REFLECTING ON THE LATEST PIAAC DATA. WHAT EDUCATION AND SKILLS WITHIN THE LIFELONG LEARNING PERSPECTIVE

RIFLESSIONI SUI RECENTI DATI PIAAC. QUALE EDUCAZIONE E COMPETENZE IN OTTICA LIFELONG LEARNING

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ABSTRACT

The results of the second OECD PIAAC survey (OECD, 2024a) show, like or worse than the first, low levels of adults literacy and skills, both in the OECD average and for Italy, which undermine their active and conscious participation. personal and social well-being and inclusion. These results are even more worrying in view of the many interventions, at the level of international and national educational agendas and policies, addressed to adults. How, then, can adult education be rethought today?

I risultati della seconda rilevazione OECD PIAAC (2024a) mostrano, come o peggio della prima, scarsi livelli di literacy e competenze degli adulti, sia nella media OECD sia per l'Italia, che minano la loro partecipazione attiva e consapevole. il benessere personale e sociale e l'inclusione. Tali risultati preoccupano ancora di più a fronte dei molti interventi, a livello di Agende e politiche educative internazionali e nazionali, indirizzati agli adulti. Come ripensare, dunque, l'educazione degli adulti oggi?

KEYWORDS

Education, Skills, Lifelong learning, Autobiographical methods, Autobiographical learning.
Educazione, Competenze, Educazione permanente, Metodi autobiografici, Apprendimento autobiografico.

1. Introduction

Postmodernity, one of the various definitions describing the contemporary era, is marked by the globalisation, which started and sustained transactions, trades and movements, not only of commercial nature, but also of people, cultures, knowledge and information too. Those processes have further contributed to accelerate changes and complexity, even though economic criteria still remain predominant.

The current age is permeated by characteristics often conflicting or even contradictory. To give an example, it is "fascinating and at the same time unsettling" because on the one hand we have the "illusion" of having achieved freedom and autonomy, but on the other hand, we are witnessing a gradual "disintegration of the social sphere", which ought to be replaced by alternative categories with which to build their own identities, including cultural ones (Touraine, 2008, pp. 12-14).

Moreover, globalisation has, on one side, supported dynamics of interconnections, while on the other it has also encouraged the exploitation of local identities (Giddens, 2000; Bauman, 2005).

The capitalism (Bell & Boudon, 1978), the limits imposed by the nation-state (Beck, 2009) and the control of the masses through media (Chomsky, 2010), contributed to exacerbate inequalities and new forms of social stratification rather than promoting greater equality, fairness and democratic participation.

Our time is defined in further variety of ways too, including "post-industrial society" (Touraine, 1970), "information society" (Bell, 1973), "learning society" (European Commission, 1995; UNESCO, 1996), "knowledge society" (European Commission, 2000). All of them aim at highlighting the crucial importance of information, knowledge and learning that are now to be included within the paradigm of lifelong learning (Faure, 1972) and lifelong education, which are considered today more widely as lifelong, lifewide and lifedeep learning. These learning forms are essential for understanding the rapid transformations and changes that increasingly occur in our lives and for contributing to disseminate greater democracy, inclusion and equity.

On one hand, indeed, we can acknowledge the advancements in technology, including Artificial Intelligence, with which we have taken for granted, for many years now, the ability of connecting people who are geographically distant. More recently, moreover, many people can directly and immediately interact daily with virtual assistants to ask questions, make requests and seek advice through messaging services such as WhatsApp and Messenger. On the other hand, however, we cannot ignore the persisting digital divide, due to which a significant portion of

the population, particularly in socio-economically and culturally disadvantaged contexts or rural areas, continues to face difficulties in accessing and using technological devices and/or internet connections (UN, 2023; UNESCO, 2023a; OECD, 2024b; Lee & Žarnic, 2024). A recent OECD report (2024b) has highlighted significant differences among adults based on age, gender, education level, geographic origin and socio-economic status in internet usage. In Italy, such disparities are much more evident compared to the OECD average. Specifically, the age-related gap in Italy reaches 23,4 percentage points, substantially exceeding the OECD average of 15,4. Similarly, in Italy educational disparities differ 22,3 points compared to 15 points across the OECD. This suggests that lower levels of education in Italy are associated with more significant barriers to internet use (Fig. 1).
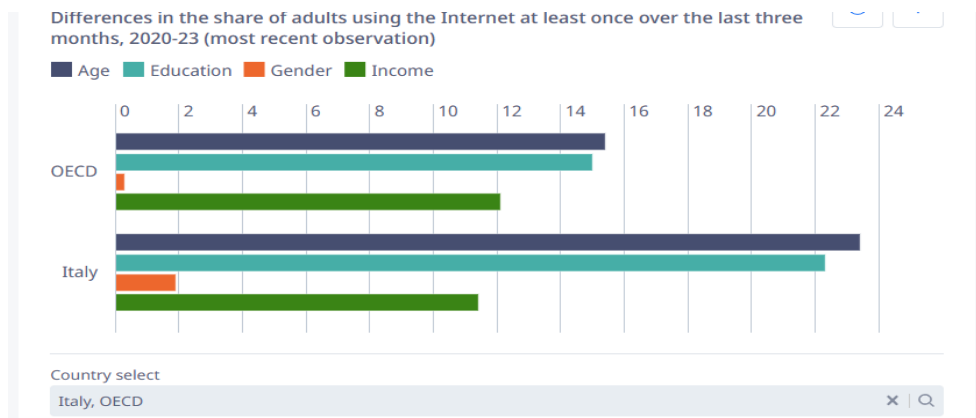

Figure 1. Divides in Internet (OECD- Italy) (OECD, 2024b)

As the labour sector concerns, especially due to the increasing spreading of automation, advanced technologies and robotics, the employment landscape has been radically transformed over time with the replacement, for example, of many traditional jobs that are now performed by machines and the creation of new opportunities for human being in highly specialised fields, in technological one in particular, to manage the tasks now carried out through automation or Artificial Intelligence.

However, those transitions also entail some significant issues, including the increasing job precarity, the rising of unemployment among low-skilled individuals and the polarisation of the labour market. On one hand, opportunities are growing for highly qualified and skilled profession, while on the other hand, difficulties are escalating for those with lower levels of education and less specialised skills, making

it harder for them to continue working in a rapidly changing and transforming labour market (WEF, 2025).

About the provision of educational and training programmes, although they have spread more flexible methods and accessed certain services outside the working time to facilitate adult workers participation, these opportunities are still not accessible to everyone. It most depends on own geographical origin, employment status, gender and age, economic situation and, also, the family background – as recent data collected in Italy and abroad recognised.

In Italy, for example, only 1,3% of individuals over the age of 35 participate in formal education courses. Moreover, individuals born abroad participate less frequently in education and training activities compared to those born in Italy (26,9% and 35,3%, respectively) (ISTAT, 2024). On average, in the OECD data (2024c), 23,1% of low-skilled adults participate in training activities, compared to 43,7% of those with medium/high skills. Italy reports one of the lowest participation rates among low-skilled adults (11%), significantly below the OECD average (Fig. 2).
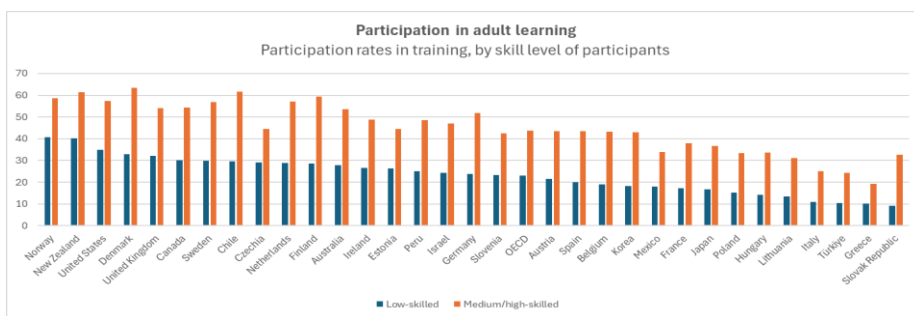

Figure 2. Participation rates in training (OECD, 2024c)

Furthermore, it is appropriate to take into account other developments, including those in medical and healthcare sectors, which have significantly improved the treatment and prevention of certain diseases and increased life expectancy. But we cannot ignore that such benefits are not always equally distributed across societies (Lee & Žarnic, 2024). The sixth edition of the OECD's How's Life? (2024d) recognised that achieving higher and better levels of well-being and inclusion among individuals depends on multiple variables, including those already mentioned.

