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------|-------------------------------------|--------------------------------------|---------------------------------|-------------------------------------------|-------------------------|---------------|
| Allela et al., 2020      | YES                                   | YES                                                | YES                                                                | NO                                              | YES                                 | NO                                   | YES                             | YES                                       | YES                     | 7             |
| Ajani, 2021              | YES                                   | YES                                                | YES                                                                | NO                                              | YES                                 | NO                                   | YES                             | YES                                       | YES                     | 7             |
| Castiglione, 2023        | YES                                   | YES                                                | YES                                                                | YES                                             | YES                                 | YES                                  | YES                             | YES                                       | YES                     | 9             |
| Dasoo, 2022              | YES                                   | YES                                                | YES                                                                | YES                                             | YES                                 | NO                                   | YES                             | YES                                       | YES                     | 8             |
| Dewi & Tar-wiyah 2022    | YES                                   | YES                                                | YES                                                                | NO                                              | YES                                 | NO                                   | YES                             | YES                                       | YES                     | 7             |
| Jerónimo & Martin, 2020  | YES                                   | YES                                                | YES                                                                | YES                                             | YES                                 | YES                                  | YES                             | YES                                       | YES                     | 9             |
| Moodley, 2019            | YES                                   | YES                                                | YES                                                                | NO                                              | YES                                 | YES                                  | YES                             | YES                                       | YES                     | 8             |
| Newton & Wil-liams, 2021 | YES                                   | YES                                                | YES                                                                | NO                                              | YES                                 | NO                                   | YES                             | YES                                       | YES                     | 7             |

## *2.1. Twitter as a platform for a virtual community of practice*

Although relatively they are not new, social media are still considered innovative tools. Among the selected articles, only Jerónimo and Martin (2020) have addressed the use of Twitter in virtual communities of practice, citing other research that had already predicted its potential in terms of promoting collective identity and learning opportunities (Vaázquez Cano, 2012) as a low-stress environment in which to expand individual ideas (Junco et al., 2013).

In Jerónimo and Martin's (2020) qualitative study, they explored the possibility of formal learning through Twitter. The results showed that the use of the social network can be a valid aid for learning both a mother tongue and a second language, inside and outside the classroom. They showed the platform can be easily used for creating virtual communities of practice among young people and adults. However, for greater effectiveness, teachers needed to devote time to explaining the participation criteria and instructions, supervising their students, and providing an example of how to use social media in a pedagogical and constructive way. It was emphasized how Twitter has great potential in the educational field: in this perspective, students can search for appropriate profiles for their studies and interact with them, increasing their linguistic skills. Similarly, teachers can experiment with a platform on which students can discuss, share content, and participate in online learning activities by following specific hashtags for learning a second language. In conclusion, the use of Twitter has been shown to help teachers develop a culture of feedback, encouraging their students and, consequently, motivating them.

## *2.2. Whatsapp as a platform for a virtual community of practice*

The use of smartphones and instant messaging applications in the classroom help teachers reflect on and adopt new educational practices (Cranefield & Yoong, 2009), extending professional development to virtual spaces (Marcia and Garcia, 2016) that go beyond the physical boundaries of the classroom (Bansal & Joshi, 2014). The following results show WhatsApp as the most used platform in creating communities of practice and promoting the continuous training of teachers.

Studies conducted from 2019 to 2022 have shown how the sharing of knowledge and collaboration among teachers can impact their respective students' learning. However, teacher participation has been inconsistent in three out of four

## ***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

*Castiglione, A.*

of these cases, highlighting the need for adequate preliminary technological literacy and a binding training pact to encourage their participation.

In Moodley's research (2019), formal learning focused on a WhatsApp group composed of teachers, intended as a virtual community in which to share tips and best practices to apply in the classroom with their own students. Teachers developed their own skills thanks to belonging to the virtual context and their willingness to actively participate and respect the opinions of others. The conversations collected from WhatsApp groups have highlighted many tips regarding the resolution of problems encountered in their respective work environments, proving useful for mutual professional growth and the development of a supportive virtual community. However, some teachers left the group chat, the main limitation of the study.

The research by Allela and colleagues (2020) highlighted that the Integrated In-Service Teacher Training program (INSET) received widespread adherence from teachers, also thanks to the involvement of institutional partners in the project network. Collaborative learning involved the exchange of knowledge, information, ideas, and practices, with the use of technologies as a booster for training. Among the platforms used, WhatsApp proved to be the one on which the most interactions were generated in terms of micro-learning content, a useful mode for reducing cognitive load and strengthening collaboration and knowledge (Buchem & Hemalmann, 2010; Hug, 2005). Through synchronous and asynchronous communication channels, the project allowed everyone to participate, despite the physical distance and limited time of the teachers. An indirect reflection emerged from the research, regarding the interdependence between the continuous training of teachers and the improvement of student learning outcomes.

