Enhancing the role of lifelong learning for older workers in Europe

TO SWITCH

TOwards Senior Workers' Innovative Training CHallenges

ERASMUS+ Strategic Partnerships 2020-1-IT01-KA202-008413

Intellectual Output 1

New theoretical-methodological framework of reference for senior workers' training

Authors:

Francesco Marcaletti, Manuela Samek, Tatiana Íñiguez Berrozpe, Marco Milano, Naima Comotti

December 2021

To quote this document:

Marcaletti, F., Samek, M., Íñiguez-Berrozpe, T., Milano, M., & Comotti, N. (2021). *New theoretical-methodological framework of reference for senior workers' training. To Switch Project Intellectual Output 1*. https://doi.org/10.13140/RG.2.2.29533.90087

Co-funded by the Erasmus+ Programme of the European Union

Contents

1. Introduction

This report presents the first Intellectual Output (IO1) of the *To Switch* project. The objective of this Intellectual Output is to analyse, re-elaborate and systematise the theoretical, methodological and application framework of reference for senior worker and other adult training in an active or inactive learning situation. It will develop a model that can be applied to the training of trainers and other learning support figures, also in the context of structured courses. It can then be adopted for the assessment, validation and certification of the acquired skills.

The main adult education models available in literature still refer to the paradigms of classical pedagogy, andragogy and heutagogy. Some of these approaches were formulated in contexts unlike the current information society, in which new skills constructs are relevant (e.g. 21st century skills, problem-solving in technology-rich environments [PS-TRE]) and self-directed and self-determined learning approaches are mainstream in adult learning. There is a need to apply the principles of adult education to lifelong learning in non-formal and informal situations as well as within current work organisations, considering the pervasiveness of digital technologies. This has made it necessary to develop a new conceptual model defining the principles to be applied in the learning processes of senior workers and, more generally, of adult learning processes. In this direction, the innovative contribution of the Intellectual Output is justified. The definition of principles that can be applied in a wide field of learning activities aimed at adults justifies its impact in terms of transferability.

Specifically, Intellectual Output 1 provides:

a) a review of the literature on adult learning and the distinctive skills needed by adult learners' trainers;
b) a selection of good practices in these fields;
c) a proposal of a new hybridised and harmonised paradigm that supports the principles of adult learning;
d) the operational translation of the paradigm into a process that structures digital resources and systems that can be adopted in adult training processes, through the development of the project's Intellectual Output 2;
e) the identification of the key competences profile of the teacher, educator, mentor or coach of adult learners.

This scientific-methodological report presenting Intellectual Output 1 therefore includes:

- an analysis of the most relevant contextual trends and constraints affecting adult learning today (Section 2);
- the methodology adopted for the literature review and the analysis of good practices (Section 3);
- a review of the most recent theoretical and methodological literature on adult learning paradigms and principles (Section 4);
- a selection of examples of good practices on the training of active and inactive adults through the use of different methodologies, principles, techniques and tools (Section 5);
- the proposal of a new conceptual andragogical model of adult learning in the era of new digital skills and permanent performance evaluation practices (including its scientific justification and operational translation for its application in learning processes) (Section 6);
- the identification of the competence profile that should characterise trainers and other adult learning support figures using the new andragogical model (Section 7).

The elements of innovation of Intellectual Output 1 are intrinsic to its aim of updating the andragogic reference paradigm. They cover their application to adult learning in working and non-working con-

texts, non-formal and informal situations, hetero-directed, self-directed and self-determined, in distinct cultural contexts. Particular attention is paid to the specification of the new paradigm according to the holistic principle of learning in technology-rich environments (theory and models). This will be integrated into the digital ecosystem of the resources made available for training to be developed in the *To Switch Intellectual Output 2* (the repository and contents). This is in addition to the training methods (the method) to be developed in the project's Intellectual Output 3.

Executive summary

Aims and methodology

Demographic change and technological change are among the main trends and challenges that are rapidly changing the context in which training and lifelong learning policies operate. This calls for the development of new training models targeted to adult and senior learning. A number of factors need to be considered to develop such conceptual and methodological models, so they fully support adult learning. These include:

- the ubiquity of the digital technologies;
- the need to apply the principles of adult education to lifelong and life-wide learning within formal, non-formal and informal contexts;
- taking into account work organisations where different people across occupations have different motivations to learn.

The objectives of the *To Switch Intellectual Output 1* presented in this report are therefore firstly to design a framework of reference for senior workers and other adult training. This is to be applied to the training of trainers and other learning support figures (e.g. tutors, mentors, coaches), in the new digital context and changing working and demographic, social and economic conditions. Secondly, it is to define a new professional profile of the trainer (tutor, mentor, coach) of adults or senior workers and the framework for the assessment, validation and certification of adult trainers' skills.

The design of the new conceptual framework for senior and adult learning has been based on:

a. the identification and analysis of key trends and challenges affecting the training needs and the context of adults and seniors' lifelong learning policies;
b. a critical review of the most relevant and most recent scientific literature on adult learning and the competence profile and training of adult or senior workers' trainers;
c. the collection by the project partners of examples good practices of learning initiatives aimed at adults, senior workers and adults' trainers, to identify the success factors and criticalities in their concrete implementation.

The literature review started from the results of previous project actions carried out by the lead partner of the *To Switch* project. It identified the principles of andragogy as the key elements on which to focus the project's training activity. Assuming 'andragogy' as a keyword and using search engine databases of indexed journals such as Dialnet, Mendely, Science Direct, a first scoping review of recent contributions on the evolution of the andragogic model was carried out. The examination of the first articles led to identifying the contributions that critically reviewed and updated the andragogic principles, and a quite frequent association between andragogy and heutagogy principles. The research was therefore repeated through the same search engines using 'heutagogy' as a keyword. In addition to the selection of specific contributions, scientific contributions of reference on the subject of adult education and training were examined.

