Our Digital Village

Co-designed digital education in rural areas

Erasmus + - KA2: Forward Looking

Project Number 101087107

D2.2 Digital empowerment in rural realms: navigating challenges and opportunities with “Our Digital Village project” and Reciprocal Maieutic principles

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Abstract:

In the rapidly evolving digital landscape, rural communities grapple with unique challenges and opportunities in embracing digitalization. This article addresses the imperative of bridging the digital divide and fostering digital competencies in these areas, focusing on the "Our Digital Village" european project. The basis of this project is the Reciprocal Maieutic Approach (RMA). The study involved 278 participants: teachers, pupils and adult learners from Romania, Italy, Poland, Greece, Cyprus, Austria and Portugal. The study employs a qualitative approach, utilizing RMA workshops as a means to gather insights. Three workshop types facilitate participatory learning, including introductory meetings, self-analysis on needs and desires, and mixed-group sessions. RMA principles guide the coordinator's role, emphasizing freedom, independence, and creativity in the learning process. Results from introductory meetings highlight both the advantages and challenges faced by rural communities, offering a nuanced understanding of their dynamics. Self-analysis workshops delve into participants' digital competencies, revealing a proactive approach to self-improvement. Common needs identified across countries underscore the urgency of addressing infrastructure gaps, improving teacher training, and promoting personalized learning. In conclusion, the transformative role of technology is universally recognized, with a focus on addressing systemic challenges. The incorporation of RMA into the "Our Digital Village project" exemplifies a participatory, inclusive, and contextually relevant approach to fostering digital competencies. This study provides valuable insights for policymakers, educators, and community leaders to inform strategies for holistic digital inclusion and sustainable community development in the digital era.

Keywords

Digitalization, Rural Communities, Reciprocal Maieutic Approach (RMA), Digital Competencies, Sustainable Community Development

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Introduction

In today's interconnected world, digitalization plays a transformative role with significant implications for rural areas (Esteban-Navarro et al., 2020). While urban centers have been quick to embrace digital technology, rural regions have also recognized the critical importance of digitalization (Lishchuk et al., 2020). Digitalization in rural areas opens up new economic opportunities. It enables rural businesses to access wider markets, engage in e-commerce, and operate more cost-effectively. This not only sustains existing businesses but also stimulates entrepreneurship and innovation (Gernego et al., 2021).

Access to education and healthcare is vastly improved through digitalization. Distance learning and telemedicine bring quality education and healthcare services to rural residents. These digital solutions enhance the quality of life and overall well-being of rural communities (Gernego et al., 2021). The agricultural sector, often the backbone of rural economies, benefits significantly from digitalization. As noted by Hasbolah et al. (2021), smart farming, precision agriculture, and digital tools for crop management enhance agricultural productivity while promoting sustainability. Digitalization fosters social inclusion and connectivity in rural areas. It brings communities closer together, mitigating the isolation often experienced in rural regions, as indicated by Jakku et al. (2022). Rural residents can stay connected, engage in social networks, and access information.

E-government services tailored to rural needs simplify administrative processes and improve governance (Morte-Nadal & Esteban-Navarro, 2022). Rural residents can access essential public services more efficiently, enhancing their participation in civic life. Digitalization contributes to sustainable development by reducing the environmental footprint of various activities. Energy-efficient solutions, waste management, and transportation optimization promote environmental sustainability in rural communities.

In response to the imperative of digital transformation, the European Commission has embarked on a comprehensive approach to advance digitalization in rural European areas, including initiatives under the Erasmus+ program and related efforts (Gernego et al., 2021). These initiatives collectively aim to bridge the digital divide in regions where access to digital resources and opportunities is often limited. The European Commission allocates a significant portion of the Erasmus+ budget to support projects that enhance digital skills in rural areas. These projects offer training, education, and capacity-building programs to equip rural communities with the essential digital skills required for modern workplaces. Simultaneously, the Commission collaborates with the Digital Europe Program to invest in digital infrastructure in rural regions, encompassing broadband connectivity improvements, the deployment of 5G networks, and the establishment of digital innovation hubs to facilitate technology adoption (Zavratnik et al., 2019). Promotion of e-government services is another facet of these initiatives, making essential public services conveniently accessible to rural residents and fostering digital engagement. Collaborative networks among educational institutions, businesses, and local

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authorities are encouraged to facilitate knowledge exchange, best practice sharing, and the co-creation of digital solutions tailored to the specific needs of rural areas.

Research initiatives are actively supported to provide insights into the current state of digitalization, identify areas for improvement, and measure the impact of interventions (Stojanova et al., 2019). Additionally, the Commission promotes social cohesion and inclusivity in digitalization efforts, addressing issues related to digital literacy and accessibility, ensuring that all members of rural communities benefit from digitalization. Continuous monitoring and evaluation of Erasmus+ projects and other digitalization initiatives are critical, enabling the Commission to assess progress and impact and adjust strategies as needed. As pointed out by Stojanova et al. (2019). The Commission also collaborates with member states, local authorities, and various stakeholders to create an enabling policy environment for digitalization in rural areas, fostering partnerships and advocating for digitalization at all levels of governance.

These integrated efforts form a comprehensive strategy aimed at empowering rural communities to participate fully in the digital economy and society. Against this backdrop, the Our Digital Village project was born. Indeed, the rapid digital transformation of last years and the Covid-19 pandemic (Esteban-Navarro et al., 2020) have highlighted the divergences linked to digitisation especially between urban and rural areas. The need to promote the acquisition of digital and transversal skills, preparing people living in rural areas to face the challenges of the future emerged all over EU. "Our Digital Village" co-designed digital education in rural areas aims at co-creating and testing high-quality educational contents that responds to the needs of the rural context, while simultaneously ensuring the long-term transformation towards digitalization through active awareness raising on all levels of society. With the direct involvement of people from rural communities as well as political actors, the project promotes a bottom-up participation approach that can bring a long-lasting impact on education and rural communities.