In Ajani's research (2021), WhatsApp was also chosen as a virtual environment to promote appropriate forms of professional development. Teachers from different schools, but working in the same subjects, showed that virtual communities of practice can also extend beyond their own institution. In this study, teachers were understood as adult learners who learned from the online community which teaching methods and approaches to adopt in the classroom for the transmission of content in their specific situations. The platform mainly served as a catalytic environment for professional comparisons that promoted trust, help, encouragement, and emotional support. The limitation of the research, as in most other studies, was in the teachers' limited familiarity and knowledge about the inherent functionalities of the social media used.

Finally, in Dewi and Tarwiyah's study (2022), WhatsApp groups were created as communities of practice for gathering insights and advice on innovative activities to be carried out with students. Discussions on educational strategies to be implemented in the classroom through other digital platforms such as Google Drive, Google Jamboard, Xournal, Google Sites (e-Portfolio), Padlet, and Smart Class.

Generation Z and Alpha students indirectly benefited from the educational decisions made first online and then in the classroom during these research studies. However, as in Moodley (2019), the participation of the target audience of teachers fluctuated, due to the lack of a binding educational contract or agreement. Furthermore, there is a need for adequate technological literacy that makes teachers more autonomous with the latest digital technologies.

### ***2.3. Instagram as a platform for a virtual community of practice***

The use of smartphones and instant messaging applications in the classroom help teachers reflect on and adopt new educational practices (Cranefield & Yoong, 2009), extending professional development to virtual spaces (Marcia and Garcia, 2016) that go beyond the physical boundaries of the classroom (Bansal & Joshi, 2014). The following results show WhatsApp as the most used platform in creating communities of practice and promoting the continuous training of teachers. The two Instagram-related research studies explored the multiple functionalities of this platform: the first study, conducted by Newton and William, focuses on the dynamics of online formal learning among special educators, while the second study, conducted by Castiglione, focuses on the creation and development of a community of virtual practice among teachers and students of Generation Alpha. Both studies highlight Instagram as one of the "younger" SNSs where, through accounts, posts, stories, hashtags, and tags, communities of practice are developed, professional relationships are created, media educational content are researched, and new pedagogical practices are encouraged.

Newton and William (2021) explored the dynamics of online formal learning where special educators exchanged good practices using specific hashtags. Coining a new term, "Teachergrammer," the research examined Instagram as a professional tool to create relationships, develop collaboration opportunities, increase self-efficacy, and improve knowledge of pedagogical content and practices. As a secondary beneficial effect, the possible development of an educator community through the use of Instagram for professional purposes is outlined, with particular attention to contacts, pages, and influencers to follow.

The research conducted by Castiglione (2023), on the other hand, focused on the creation and development of a particular virtual community of practice among teachers and students of Generation Alpha, through the application of a new methodological model, developed using action research methodology and co-constructed as a product of collaboration between the researcher and the group of teachers and students. The model produced evaluative sheets, activity sheets, and replicable strategies for teaching and learning with Instagram. This ongoing research is connected to the doctoral research project Edu-social Algorithm, which is spreading in Italy and Portugal. The researcher and the teachers involved in the

## ***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

*Castiglione, A.*

experimentation have expanded the didactic processes and carried out a daily digital narration of the didactic activities through the official page “edu\_social\_algorithm” and the corresponding educational profiles of the research project (@edu\_social\_algorithm, 14 october 2022).

### ***2.4. TikTok as a platform for a virtual community of practice***

The last case shows how TikTok, one of the newest social networks, can be used for the creation of audio-video content as teaching tools, giving access to a wide range of information that, if well curated, can provide new pedagogical perspectives. In Dasoo’s research (2022), it was shown how TikTok can be considered a formal learning platform that leverages the creation of micro-learning video content. According to the results of the questionnaires administered during the research, the social network offers a stimulating and comfortable learning environment for Generation Z and Alpha students, allowing unlimited access to various educational content. Furthermore, this experience has led to an increase in the constancy and creativity of young participants, two fundamental indicators for 21st century learning, capable of promoting a sense of self-efficacy and empowerment. TikTok has offered students the opportunity to gain confidence in themselves with a language that represents them, making them feel encouraged and motivated to study. Bandura’s Social Learning Theory (1977) and Wenger’s concept of communities of practice (1998) were applied in this study to demonstrate how TikTok’s features can extend the processes activated in the classroom. These constructs are supported by the studies of Jonassen, Howland, Marra, and Crismond (2008), who see digital technologies as support for new social learning. In particular, it was shown that TikTok offers an abundance of educational content such as videos, challenges, games, podcasts, tutorials, forums, chats, and exercises that can be used by teachers in a new teaching and learning environment. The multiple functionalities of TikTok allow students to share ideas, contribute to projects, and develop skills necessary for self-formation. All this, in turn, encourages young students to undertake a more independent learning path while remaining highly motivated. In summary, social media have expanded the boundaries of education. SNSs, teaching, and learning can be interconnected.