The collection and review of good practices first involved the definition of the selection criteria for the identification of good practices. Then, the collection and description of the practices according to a common template was drawn up. This highlighted the potential contribution to the design of the new framework of reference for senior and adult training and trainers' skills profile. Finally, the transversal analysis of the selected practices was carried out. A 'good practice' is defined as a practice that, according to a set of criteria, has been proved to work well in real life and produce good results, superior to those achieved by other means. It can therefore be considered as a concrete example or benchmark for the implementation of a policy. The main criteria and dimensions considered to identify and select the good practices in the training of senior workers and adult trainers involved the following:

- development of new approaches for adults and seniors upskilling and reskilling;
- the adequacy of the design and implementation of the actions and services developed;
- the effectiveness of results;
- innovation;
- sustainability in the medium to long run;
- the reproducibility and transferability in other contexts;
- the possibility to mainstream the practice into adult training and lifelong learning systems.

Following these criteria, sixteen good practices were selected among those collected by the *To Switch* partners. To facilitate the comparative analysis, the collected practices were classified into four groups according to the target population of the training activities. The first group includes nine practices on training methodologies for adult and senior learners adopted in the training of trainers, teachers, tutors or HR managers. The second group includes four practices to support the upskilling, reskilling and motivation of older workers (employees in private companies, machine operators, health care workers, public sector workers for example). The third group includes three training practices to improve the employability of seniors out of the labour market (either long-term unemployed or inactive). Finally, the fourth group includes three projects targeted to senior citizens, based on their voluntary involvement as trainers and learners, and attention to the involvement of local communities and peer learning approaches.

This report presenting Intellectual Output 1 is structured into seven sections. Following the first introductory section, Section 2 provides an analysis of the most relevant contextual trends and constraints affecting adult learning today. Section 3 presents the methodology adopted for the literature review and the analysis of good practices. The review of the most recent theoretical and methodological literature on adult learning paradigms and principles is presented in Section 4. Section 5 provides an overview of the 16 selected good practices on the training of active and inactive adults through the use of different methodologies, principles, techniques and tools. The last two sections present the proposed model and adult trainer's profile. Section 6 examines the proposal of a new conceptual andragogical model of adult learning in the era of new digital skills and permanent performance evaluation practices. It includes the scientific justification and operational translation for its application in learning processes. The identification of the competence profile that should characterise trainers and other adult learning support figures using the new andragogical model is detailed in Section 7.

Main results of the literature review and collection of good practices

The review of the academic literature has shown that over the last few years there has been renewed attention towards senior and adult learning. Due to the growing importance that lifelong learning is assuming in European societies, advances in the conceptual elaboration underlying the existing paradigms have been proposed.

Two distinctive paradigms of adult learning emerge in the literature: the andragogic paradigm, which has been consolidating for over half a century, and the heutagogic paradigm founded on some of the principles of andragogy. However, this underlies the principle of self-direction which in this model assumes the characteristics of self-determination. Another distinctive element of heutagogy is its orientation towards the development of capabilities, taking into account the current changing context that characterises access to training and the challenges posed by globalisation.

Besides the prevailing conceptual models for adult learning, two further aspects emerge in the most recent literature. The first concerns the application to adult learning of critical and computational thinking (CCT) applied to problem-solving in technology-rich environments (PS-TRE). The second concerns the ever-evolving reflection around the motivation to learn of adult or late-career workers, employers' attitudes towards adult learning and the development of inclusive learning-based strategies.

The literature review provides useful inputs for the design of the model, but also shows the shortcomings of the current academic debate on adult and senior learning. This includes the fragmentation of the academic literature, the limited scale of the implemented practices and the lack of information based on scientific evidence. Another drawback is the tendency to propose approaches oriented towards adult learning as an alternative and in opposition to those inspired by classical pedagogy, without ever trying to identify the elements in common. Lastly, the literature on the characteristics and competence profiles of adult trainers and senior workers is extremely scarce and lacking in specific insights.

The analysis of the 16 selected good practices proposed by the project partners has enriched the literature review with the definition of a typology of learning experiences aimed at adults and senior workers. This encompasses the identification of common transversal elements ranging from collaborative approaches to blended methods, up to the assessment of needs and certification of skills. The specification of the learning paths starting from the characteristics of their recipients is also included.

The collected training practices present elements that can be ascribed to the andragogic paradigm and in some cases are also evident elements of the heutagogy approach (self-determination). The main inputs arising from the collected practices can be summarised as follows:

- attention to age-specific learning needs and patterns and adoption of group dynamics, active participation and interactions between learners and trainers, peer learning, and emotional and resilience-building techniques in the conduction of training classes;
- use of a collaborative planning and experience-based approach, integrating class training with work experience and use of digital technologies, in the design of training activities for senior learners;
- support to learners' capacity to act and interact, valorising real-life experience and skills or potentials, building motivation and self-confidence, promoting peer learning, critical thinking and problem-solving;
- creation of informal learning environments based on small groups involving tutors, mentors or coaches to support both the activation of the seniors and the teachers;
- production of training material, toolkits, handbooks, guidelines, learning platforms or portals that can be included in the digital platform (IO2) to be developed in the next stage of the *To Switch* project.

Despite the many inputs for the development of a new framework of reference for senior workers' training, the collected practices also show some of the drawbacks and gaps in the current state of seniors' training. The main issue is the high fragmentation of practices, tools, and concepts or terminology used. These need to be systematised in a common conceptual paradigm, and used in mainstream lifelong learning policies. The lack of a common conceptual paradigm for seniors' training is also resulting from the still little attention to the development of: i) a life cycle approach in training models for adult and senior workers, addressing workers and individuals along all their lives with age-specific training approaches; and ii) a clear definition of the competence and professional profile of trainers to be involved in adult and senior education and training, and methods for the skills validation and certification of trainers.