More generally, it is observed that globalised economies and societies are still struggling to recover from recent shocks, i.e. health crises like the Covid-19 pandemic, inflation, economic and geopolitical instability, climate emergencies and conflicts that risk further escalation.

In the post-modernity era, inequalities, social exclusion and poverties – which, as we know, are of various forms (educational, housing, digital, etc.) – are not yet resolved issues and they are undermining the well-being and active social participation of millions of people worldwide.

Reducing those poverties, indeed, was and still is a priority on international agendas for several decades. The UN (2015), for instance, has established as the first of the 17 Sustainable Development Goals of the 2030 Agenda the objective of "ending poverty in all its forms everywhere". The UN also published a special edition (2023) of the annual reports on the 2030 Agenda addressing some of the most important and concerning issues, including the ongoing wars and conflicts, the climate crisis and the persistent effects of the Covid-19 pandemic, which has further exacerbated existing health problems in many parts of the world, especially in disadvantaged areas, as well as other urgent issues that threaten to achieve the sustainable development goals (UN, 2015). Poverties, indeed, may restrict the opportunities available in contemporary societies to improve people's lives, not only preventing them from benefiting from these opportunities but also contributing to perpetuate a vicious excluding and marginalising cycle. Furthermore, it exacerbates the challenges arising from instability, precariousness and uncertainty, which are additional consequences of issues, many of which are globally widespread (Beck, 2017; Aleandri, 2019a; Morin, 2020; Mortari, 2020; UN, 2023; OECD, 2024a), some of which have been discussed above.

In such a dynamic and complex context, taking into account the various forms of social exclusion and the inequalities existing and persisting within and among societies, how can we empower individuals not only to adapt to ongoing changes but also to actively manage them? How can we promote personal and collective well-being and foster the holistic and integral development of each individual, as well as a sustainable, equitable and democratic development of societies?

In order to answer to those and other questions through proposing possible and effective solutions, we cannot forget the increasingly crucial role of education, training and learning. Accessing to a quality education and the opportunity to gain appropriate skills are key elements in enabling every person to actively participate in the society, to adapt to and to manage complexities, changes and transformations, including in the job market. Furthermore, those elements foster empowerment processes, promote equal opportunities and enhance both personal and social well-being (UN, 2015; Aleandri, 2019a; 2022; Zanetti et al., 2020; Pinto Minerva, 2021; Costa, 2022; UNESCO, 2023b; Cambi & Pinto Minerva, 2023; OECD, 2023).

2. Some data from the second cycle OECD PIAAC survey

Regarding skills, the recent results of the second cycle OECD-PIAAC survey (Programme for the International Assessment of Adult Competencies) (2024a), which assesses literacy, numeracy and (the new added) adaptive problem solving skills in technologically advanced environments among adults aged 16 to 65, paint a worrying picture. These results reveal insufficient levels in the various assessed areas, which are as poor as, or even worse than, those gathered in the first cycle survey (OECD, 2013). Recent data confirm numerous low skilled individuals, both at the OECD average and in Italy. Specifically, in literacy, among OECD countries, 31% of adults scored at Level 2 and another 31% reached Level 3, while 26% scored at or below Level 1 (in Italy this percentage reached 35%). Only 11% of adults scored at Level 4 (in Italy just 5%) and only 1% reached the maximum score (Level 5).

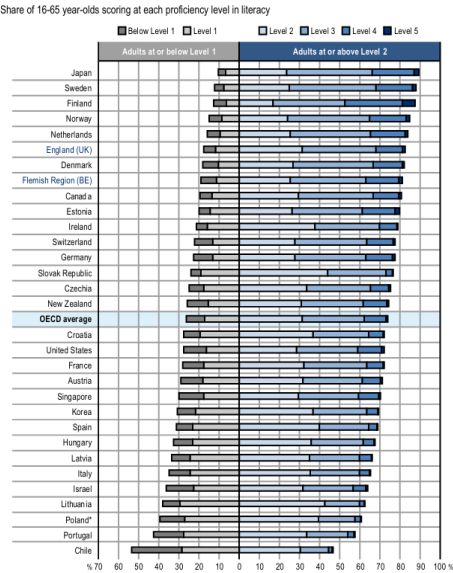Table 1. Average scores in Literacy (OECD, 2024a, p. 64)

Regarding numeracy, 25% of adults scored at or below Level 1 (in Italy, this percentage reached 35%), corresponding to basic skills such as performing simple operations with whole numbers or money. Those who reached Level 4 or 5, being therefore able to understand and apply complex mathematical concepts, are only 14% in the OECD average and 6% of Italian one.

Share of 16-65 year-olds scoring at each proficiency level in numeracy

Legend: ■ Below Level 1 □ Level 1 □ Level 2 □ Level 3 □ Level 4 ■ Level 5

| Adults at or below Level 1 | Adults at or above Level 2 |

Countries (top to bottom):
Japan
Finland
Sweden
Norway
Netherlands
Estonia
Denmark
Flemish Region (BE)
Switzerland
Canada
Germany
England (UK)
Czechia
Slovak Republic
Singapore
Austria
Latvia
Ireland
OECD average
Croatia
Korea
France
New Zealand
Hungary
Spain
Lithuania
Israel
United States
Italy
Poland*
Portugal
Chile

Axis: % 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 %
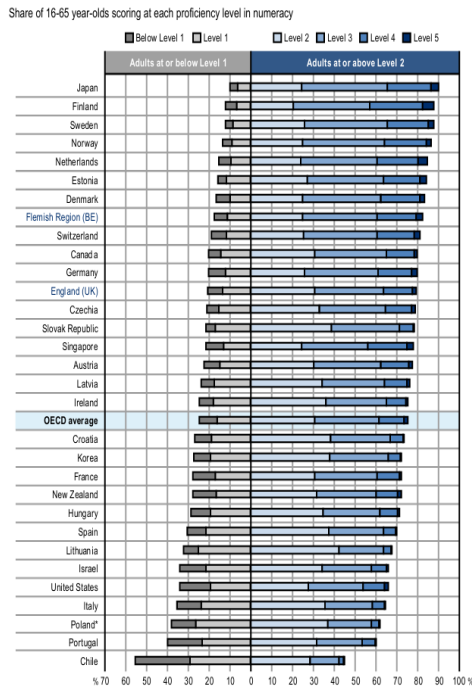
Table 2. Average scores in Numeracy (OECD, 2024a, p. 65)

Even in adaptive problem solving (APS), on average, 8% are below Level 1 (in Italy, the percentage increased to 10%) and 22% are at Level 1 (in Italy, the percentage rised to 46%). 38% of adults scored at Level 2 (in Italy, 40%), 27% at Level 3 (in Italy, 14%) and 5% at Level 4 (in Italy, only 1% achieved Level 4).