The specific objectives of the project are:

- To initiate a self-analysis process in rural areas through the democratic and participatory "Reciprocal Maieutic Approach" (RMA) in order to identify context-specific needs, increase motivation and raise awareness about the potential of digital and transversal competences necessary for the current and future labour market, education and social life.
- To create educational materials through a co-design process, aiming to strengthen the digital and transversal skills of teachers, trainers and learners, while developing dedicated tools to evaluate and monitor its quality and transferability.
- To test and evaluate the "Our Digital Village Activity Kit" with teachers and trainers during training activities and implementation of ICT courses in educational institutions in rural areas, while fostering the digital and transversal skills development of school and adult learners.

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- To contribute to a sustainable process of digital transformation in rural areas and to mainstream the project's approach in order to have a positive European impact on educational and training systems.

Theoretical Framework

The figure of Danilo Dolci

In order to understand this project and the activities carried out in the different countries, it is essential to know the figure of Danilo Dolci, as Surian (2019) and Regosa (2023) point out, an important figure in pedagogy. Danilo Dolci (1924 – 1997) was a sociologist, educator, poet and nonviolent activist in Italy. Born on the northern part of Italy, he moved to western Sicily in the '50s and started his work in working with the communities and its members, helping them to express themselves, to have their voices heard in a nonviolent manner. Dolci started using hunger strikes, sit-down protests and nonviolent demonstrations as methods to force the regional and national government to make improvements in the poverty-stricken areas of Sicily, fighting again mismanagement of politicians and the suffocating power of Mafia. In order to involve and empower people, Dolci used the Reciprocal Maieutic Approach (Tateo, 2021). At the beginning it was used among groups of people and addresses to discuss their problems. He gave the people (fishermen and peasants) the conviction that they could be relevant for their own future that could make a change. He taught them that people together are stronger and everybody being in connection inside a group can be an element of change.

Committed to Gandhi's principle of nonviolence, he is considered to be one of the main protagonists of the nonviolence movement in Italy and he became known as the "Gandhi of Sicily". He believed that resources for changes in Sicily - as in other parts of the world - exist and must be evoked in the people themselves, so they can be open to their own inner ideas, integrities and potentials. In his work, Danilo considered educational commitment as a necessary and natural outcome for a personal inner journey, in order to create a much more active and responsible civil society, as stated by Surian (2019). Danilo Dolci received many international awards all around the world for his efforts. He wrote over 50 books, some of them translated in different languages. He won the Lenin Peace Prize in 1957, and the Gandhi Prize in 1989; he has been nominated 9 times for the Nobel Peace Prize

Reciprocal Maieutic Approach

The main approach developed by Danilo Dolci is called Reciprocal Maieutic Approach (RMA). As stated by Eddilli (s.d.), RMA has a wider applicability as educational approach so it can be adapted to different topics and contexts, fostering participatory learning in a non-violent, stimulating and cooperative environment for learners. Going through the RMA process and therefore learn how to employ it, it is an important achievement in the field of communication with different targets.

RMA tries to introduce the dialogue in communities and tries to give the floor to all. The approach is based on emphatic and reciprocal communication. Its main emphasis is in the

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capacity to involve all the people participating in the meeting in order to involve and empower themselves and their peers, as noted in his study Hamm (2018).

The workshops can be called “maieutic” or “self-analysis” and they’re about needs and desires, aimed at seeding active questions. Apart from contributing to personal development, they aim to stimulate the acquisition of several soft skills, such as social skills, active participation, creativity, and organisational and self-evaluation skills.

Reciprocal Maieutic Approach (RMA) is a pedagogical process characterized by collective exploration, which takes the experiential and intuitive foundations of individuals as its starting point (Dolci, 1996). This approach, deeply rooted in the Socratic concept of "μαιευτικός" or midwifery, envisions education as the birthing process of each learner's full potential (Mondolfo, 1996; Schneider, 2013). Unlike Socratic Maieutic, Dolci's Maieutic is reciprocal, where each member assists one another in giving birth to their potential, thereby fostering the creation of a new community. In this framework, there is an absence of hierarchies, with facilitators often serving as coordinators of the maieutic process.

RMA is underpinned by several core concepts, including the recognition of personal experience as a valuable inner heritage, the centrality of dialogue as a tool for active participation and research, the dynamic and evolving nature of knowledge created collectively within the group, the acknowledgment of every individual's capacity to be an agent of change, and the grounding of the process in concrete reality and the community's experienced problems (Saher, 2019). Furthermore, it thrives on the complexity inherent in gathering diverse points of view and encourages the horizontal sharing of power among participants.

The salient features that characterize RMA encompass a strong emphasis on both individual and group experiences. The approach encourages deep grassroots analysis and active participation from all participants, fostering a profound understanding of real needs and collective responsibility for instigating change. It is deeply rooted in the practicalities of real-life issues and concerns, fostering mutual awareness and constructive problem-solving (Rollins & Jane, 2018). Moreover, it constructs intricate, multifaceted perspectives of reality through the inclusion of diverse viewpoints and contributions.

RMA, as a daily practice, offers several specific benefits. First and foremost, it facilitates the recognition of individuals' abilities, instilling in them a sense of empowerment and the confidence to navigate their own paths with joy. Additionally, it supports the integration of different experiences by identifying gaps and inefficiencies that are otherwise intolerable. Finally, RMA fosters the creation of a new life vision, offering a transformative outlook that transcends the boundaries of traditional pedagogy and learning processes.