## **3. Discussion**

As exhaustively indicated by many recent teaching manuals (Santoian et al., 2022; McCartney, 2021; Griffin & Zinskie, eds., 2021; Greenhow et al., eds., 2016b), using social media in education can be a way to innovate educational systems. However, if not well integrated, it can trigger a destabilizing change in teachers who are not adequately trained to use them: as expressed in the results of the eight articles selected for the systematic review, teacher training is therefore the pre-requisite for the effectiveness of interventions with social media in the classroom. For too long, smartphones, and consequently their apps, as well as consoles and their video games, have been stigmatized by adults as main sources of distraction for young people (Lancini, 2021). This can lead to considering some research and educational interventions as limited to isolated incidents, at once utopian and difficult to replicate in the school contexts of different levels. In the specific case of WhatsApp, the studies by Moodley (2019), Alella et al. (2020), Ajani (2021), and Dewi and Tarwiyah (2022) considered only teachers, excluding students from online communities. Therefore, it is necessary to provide, in addition to methodological training, situations with students as well as sensitization regarding the topic of social media in formal education as favorable to didactic processes. Defining an intergenerational virtual community of practice will help in going beyond prejudices and seeking in SNSs all the resources to create and develop digital, cooperative, and social teaching alongside generation Z and Alpha students (Castiglione, 2023). The low number of articles considered suitable suggests a shortage of effective research, but it is not through quantity that this work wants to enter the discussion. Although only eight articles have been found regarding practical didactic scenarios with virtual communities of practice on social media, a key factor underlying the success of these studies lies in the participation and motivation of teachers and students, who have welcomed and understood the potential of SNSs, environments never fully considered in the scholastic context. Twitter, Instagram, and TikTok have proven valuable in participatory learning with children of these generations (Castiglione, 2023; Dasoo, 2022; Newton & Williams, 2021; Jerónimo & Martin, 2020) who have clearly demonstrated strong enthusiasm seeing a familiar world in the classroom, previously forbidden by teachers and institutions. Far from adopting simplistic solutions, all the research, whether conducted with teachers alone or involving students, suggests that, with commitment and professionalism, it is possible to bring about a real change in school environments by embracing the transformations of society but also the languages and codes of the Z and Alpha generations. In these studies, teachers and students have expanded didactic processes thanks to social media, creating authentic online participatory cultures (Jenkins, 2010). It is important to again highlight virtual communities of practices as learning tools, where teachers and students maintain their specific roles, but in an unprecedented space where they can reinforce everything that starts from the class and continues on other platforms, generating new training opportunities. In conclusion, the success of micro-learning made up of smartphones, internet connections, accounts, Instagram posts, hashtags, tweets, TikTok videos, and WhatsApp messages largely depends on the willingness to integrate non-formal education strategies

## ***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

Castiglione, A.

into formal education (Selwyn, 2012). As a result, the lack of systemic programs to adhere to can lead to skeptical and opposing positions towards the experimentation of practices that could improve education in the era of digital transition and social networks, by dismissing the opportunity to make them the next traditional methodologies.

### **Conclusions**

In the studies reviewed, the researches focused on virtual learning environments with a value attributed that went beyond the constructive interaction between teachers, and that inevitably fell into practices with students inside and outside the educational context. It was interesting to note that in an article from 2009, many professional figures have kept pace with the evolution of Web 2.0, adopting practices that have clearly expressed the positive impact generated by the first approaches with the then-emergent e-learning in education with Facebook and Twitter (Durkee et al., 2009). This indicates that scientific research has considered social media as a potential resource to explore, also for educational purposes, from the outset. Among these, Facebook, Twitter, WhatsApp, Instagram, and TikTok seem to be the social networks of the masses that now count over two billion people connected worldwide, despite a gradual departure of younger users from the first due to a defect that communication experts tend to label as “too noisy” (Aggiano, 2023). Facebook has been excluded due to results that are not particularly relevant to formal education with the latest generations of students. In general, this new digital society on social media can only manifest an explicit need for interaction that, if not adequately oriented, risks leading to anti-community phenomena (Lavanco, 2021) such as social collapse, hate speech, cyberbullying, identity theft, online grooming, etc. In the absence of a socially shared netiquette and a hypothetical license for digital citizenship, it is therefore necessary to catalyze multiple educational methodologies to inspire a more technoeethical attitude in the society that inhabits virtual platforms. To minimize risks and maximize the potential inherent to cyberspace, it is necessary to intervene with the emerging generation of students who are preparing to fill physical and virtual classrooms (Kozinski, 2017). If it is possible to register on almost half of the social networks in circulation starting from the age of thirteen, it is essential that there be guidance from educational figures through the social debut of this particular group of minors (Pellai & Tamborini, 2021). By doing so, the school will ensure its primacy as an institution still capable of responding to the emerging pedagogical challenges of our time, characterized by hyper-connection in the constant presence of digital devices in the lives of young pre-adolescents (Castiglione et al., 2018). The studies examined aim to fit into the broader framework of a Social Learning Network not yet sufficiently defined in the scientific panorama. This particular paradigm risks disappearing in the excess of peripheral practices referring to more theoretical frameworks, such as Mobile Learning, Net Learning, E-learning, Distance Learning, Microlearning, Media Education, Microblogging. This systematic review wanted to bring back a single educational strategy for the use of social networks for the constitution of virtual communities of practices to be integrated into formal education contexts. In the near future, the choice to create virtual teaching and learning environments with mobile devices can be helpful in moving towards a single direction that sees digital platforms and, more generally, Web 2.0 technology (O'Reilly & Battelle, 2004), as favorable environments for developing the digital skills of the 21st century (Soffel, 2016; Dunwill, 2016; Jenkins, 2009). To further implement the didactic innovations that have arisen from the advent of education 4.0 (Armas-Arias et al. 2023; Hussin, 2018), it is therefore necessary to go beyond the emergency teaching undertaken due to the COVID-19 pandemic (da Silva Viana et al., 2023), which has made us aware of an evident under-preparedness when it comes to the resources available for various educational fields (Nor et al., 2019).