Share of 16-65 year-olds scoring at each proficiency level in adaptive problem solving
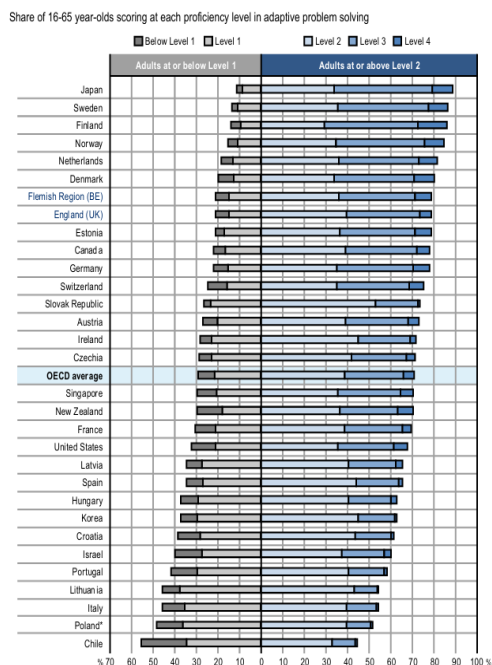
Table 3. Average scores in APS (OECD, 2024a, p. 66)

Moreover, in literacy, numeracy and adaptive problem solving higher levels of skills are reached at the age range 25-34 years and 16-24 years and among individuals with tertiary education. In Italy, among adults aged 25 to 65, those with a tertiary education obtained an average score 19 points higher than those with a high school diploma (OECD average: 33 points). In Italy, adults who attained a high school diploma, in turn, scored 35 points higher than individuals with only lower secondary education in Italy (OECD average: 43 points) (Tabs. 4 and 5):

Literacy, numeracy and adaptive problem solving

Table 4. Average proficiency by age (OECD, 2024a, p. 73)

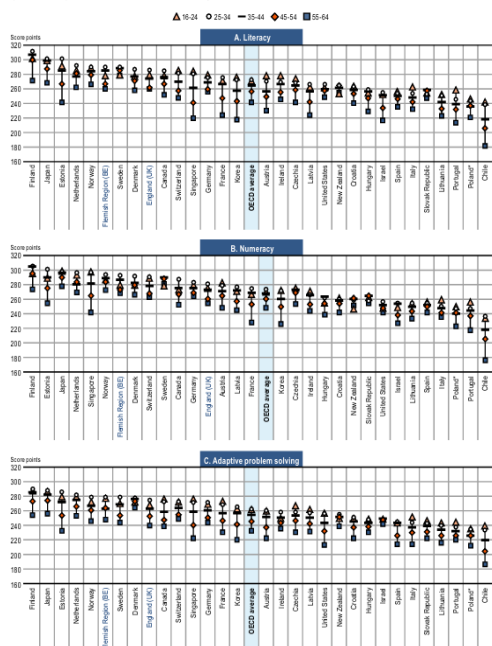Adjusted and unadjusted differences in mean literacy, numeracy and adaptive problem solving scores between tertiary and below upper secondary educated adults (tertiary *minus* below upper secondary educated)
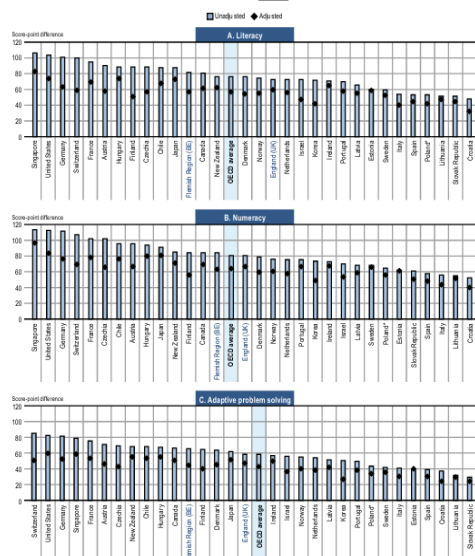

Table 5. Average proficiency by educational attainment (OECD, 2024a, p. 74)

By comparing the data collected in Italy from the first cycle (OECD, 2013) and the most recent one (OECD, 2024a), we can note that the average results remained almost identical. However, adults with lower skill levels increased (score at Level 1 or below), while the percentage of adults with higher skill levels (score at Levels 4 and above) remained unchanged (Tab. 6).
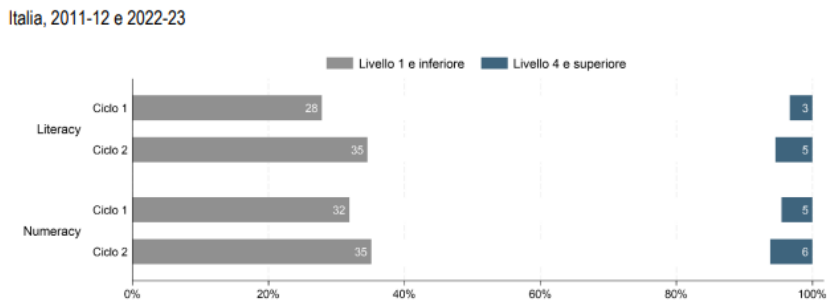

Table 6. Comparison I and the II cycle (Italy) (OECD, 2024f)

The significant gaps in numeracy, literacy and digital skills, particularly among individuals with low levels of education or limited participation in training and upskilling opportunities, require urgent reflections by pedagogists. These gaps, indeed, mean deficiencies or low levels in strategic skills that are closely linked to employability, social and lifelong learning participation.

3. Rethinking adult and lifelong education today

In light of the above, we believe that joint macro and micro political and pedagogical dialogue and actions are essential. What will be achieved at the macro level is more complex, lengthy, and difficult to fully personalize, but the results will be more generalizable and significant in a broader transformative perspective. In the meantime, we can act in parallel at the micro level, trying to involve individuals in various educational, work, and life areas, obtaining more personalized, faster objectives that can increase gradually. In this scenario, we consider it is crucial to promote and spread lifelong learning (including life-wide and life-deep learning)..

The Lifelong learning paradigm was not conceived suddenly and quickly. Rather, it required extensive studies, reflections, sedimentation, spread and a long period of time to take root within the cultures of societies, integrating learning and education throughout all life stages, particularly in adulthood.

Thanks to the Delors report for UNESCO (1996), the emphasis was placed on the centrality of education for active and conscious citizenship and, decades later, this vision is considered as more and more relevant (Aleandri, 2011; 2019; 2021; 2022; UN, 2015; Zimmerman, 2015; Di Rienzo, 2019; Poquet & Laat, 2021; OECD, 2022; 2024a; European Commission, 2023; UNESCO, 2023b).

It is well-established and widely demonstrated that lifelong learning (European Commission, 1995, 2000; Chapman, Cartwright & Mcglip, 2006; Jarvis, 1995, 2009, 2014; Stanlick & Szmodis, 2022) is crucial also for addressing social inequalities, promoting equal opportunities and fostering the spread of more inclusive and accessible social contexts in which every person can feel welcomed and appreciated and can actively participate in society, regardless of their personal characteristics, geographical and cultural background, socio-economic status, or disabilities or forms of neurodiversity.

According to that, the lifelong learning perspective is not only a theoretical-practical pedagogical paradigm, but it is also an effective "tool" for achieving social equity connected to the issue of inclusion. The paradigm of lifelong education, as we conceived and devised it, is based by assuming a holistic vision of the human being, on the awareness of inequalities and the different life conditions that shape choices and experiences of each individual, as well as the importance of valuing their unique characteristics with the aim of promoting personal and collective well-being throughout life (Aleandri & Giaconi, 2012; Dozza & Ulivieri eds., 2016; Booth & Ainscow, 2015; Aleandri, 2017, 2019a; 2021; 2022; Di Rienzo, 2019).