Within the framework of the Reciprocal Maieutic Approach (MAA), the project focuses on fundamental themes, which serve as the basis for subsequent actions. These themes revolve around dichotomies, highlighting critical distinctions that shape the approach:

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- Teaching Vs. Educating: "Teaching" encompasses the act of providing instruction and transmitting predefined disciplinary content to students, fostering passive assimilation. In contrast, "Educating," rooted in the Latin "e-ducere," signifies the process of learning how to collectively observe, listen, and communicate reciprocally. It encourages natural curiosity and individual creativity.
- Transmission Vs. Communication: "Transmission" involves the unidirectional sending of information, where the sender holds an active role, and the receiver is passive. This approach can exhibit coercive qualities. Conversely, "Communication," derived from "Cum - Munus," embraces a bidirectional process that necessitates active participation, the ability to express, listen, and receive feedback simultaneously. Communication is closely intertwined with creativity and personal growth.
- Power Vs. Domination: "Power," stemming from the concept of having the ability, signifies potentiality, strength, virtue, and the capacity to act. It enhances and liberates individuals while fostering democratic participation and creativity. In contrast, "Domination," rooted in "Dominatio," characterizes a violent relationship in which an active entity influences a passive one through economic, ideological, or political means.

The concepts of Power, Educating, and Communication assume paramount importance within the RMA framework. These concepts not only guide the actions of RMA facilitators but also provide a foundational structure for their operation within maieutic workshops. By delving into the meanings of these terms, RMA instills awareness and encourages critical reflection, fostering the potential for transformative actions and positive change.

The RMA coordinator

In the context of the Reciprocal Maieutic Approach (RMA), the role of the RMA coordinator or facilitator assumes paramount importance. In general, as noted Israel & Beaulieu (2019), the coordinator's primary function is not to impose solutions or ideas but rather to foster and observe the growth of the group and individuals within it. Their approach is grounded in principles of freedom and independence, promoting the emergence of ideas without coercion.

Creating an effective learning path within RMA necessitates that the coordinator/facilitator keenly observes participant interactions and understands the dynamics between individuals and their context. The learning environment should exhibit specific characteristics conducive to openness to novel ideas and respect for the diverse learning styles and paces of the community members. Notably, RMA values reciprocity, allowing for changing roles and enabling various community members to assume the coordinator's role, although this practice may not be mandatory in "Our Digital Village."

Central to Danilo Dolci's approach is creativity, an essential element that permeates the entire research process through maieutic dialogue (Eddilli., s.d.). RMA participants are expected to actively engage in discussions, ensuring that opinions and viewpoints are rooted in personal experiences and factual knowledge rather than being overly general or vague. Encouraging the use of references and enabling the RMA coordinator/facilitator to prepare learning

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materials for future sessions is highly recommended to deepen participants' understanding and prevent the dissemination of unverified information from superficial online research.

In summary, and based on various authors such as Lewis (2021) and Coady (2020), the primary characteristics of the Maieutic Coordinator/Facilitator in RMA can be outlined as follows:

- There is typically one RMA coordinator for each session, although they may have support if needed.
- The coordinator's role is to guide and coordinate the session, facilitating the maieutic process. Importantly, the coordinator is not a leader or boss but aims to establish a democratic dialogue in which all participants have equal opportunities to listen, question, and contemplate responsible choices.
- The coordinator exhibits the capacity to coordinate the group while remaining at participants' levels, demonstrating the ability to ask pertinent questions and analyze problems.
- The coordinator excels in "reading" and navigating the group dynamics, employing empathy and valuing each individual's experiences.
- Strong communication skills, encompassing active listening, clear expression, presentation, and cross-cultural communication, are essential.
- The coordinator possesses the capacity to summarize key points and manage conflicts within the group in a constructive manner.
- An openness to diversity and a commitment to nurturing creativity are also characteristic of an effective Maieutic Coordinator/Facilitator.

Difference between RMA and traditional methods

If we compare the unilateral transmissive models and the Reciprocal Maieutic Approach (RMA), some differences between the two are worth noting. The shift from the former to the latter based on general innovation is noteworthy, as pointed out by López-Alegría & Fraile (2023). If we look at specific aspects, it should be noted that the Unilateral Transmissive Model is marked by a series of attributes. It is characterized by the inhibition of thought, fostering compliance rather than nurturing critical thinking. Competition takes precedence over cooperation, with individuals often driven by the pursuit of personal gain. Revolt, resignation, or impatience are common responses within this model, as opposed to RMA, which promotes independence and autonomy.

Passivity prevails in the Unilateral Transmissive Model, as learners are typically expected to absorb information without active engagement. Repetition is encouraged, stifling creativity, and leading to a sense of indifference among participants. Closures and the curtailing of open discourse inhibit empathy and human connection. Surliness and anger may emerge in response to the restrictive nature of this model, overshadowing kindness.

Unilateralality characterizes decision-making and interactions within this model, as opposed to the reciprocity and mutual respect emphasized in RMA (Schneider, 2013). Fear and apprehension often govern the learning process, stifling opportunities for genuine respect.

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Repression is employed to maintain control, curtailing individual freedoms and immobilizing transformative potential. Mistrust is pervasive, overshadowing the cultivation of trust, which is a central tenet of RMA.

RMA, in stark contrast, fosters an environment that values critical thinking, cooperation, independence, and the ability to conduct research. It encourages creativity, active participation, empathy, and kindness. Reciprocity and mutual respect serve as foundational principles, creating a culture of trust and freedom. This environment promotes the transformation of both individuals and the collective group, emphasizing the concept of "us" over "me", as Dolci pointed out Tateo (2021).

In summary, the table effectively illustrates the profound distinctions between the Unilateral Transmissive Model and RMA, highlighting the latter's commitment to nurturing critical thinking, collaboration, independence, and empathy, and its emphasis on fostering trust, freedom, and transformation within a collective context. This comparative analysis serves as a valuable tool for understanding and appreciating the core principles of RMA in the realm of education.