The eight publications identified provide examples of a broad spectrum of ways to integrate social networks into schools and redefine the concept of a learning space through the development of new methods based on current and future technologies in the classroom. All social networks included in this research demonstrate that the platforms used by the younger generations can be turned into tools for the creation of virtual communities of practice if a pedagogically shared approach is adopted between researchers, school principals, teachers, and students. Further studies and research will have to take into account the arrival of new social media platforms to keep up with future platforms.

### **References**

- Aggiano, F. (2023, January 9). *Digital World. Social e società* [Video]. RaiPlay. <https://www.raiplay.it/video/2023/01/Digital-World---Social-e-societa-888d5c18-8b78-4e57-b900-3e1a90b558bc.html>.
- Ajani, A.O. (2021). Teachers' use of whatsapp platforms as online communities of practice for professional development. *Journal of African Films, Diaspora Studies, Performance, Arts and Communication Studies (JAFDIS)*, 4(1), 103-129. <https://doi.org/10.31920/2516-2713/2021/4n1a6>.
- Alakurt, T., & Keser, H. (2014). Sanaluygulamatopluluğuüyelerininbilgipayl aşımıdavranışlarınıninçelenmesi. *İlköğretim Online*, 13(4), 1331-1351.

***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

Castiglione, A.

- Alenezi, W., & Brinthaup, T.M. (2022). The use of social media as a tool for learning: perspectives of students in the faculty of education at kuwait university. *Contemporary Educational Technology*, 14(1), 1-18. <https://doi.org/10.30935/cedtech/11476>.
- Allela, M.A., Ogange, B.O., Junaid, M.I., & Charles, P.B. (2020). Effectiveness of multimodal microlearning for in-service teacher training. *Journal of Learning for Development*, 7(3), 384-398. <https://doi.org/10.56059/jl4d.v7i3.387>.
- Al-Qaysi, N., Nordin, N.M., & Al-Emran, M. (2020). A systematic review of social media acceptance from the perspective of educational and information systems theories and models. *South African Journal of Education*, 57, 2085-2109.
- Armas-Arias, S., Alcántara Gutiérrez, M.E., & Martínez, M.R. (2023). Generation of productive experiences in the digital era 4.0. In P. Kommers, I. Arnedillo-Sánchez, & P. Isaías (Eds.), *e-Society and Mobile Learning 2023* (pp. 301- 308).
- Aroldi, P. (2016). *Connessioni quotidiane. Spazi di esperienza tra online e offline*. Milano: Educatt.
- Artieri, B.F. (2021). Prefazione. In F. Pira, *Le nuove generazioni digital-popolari e social-dipendenti* (pp. 9-12). Milano: FrancoAngeli.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bansal, T., & Joshi, D. (2014). A study of students experiences of WhatsApp Mobile Learning. *Global Journal of Human-Social Science*, 14(H4), 27-33. <https://socialscienceresearch.org/index.php/GJHSS/article/view/1326>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101. <https://doi.org/10.1191/1478088706qp063oa>.
- Buchem, I., & Hamelmann, H. (2010). Microlearning: A strategy for ongoing professional development. *eLearning Papers*, 21, 1-15.
- Buckingham, D. (2003). Media education. Alfabetizzazione, apprendimento e cultura contemporanea (trad. italiana). Trento: Erickson.
- Cappello, G. (2020). Introduction. In D. Buckingham, *Un manifesto per la media education* (pp. 3-14). Firenze: Mondadori Università.