Starting from the well-established awareness of the importance long since attributed to lifelong learning and considering its increasingly widespread diffusion, it is necessary to reflect on some of the data highlighted in the previous paragraph. Among these, we refer to participation rates in training: if an increase is recorded (Eurostat, 2022), it is also true that these rates are generally low, stable or still lower among those who should benefit the most and participate, namely adults with low levels of educational qualifications attainment and skills (Fig. 3).
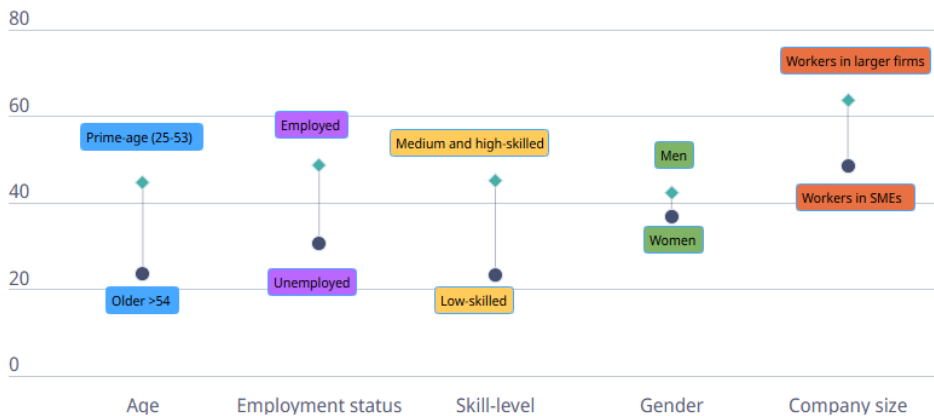
Figure 3. Participation in adult learning (OECD, 2024e)

Even with regard to the question of "skills", however, on the basis of the data collected in the latest PIAAC survey, it is necessary to reflect on why this trend of poor and/or declining skills continues to be confirmed, more or less, in the same countries, while there are countries, such as Finland and Denmark, which, on the contrary, report high levels of skills and improvements (Table 1, Table 2, Table 3). These outcomes require asking important questions, including understanding what is not yet working, despite the increased participation of adults in education and training programs. Perhaps an initial answer concerns that the adults who would benefit most from education, training and updating due to low levels of education attained are precisely those who still participate the least. Other questions move a bit deeper and may be related to the structure of skills measurement tests, but to answer these questions much broader and more in-depth analyses are required, for which we refer to upcoming publications, in order to better understand the responsibilities that need to be assigned and from which to start to propose appropriate solutions. For example, we might consider whether the tests should be modified, including their structure, to account for various linguistic, educational and cultural differences or if it is appropriate to rethink education systems, including initial training or/even lifelong learning and continuing education programs.

However, pending and regardless of the answers supported by data to the questions above highlighted, it is appropriate to reflect on how adult education and lifelong learning can be modified to achieve a greater and broader well-being for

individuals and societies, today and in the near future. Furthermore, in order to truly be effective "tools" to reduce inequalities, to educate and to train capable, aware and responsible citizens and to ensure and promote real social, economic and cultural development that is increasingly democratic, equitable, inclusive and sustainable (Mohammed & Watson, 2019; Bernstein, 2022; Aleandri, 2022).

The data not only reflect the challenges related to the access and participation in education and training but also raise significant questions regarding the updating and/or the emergence of new and diverse competencies required, particularly considering the future of the workforce within an increasingly globalised and evolving economic context that is ever more technologically advanced and, regrettably, competitive.

What skills should be gained and developed? The recent World Economic Forum's Future of Jobs survey (2025) highlights, as has already been suggested in recent years by other international organisations, that over the next five years, companies will place increasing importance not only on technical and digital skills, but also on soft skills such as creative thinking and certain socio-emotional attitudes, including resilience, curiosity, and propensity to lifelong learning (Fig. 4).

	Skill	Share
1.	Analytical thinking	69%
2.	Resilience, flexibility and agility	67%
3.	Leadership and social influence	61%
4.	Creative thinking	57%
5.	Motivation and self-awareness	52%
6.	Technological literacy	51%
7.	Empathy and active listening	50%
8.	Curiosity and lifelong learning	50%
9.	Talent management	47%
10.	Service orientation and customer service	47%
11.	AI and big data	45%
12.	Systems thinking	42%
13.	Resource management and operations	41%
14.	Dependability and attention to detail	37%
15.	Quality control	35%
16.	Teaching and mentoring	26%
17.	Networks and cybersecurity	25%
18.	Design and user experience	25%
19.	Multi-lingualism	23%
20.	Marketing and media	21%
21.	Reading, writing and mathematics	21%
22.	Environmental stewardship	20%
23.	Programming	17%
24.	Manual dexterity, endurance and precision	14%
25.	Global citizenship	13%
26.	Sensory-processing abilities	6%

Share of employers surveyed (%)

Cognitive skills · Engagement skills · Ethics · Management skills · Physical abilities · Self-efficacy · Technology skills · Working with others
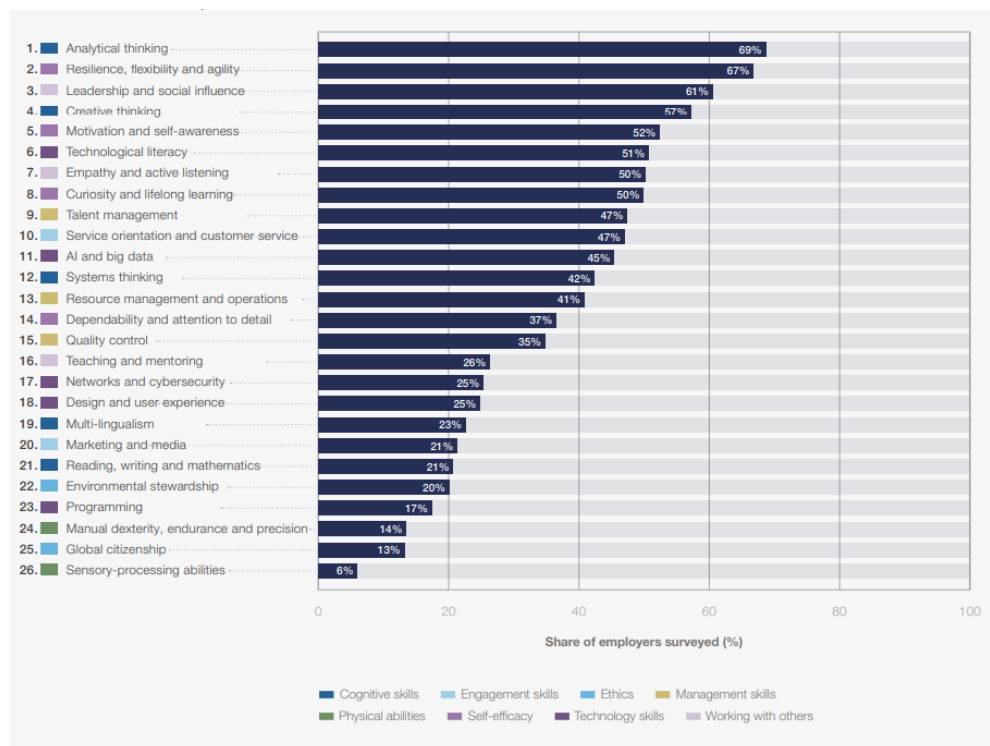
Figure 4. Core skills (WEF, 2025, p. 35)

But how can we plan and promote education and training to achieve these objectives, that they are to foster the acquisition of competencies linked to knowledge while valuing each individual's experiences, ensuring they are beneficial in the long term, in-depth and lasting? It is needed to firstly avoid superficial or overly technical approaches – important as they are but requiring regular and systematic updates – or merely notional or rote learning. In this regard, it is essential to rethink education as a comprehensive strategy, yet flexible, capable of giving value of individual peculiarities and diversities and ensuring the authentic and active involvement of each person.

In this way, regardless of the uncertain, fluctuating and concerning dynamics of the societies we live in (economic, political, social, cultural, etc.), such a well-designed lifelong education system will may empower each individual to better orientate, understand and actively and consciously participate. It could also help to live more responsibly, to make autonomous life choices, including career decisions, to be involved more actively in social life contributing to promote equity and inclusion.