Based on the above, we pose as research questions: through the RMA, what are the advantages and challenges of your (rural) community? How do you define Digital Skills? How much do you care about digital skills in your community? How do you and your community rely on the use of digital services? If so, for what purposes? Are you confident with your level of digital skills? What are the digital tools that you use or are aware of/familiar with? How did you acquire your digital skills? Which aspects of digital skills are more important at school (students), in teaching (educational staff), in your life (adults) and which ones would you like to improve? Do you know something about Coding, Robotics, Microcontrollers and web-development, 3D modelling and printing? How do you think they could contribute to your personal and professional life?

Methodology

Participants

Based on the guidelines of the research methodology, and as explained by Newman & Gough (2020), the participants can be described. This study involves a total of 278 participants, distributed across three primary groups within the educational spectrum: teaching staff, school students, and adult learners. The participants are strategically divided among the countries of Romania, Italy, Poland, Greece, Cyprus, Austria, and Portugal. The teaching staff cohort comprises educators and trainers from diverse educational institutions and community organizations. School students, including those from middle schools, contribute to insights into the current state of digital skills among students. The adult learners group includes individuals outside the traditional school system, emphasizing inclusivity and diversity in the research. This approach ensures a comprehensive understanding of the impact of digital transformation on diverse demographic strata and educational contexts across the selected European countries.

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Information tools

The data collection method employed in this study involved Reciprocal Maieutic Approach (RMA) Workshops, focusing on qualitative information (Muzari et al., 2022). Three different kinds of workshops have been conducted to collect all the information:

- Introductory Meetings: During these meetings, participants are encouraged to introduce themselves through the sharing of their aspirations and dreams. This traditional commencement sets the stage for mutual openness and the exchange of personal experiences. Moreover, these gatherings provide an opportunity to inquire about the rural area and its inhabitants, offering valuable insights into the local context.
- Self-Analysis Workshops on Needs and Desires: The primary objective of these workshops is to identify the specific needs and desires of each target group, with a particular focus on digital skills and education, as well as broader needs and desires.
- Mixed-Group Self-Analysis Workshops: The primary aim is to foster mutual understanding among participants, enabling them to identify common needs shared by the community. The initial two workshops concentrate on sharing and identifying these 'shared needs,' while the final workshop involves sharing outcomes with the entire group and pitching ideas for solutions. This collaborative effort is designed to enhance digital education, teaching methods, and content, especially concerning activities, intriguing and relevant themes, attractive technologies, and exploration-worthy topics.

RMA is a mutual communicative model facilitated through maieutic dialogue, emphasizing a process where doubts are disseminated and questions are posed to stimulate creativity, debates, critical thinking, and a sense of satisfaction. Como señalan Ruitenburg et al (2021), this would be an inductive approach. Participants play active roles in fostering an ongoing dialogue that avoids stagnation of thoughts. The maieutic dialogue is systematically planned based on group needs or processes that drive participant engagement. Careful consideration is given to selecting foundational documents, appropriate workshop spaces, and initiating reflections through well-crafted questions. The RMA coordinator or facilitator, following Danilo Dolci's suggestion of "a certain formalism," refrains from proposing solutions but encourages and observes group dynamics. The coordinator fosters an environment of freedom and independence, allowing ideas to emerge naturally. Building a learning path involves keen observation of participant interactions and an understanding of the relationships between individuals and their context.

Data analysis

In the examination of data for this study, a categorization system was employed (Muzari et al., 2022). This method involves a systematic process characterized by the differentiation of units of meaning, each assigned to a specific category whose content is clearly defined. These categories encompass opinions, attitudes, feelings, and evaluations expressed by participants, specifically focusing on their perspectives regarding the development of digital competences in rural areas.

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It is crucial to acknowledge that within the maieutic workshop framework, questions were strategically posed following an initial review and consensus among partners, aligning with the overarching objectives of the activity. This approach may have, to some extent, deviated from a purely inductive system, as it was adapted to the specific needs of the project. Additionally, it is pertinent to emphasize that the posed questions underwent adaptation based on the information gathered during the workshops. This adaptive approach facilitated the emergence of new themes, ensuring a dynamic and responsive analytical process.

Results

Following the categories shown above, we present the most relevant results extracted from each workshop in all countries.

Introductory meeting

1. In your opinion, what are the advantages and challenges of your (rural) community?

The advantages of living in a rural community were mostly repeated by the participants from the different countries: the tranquility of the environment and the closeness of social relations among the members of the community. In greater detail, all the countries agreed that the tranquility that emanates from the natural landscapes of their rural communities is one of the main advantages of their region. A large majority also point to the solidarity and mutual support among their neighbors as one of the great advantages of living in a rural environment. Countries such as Poland have also highlighted the great contact they maintain with their traditions as an important part of the rural community. Some of the narratives that illustrate these advantages are the following:

> "Our geographical location has a positive impact, as it allows contact with nature and a more relaxed lifestyle". P6Adult-POR.

> "Connection to the land, rooted in centuries-old traditions and a profound sense of community. It involves a harmonious interplay between the local environment and the daily lives of residents, with a strong emphasis on preserving cultural heritage." P3Adult-IT.

On the other hand, the participants identified the lack of infrastructure and services as the main challenge or disadvantage of their life in the rural community. All the countries agree that the precarious technological infrastructure and lack of equipment are a challenge. Infrastructure failure encompasses both buildings and services as well as lack of up-to-date digital equipment. A majority of countries also cite depopulation as a further blight on life in rural communities. More specifically, they point to the emigration of young, educated people to other parts of the country, leaving aging and less educated communities. Other countries have also pointed to inclement weather as a hindrance to their life in the rural environment. Some of the illustrative narratives are as follows:

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"Many young people go to study and work elsewhere, perhaps they lack an attachment to the territory or a stimulus." P2Teacher– POL.