The proposed new andragogic model of adult learning

Based on the collected empirical evidence and good practices, we do not consider the two prevailing paradigms of adult learning (andragogy and heutagogy) as mutually exclusive. The proposed new andragogic model of adult learning is based on the enhancement of the converging elements of the two paradigms, and the hybridisation and harmonisation of the principles extrapolated from these paradigms. The inclusion of these principles in learning contracts is a basis for the development of training proposals, and the enhancement of self-direction and self-determination of adult learners.

To link Intellectual Output 1 with the subsequent Intellectual Outputs of the *To Switch* project, the proposal of the new conceptual model is formulated to support a development in operational terms. It starts from the explanation of the key principles and their translation into a modular, flexible and adaptable process sequence, inspired by an updated version of the PS-TRE. This is organised in subphases and dynamised by means of the principle of double-loop learning. This operational translation of the new conceptual paradigm favours the transition from the basic principles identified in the model towards their implementation in learning activities targeted to adults. It will be supported by a digital platform to be developed as part of Intellectual Output 2 of the *To Switch* project.

Concerning the concrete implementation of adult learning processes a first critical aspect concerns the definition of the learning contract, indicated as one of the potentially unifying elements of pedagogy, andragogy and heutagogy. As the first best solution the definition of personalised learning contracts is not always feasible on the ground, when learning contexts involve large groups of learners. An approach could be the definition of areas, methods and learning objectives common to learners' groups and accompanied by personalised tutoring and feedback activities. Another effective solution is the use of the project work method, individually or in small groups, associated with supervision and monitoring by the trainer.

Another critical aspect relates to the design of the learning process itself, in particular concerning the articulation of learning modules oriented to distinct principles related to pedagogy, andragogy and heutagogy. The criticality lies in the ability and experience of the trainer to effectively guide and direct learners, with reference to each training module, towards the choice of the most appropriate principles. In addition, the learners should possess a priori a reflexive competence in teaching methods, that cannot be taken for granted in all adult learners. One way to overcome this critical aspect is to use the double-loop principle. While this requires experience from the teacher and reflexivity in the learner, it allows the identification of specific learning gaps in the different phases of the activity. This can be more easily identified and resolved by going backwards to define objectives and resources to be used in the learning process. The organisation of learning as a sequence of modules and subphases is a prerequisite for the success of this strategy.

Also, the assessment of the learning activities with the involvement of the learners may be critical. It also requires a fair level of awareness and reflexivity by the learners, which cannot always be taken for granted. The provision of clear information to learners on how this assessment is to be carried out is key to overcoming this.

Another critical aspect concerns the wide heterogeneity of adults in relation to their motivation to learn. The training approach must be flexible enough to adapt to the diversity of concrete personal situations of adult learners. This includes their age and gender, labour market, previous experiences, learning needs and preferences regarding learning methods.

The applicability of the new paradigm to the different contexts of adult learning is another criticality. Learning contexts and learning targets, with the motivation to learn, are the main areas that influence the limits of learning that can be achieved.

To this end, it is particularly important to redefine adult learning starting from a human-centric, humanist and holistic posture. Oriented to the development of capabilities and with transformative potential, it is disconnected from functionalist aims and economic efficiency.

The analysis of the literature and good practices also helped to identify key elements of the profiles of the adult trainer, tutor, mentor and coach, according to the principles of the new andragogic model.

The aspects to be considered in this area mainly concern two issues. The first is the pedagogical-methodological skills of the trainer, particularly with regard to the techniques to be applied to stimulate critical and computational thinking. The development of learning activities needs to be compatible with the PS-TRE process and the adaptation of the training proposal to the revisited andragogic paradigm, as proposed in this Intellectual Output. The second is ICT skills; skills relating to the design of

tools – typical of social research – for carrying out surveys and evaluation and self-evaluation activities. Skills are also needed to access sources of information in specific fields of interest, to ensure this is reliable and based on empirical evidence.

In addition, the good practices and the partners' experience point out the need to also consider the skills related to the ability to understand and take into account learners' motivation to learn. The design and implementation of learning activities should encourage constant involvement and reduce the drop-out risks. Soft skills relate to the attitude towards learners, for example acting as a learning partner, a counsellor and a facilitator more than a traditional teacher. They can also encompass being an information and knowledge broker rather than a simple knowledge transmitter, as well as having the capacity to stimulate reflective and dialogic learning skills among learners.

To this end, ten core competences are identified that constitute the professional profile of adults' trainers. These represent an unprecedented attempt to arrive at a certifiable formalisation of the competences that the adult educator must have in the present era.

The new andragogic conceptual model, and the process and the tools that support its implementation, represent resources that can also be used in the training of adult educators themselves.

2. Contextualisation

The context within which the **To Switch project** is framed is characterised by two huge challenges, closely connected and, in turn, related to a multiplicity of contributing causes and consequences. First, the challenges generated by **demographic change**: a complex, multifaceted and long-lasting phenomenon whose impacts are becoming increasingly evident in the European context. On the other hand, we are faced with **technological changes,** marked by automation and artificial intelligence that are giving unprecedented acceleration to the organisational forms of production, consumption, communications and social life (Bauer et al., 2015). In this part, we discuss some of the consequences and implications of these challenges for the *To Switch* project.