We think it could be useful to propose innovative, participatory and inclusive pedagogical-educational strategies, which promote the implementation of significant and personalised learning. It may be achieved primarily through creating and/or promoting educational and training experiences that are person-centred and that recognise his/her wholeness, as more personalized as possible and sensitive to their characteristics, needs, rhythms, interests and potential (Sen, 1985; Alberici, 2008; Nussbaum, 2011; Aleandri, 2011; 2012; 2019b; 2021; 2022).

Among the educational and training strategies we deem suitable for such purposes, we propose autobiographical methods (Pineau & Le Grand, 1993; Demetrio, 2000; Cambi, 2006; Mortari, 2009; Aleandri, 2012; 2016; 2022; Aleandri & Russo, 2017), which allow, among various uses and objectives, a more conscious and personalised learning. These methods promote the acquisition of multiple skills, including reflective, critical, emotional and relational competencies, aimed at learning how to learn and so on. Such skills can be useful in the long term and will contribute to fostering deep, meaningful and lasting learning experiences (Aleandri, 2019a). This also means that, once acquired, these skills can accompany the individual throughout life, or at the very least they will provide a strong roots for further learning and continuous updating. In this way, they will contribute to enhancing the individual's quality of life, health and the achievement of appropriate life conditions, including work and relational environments, all aimed at personal and social well-being (Riva, 2018; Aleandri, 2019a and b; European Commission, 2021; UNESCO, 2023b; WEF, 2025).

Autobiographical methods and specifically autobiographical writings offer the opportunity not only to recall and reflect on past life experiences but also to reconsider them through a transformative perspective (Jarvis, 1995; 2014; Alberici, 2000; Mezirow, 2003; Aleandri & Consoli, 2020; Pineau, 2020; Gamberi & Boffo, 2022) aimed at improvement. They can also stimulate the need for further acquisition of knowledge and competencies to be developed in the immediate present as well as in the future, within an authentic perspective of lifelong learning. Especially for adults, who are currently confronting with increasingly personal and professional commitments with ever more hectic pace of life, it is difficult to reserve time to pause, recall and reflect on their past. As a result, adults are often not fully aware of the value and meaning of their past experiences. Recalling and stimulating reflection on past experiences through autobiographical writing also fosters autobiographical and experiential learning processes, which are very important because they are part of a broader context based on the recognition of the connections among personal experiences, self-awareness and pedagogical-educational processes (Pineau & Le Grand, 1993; Formenti, 1998; Demetrio, 2000; Cambi, 2006; Aleandri, 2012; Aleandri & Russo, 2017; Di Rienzo, 2019; Aleandri & Consoli, 2020).

4. Research project

In the meantime wide-ranging top-down interventions will be carried out, we present some data analyses extrapolated from a long and articulated research bottom-up project based on autobiographical methods (Aleandri, 2012), carried out over a decade. Specifically, we will focus on a step of the project carried out in 2021-2024 years, which involved adults enrolled in university courses of various levels in Education.

By using autobiographical methods, this project aims to stimulate and enhance many skills, including reflection, greater self-awareness and awareness of others, a deeper understanding of one's own experiences and skills acquired, even implicit ones, in the past and in the present, orientation and self-orientation and to support the development of lifelong, lifewide and lifedeep learning.

We also specify that we have carried out many research projects using autobiographical methods with other types of participants: students of all levels of school, the elderly, prisoners, women victims of violence in anti-violence centres, disabled people, etc.

• *Some objectives:*

- ✓ Helping students to achieve awareness by considering autobiographical writing as a stimulus for self-knowledge to foster the development, the testing and the practice of reflective skills to enhance their self-orientation capabilities, which is particularly important for their future life.
- ✓ Making students aware of how autobiographical writing also is an effective educational and self-educational activity, useful for developing individual empowerment considering future choices (personal, career and educational choice, etc.).
- ✓ Experiencing how reflecting on past experiences is functional by creating a group made up of participants within an environment that fosters a serene and welcoming atmosphere and encourages the acquisition of transversal skills such as cooperation, communication, relational skills, positive opening towards others, creativity, critical thinking, reflective skill, problem-solving, etc.
- ✓ Understanding whether and to what extent autobiographical writing that adequately takes into account the peculiarities of each individual is important for personalised learning.

• *Methodology and tools*

A mixed-method methodology (Greene, Caracelli & Graham, 1989; Tashakkory & Teddlie, 1998; Baldacci, 2001; Trinchero, 2002; Johnson & Onwuegbuzie, 2004; Greene, 2007; Mortari, 2007; Creswell & Creswell, 2017; Poth, 2018) was employed for data analysis, a well-established methodology that integrates both quantitative and qualitative tools. Regarding the qualitative part, an original simplified model (Aleandri, 2012) based on the Grounded Theory (Glaser & Strauss, 2017) was used in this research project, which allows to analyse and interpret phenomena in their specificity, by starting from the data and proceeding by breaking them down into concepts and by giving then labels to the most significant and spread ones.

The main tools used were:

- An "Initial knowledge and perceptions Questionnaire" to gather participants' knowledge, opinions and perceptions about autobiography and its functions before starting the autobiographical experience in the proper sense.

- An autobiographical writing format typically structured, but which can be further articulated or reduced depending on the age and characteristics of the actual

participants, of five sections corresponding to the main life stages ("Childhood", "Adolescence", "First work Experiences", "Today", "How I imagine myself in the future") with prompts to evoke cognitive, emotional, affective, perceptual, sensory memories, etc.; a summary sheet for free writing; a sheet to propose keywords that may represent the life experiences related to each autobiographical section.

- A "Final knowledge and perceptions Questionnaire" to gather participants' opinions and perceptions after the educational and training experience through the autobiographical writing.

The format, designed ad hoc (Aleandri, 2012) and scientifically validated by national and international pedagogical communities, has been using in various research projects since 2012 and has been involving participants of different ages and backgrounds and who live in different and sometimes difficult contexts (Aleandri, 2012; 2016; 2017; 2019a).

For this article, we chose to analyse the data gathered from the two questionnaires, as they were considered effective tools for highlighting the awareness achieved and the degree of appreciation regarding the value and functions of autobiographical methods in fostering reflections on lived experiences, self-awareness, awareness of others and the environment in which participants live. Through this process, individuals are able to plan their present and future, also as a result of their educational or professional path and they are encouraged to desire and need further learning, education and lifelong training. These processes should be as personalised as possible, capable of promoting the acquisition of personal and social identity, while valuing individual characteristics, interests and vocations.

• *Participants*

The participants who completed the initial questionnaire were 149 students (96% women, 3,3% men and 0,7% non-binary), with an average age of 27 years, enrolled in undergraduate, graduate and post-graduate programs in pedagogy and education and who voluntarily participated in the project. The participants who attended all phases of the project and remained until the end, thus completing the final questionnaire as well, were 110. The participants volunteered be involved, which does not constitute a representative sample and, therefore, it does not allow for generalisations, but rather to offer food for reflexions based on research data.

5. Some findings and reflections

The following two tables show some of the most significant results from the "Initial knowledge and perceptions questionnaire" (Tab. 7) and the "Final knowledge and perceptions questionnaire" (Tab. 8).

INITIAL QUESTIONNAIRE ITEMS	%
How much do you think you know yourself?	
I think I know myself quite well	41
I think I know myself well	35
I know who I am and what I want to do	15
I think I know myself only a little	7
"I want to get to know myself better"	1
No response	1

The data obtained from the question "How well do you think you know yourself?" provide a valuable opportunity to reflect on participants' levels of perceived self-awareness. Overall, respondents reported a positive perception of their self-knowledge, although some variability is evident.

41% selected: "I think I know myself quite well", while 35% selected "I think I know myself well". These responses suggest that a significant share of participants perceive themselves as solidly understanding of who they are, while simultaneously acknowledging that certain aspects of the self may remain less thoroughly explored or understood.

Notably, 15% of respondents chose "I know who I am and what I want to do", meaning not only a high degree of self-awareness but also a conscious and future-oriented mindset.