"There are so many empty spaces because people are missing so the village is dispersive." P3Adult – IT.

"Sometimes in lessons we might be asked to watch a video, but there are no headsets to do so and the sound of all computers and videos is playing everywhere which is really distracting." P24S-AU.

"The computers take more than 10 minutes to work and always glitch due to the old software." P1Teacher-CY.

"Living in a semi-rural area has its challenges, especially during extreme weather. It's not just about getting to school – it's about having the right tools to keep up with classes online, which many of us don't have." P3Student-POL.

2. How do you define Digital Skills?

When it comes to defining digital competencies, we find somewhat more diverse opinions. As common findings, we can point out that both teachers and adult learners in the different countries point to a practical knowledge of technologies. Specifically, they refer to the use of technologies for practical tasks such as sending emails and producing educational materials. In other countries, they point to a practical use focused on solving problems as easily and quickly as possible. For their part, young students in most countries point to the use of social networks as one of the main factors of digital competence. Below are some illustrative narratives:

"Many things, like working in Word, in Paint, knowing if the internet works, fixing." P10Adult-POR.

"In order to define digital skills, we need to have in mind that digital skills is the combination of things, such as the use of: 1. equipment, 2. software, as well as having a user and there is correct use of the above." P1Teacher-CY.

"Using Instagram to share our adventures and thoughts with our friends." P12Student-CY.

"The children/youngsters, but also the adults, use the technology mostly for communication and accessing social media." P13Teacher-ROM.

3. How much do you care about digital skills in your community?

For this question we found evidence of very similar opinions among all groups of participants in all countries. They point to the rapid evolution of our society where technologies have taken a fundamental role. For them, technologies have become necessary to understand, connect

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and build relationships in today's society. Both students and teachers point to digital skills as indispensable in their professional development in the vast majority of countries. For their part, students in some countries such as Italy or Greece mention the important role of digital skills in the personal sphere as well. In turn, in countries such as Austria, they point out their important role in inclusion. Some of the narratives that show these findings are the following:

> "They are useful for your private and professional life, for example in the future we could work from home with the computer staying in the village, instead of going to the office or out of the municipality."P6Student-IT.

> "I think it is important, the world is increasingly global and digital, even for access to purchases or services." P6Adult-POR.

> "In our community, digital skills are more than just a school subject; they're a survival tool. They help us adapt to the changing world, ensuring we're not left behind in the fast-paced digital landscape." P9Adult-POL.

> "Very much! We saw how important digital skills and tools are when learning at schools is not possible because of situations such as covid. I can't imagine how students would be able to continue if we did not have sufficient skills and tools." P9Teacher-AU.

On the other hand, it is also important to mention that there are somewhat more minority opinions that technologies do not have a great impact on their professional life. Participants from countries such as Austria and Romania point out that their jobs are manual and practical, where they do not necessarily need technology:

> "I am learning to become a barber, it does not change much for me." P12Student-AU.

> "The community as a hole doesn't pay a lot of attention on the development of digital skills." P30Adult-ROM.

4. How do you and your community rely on the use of digital services? If so, for what purposes?

In this question we again find very similar answers among all the countries. On the one hand, students and teachers rely on digital services mainly for educational tasks. This educational use ranges from the use of hardware in their classrooms to different types of software to produce materials or share them. On the other hand, adult participants from the vast majority of territories are more inclined to use technologies in their work environments. In particular, they emphasize the organizational possibilities they offer to achieve an agile and orderly work environment. It is also mentioned that, after the covid-19 pandemic, confidence in technologies has increased due to the possibilities of teleworking and continuing classes from home. As for the use of technologies in a social context, this factor is most frequently mentioned by student groups in all countries. It is worth noting that this social part is mainly dedicated to leisure and not to work relationships. It is also very interesting to highlight the narratives of countries such as Austria where the use of artificial intelligence, specifically

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ChatGPT as a tool in the educational field, is directly mentioned. Some of the quotes that illustrate these findings are the following:

> "Digital services are like my academic lifeline. From online research to collaborative projects, they're integral to how I learn and work with my peers. I can access information instantly and connect with classmates seamlessly, making my educational experience more dynamic." P3Student-POL.

> "We try to use the technologies that we have inside our classroom such as video projectors to make lessons more interactive and interesting for students". P3Teacher-CY

> "I am using social media to communicate with my friends." P12Student-CY.

> "I like to use ChatGPT; I do not let it do my work but it helps me to find creative ideas and it makes many things simpler." P4Adult-AU.

> "The community views technology as a means of communication (for example: there is a community Facebook group." P2Teacher-ROM.

Self-analysis Workshops

1. Are you confident with your level of digital skills?

From now on, the questions in the workshops become somewhat more reflective and personal in tone, making participants reflect on themselves and their capabilities. Thus, in this first question we explore the participants' self-perception of their level of digital competencies.

Among the responses of the different groups of participants in each country, three levels of confidence are extracted: low, medium and advanced. As for the low level, in most countries it is the group of adult learners who feel most identified with this level. They report that they do make use of technologies, but mainly for social networking tasks and some specific things, but nothing beyond that which implies a greater knowledge and mastery. It is also worth noting that in some countries, such as Austria, teachers are also at the low level, except for the strictly educational use they make of technology. Some of the narratives that illustrate these findings are the following:

> "On the networks I'm comfortable, but there are programs I would like to learn." P3Adult-POL.

> "When I saw the info details of this project and invitation to the sessions, I realised that I am far away from what is going on." P12Student-AU.