Within this context, a specific dimension concerns the evolution of ways of learning. In particular, how the **adult and older (worker) learner** is considered in the context of the more general learning strategies promoted by work organisations. As Fenwick (2013) pointed out:

> *Worker's learning cannot be simply understood in human capital terms as increasing individuals' acquisition of skills, but must be linked to workplace culture and its embedded learning opportunities (Fuller & Unwin, 2005), and analyzed in the context of capitalist relations that produce and value particular kinds of knowledge and work (Moore, 2009; Porcellato et al., 2010; Roberts, 2006). In general, Tikkanen and Nyham (2006) conclude that older workers' learning is poorly understood, contributing to its low recognition and support in work organizations* (Fenwick, 2013, p. 301).

This statement defends a distancing from the theories of human capital that justify learning starting from efficiency and functionalist principles, a position that we will include in this Intellectual Output.

2.1 Contextual constraints: demographic change, technological shift and the challenge of training older workers

Population ageing is one of the most evident aspects of demographic change, but not the only one. The rise in the median age of the population[1] in most European countries is the product of **increased longevity**, and a **drop in the birth rate** that does not maintain a positive natural demographic balance.

Stemming from this, some important consequences redefined the demographic composition of the population at the territorial level, creating unprecedented mixes. It started with the **depopulation of rural areas**, up to the coexistence between an **ageing native population** and a **younger immigrant population** coming from third countries in urban areas characterised by a greater economic appeal.

The main consequences of demographic change are evident in terms of quantifying the ageing population and calculating the mix and balance between demographic cohorts. But they are also evident in terms of the quality of this ageing process, both individually and collectively.

The growing emphasis placed on **active and healthy ageing** (Riva et al., 2014; Sánchez & Hatton-Yeo, 2012) is a priority or objective pointed out by supranational institutions for at least the last four decades. It started from the celebration of the European Years for Active Ageing and Solidarity Between

[1] The median is a statistical measure of central tendency that is more reliable than the mean in describing the average age of a population. It consists of ordering all the members of a population group under observation according to the increasing value of the characteristic (variable) being analysed (in this case, chronological age). It identifies the value that the variable assumes in relation to the case that occupies the central position, splitting the hypothetical row at exactly 50:50.

Generations in 1982 and in 2012. It founded one of its milestones in the very definition of active ageing formulated by the World Health Organization at the beginning of the new millennium (2002).

Longevity, a decline in the birth rate, immigration, individual and social responsibility towards the goal of active and healthy ageing, therefore represent coordinates that define the challenges of demographic change. These intersect with important further changes that characterise current society and impact on the quality of the ageing process itself. The reference, in particular, is to the technological change of the **fourth industrial revolution** (Brynjolfsson & McAfee, 2014; Vaidya et al., 2018), with the growing importance that artificial intelligence and automation play in it (Pereira & Romero, 2017). The intersection of these coordinates also explains the taking shape of a new structure of society which, in the experiences that are taking place, has been named **Society 5.0** (Hitachi-UTokyo Laboratory, 2020). Super intelligent and people-centric, it was founded on the merging of cyberspace and physical space, whose main example is nowadays represented by Japan.

A fundamental point with respect to the challenges described regards the **sustainability of the ageing process** underway. The decline in the birth rate in combination with the increase in longevity has produced, in all the countries affected by these phenomena, a **narrowing of the total share of the population of working age**. This determines evident and inevitable difficulties on the front of the workforce **generational turnover**. In this regard, it should be noted that it is not only a question of resolving the **quantitative imbalances** between the retiring workforce and the potentially available incoming workforce. It is also a question of managing the **qualitative imbalances** between outgoing and obsolescent occupations (skills), and incoming or retrained occupations (skills), also through the use of artificial intelligence and automation.

The problem of workforce ageing is therefore an equally complex replication of the more general issue generated by the population ageing. It has justified the growing call for the **extension of working life**, linked to the objective of maintaining the **sustainability of pension spending**, and reduce imbalances on the side of **generational relay**. Alongside the reference to the need to promote solidarity between generations because of the pension sustainability, the issue related to how to ensure a 'solidarity between occupations' arises. The exit of the workforce due to retirement should not lead to serious occupational imbalances in terms of skills and competences required by industry and the public administration systems.

In this direction, the investment aimed at facilitating the quantitative and qualitative matching between outgoing and incoming labour force is played out in the medium to long term. It is achieved according to **skills forecasts** (Cedefop, 2019), investing the educational systems with this responsibility, and also in terms of lifelong learning and workforce **upskilling and reskilling** (European Network of Public Employment Services, 2020). Again, it should be noted that not only is it necessary to analyse this problem from a quantitative, as well as qualitative point of view, not only focusing on the rigid characteristics of the older workforce (Blau & Shvydko, 2007). It is also fundamental to consider the **labour market segmentation** (Piore, 1983), i.e. the complex dynamics of interaction between the functioning of organisations' internal labour markets and external markets. Hence, the ultimate role of education and training throughout the life course, which is carried out in formal, non-formal and informal ways, to guarantee the exchange of skills within individual organisations (internal markets) and labour markets (external markets). Once again, in functionalist terms, it should be noted that no viable alternatives appear to exist. '… according to the OECD (2017), lifelong learning opportunities and inclusive labour markets will be essential to ensure that workers of all educational backgrounds are able to extend their working lives' (Midtsundstad, 2019, p. 14).

The strenuous development of **age management** as an organisational discipline (Boehm et al., 2013; Naegele & Walker, 2011), was born as a response to these challenges. It can also be a series of actions and tools aimed at training management so it can develop age-sensitive approaches to human resource management (Ilmarinen, 2011; Leisink & Knies, 2011). It considers elements such as **health and safety at work** (Farrow & Reynolds, 2012; Kim et al., 2016), **work ability** (Hilsen & Ennals, 2005;

Ilmarinen, 2006; Nygard et al., 2011; Skoglund & Skoglund, 2005), **successful ageing at work** (Kooij, 2015; Kooij et al., 2020; Zacher, 2015) and the **quality of ageing at work** (Garavaglia et al., 2020; Marcaletti, 2014; Marcaletti & Garavaglia, 2016). Age management incorporates within its framework dimensions referring to **well-being at work** (Siegrist et al., 2007), **job quality** (European Foundation for the Improvement of Living and Working Conditions, 2015b; Gallie, 2007, 2017) and **career sustainability** over the life course (de Lange et al., 2015; European Foundation for the Improvement of Living and Working Conditions, 2015a; Schalk et al., 2015).