Conversely, 7% selected "I think I know myself only a little" and 1% "I want to get to know myself better". While these responses point to a more limited level of self-awareness, they also demonstrate a desire for greater self-understanding. Only 1% of respondents did not answer the question.

Overall, these findings suggest that most participants perceived themselves as having a good level of self-knowledge. However, the variety of responses also reflects the complex and dynamic nature of self-awareness as a psychological/educational construct.

Item	%
Do you ever find yourself thinking about your past experiences?	
Yes	86
No	14
How often?	
Occasionally	29,5
Often	19
Very often	19
Every day	6
Two or three times a week	6
Always	6
Several times a day	5
Once a week	4
Never	2
Whenever I need to/ depending on the situations	1,5
Rarely	1
Once a month	1

The largest group is composed of those who reported reflecting on their past "occasionally" (29,5%), followed by those who responded "often" (19%) and "very often" (19%). These three categories together account for 67,5% of the total participants, suggesting that while reflecting on the past is a regular activity, it is not systematically practised. Indeed, only 6% of participants in each respective group reported doing so "every day" "twice or three times a week" or "always" while only 5% reported doing so "several times a day."

Less frequent respondents selected "once a week" (4%), "never" (2%), "Whenever I need to/ depending on the situations" (1,5%), "rarely" (1%) and "once a month" (1%). So, few participants are engaged only sporadically, or not at all, in remembering and reflecting about their past experiences.

Overall, the data reveal a highly diverse range of behaviours, highlighting that the frequency of reflection on one's past is a profoundly individual and variable phenomenon.

Item	%
In the upcoming sessions, you will participate in an autobiographical writing workshop. What emotions are you currently experiencing in relation to this?	
*(Multiple responses allowed)	
Curiosity	70
Anxiety	15
Expectation	11
Serenity	11
Tranquillity	10
Concern	6
Happiness	4
Joy	3
Diffidence	3
Others	1,5
Excitement	1
Enthusiasm	1

The emotion most frequently selected was curiosity (70%), revealing an attitude to motivation, open to novelty and interested in what is yet to come. Other positive emotions include expectation (11%), serenity (11%), tranquillity (10%), Concern (6%), happiness (4%), joy (3%), excitement (1%) and enthusiasm (1%), all of which collectively are confident and welcoming attitudes toward the upcoming autobiographical writing workshop.

However, there are also emotions such as anxiety (15%) and diffidence (3%) which suggest it is appropriate to carefully consider they had understood properly the upcoming workshop.

Table 1. Initial knowledging questionnaire

Final questionnaire items	%
Do you think that the autobiographical format, by stimulating memory, past recollections and previous experiences, contributed to your self-awareness and self-knowledge (feelings, emotions, actions/reactions, relationships, etc.)?	
Much	42
Very much	33
Enough	24
Little	1
Not at all	0

The item about reflection on the effectiveness of the autobiographical format, recognised as a stimulus for memories, recollecting and re-elaborating own personal experiences, revealed a very positive evaluation from the participants: the majority recognized a significant impact of this tool on their self-awareness and self-knowledge, particularly concerning emotional, behavioural and relational components.

More specifically, indeed, to the question "Do you think that the autobiographical format, by stimulating memory, past recollections and previous experiences, contributed to your self-awareness and self-knowledge (feelings, emotions, actions/reactions, relationships, etc.)?" 42% responded "much" and 33% "very much" amounting to 75% who recognised a very important role to the autobiographical process in promoting a greater understanding of their emotional experiences, reactive dynamics and meaningful relationships.

24%, moreover, answered "enough". Only a very small percentage, 1%, stated that the format contributed "little" to their self-awareness. None answered "not at all".

Item	%
Do you think the autobiographical experience has been useful in not only bringing to light awareness of the knowledge and skills acquired through prior education and training, but also in fostering the desire, curiosity, or need for further learning, new knowledge and/or the pursuit of additional courses in the future?	
Much	48
Enough	26
Very much	16
Little	10
Not at all	0

The results from the question "Do you think the autobiographical experience has been useful in not only bringing to light awareness of the knowledge and skills acquired through prior education and training, but also in fostering the desire, curiosity, or need for further learning, new knowledge and/or the pursuit of additional courses in the future?" highlighted another aspect of the effectiveness of the autobiographical experience, that is its ability to stimulate not only greater awareness of the knowledge and skills acquired in the past, but also the desire for personal growth, updating and future education. 16% answered "very much", 48% "much" and 26% "enough". Overall, almost the entire group of participants (90%) acknowledged that the autobiographical experience has facilitated a proactive orientation toward new learning or future educational paths, while only 10% indicated that the experience was "little" useful in this regard. None answered "not at all".

Item	%
Do you think recalling the main events and experiences of your life serve as an incentive to tell and share them with others, as a kind of repository of knowledge/experiences that can enrich others and vice versa?	
Much	60
Very much	34
Little	5
Enough	1
Not at all	0

The answers revealed a strong attitude toward sharing: indeed, 60% selected "much" and 34% "very much" amounting to a subtotal of 94%. This significant majority suggests that the autobiographical experience not

only fostered personal awareness but also generated a desire to communicate one's life story to others, promoting dialogue and the exchange of individual narratives. Only 5% answered "little", a mere 1% "enough" and none of the respondents selected the "not at all" option, highlighting the importance of acknowledging potential situations of discomfort, privacy, or emotional pain that may discourage individuals from revisiting and sharing their past experiences.

Item	%
In general, you primarily define yourself based on...	
Your personal life story	63
Your passions	20
Your job	4
Your education	4
Your role within the family	4
A mix of all the options above	2
Personal life and interests	2
Your personality	1

The results pointed out that the majority of respondents (63%) primarily define themselves through their personal life story, underscoring the central role that one's past plays in the construction of self and identity. There is also 20% reported defining themselves mainly through their passions, which in this context are not merely seen as personal interests but also deep desires. Much more limited are proportion of participants identified external factors as work (4%), education (4%) and familial roles (4%). This pattern suggests that for those involved in the study, identity is not predominantly derived from socially or institutionally assigned roles, but rather from internal, subjective and personally meaningful dimensions. Responses such as "a mix of all the options above" (2%), "personal life and interests" (2%), or "my personality" (1%) were selected less frequently, further indicating that lived experience holds a more dominant influence on self-perception than fixed personality traits or general characteristics.

Which emotions did you experience prior to beginning the autobiographical experience using the structured format?	
Curiosity	60
Pleasure	12
Interest	11
Diffidence	7
Concern	4
Indifference	2
No response	2
Nostalgia	1
Enthusiasm	1

The most common reported emotion was curiosity, selected by 60% of the participants of project research, indicating an attitude of openness and willingness to engage with the experience about to begin. Alongside curiosity, other positive emotions such as pleasure (12%) and interest (11%) also emerged, further reinforcing the notion of a favourable disposition towards self-expression and self-exploration.
In contrast, there are emotions such as diffidence (7%) and concern/fear (4%). These answers reveal that a smaller portion of participants experienced hesitation, caution, or discomfort prior to the start of the autobiographical experience.
Responses such as indifference (2%), nostalgia (1%) and enthusiasm (1%) reflect more indefinite emotional states. Overall, while a predominantly positive predisposition is evident, the findings reported few diffident emotions.

Item	%
Which emotions did you experience after concluding the autobiographical writing experience? (Multiple choice)	
Satisfaction	34
Pleasure	20
Well-being	20
Nostalgia	15
Interest	8
Curiosity	3
Joy	3
No response	1
Others	1

The emotions recognised after having participated to the autobiographical experience reveal an overall emotionally positive and fulfilling outcome. The most frequently reported emotions were satisfaction (34%), pleasure (20%), well-being (20%), interest (8%), curiosity and joy (3%), which together represent 85% of all responses, confirming that for the majority of participants, the autobiographical experience was perceived as meaningful, enriching and useful.
Of particular interest is the emotion of nostalgia (15%), which highlights that the lack of the recent autobiographical experience that allowed one to remember past experiences has already been felt.