- Castiglione, A. (2023). Edu-social Algorithm: A methodological model for using smartphones and Instagram in Generation Alpha's education through a community of virtual practices. In P. Kommers, I. Arnedillo-Sánchez, P. & Isaías (Eds.), *e-Society and Mobile Learning 2023* (pp. 290-300).
- Castiglione, A., Coppola, G., Alessi Batù, G., & Palma, S. (2018). Affrontare il cyberbullismo in classe. Comprendere e riconoscere gli effetti collaterali dei social network. *Psicologia di comunità*, 2, 112-119.
- Chawinga, W.D. (2017). Taking social media to a university classroom: Teaching and learning using twitter and blogs. *International Journal of Educational Technology in Higher Education*, 14(1), 3. <https://doi.org/10.1186/s41239-017-0041-6>.
- Christensen, R., & Knezek, G. (2018). Reprint of readiness for integrating mobile learning in the classroom: Challenges, preferences and possibilities. *Computers in Human Behavior*, 78, 379-388.
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). Sage Publications. <https://doi.org/10.4135/9781452230153>.
- Cranefield, J., & Yoong, P. (2009). Crossings: Embedding personal professional knowledge in a complex online community environment. *Online Information Review*, 33, 257-275. <https://doi.org/10.1108/14684520910951203->.
- Creswell, J.W. (2009). *Qualitative, quantitative, and mixed methods approaches*. London: Sage Publication.
- Critical Appraisal Skills Programme. *CASP qualitative checklist*. [https://casp-uk.net/images/checklist/documents/CASP-Qualitative-Studies-Checklist/CASP-Qualitative-Checklist-2018\\_fillable\\_form.pdf](https://casp-uk.net/images/checklist/documents/CASP-Qualitative-Studies-Checklist/CASP-Qualitative-Checklist-2018_fillable_form.pdf).
- Dabbagh, N., & Kitsantas, A. (2011). Personal learning environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *Internet in Higher Education*, 15, 3-8. <https://doi.org/10.1016/j.iheduc.2011.06.002>.
- Da Silva Viana, E.C., Maia, H.J.S., De Oliveira Tabosa, D.A., Da Silva, D.A., De Mendonca, F.L.L., & De Sousa Junior, R.T. (2023). Remote teaching during the Covid-19 Pandemic: Challenges and potentialities of using M-Learning in literacy classes in Brazil. In P. Kommers, I. Arnedillo-Sánchez, & P. Isaías (Eds.), *e-Society and Mobile Learning 2023* (pp. 251-258).
- Dasoo, N. (2022). The Innovative use of social media for teaching and learning: A case study at the University of Johannesburg. In *Proceedings of the 2022 International Conference on Multidisciplinary Research*. <https://doi.org/10.26803/MyRes.2022.03>.
- Dennen, V.P., Choi, H., & Word, K. (2020). Social media, teenagers, and the school context: A scoping review of research in education and related fields, *Education Tech Research Dev*, 68, 1635-1658. <https://doi.org/10.1007/s11423-020-09796-z>.
- Dewi, N.M., & Tarwiyah, S. (2022). EFL Teachers experiences in a digital technology-based community of practice as a continuing professional development. In L.R. Octaberlina, & A.I. Muslimin (Eds.), *The 9th ELITE International Conference 2021* (pp. 185-198).
- Di Mele, L. (2014). *La ricerca nella Media Education*. Supplemento a *Desk. Cultura e ricerca nella comunicazione*, 2, 2004.
- Dunwill, E. (2016). 4 changes that will shape the classroom of the future: Making education fully technological. <https://elearningindustry.com/4-changes-will-shape-classroom-of-the-future-making-education-fully-technological>.

***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

Castiglione, A.