As far as the average level of digital competences is concerned, we start to see a split between the teachers' and students' collective. In some countries such as Romania or Cyprus, the average level of mastery is perceived by both students and teachers. In other regions such as Portugal, it is only teachers who perceive an average level of digital competence. Some of the

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quotes from the participants that illustrate this average level shared between teachers and students are the following:

> "There are a lot of things we still need to learn." P14Student-CY.
>
> "I got my ECDL certification, but still, I feel that there are more things I can and should learn." P10Student-CY.
>
> "I would say that I have the basic knowledge to use some technologies, but I also need to be up to date with the new technologies and digital skills." P4Teacher-CY.
>
> "I had to learn how to use a computer and tablet in order to keep up in my professional life." P28Teacher-ROM

Finally, the high level of digital skills is mostly perceived by students in different countries. Specifically, in countries such as Italy, this high perception is due to their daily use of mobile devices. Meanwhile, in areas such as Portgual, it is due to the fact that students are faced with digital skills assessments and are therefore required to have this higher competence. In Austria, directly young people talk about technologies as their second nature, showing a very good perception of their level. It is also worth noting that in areas such as Romania, teachers also report this high perception, mainly due to training received by different educational entities.

> "I participated in trainings developed in European projects where my school and teachers were involved, but also through Google trainings" P17Teacher-ROM.
>
> "Growing up with technology has made me very confident." P5Student-AU.
>
> "Sometimes there are digital assessments, in math, for example." P11Student-POR.

2. What are the digital tools that you use or are aware of/familiar with?

In this question we try to decipher what types of digital tools are known and used by the different groups of participants in each country. To do so, we established three categories of tools: social, creative, recreational or gaming and multimedia. The tools in the first category, mainly social networks, are the most prevalent among the participant groups. In fact, their prevalence is so clear that we differentiate them directly between young people and adults. Adults, on the other hand, use more traditional social networks or those with a longer history, such as WhatsApp, Telegram, Facebook or Twitter. The general trend for these types of tools is very similar in all countries. However, in the case of young people, although they also use these tools, especially WhatsApp as instant messaging, they prefer much newer social networks such as Tik Tok or Instagram. We highlight as a curious fact the case of Portuguese and Cypriot young people who talk about the social network Be Real, an application with very few years of life and that we do not find mentioned in other countries. Some of the narratives that support these findings are the following:

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"Social networks are like our virtual hangout spots, where we connect, share, and stay updated on each other's lives. It's where our social circles thrive in the digital space." P9Student-POR.

"I am using telegram and Webex for work purposes" P4Adult-CY.

"BeReal is the newest addition to our social networks, and helps us share our moments with our friends" P17Student-CY.

"WhatsApp and Telegram are crucial for my daily communication; they help me stay in touch with family and friends easily, but also with colleagues at work." P7Teacher-AU.

As for creativity tools, it is mostly teachers who make the most use of them, with this situation occurring in the vast majority of territories. Teachers speak of a more oractic use dedicated to the production and edition of educational materials for their classes. In this case, the most prevalent application in most countries is Canva, as a powerful creator and editor of educational materials. Other applications mentioned are Genially, Mentimeter or Power Point. Young people also talk about these types of tools, but focus their use more on the artistic side, not so much on the productive side. The narratives that illustrate these findings are the following:

"I use CANVA and MIRO for my classes and I am trying to learn podcasting tools to record lessons." P7Teacher-AU.

"I would be very interested in learning more about Canva for developing promotional materials for my business and also a website.·" P29Adult-ROM.

Playful or gaming tools are mainly commented on by students in the vast majority of countries. Specifically, they refer to the use of video games as a way of spending time in their free time and as a form of contact with friends. In these tools we can also include educational video games such as Kahoot or Geogebra, which are mostly used by teachers in the different territories. As for multimedia tools, YouTube is the most repeated among participants in all countries, but with a much more testimonial presence than the other typologies mentioned. The narratives that show this are the following:

"Kahoot is really interactive, and we use it sometimes during our lessons." P4Teacher-CY.

"Sometimes to make the lesson more interactive we use youtube. Watching videos makes them pay more attention." P2Teacher-CY.

"I included Wordwall and Kahoot in my work with the students." P5Teacher-ROM

3. How did you acquire your digital skills?

The purpose of this question is to describe the origin of the digital skills mastery of the different participants in each country. From this, we have extracted four sources of training: self-taught, formal school, private training and training with friends or family.

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Among all countries and groups of participants, the most prevalent by far is self-taught training. This self-taught training has small nuances with differences such as, for example, some participants report self-taught training with video tutorials on the net and initiating it on their own initiative. Others, especially teachers, point to the arrival of the pandemic and, in general, to the rapid evolution of our society as the reason that pushed them to start their self-taught training in technologies. The narratives we found in line with these findings are the following:

"I learned a bit in school but mostly by myself, watching tutorials." P3IT, P1IT students.

"Before the pandemic I had only basic skills, we learned for necessity." P3Teacher-IT.

"I learned how to use other teaching platforms thanks to the IT facilitator we had for distance learning during the second phase of the pandemic." P6Teacher-IT.

"I am very self-taught, most of what I know, trial and error. There are some free or funded trainings, but overall, not very good too many people in class, difficulty on several levels." P6Adult-POL.

On the other hand, the two most prevalent sources of training below self-training were formal education and training with friends or family. Formal education encompasses all education provided in formal organizations such as schools, colleges or universities. In this case, many teachers point to courses in their schools as their main source of training. Students also point to schools and institutes, but in countries such as Cyprus or Romania they point more to the university stage as the place where most of their training took place:

"I acquired most of my digital skills during university." P2Adult-CY.

"I have acquired digital skills from university, as well as, from working in this domain." P3Adult-CY.

"After discussions with some friends, there are some new information that I learn about social media mostly." P5Adult-CY.

"I think our school system in Austria is quite advanced and prepared me quite well for the digital world." P2Adult-AU.