Table 2. Main results - Final questionnaire

6. Conclusions

Based on the findings obtained from the analysis of the two questionnaires, which, we underline they do not purport to be generalisable, it is still possible to make some reflections that may serve as a starting foundation for formulating future working hypotheses.

One significant result concern autobiographical writing, which proved to be a crucial strategy for bringing to light and valuing personal experiences. It significantly contributes to the constructing processes of both personal and social identity, serving also as an effective tool for acquiring reflective and critical competencies, that are essential of triggering deep processes of self-awareness regarding one's personal history, lived experiences and the meanings attributed to them.

Specifically, it envisaged that autobiographical writing facilitates the recognition of one's personality and individual traits, which often risk remaining latent or inadequately expressed. However, in practice, these traits constitute essential resources within learning processes. When appropriately recognised and valued, they prove instrumental in fostering personalized educational and training pathways, thus aligning more closely with the needs, attitudes, desires, projects and rhythms of everyone.

Autobiographical writing, in this context, has confirmed as a crucial pedagogical-educational strategy, as it can integrate various dimensions of the person (cognitive, emotional, identity-related, etc.) within processes of authentic, deep and meaningful learning.

Indeed, by comparing the results from the initial questionnaire (completed prior to the autobiographical writing through the format) with those from the final questionnaire (completed after the experiential autobiographical writing through the format) we could outline that autobiographical writing in adulthood served as a valuable experience in stimulating not only reflection, self-awareness and awareness of one's past but also critical thinking, emotional competencies and relational skills. Moreover, nearly all participants stated that it can also serve as a stimuli for sharing and narrating their personal experiences and share with others. Furthermore, when participants were asked whether such an experience helped bringing out the need or desire for further education and training, nearly all responded "very much", thereby highlighting other important aspects in the pedagogical-educational field: the competencies of learn to learn, guidance and the attitude and willingness to be engaged in lifelong learning and to plan future educational opportunities.

Moreover, between the first and the final questionnaires, a noticeable shift in emotional responses was observed. In the initial questionnaire, some less-than-positive emotions were expressed, including concerns about what to expect from the autobiographical writing workshop that was about to begin. However, in the final questionnaire, almost all responses testified positive emotions. Among the positive emotions that emerged during participating in the autobiographical workshop were some of great value and support in people's lives, such as satisfaction, pleasure and well-being.

These data are particularly important because this autobiographical workshop was carried out in sessions during attending specific university course in Pedagogy and Education. One of the aim was, in fact, to help participants become more aware of how the time spent on writing, somewhat counter to the fast-paced routine we are accustomed to today, provided each individual with the opportunity to reflect and stimulate a greater awareness of their personal, relational and social history, especially with a focus on educational and training development.

Therefore, the results confirm autobiographical methods as effective tools within a pedagogical-educational strategy aimed at lifelong, lifewide and lifedeep learning and as essential in promoting inclusion and equity through the recognition and enhancement of each individual's uniqueness and diversities.

In conclusion, we can outline some future pedagogical perspectives oriented towards supporting the holistic development of the individual by promoting a person-centred approach. Specifically, we propose to further enhance and integrate autobiographical methods into adult education, learning and training pathways, as they foster personalised and meaningful educational experiences.

Moreover, we suggest that such strategies could be spread also into contexts marked by fragility, difficulty or risk of exclusion, as autobiographical writing has proven effective in fostering the development of personal potential, supporting the development and/or re-evaluation of identity-building processes, enhancing motivation and encouraging more conscious, active and engaged participation and contribute to greater personal and social well-being.

Author contributions
The whole research project and the article had been designed and directed by G. Aleandri, who is the Author, specifically, of 1, 3, 4 and 6 paragraphs. C. Fiorentini is the Author of 2 and 5 paragraphs.

References

Alberici A. (2000). *Educazione in età adulta. Percorsi biografici nella ricerca e nella formazione*. Roma: Armando Editore.

Alberici A, (2008) *La possibilità di cambiare. Apprendere ad apprendere come risorsa strategica per la vita.* Milano: FrancoAngeli.

Aleandri G. (2011). *Educazione permanente nella prospettiva del lifelong e lifewide learning*. Roma: Armando Editore.

Aleandri G. (2012). *Scritture adulte: l'autobiografia come ricerca e costruzione del sé*. Roma: Armando Editore.

Aleandri G. (2016). Educazione permanente in contesti difficili. In L. Dozza e S. Ulivieri (a cura di). *L'educazione permanente a partire dalle prime età della vita* (pp. 802-813). Milano: Franco Angeli.

Aleandri G. (2017). *Con-passione. Nuovi orizzonti e prospettive in pedagogia delle relazioni*. Roma: Armando Editore.

Aleandri G. (2019a), (edited by). *Lifelong and lifewide learning and education: Spagna e Italia a confronto.* Roma: Roma TrE-Press.

Aleandri G. (2019b). Per una pedagogia dello sviluppo sostenibile. In G. Alessandrini, *Sostenibilità e capability approach* (pp. 192-205). Milano: Franco Angeli.

Aleandri G. (2021). Lifelong, lifewide y lifedeep learning. Análisis y perspectivas pedagógicas. In G. Aleandri, N. Llevot Calvet y O. Bernad Cavero. *Experiencias y aprendizajes a lo largo de la vida: Italia y España*. Publicaciones de la Universidad de Lleida.

Aleandri G. (2022). Adult education, education policies and lifelong learning during and beyond the Covid19 pandemic (pp. 9041-9048). *INTED2022 Conference Proceedings*. Valencia: IATED Academy.

Aleandri G. e Consoli E. (2020). Metodi autobiografici e coding per lo sviluppo dell'autoconsapevolezza e delle competenze trasversali. *Journal of Educational, Cultural and Psychological Studies*, 21, 275-300.

Aleandri G. & Giaconi C. (2012). *Lifelong Learning for Inclusion*. Roma: Armando Editore.

Aleandri G. & Russo V. (2017). L'autobiografia come metodo educativo, autoeducativo e di ricerca nella prospettiva del «lifelong learning»: progetto per

una indagine esplorativa. *Journal of Educational, Cultural and Psychological Studies*, (16), 295-316.

Baldacci M. (2001). *Metodologia della ricerca pedagogica*. Milano: Mondadori.

Bauman Z. (2005). *Globalizzazione e glocalizzazione*. Tr. it. Roma: Armando editore.

Beck U. (2009). *Che cos'è la globalizzazione. Rischi e prospettive della società planetaria*. Tr. it. Roma: Carocci.

Beck U. (2017). *La metamorfosi del mondo*. Tr. it. Roma: Laterza.

Bell D. (1973). *The Coming of Post-industrial Society.* Tr. it. New York: Basic Books.

Bell D. & Boudon R. (1978)*. Le contraddizioni culturali del capitalismo*. Tr. it. Torino: Einaudi.

Booth T. & Ainscow M. (2015). *Nuovo index per l'inclusione.* Tr. it. Roma: Carocci.

Cambi F. (2006). La scrittura come "cura di sé". *Quaderni di didattica della scrittura*, 3(2), 27-34.

Cambi F. & Pinto Minerva F. (2023). *Governare l'età della tecnica: Il ruolo chiave della formazione*. Milano: Mimesis.

Chapman J., Crtwright P. & Mcgilp E.J. (eds.) (2006). *Lifelong Learning, Participation and Equity*. Dordrecht: Springer.

Chomsky N. (2010). *Sulla pelle viva. Mercato globale o movimento globale?* Tr.it. Miano: Il Saggiatore**.**

Commissione Europea (2020). *Un'agenda per le competenze per l'Europa per la competitività sostenibile, l'equità sociale e la resilienza*. Bruxelles.

Commissione Europea (2021). *Bussola digitale per il 2030: il modello europeo per il decennio digitale.* Bruxelles.

Costa M. (2022). Diritto soggettivo alla formazione continua e nuovo agire lavorativo tra IA e robotica. *FLP*, 37, 22-34.