- Durkee, D., Brant, S., Nevin, P., Odell, A., Williams, G., Melomey, D., & Lopes, A. (2009). Implementing e-learning and web 2.0 innovation – didactical scenarios and practical implications. *Industry and Higher Education*, 23(4), 293-300. <https://doi.org/10.5367/000000009789346176>.
- Edu-social Algorithm [@edu\_social\_algorithm]. (2022, October 14). *Come creare un profilo Edu. Tutorial per studenti e insegnanti. Un velocissimo tutorial su come creare un profilo Edu* [Attached images]. Instagram. <https://www.instagram.com/p/CjsCtzVABeL/>.
- Falcinelli, F. (2003). Un curriculum di Media Education nella scuola di base: indicazioni generali, *Intermed*, aprile, pp. 3-5.
- Felini, D. (2004). *Pedagogia dei media. Questioni, percorsi e sviluppi*. Brescia: La Scuola.
- Ferri, P. (2011). *Nativi digitali*. Milano: Mondadori Bruno.
- Gasparetti, M., & Pampaloni, S. (2020). *Impossibile non comunicare. Regole per un efficace uso di Internet tra notizie e social network*. Pisa: Astarte Edizioni.
- Ghani, N.A., Corrienna, A.T., & Maizatun, N.M.S. (2022). How relevant social media as educational tools: Systematic review, *Journal of Positive School Psychology*, 6(8), 2774-2795. <https://journalppw.com/index.php/jpsp/article/view/10281/6662>.
- Giannatelli, R. (1998). Networking ed esperienze di Media education in Italia. Paper presented at the International Congress *Multimedia e Educação em um Mundo Globalizado*, San Paolo, 20-23 may 1998.
- Gonnet, J. (1997). *Éducation et Médias*. Paris: PUF.
- Graviz, A. (1998). Media education as a discipline. Paper presented at the International Congress *Multimedia e Educação em um Mundo Globalizado*, San Paolo, 20-23 may 1998.
- Greenhow, C., & Lewin, C. (2016a). Social media and education: Reconceptualizing the boundaries of formal and informal learning, *Learning, Media and Technology*, 41(1): 6-30. <https://doi.org/10.1080/17439884.2015.1064954>.
- Greenhow, C., Sonnevend, J., & Agur, C. (Eds.). (2016b). *Education and social media. Toward a digital future*. Cambridge: The MIT press.
- Griffin, M.M., & Zinskie, C.D. (Eds.). (2021). *Social media. Influences on education*. Charlotte, NC: Information Age Publishing.
- Grollo, M., & Nardo, E. (2007). *Educare con i media. Dalle competenze orizzontali alla consapevolezza. Proposte e progetti di educazione ai media*. Bergamo: Junior.
- Gülbahar, Y. (2014). Current state of usage of social media for education: Case of Turkey. *Journal of Social Media Studies*, 1(1): 53-69. <https://doi.org/10.15340/2147336611763>.
- Hobbs, R. (2000). *Media literacy*. Mountain Lakes: Newsweek Education Program.
- Huang, J.J.S., Yang, S.J.H., Huang, Y.M., & Hsiao, I.Y.T. (2010). Social learning networks: Build mobile learning networks based on collaborative services, *Educational Technology and Society*, 13(3), 78-92.
- Hug, T. (2005). Microlearning: Emerging concepts, practices and technologies after e-learning. In *Proceedings of Microlearning Conference*.
- Hussin, A.A. (2018). Education 4.0 made simple: Ideas for teaching, *International Journal of Education and Literacy Studies*, 6(3). 92-98. <https://doi.org/10.7575/aiac.ijels.v.6n.3p.92>.
- Jaakonmäki, R., Müller, O., & Vom Brocke, J. (2017). The impact of content, context and creator on user engagement in social media marketing. In *50th Hawaii International Conference on System Sciences*, pp. 1152-1160.
- Jaeger, G. (2020). #teachersoftiktok: How to effectively use TikTok in your classroom. <https://spacesedu.com/teacher-softiktok-how-to-effectively-use-tiktok-in-your-classroom/>.
- Jenkins, H (2009). *Confronting the challenges of participatory culture: Media education for the 21st century*. Cambridge: The MIT Press.
- Jerónimo, H., & Martín, A. (2021). Twitter as an online educational community in the Spanish literature classroom. *Foreign Language Annals*, 54, 505-524. <https://doi.org/10.1111/flan.12522>.
- Jita, L.C., & Mokhele, M.L. (2014). When teacher clusters work: Selected experiences of South African teachers with the cluster approach to professional development. *South African Journal of Education*, 34(2). <https://doi.org/10.15700/201412071132>.
- Jonassen, D.H., Howland, J., Marra, R.M., & Crismond, D. (2008). How does technology facilitate learning?. <http://www.education.com/reference/article/how-does-technology-facilitate-learning/?page=2>.
- Junco, R., Elavsky, C., & Heiberger, G. (2013). Putting Twitter to the test: Assessing outcomes for student collaboration, engagement and success. *British Journal of Educational Technology*, 44, 273-287.
- Kozinets, R.V. (2010). *Netnography: Doing ethnographic research online*. Thousand Oaks, CA: SAGE.
- Kozinski, S. (2017). How Generation Z is shaping the change in education. <https://www.forbes.com/sites/sievakozinsky/2017/07/24/how-generation-z-is-shaping-the-change-in-education/#304059746520>.
- Krasilnikov, A., & Smirnova, A. (2017). Online social adaptation of first-year students and their academic performance. *Computer & Education*, 113, 327-338. <http://doi.org/10.1016/j.compedu.2017.05.012>.
- Lancini, M. (2021). *L'età tradita. Oltre i luoghi comuni sugli adolescenti*. Milano: Raffaello Cortina Editore.
- Lancini, M. (2020). *Cosa serve ai nostri ragazzi. I nuovi adolescenti spiegati ai genitori, agli insegnanti, agli adulti*. Torino: Utet.
- Lavanco, G. (2021). *Venti Lemmi. Per una psicologia del fare*. Palermo: Palermo University Press.

***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

Castiglione, A.