Finally, bearing in mind the context in which the *To Switch* project operates, it is necessary to emphasise again how the dynamics described **impact differently on the territories**. This contributes to design contexts that are profoundly unequal in terms of demographic composition and population density, ageing, infrastructural equipment, economic dynamics, development potential and exposure to risk factors. Not least is that deriving from climate change or other human behaviours, which has become evident in the case of the Covid-19 pandemic (European Foundation for the Improvement of Living and Working Conditions, 2020, 2021).

Within all these approaches and taking into account all the contextual factors, training, retraining, specialisation, strengthening and reorientation of skills represent a fundamental factor in improving and empowering workers. This does not only apply to the mature workers, but to those of all ages. In considering the centrality of lifelong learning for workers and citizens, it is necessary to take into account the **evolution of the skills** and competences brought about by the fourth industrial revolution.

Furthermore, **the ageing process engenders different impacts on people**. Therefore the information on the age of workers can only be considered as a weak predictor of their overall working condition and their work-related outcomes (Bohlmann et al., 2018). In this line, research 'highlight[s] the importance of conducting separate analyses for different types of adult learners and considering how outcomes could vary between groups of older employees according to gender, age, initial education level, labour market status, etc. […] The outcomes will in most cases also vary between countries because of different institutional and labour market contexts' (Midtsundstad, 2019, p. 26).

Although all these contextual factors reinforce the need to promote lifelong learning at any age, **the category of older workers is still identified as an unsuitable group to receive education**.

> *There are many negative stereotypes regarding the 'trainability' of older workers, which may reduce the training access effectiveness of older workers. Compared to younger workers, older workers are perceived to have lower potential for development (Rosen & Jerdee, 1976), to learn less quickly, to be less able to grasp new ideas (Perry & Varney, 1978), and to be less flexible and more likely to become weary than their younger colleagues (Stagner, 1985; Warr, 1994a). Employers are often reluctant to train older employees because they are simply too valuable in their current job to warrant the lost productivity associated with their training or development (Andrisani & Daymont, 1987; Straka, 1992)* (Hsu, 2013, p. 284).

As Sterns (1986) points out, however, it should be noted that economic and technological changes can generate new attitudes regarding investment in human capital, including older workers. In other words, 'learning has been identified as an important potential lever to counter the declining skill relevance of older workers' (Fenwick, 2013, p. 300). Faced with processes of obsolescence and employment instability, an increasing number of older workers could be pushed towards requalification and investment in human capital.

In all these cases, as Hsu (2013) points out, it is necessary to adapt and model the learning proposals with respect to the characteristics, experience and preferences of adult learners:

> *Even when training opportunities are available to older employees, there is a need to tailor the training design and methods to allow for the learning styles and experience of older employees* (2013, p. 292).

In other words:

> *Older workers can learn as well as younger workers as long as the training methods are tailored to compensate for the physical and cognitive changes that come with age* (2013, p. 294).

This must be done, however, taking into account that the very content of competences is undergoing profound transformation. As we have pointed out, the advent of the fourth industrial revolution brings with it in the twenty-first century the need to train specific technological skills, especially referring to the field of digital skills. We will explore this in Section 2.2.

2.2 New skills challenges in the twenty-first century

There is no doubt that the **skills currently required from workers**, including adult and senior workers, **are evolving at the pace of technological innovation**. This undeniable observation reflects two emerging criticalities.

The first refers to the fact that it is no longer possible to interpret the relationship between skills required to workers and their aptitude to learn as a linear relationship. All training processes that take place within working contexts must **assume the complexity of organisational and professional cultures, as well as community of practices specific cultures.** This will allow the correct interpretation of the multiplicity of **forms through which adult workers learn** in the workplace.

> *Learning is represented often uncritically as a requirement for all workers in a fast-changing technologized knowledge economy emphasizing innovation, entrepreneurism and resilience (OECD, 2006). […] Rational assumptions of human capital accumulation often fail to account for the non-linear, participative process that are now understood to characterize workers' learning (inter alia, Billett, 2002; Bratton et al., 2003; Hager, 2004; Hodkinson et al., 2008). […] Fuller and Unwin (2005) found that older workers' attitudes to learning and uptake the opportunities for meaningful workplace learning depended very much on the ways these opportunities where embedded, supported and managed within a wider culture of workforce development, […] establishing what knowledge count more* (Fenwick, 2013, pp. 302–303).

We now move away once again from a functionalist paradigm of learning based on the theories of human capital. It is possible to exemplify the main factors in interpreting the **challenges to adult and older workers' attitudes to learning in the twenty-first century** through the keywords summarised in Table 1.

In other words, when thinking of adult employed learners, it is necessary to take into account that no type of learning initiative takes shape in a vacuum. On the contrary, learning is always embedded with respect to factors specific to the different sectors of economic activity, organisational cultures and professional communities of practice. These are the communities of practice that form the professional identities and enter into a relationship with the cultures of vocational training. This is hand-in-hand with the corporate cultural systems for the development of human resources and with the systems that reward the most appreciated merits at the sector level. At the intersection between professional identities and systemic cultures, the need to enhance the professional knowledge and skills acquired by workers, as well as their specific approach to learning, must also be recognised in the learning actions.