Finally, training in private academies is chosen by the smallest number of participants, finding some testimonies in students from Cyprus or other teachers who were looking for an official certification.

I wanted to acquire some digital skills and decided to pay for a private academy." P1Adult-CY.

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4. Which aspects of digital skills are more important at school (students), in teaching (educational staff), in your life (adults) and which ones would you like to improve?

With this question we study which aspects within the digital competences are more important for each group of participants. For this, we establish four typologies: social aspects, technical aspects, security aspects and organizational aspects.

In this case we find more diverse opinions among the different territories and it is somewhat more difficult to find so many common points. However, we do note that, in general, young students are the most interested in the social aspects of technologies. In fact, young Austrians talk about training in the concept of social etiquette, just as young Romanians talk about training in their presence on social networks. On their side, within the social aspects, online communication is also mentioned as an important area for them. Some of the narratives illustrate the above:

“It would be useful to develop a better digital presence for the school (website, social media), which could be done also with the help of the students.” P16Teacher-ROM.

"Learning to communicate effectively online is not just about words; it's about building a virtual presence that speaks volumes." P2Student-POL.

Regarding online security and privacy issues, adults, both teachers and students, are the most concerned about these issues. Specifically, Portuguese teachers talk about wanting to be competent in security matters in order to train their students. In this case we see that the development of competence is mainly focused on its application in the professional environment. However, in the case of Polish adults, their digital security concerns are mainly firmed towards their daily life. Some narratives that serve as examples are the following:

"It is essential to have the proper training especially for tools and software you have never used before. Users of all ages must be safe while using technology." P6Adult-CY.

"Practicing safe online behaviours would be nice especially that our digital footprint is increasing and AI-powered chatbots are used more and more." P4Adult-AU.

As far as organizational aspects are concerned, it is also adults, both teachers and adult learners, who are most interested in these issues. The vast majority of opinions focus on organizational aspects focused on improving their work performance. Specifically, they talk about task optimization at work, with teachers being the most interested in this to improve the organization of their respective schools.

The school is advancing when it comes to using digital skills for management aspects. Everything (absences, suspensions, entry and exit permit) are done electronically." P1Teacher-CY.

"Todoist is not just a to-do list; it's my personal assistant in the digital realm, keeping my tasks in perfect order" P7Adult-POL.

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Finally, the technical aspects are latent in all the aspects previously mentioned. Most participants who showed interest in any of the above aspects also implicitly showed interest in the technical aspects. Specifically, Greek adults talked about acquiring technical knowledge in organizational applications to improve their productivity and work performance. Similarly, Cypriots pointed to the tenacious aspects as the most important since they are necessary to manage the other factors mentioned above. We can see all these ideas reflected in the following narratives:

"It is important to know how to use properly the computer and all the programs in general. I do a lot of research on google about it." P4Adult-IT.

5. Do you know something about Coding, Robotics, Microcontrollers and web-development, 3D modelling and printing? How do you think they could contribute to your personal and professional life?

The last question of the self-analysis workshops was to inquire about the participants' knowledge of some emerging technologies: programming, robotics, microcontrollers and web development and 3D printing. We also wanted to know their opinion on how they could contribute to their personal and professional life.

For this question, without any doubt, the general tone is that the level of knowledge and mastery of these technologies is relatively low in all groups. Within this general line of knowledge we find some glimpses in countries such as Portugal, Cyprus or Austria where either students or educators show some more knowledge about these technologies, mainly due to their training in educational centers. Some of the narratives that support the account of these participants are the following:

"You have to know how to work with phyton because of the math classes." P8Teacher-POR.

"Some of the above as IT's we are using them in our work, maybe not every day but in general." P2Adult-CY.

"With my advanced skills in coding and web development, I create interactive educational platforms for my students." P7Teacher-AU.

When asked about the contribution that these technologies can have to their personal and professional life, the general opinions of the participants are very positive. Among these opinions, the most repeated were from the educators, who see in these emerging technologies a great improvement in the teaching-learning process. It is true that most of them saw the best oriented mainly to their professional life. Specifically, the most repeated technologies were 3D printing and web development. Below are the narratives that illustrate these findings:

“As we are in a technical high school, 3D printing could be used and would be interesting for the students” P15Teacher-ROM.

"These technologies can be useful in teaching and education." (almost all teachers) IT

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Analysis and needs of rural areas through the Mixed Workshops

The identified needs across the surveyed countries highlight several common themes that resonate as crucial for communities. Key areas of emphasis include enhancing digital skills in education, addressing the digital divide, and integrating technology into various aspects of community life.

Among the most recurrent needs are:

- Better Technological Equipment: A consistent demand across regions for improved devices and infrastructure to facilitate digital learning and engagement.
- Teacher Training: Recognized as a pivotal requirement, emphasizing the importance of educators being equipped with the necessary digital skills.
- Personalized Training Sessions: Tailored educational approaches are seen as essential, ensuring that individuals receive targeted training suited to their specific needs.
- Addressing Online Privacy and Safety: A shared concern is the need to navigate the digital landscape safely, with a focus on privacy and security.

Additionally, there is a collective call for:

- Integration of Digital Skills into Curriculums: Acknowledging the necessity of incorporating digital competencies into educational frameworks.
- Parental Digital Skills: Highlighting the importance of extending digital literacy initiatives beyond the classroom to involve parents and the wider community.
- Infrastructure Improvement: A fundamental requirement for many regions, emphasizing the need for enhanced technological infrastructure and accessibility.
- Upskilling on Transversal Digital Competences: A recognition of the importance of developing comprehensive digital skills that are versatile and applicable across various domains.

These common needs underscore a unified global pursuit of digital inclusivity, education, and infrastructure improvement to empower communities in the digital age.