- Lavanco, G., & Castiglione, A. (2023). Edu-social Algorithm: educare con i social network a scuola. Un modello operativo per il Mobile Learning, *Pedagogia e Vita*, 3/2022, 131-144.
- Lavanco, G., & Novara, C. (2012). *Elementi di psicologia di comunità. Progettare, attuare e partecipare il cambiamento sociale*. Milano: The McGraw-Hill Companies.
- Malecela, I.O. (2016). Usage of Whatsapp among postgraduate students of Kulliyah of Education, International Islamic University Malaysia, *International Journal of Advanced Engineering Research and Science (IJAERS)*, 3(10), 126-137. <https://doi.org/10.22161/ijaers/310.21>.
- Marcia, M., & Garcia, I. (2016). Informal online communities and networks as a source of teacher professional development: A review, *Teaching and Teacher Education*, 55, 291-307. <https://doi.org/10.1016/j.tate.2016.01.021>.
- Marcus-Quinn, A. & Hourigan, T. (Eds.). (2021). *Handbook for online learning contexts: Digital, mobile and open*. Cham: Springer Nature Switzerland.
- Maretti, M., & Fontanella, L. (2019). *La ricerca sociale nello spazio digitale*. Milano: FrancoAngeli.
- Martin, A. (2006). DigEuLit – a european framework for digital literacy: A progress report. [http://www.jelcit.org/65/01/JeLit\\_Paper\\_31.pdf](http://www.jelcit.org/65/01/JeLit_Paper_31.pdf).
- McCartney, K. (2021). *Mobile education. Personalised learning and assessment in remote education: A guide for educators and learners*. Oxford: Peter Lang.
- McCrindle, M., & Fell, A. (2021). *Generation Alpha*. Sydney: Hachette Australia.
- McLoughlin, C., & Lee M.J.W. (2008). Mapping the digital terrain: New media and social software as catalysts for pedagogical change. In *Hello! Where are you in the landscape of educational technology? Proceedings ascilite Melbourne 2008*. <http://www.ascilite.org/conferences/melbourne08/procs/mcloughlin.pdf>.
- Miles, M.B., & Huberman, M.A. (1994). *Qualitative data analysis: A sourcebook of new methods*. Beverly Hills: SAGE.
- Ming, L., Tung, F., & Kuang, L. (2017). A study of the effects of digital learning on learning motivation and learning outcomes, *Eurasia Journal of Mathematics Science and Technology Education*, 13(7), 3553-3564.
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., & Stewart L.A.; PRISMA-P Group. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst Rev.*, 4(1). <https://doi.org/10.1186/2046-4053-4-1>.
- Moodley, M. (2019). WhatsApp: Creating a virtual teacher community for supporting and monitoring after a professional development programme, *S. Afr. J. Educ.*, 39, 1-10. <https://doi.org/10.15700/saje.v39n2a1323>.
- Mutalib, M.A., Halim, N.D.A., & Al-Emran, M. (2018). A review on use of social media in teaching and learning. [http://eprints.utm.my/id/eprint/61182/1/NoorDayanaAbd2015\\_AReviewonUseofSocialMediaInTeaching.pdf](http://eprints.utm.my/id/eprint/61182/1/NoorDayanaAbd2015_AReviewonUseofSocialMediaInTeaching.pdf).
- Newton, J.R., & Williams, M.C. (2021). Instagram as a special educator professional development tool: A guide to Teachergram, *Journal of Special Education Technology*, 37(3), 447-452.
- Nor, K.B.M., Razali, M.B.M., Talib, N.B., Ahmad, N.B., Sakarji, S.B.R., Saferdin, W.A.A., & Nor, A.B.M. (2019). Students' problems in learning English as a second language among Mdab students at Uitm Malacca. *International Journal of Humanities, Philosophy and Language*, 2(7), 1-12. <https://doi.org/10.35631/ijhpl.27001>.
- Nowotny, H. (2021). In *AI we trust: Power, illusion and control of predictive algorithms*. Cambridge: Polity Press.
- O'Reilly, T., & Battelle, J. (2004, October 5-7). *Opening welcome: The state of the Internet industry*. Paper presented at the *Web 2.0 Conference*, San Francisco, CA. <http://conferences.oreillynet.com/pub/w/32/presentations.html>.
- Ortiz-Ospina, E. (2019). The rise of social media. <https://ourworldindata.org/rise-of-social-media>.
- Paniagua, A., & Istance, D. (2018). *Teachers as designers of learning environments: The importance of innovative pedagogies*. Educational Research and Innovation. Paris: OECD Publishing.
- Pegem, A., & Özudoğru, Ş. (2014). Nitelaraştırmanıniletişimaraştırmaların Darolveönemiüzerebirdeneme, *Global Media Journal*, 4(8), 260-275.
- Pellai, A., & Tamborini, B. (2021). *Vietato ai minori di 14 anni: Sai davvero quando è il momento giusto per dare lo smartphone ai tuoi figli?*. Novara: De Agostini.
- Pira, F. (2021). *Le nuove generazioni digital-popolari e social-dipendenti*. Milano: FrancoAngeli.
- Prensky, M. (2009). H. Sapiens digital: From digital immigrants and digital natives to digital wisdom, *Innovate: Journal of Online Education*, 5(3). <https://nsuworks.nova.edu/innovate/vol5/iss3/1>.
- Radka, N.J., Jansone, A. (2022). Current perspectives in social media supported e-Learning, *Baltic J. Modern Computing*, 10(1), 71-86. <https://doi.org/10.22364/bjmc.2022.10.1.05>.
- Ranieri, M., Pieri, M. (2014). *Mobile learning. Dimensioni teoriche, modelli didattici, scenari applicativi*. Milano: Edizioni Unicopli.
- Rivoltella, P.C. (2020). *Nuovi alfabeti. Educazione e culture nella società post-mediatale*. Brescia: Scholé.
- Rovai, A.P. (2001). Building classroom community at a distance: A case study, *Educational Technology Research and Development*, 49, 33-48. <https://doi.org/10.1007/BF02504946>.
- Salmon, G. (2012). *E-moderating: The key to online teaching and learning*. New York: Routledge.
- Santoian, F., Petrucco, C., Ciasullo, A., & Agostini, D. (Eds.). (2022). *Teaching and Mobile Learning. Interactive educational design*. Abingdon, Oxon: CRC Press.
- Selwyn, N. (2012). Making sense of young people, education and digital technology: The role of sociological theory. *Oxford Review of Education*, 38(1), 81-96.
- Soffel, J. (2016). What are the 21st century skills every student needs?. <https://www.weforum.org/agenda/2016/03/21st-century-skills-future-jobs-students>.