Creswell J. W. & Creswell J. D. (2017). *Research design: Qualitative, quantitative and mixed methods approaches*. New York: Sage.

Demetrio D. (2000). *L'educazione interiore. Introduzione alla pedagogia introspettiva*. Firenze: La Nuova Italia.

Dozza L. & Ulivieri S. (Eds.) (2016). *Educazione permanente a partire dalle prime età della vita*. Milano: FrancoAngeli.

Di Rienzo P. (2019). Lifelong learning e sviluppo sostenibile. Il ruolo del riconoscimento e della validazione delle competenze strategiche acquisite nei contesti di apprendimento non formali e informali (pp. 183-196). In G. Aleandri (ed.). *Lifelong and lifewife learning and education: Spagna e Italia a confronto*. Roma: RomaTrE Press.

European Commission (1995). *White paper on education and training. Teaching and learning: Towards the learning society*. Cresson É., Flynn P., Bangemann M. eds. Brussels: Office for Official Publications of the European Commission.

European Commission (2000). *A Memorandum on lifelong learning*, SEC(2000). Brussels: Office for Official Publications of the European Commission.

European Commission (2023). *Education and training monitor 2023.* Brussels: Office for Official Publications of the European Commission.

Formenti L. (1998). *La formazione autobiografica*. Milano: Guerini.

Gamberi L. e Boffo V. (2022). Educazione imprenditiva. Competenze trasversali e di vita per il futuro. *Mizar. Costellazione di pensieri*, 106-113.

Giddens A. (2000). *Il mondo che cambia. Come la globalizzazione ridisegna la nostra vita*. Tr. it. Bologna: Il Mulino.

Glaser B.G. & Strauss A.L. (2017). *Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Routledge.

Greene J. C. (2007). *Mixed methods in social inquiry*. New York: John Wiley & Sons.

Greene J. C., Caracelli V. J. & Graham W. F. (1989). Toward a conceptual framework formixed-method evaluation design. *Educational evaluation and policy analysis*, 11(3), 255-274.

ISTAT (2024). *La Formazione degli Adulti. Anno 2022.* Report ISTAT. https://www.istat.it/it/files/2024/04/Formazione-adulti-Anno2022.pdf

Jarvis P. (1995). *Adult and Continuing Education. Theory and Practice.* London: Routledge.

Jarvis P. (ed.) (2009). *The Routledge International Handbook of Lifelong Learning.* London: Routledge.

Jarvis P. (2014). From adult education to lifelong learning and beyond. In *Comparative Education,* n. 1/2014, 45-57.

Johnson R. B. & Onwuegbuzie A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational researcher*, 33(7), 14-26.

Lee J. & Žarnic Ž. (2024). *The impact of digital technologies on well-being: Main insights from the literature.* Paris: OECD Publishing.

Mezirow J. (2003). A*pprendimento e trasformazione. Il significato dell'esperienza e il valore della riflessione nell'apprendimento degli adult*i. Tr. it. Milano: Cortina.

Mohammed P. S. & Watson E. (2019). Towards Inclusive Education in the Age of Artificial Intelligence: Perspectives, Challenges and Opportunities. In J. Knox, Y. Wang, M. Gallagher (eds.). *Artificial Intelligence and Inclusive Education. Perspectives on Rethinking and Reforming Education*. Singapore: Springer, pp. 17-37. https://doi.org/10.1007/978-981-13-8161-4_2

Morin E. (2020). *Cambiamo strada: Le 15 lezioni del Coronavirus*. Tr. it. Milano: Raffaello Cortina.

Mortari L. (2007). *Cultura della ricerca e pedagogia. Prospettive epistemologiche*. Roma: Carocci.

Mortari L. (2009). *Aver cura di sé*. Milano: Mondadori.

Mortari L. (2020). *Educazione ecologica*. Bari: Laterza.

Nussbaum M. (2011). *Creating capabilities. The human development approach*. Cambridge: Harvard University Press.

OECD (2013). *The Survey of Adult Skills.* Paris: OECD Publishing.

OECD (2023). *Education at a Glance 2023. OECD Indicators.* Paris: OECD Publishing.

OECD (2024a). *Do Adults Have the Skills They Need to Thrive in a Changing World*?: *Survey of Adult Skills 2023*. Paris: OECD Publishing.

OECD (2024b). *Digital divides.* Paris: OECD*.* https://www.oecd.org/en/topics/digital-divides.html

OECD (2024c). *Adult learning.* Paris: OECD. https://www.oecd.org/en/topics/adult-learning.html

OECD (2024d). *How's Life? 2024: Well-being and Resilience in Times of Crisis*. Paris: OECD Publishing.

OECD (2024e). *Adult skills and work.* Paris: OECD Publishing.

OECD (2024f). *Indagine sulle Competenze degli Adulti 2023: Italia.* Paris: OECD. https://www.oecd.org/it/publications/2024/12/survey-of-adults-skills-2023-country-notes_df7b4a60/italy_efb33b22.html

Pineau G. (2020). Ancoragem de uma política de pesquisa em ciências humanas: histórias das nuove professioni sócio-educativas em formação. *Revista Brasileira de Pesquisa (Auto) Biográfica*, 5(13), pp. 55-70.

Pineau G. & Le Grand J. L. (1993). *Les histoires de vie.* Paris: PUF.

Pinto Minerva F. (2021). Intelligenza artificiale e post-umano. Pedagogia e utopia. *Rivista di Scienze dell'Educazione*, 59(1), 52-67.

Poquet O. & de Laat M. (2021). Developing capabilities: Lifelong learning in the age of AI. *British Journal of Educational Technology*, 52, 1695-1708.

Poth C. N. (2018). *Innovation in Mixed Methods Research: A Practical Guide to Integrative Thinking with Complexity*. New York: Sage.

Riva M. G. (2018). Sostenibilità e partecipazione: una sfida educativa. *Pedagogia oggi*, *16*(1).

Sen A. K. (1985). Well-being, agency and freedom. *The Journal of Philosophy*, vol. 82, n. 4, 169-221.

Stanlick S. & Szmodis Z. (eds.) (2022). *Perspectives on Lifelong Learning and Global Citizenship.* Cham: Springer.

Tashakkory A. & Teddlie C. B. (1998). *Mixed Methodology: Combining Qualitative and Quantitative Approaches (Applied Social Research Methods)*. London: Sage.

Touraine A. (1970). *La società post-industriale*. Tr. it. Bologna: Il Mulino.

Touraine A. (2008). *La globalizzazione e la fine del sociale. Per comprendere il mondo contemporaneo*. Tr. it. Milano: Il Saggiatore.

Trinchero R. (2002). *Manuale di ricerca educativa*. Milano: Franco Angeli.

UNESCO (1996). *Learning: the treasure within: report to UNESCO of the International Commission on Education for the Twenty-first Century.* J. Delors (ed.). Paris: UNESCO.

UNESCO (2023a). *The state of broadband 2023: digital connectivity a transformative opportunity. https://unesdoc.unesco.org/ark:/48223/pf0000387841?posInSet=1& queryId=5c5f78f9-209b-49b1-970e-2257e4333587*

UNESCO (2023b). UNESCO Institute for Lifelong Learning. *Annual report*. Paris: UNESCO

United Nations (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*. United Nations.

United Nations (2023). *The Sustainable Development Goals Report 2023- Special edition*. United Nations.

WEF (2025). *Future of Jobs Report 2025*. https://reports.weforum.org/docs/WEF_Future_of_Jobs_Report_2025.pdf

Zanetti M., Rendina S, Piceci L. & Peluso Cassese F. (2020). Potential risks of Artificial Intelligence in education. *Form@re*, 20(1), 368-378.

Zimmerman B. J. (2015). Self-Regulated Learning: Theories, Measures and Outcomes. In J. D. Wright (Ed.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 541-546). Oxford: Elsevier.