Table 1: Older workers' attitude to learning according to Fenwick (2013)

Embedment at sector, activity or organisational level
Work practices
Identities
Culture of workforce development
Vocational cultures
What knowledge counts more
Utilising the skills that older workers already developed
Valuing their approach to learning

Own processing

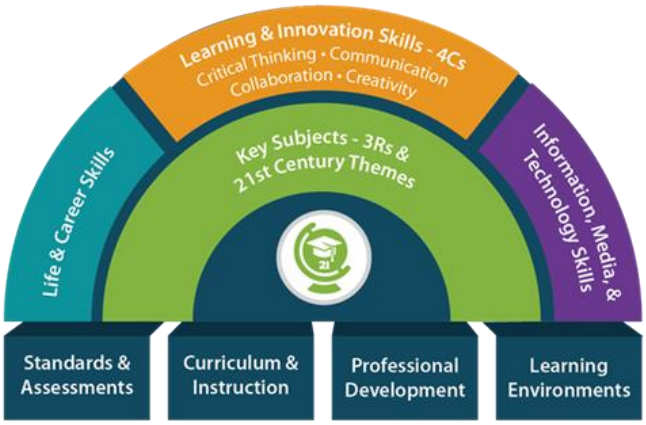
On the other hand, the second emerging criticality, addressed in Section 2.2.1, specifically concerns the **type of skills required** in the context of the technological and production dynamics.

2.2.1 Twenty-first century skills

The term '**21st century skills**' refers to a broad set of knowledge, skills, work habits and character traits. Educators, school reformers, professors, employers and other agents claim these are vitally important to success in the current world, particularly in contemporary college and career programmes and workplaces (Care, 2018; Care et al., 2018; Griffin et al., 2012; P21-Partnership for 21st Century Learning, 2017). In summary, they are indispensable skills 'to prepare children, youth and adults comprehensively for twenty-first century citizenship and life' (Care, 2018, p. 4).

Broadly speaking, the 21st century skills concept is that teaching students the most relevant, useful, in-demand and universally applicable skills should be prioritised in today's schools. It is believed that many schools may not prioritise such skills enough, or teach them effectively to students. In general terms, 21st century skills can be applied in all academic areas and in all educational, professional and civic settings throughout a student's life, including **adult education** (Iñiguez Berrozpe & Boeren, 2019).

The concept of 21st century skills encompass a broad and sometimes abstract **set of knowledge and transversal skills** that is not easy to define, not being officially categorised. However, while the specific 21st century skills can vary according to the diverse sources, the '**Framework for 21st Century Learning**' (P21-Partnership for 21st Century Learning, 2017) is the most commonly used conceptual background to define and categorise these skills (Figure 1).



Partnership for 21st Century Learning (2017)

Figure 1: Conceptual framework for 21st century skills

According to this source, there are **four main areas:** key subjects and 21st-century themes; learning and innovation skills; information, media and technology skills; life and career skills. Within these, the 21st century skills can be systematised and developed through educational standards and assessments, curriculum and instruction, professional development and learning environments. The complete list of these skills is listed in Table 2 following the Partnership for 21st Century Learning (2017).

Table 2: The 21st century skills

1. Key subjects and 21st century themes
• global awareness
• financial, economic, business and entrepreneurial literacy
• civic literacy
• health literacy
• environmental literacy
2. Learning and innovation skills
• creativity and innovation
• critical thinking and problem-solving
• communication
• collaboration
3. Information, media and technology skills
• information literacy
• media literacy
• ICT (information, communications and technology) literacy
4. Life and career skills
• flexibility and adaptability
• initiative and self-direction
• social and cross-cultural skills
• productivity and accountability
• leadership and responsibility

However, according to Vanek (2017), these relevant skills for active participation in citizenship, work and beyond have not yet strongly featured in adult education strategies, including workplace training. This is quite paradoxical, since technological environments are already part of the entire economic

and social spheres, including the need to solve everyday problems within these environments. As highlighted by Vanek (2017) and Iñiguez Berrozpe et al. (2020), lacking 21st century skills can exclude adults from the labour market and active participation in society.

On the other hand, the scientific literature shows that adults also have a greater difficulty in acquiring the skills of the twenty-first century. Some of them depend on the optimal access and use of new technologies. The primary (access) and secondary (technologies use, and, therefore, derived from the lack of skills) **digital barriers** would be limiting the acquisition of these skills by adults (Iñiguez Berrozpe & Boeren, 2019). In this sense, it is important to also specifically address what these essential digital skills are in the twenty-first century.

2.2.2 Twenty-one digital competences

Related to these 21st century skills, the European Commission (2019), through the DigComp 2.0 project systematised **21 digital competences**, split into five areas (Information and data literacy; communication and collaboration: digital content creation; safety; problem-solving). The specific competences are listed in Figure 2 and Table 3.

European Commission (2019)

Figure 2: 21 digital competences

Table 3: The 21 digital competences

1. Information and data literacy
1.1 Browsing, searching and filtering data, information and digital content
To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.
1.2 Evaluating data, information and digital content
To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content.
1.3 Managing data, information and digital content
To organise, store and retrieve data, information and content in digital environments. To organise and process them in a structured environment.
2. Communication and collaboration

2.1 Interacting through digital technologies
To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context.
2.2 Sharing through digital technologies
To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.
2.3 Engaging in citizenship through digital technologies
To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.
2.4 Collaborating through digital technologies
To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of resources and knowledge.
2.5 Netiquette
To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.
2.6 Managing digital identity
To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.
3. Digital content creation
3.1 Developing digital content
To create and edit digital content in different formats, to express oneself through digital means.
3.2 Integrating and re-elaborating digital content
To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.
3.3 Copyright and licences
To understand how copyright and licences apply to data, information and digital content.
3. 4 Programming
To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.
4. Safety
4.1 Protecting devices
To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have due regard to reliability and privacy.
4.2 Protecting personal data and privacy
To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a privacy policy to inform how personal data is used.
4.3 Protecting health and well-being
To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.
4.4 Protecting the environment
To be aware of the environmental impact of digital technologies and their use.
5. Problem-solving
5.1 Solving technical problems
To identify technical problems when operating devices and using digital environments, and to solve them (from trouble-shooting to solving more complex problems).
5.2 Identifying needs and technological responses
To assess needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them. To adjust and customise digital environments to personal needs (e.g. accessibility).
5.3 Creatively using digital technologies

To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.
5.4 Identifying digital competence gaps
To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.