***Virtual Communities of Practice for generations Z and Alpha: a systematic review of the main social networking sites used in formal education***

Castiglione, A.

- Susilo, A. (2014). Using Facebook and WhatsApp to leverage learner participation and transform pedagogy at the Open University of Indonesia, *Jurnal Pendidikan Terbuka dan Jarak Jauh*, 15(2), 63-80. <http://ilp.ut.ac.id/index.php/JPTJJ/article/view/208/165>.
- Tan, K.H., Rajendran, A., Muslim, N., Alias, J., & Yusof, N.A. (2022). The potential of TikTok's key features as a pedagogical strategy for ESL classrooms, *Sustainability*, 14(24), 1-22. <https://doi.org/10.3390/su142416876>.
- Trentin, G. (Ed.) (2012). *Education technology in Europe*. Special issue of *Educational Technology*, 52(2).
- Uribe, S.N., & Vaughan, M. (2017). Facilitating student learning in distance education: A case study on the development and implementation of a multifaceted feedback system. *Distance Education*, 38(3), 288-301.
- Vaázquez Cano, E. (2012). Mobile learning with Twitter to improve linguistic competence at secondary schools, *The New Educational Review*, 29, 134-147.
- Van Den Beemt, A., Thurlings, M., & Willems, M. (2020). Towards an understanding of social media use in the classroom: A literature review, *Technology, Pedagogy and Education*, 29(1), 35-55. <http://doi.org/10.1080/1475939X.2019.1695657>.
- Vanwynsberghe, H., & Verdegem, P. (2013). Integrating social media in education. *CLCWeb: Comparative Literature and Culture*, 15(3), 1-10. <https://doi.org/10.7771/1481-4374.2247>.
- Vedi Palermo. (2023, February 1). *Edu-Social Algorithm, restituzione finale all'I.C.S. "Colozza-Bonfiglio"* [Video]. YouTube. <https://www.youtube.com/watch?v=Cxna1D9hYJg>.
- Vinogradova, S., Melnik, G., & Pantserov, K. (2018). Transformation of media education in the digital age: To the issue of training specialists in the field of communications, *Media Education*, 1, 18-27.
- Wenger, E. (2011). *Communities of practice: A brief introduction*.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, England: Cambridge University Press. <https://scholarsbank.uoregon.edu/xmlui/handle/1794/11736>.
- Wenger, E., McDermott, R., & Snyder, W. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Boston, MA: Harvard Business School Press.
- Wesley, P.M. (2013). Investigating the community of practice of world language educators. *Journal of Teacher Education*, 64(4), 305-318. <http://dx.doi.org/10.1177/0022487113489032>.
- Wright, E., Borg, J., & Lauri, M.A. (2015). Media Education as a tool to promote critical thinking among students, *Journal of Education Media*, 2, 62-72.
- Yang, S.H. (2009). Using blogs to enhance critical reflection and community of practice, *Educational Technology & Society*, 12(2), 11-21. <https://www.jstor.org/stable/pdf/jeductechsoci.12.2.11.pdf>.
- Ziatdinov, R., & Cilliers, J. (2022). Generation Alpha: Understanding the next cohort of university students, *European Journal of Contemporary Education*, 10(3), 783-789. <https://doi.org/10.48550/arXiv.2202.0142>.

© 2025. This work is published under  
<http://creativecommons.org/licenses/by-nc-nd/4.0> (the “License”).  
Notwithstanding the ProQuest Terms and Conditions, you may use this  
content in accordance with the terms of the License.