The ideas proposed across the surveyed countries converge on several common themes, reflecting a shared vision for advancing digital initiatives and fostering community development. Noteworthy proposals include:

- Establishment of Digital Skills Hubs: A prevalent suggestion involves creating centralized hubs dedicated to cultivating digital skills, fostering learning environments for coding, web development, digital literacy, and cybersecurity.
- Diverse Curriculum: Respondents advocate for the implementation of comprehensive curricula covering a range of digital skills, such as coding, web development, and cybersecurity, emphasizing the importance of a well-rounded education in the digital era.
- Partnerships with Experts: Many propose forging collaborations with industry experts, specialized companies, and ICT professionals to enhance the quality and relevance of digital education.

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- Teacher-Student Partnerships: Strengthening partnerships between students and teachers is recommended, fostering collaboration and knowledge exchange within the educational community.
- Integration of Innovative Tools: Suggestions include integrating innovative tools and platforms into educational practices, such as transitioning from textbooks to tablets, incorporating robotics education, and creating digital content.
- Community Involvement and Communication: Ideas center around greater community involvement, including volunteering activities, stronger communication with local authorities, and partnerships with specialized companies and experts.
- Connection with Qualifications: Some propose aligning project offerings with qualifications, such as the European Computer Driving Licence (ECDL), to ensure tangible and recognized outcomes.
- Focus on Online Privacy and Safety: Addressing concerns related to online privacy and safety is a recurring theme, with proposals for better exploration of tools by teachers and addressing online privacy and safety issues.

These common ideas reflect a unified commitment to fostering comprehensive digital education, building collaborative networks, and leveraging innovative tools to empower communities and individuals in the digital landscape

Discussion and conclusions

A number of research questions have been addressed in this research. All of them can be summarised in how the rural community in various European areas analyse, based on the RMA method, their specific needs necessary for the current and future labour market, education and social life. This is also reflected in Stojanova et al. (2021). In this sense it can be said that offering a nuanced understanding of the dynamics of rural communities, the introductory meeting underscores both the intrinsic value and challenges they face. Participants' unanimous appreciation for the tranquility, close social ties and preservation of traditions underscores the unique advantages of rural life. At the same time, recognized challenges such as insufficient infrastructure, technological deficiencies and depopulation set the stage for understanding the crucial context in which digital skills become essential, as they point out Lishchuk et al. (2020) and Morte-Nadal & Esteban-Navarro (2022).

The diverse perspectives on digital skills unveiled during the meeting offer a rich tapestry of ideas. Teachers and adult learners emphasize practical skills, which coincide with the essence of digital competencies for professional and educational tasks (Lishchuk et al., 2020). Younger participants, who associate digital competencies basically with social networking, reveal a broader and more social dimension of digital competencies. This diversity underlines the multifaceted nature of digital skills, which go beyond functional applications to encompass broader sociocultural aspects.

This diversity of perspectives converges in a shared recognition of the transformative role of technology in contemporary society, as they point out Zhang et al. (2023). Participants recognize

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that digital skills are indispensable in the professional, personal and social spheres. The role of technology in education, highlighted by students and teachers who rely on digital tools for learning, is recognized as relevant to the learning process.

Subsequent self-analysis workshops delve deeper into participants' digital competencies, shedding light on their confidence levels and preferred tools. The predominance of self-study training highlights the proactive approach individuals take to acquiring digital competencies, showing an inherent drive towards self-improvement, in concurrence with Zha & Hu (2023). Importantly, the emphasis on social, technical, security and organizational aspects highlights the multifaceted nature of digital competence, in line with the holistic understanding of digital competencies presented in the discussions.

The needs identified in all countries converge on common themes, emphasizing the urgency of addressing infrastructure gaps, improving teacher training and promoting personalized learning. Ideas proposed, such as digital skills centers, diverse curricula and collaboration with experts, align with these needs. This alignment reflects a collective commitment to address systemic challenges and foster a holistic approach to digital inclusion and community development.

Moving to the broader context of digitization, the emphasis is on the transformative role of the interconnected world, as he explains Esteban-Navarro et al. (2020). Digitalization is not merely a technological change; it opens up new economic opportunities and facilitates access to areas such as education and healthcare. Similarly, the benefits to the agricultural sector from smart farming and digital tools echo the practical applications of digitization outlined in the rural context. In addition, the emphasis on e-government services aligns with the need for organizational efficiency highlighted by adult participants in the initial discussions.

The Reciprocal Maieutic Approach (EMA), rooted in Danilo Dolci's principles (Tateo, 2021), emerges as a fundamental pedagogical tool. Its application in the self-analysis workshops is aligned with the participatory learning emphasized in the discussions. The principles of dialogue, individual capacity for change, and real-life problem solving intrinsic to RMA resonate with the multifaceted nature of digital competence highlighted in the discussions. The incorporation of RMA into initiatives such as the Our Digital Village project exemplifies a deliberate effort to foster digital competencies in a participatory, inclusive, and contextually relevant manner.

Comparative analysis between traditional models and RMA deepens our understanding of the latter's transformative potential. Traditional models inhibit critical thinking and encourage conformity. In contrast, RMA promotes independence, empathy and transformative potential within a collective context, in line with the aspirations outlined in the discussions, aspects that Zavratnik et al. (2019) highlight in their study.

In conclusion, the partnerships and relationships formed through these deep connections reveal an intricate web of interdependencies. The diversity of perspectives on digital

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competencies is consistent with the multifaceted nature of digital competence. The challenges identified and solutions proposed resonate in the broader context of digitization, emphasizing the need for a holistic and systemic approach to digital inclusion and community development. The integration of RMA principles adds a layer of participatory and context-specific learning that complements the multifaceted nature of digital competencies, ultimately contributing to the holistic advancement of rural communities in the digital age.

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