According to this same source, these competences become fundamental for citizenship. However, scientific publications have placed the accent on their acquisition mainly by teachers and trainers, since they are the ones who will transmit it to their students (Caena & Redecker, 2019). Also in the literature, there is a lack of relevant studies in adult education that contemplate the development of these 21 digital skills among adult trainers and consequently the adult population.

3. Objectives and methodology

3.1 IO1 objectives

The IO1 aims at analysing, re-elaborating and systematising the theoretical-methodological and applicative framework of reference concerning adult and senior workers' learning and training. This is to apply it to the training of their trainers and to others who support their learning activities (tutors, mentors, coaches), also considering structured processes for evaluating, validating and certificating the new and updated competences acquired.

The adult learning models at disposal still mainly refer to the **andragogical paradigm developed by Malcom Knowles** and colleagues and applied to adult education (Knowles, 1973; Knowles et al., 2005). This approach was developed over 40 years ago and considers the **trainer as tutor** within a **self-directed learning process geared by the learner** themselves. Its target is an adult learner who is part – with their learning needs, mainly work-related – of an **institutionalised and sequential life course** based on three fundamental stages: education, full-time work, retirement. Moreover, the andragogical paradigm was born and developed into a technology context that was still analogical, with digitisation processes (also in the educational field) that were at their early stages.

There is a change of the context of reference and the ubiquity of the digital technologies, and a need to apply the principles of adult education to lifelong and life-wide learning. As well as within formal, non-formal and informal contexts, these are also relevant within work organisations that have specific professional identities with different motivations to learn. This requires the **development of a new conceptual and methodological model** to support adult learning.

According to this contextual framework, the **main objectives** of IO1 – as reported in the *To Switch* project proposal – are the following:

a) Carry out a **review of** the most relevant and most recent **scientific literature** on the subject of adult learning, and training of adult and senior workers' trainers.
b) **Collect**, thanks to the project partners, **good practices** relating to learning initiatives aimed at adults, senior workers and adult trainers. Identify their success factors (also taking into account their criticalities) to benefit the development of the new conceptual paradigm and carrying out the project activities.
c) The development of a **new professional profile of the trainer** (tutor, mentor, coach) of adults and senior workers should be undertaken. This should include the fundamental skills, the formal and non-formal contexts of their acquisition, and their recognition and validation.

Hence, the output (IO1) is represented by this report, with the following constituent elements:

- A review of the most relevant and recent scientific literature that studies the examination and critical discussion of the principles and methodologies of adult learning and adult trainers. Work-related and non-work-related contexts should both be considered (**Section 4**).
- An analysis of good learning practices that focus on the training process of adult and senior workers. This will include their motivation to learn, the new competence profiles of their trainers, and the new technological contexts of learning in the twenty-first century and in a post-pandemic context (**Section 5**).
- A new andragogical model that updates the principles of classic andragogy by adapting them to the new technological context, starting from the critical review of the relevant literature. This will be extended to the new socio-pedagogical coordinates that characterise the learners and their trainers (**Section 6**).
- The identification of a **new professional profile** that should characterise the trainer and other training figures supporting adult and senior workers, capable of implementing the new andragogic model.

3.2 Literature review method

The starting point for the literature review was to **consider the results of previous project actions** carried out by the *To Switch* project as a preliminary basis for the analyses. In particular, the AWARE project (2004–2007) dedicated to the training of senior workers had identified the principles of andragogy as the elements to focus on for the project's training activity.

Therefore, using **'andragogy'** as a keyword in search engine **databases of indexed journals** such as Dialnet, Mendely and others, a first scoping review of recent contributions was carried out. The review focused on the development and evolution of the andragogic model and the examination of the first selected articles identified such contributions. As well as this, the contributions that critically reviewed and updated the andragogic principles also indicated a quite frequent association between andragogy principles and **heutagogy principles**. The bibliographic research was therefore repeated through the same search engines using the term 'heutagogy' as the keyword.

Overall, among scientific articles, book chapters and books, it was possible to select 80 **relevant contributions** for the literature review. Out of these, it was possible to access their full content in pdf format, and another 24 where it was only possible to access their abstract. In addition to the selection of specific contributions, scientific contributions of reference on the subject of adult education and training were examined. The bibliography on the subjects of demographic change, technological shift, active ageing and age management, as well as scientific publications relevant to the subject under examination published by the editors of this Intellectual Output report.

For the analysis of the selected material, we read all the contributions to summarise their most significant contents and identify connections between them to establish emerging patterns. Findings are presented in Section 4.

3.3 Good practices analysis method

The selection of good practices involves an assessment and evaluation process based on specific criteria. In the *To Switch* project, the aim is to identify good practices providing inputs for the development of the new conceptual model for adults and seniors training. Areas covered include training methods, resources and tools for the learning platform (to be developed in the further project phases) and the design of pilot courses for trainers of senior workers.

To this end, the project partners were asked to identify training practices in their country focused on the training of adults and seniors in and out of the labour market. This encompassed developing or experimenting with new approaches for adults and seniors upskilling and reskilling by starting with skills assessment tools. This was followed by topics such as training content, training methods, tools and platforms, mentoring and coaching methods and tools, the assessment, and the validation and certification of acquired skills.

Box 1 summarises the main criteria and dimensions considered to identify and select the good practices in the training of senior workers and trainers.

Box 1: Qualifying criteria for the selection of good practices

Adequacy of the design and implementation of the actions and services developed. This dimension refers to the adequacy and completeness of the logical planning and implementation framework. The logical framework should ensure internal consistency (in terms of objectives, activities and results) and external consistency (with respect to the external context and the reference policies) through the robustness of the intervention design, implementation and evaluation systems. For example, knowledge of the needs and problems to be addressed; a policy design guaranteeing consistency between tools, objectives, targets, intervention timing and available resources; adequacy of the methodologies adopted and the organisational and management structure put in place; the presence of an ongoing monitoring and *ex post* evaluation. In detail, the following sub-dimensions have been considered:

- *clear, achievable and consistent definition of goals and expected outcomes;*
- *previous needs assessment;*
- *involvement of beneficiaries and main stakeholders in the design and implementation of the actions;*
- *clear management system and roles and responsibilities of stakeholders involved;*
- *the setting up of an ongoing monitoring system of activities and results.*

Effectiveness and results. This dimension is related to the capacity of the practice to achieve the expected results and their recognition and use in the peer community at the local and national and EU level. The considered sub-dimensions relate to:

- *the main outputs and outcomes of the practices compared to expected ones;*
- *the use of the practice approach and method (e.g. the training model, tools, methods and approaches developed by the practice) among training bodies, research institutes and universities, public institutions, third sector organisations, companies and social partners.*

Innovation. This dimension considers the practice's innovativeness compared to the context in which the practice is implemented (to take into account the different national and local contexts where the practices are implemented), the training process and the outcomes. The considered dimensions in the *To Switch* case are related to the development and implementation of:

- *new training and learning methods, contents and guidelines, and tools;*
- *new target groups involved (e.g. adult and senior workers, the unemployed and inactive, trainers, social partner; tutors, mentors and coaches, and managers and employers);*
- *new professional profiles for trainers;*
- *new partnerships created and stakeholders involved;*
- *new skills assessment and validation, and certification models.*

Sustainability in the medium to long run. This dimension is important to ensure continuity in the implementation of the methods and approaches developed in the 'good practice'. It is related to the availability of financial, human and organisational resources or the intervention's capacity to generate new resources to maintain it after the initial funding is over. The considered sub-dimensions relate to the type of funding, e.g. public or private funding (distinguishing between users' fees, funding from employers or the social partners, funding from NGOs, etc.). This dimension is strongly linked to the capacity of the practice to be mainstreamed into ordinary policymaking.

Reproducibility and transferability. These two criteria relate to the possibility to reproduce the practice for addressing similar issues and to replicate it in similar contexts (e.g. with similar institutional, political, socio-economic conditions), or to transfer it (*in toto* or partially) in other contexts, or to address other issues [transferability]. In our case these dimensions refer to the practice's *potential reproducibility and transferability into other sectors and occupations, target groups, and territorial areas and countries.*

Mainstreaming. This dimension refers to the potential adoption of the practice in mainstream policymaking. In our case this dimension refers to the:

- *potential internalisation of the practice into adults' training and lifelong learning systems;*
- *potential) internalisation of the practice into skills assessment and certification systems;*
- *diffusion and promotion of the practice's approach and results among training institutions, social partners, policymakers, etc.*

4. Literature review

This section is dedicated to the presentation of the main evidence that emerged from the **literature review on the subject of adult and senior workers' learning** and the training of their trainers. It will open with a brief description of what can be considered a **debate on the theories about adult learning**, in comparison with classical pedagogical theories. Despite the abundance of contributions made on this topic, it is possible to anticipate that this theoretical-conceptual debate it is not conclusive and is **still ongoing**.

Next, the assumptions and basic principles of the two main current approaches to adult learning will be presented in a comparative way: **andragogy and heutagogy**. Both, using an analytical strategy very present in the literature, will be presented in an ideal-typical form, and **compared** with the **classical pedagogical approach**. This discussion is included in a section that we called 'Methodological contributions' (Section 4.2), since the ideal-typical classification is based on epistemic criteria and principles of conduct, rather than on empirical evidence that can legitimately base a complete theoretical formulation. With respect to the aforementioned **empirical evidence**, a short section of this part will be dedicated to them. In that paragraph we will expose above all the **elements of criticism** that can be made to the studies we found in the literature, many of which – as will be explained – are lacking from a conceptual, methodological and concerning representativeness points of view. The section will close with a summary discussion of the main evidence that emerged from the analysis of the literature interpreted with the aim to formulating a **new conceptual and methodological framework of reference for adult and senior workers' learning**.

4.1 Theoretical contributions

The third chapter of the sixth edition in **Malcolm Knowles' classic**, ***The Adult Learner***, edited by Elwood F. Holton III and Richard A. Swanson (Knowles et al., 2005), opens with a fundamental question: what is a theory in (adult) learning?

The answer to this question would exceed the objectives of this Intellectual Output. Nonetheless, we take the cue that the question offers to resume one of the aspects that the authors use to answer it. In the field of learning theories, it is possible distinguish **two main strands**, that of those who proposed them (**propounders**) and that of those who interpreted them (**interpreters**). On the one hand, therefore, we can classify those authors who have tried to formulate original pedagogical theories and cite some of the most well-known names – Pavlov, Freud, Skinner, Maslow, Freire. On the other hand, there are those who have reinterpreted, reformulated, merged and recombined existing theories to improve their proposal, such as Glaser, Reese and Overton and Merriam (Knowles et al., 2005).

Analysing the scientific literature on adult and senior workers' learning, it became clear that, especially among the authors of the most recent publications, the interpreters abound.

This statement finds its justification based on two frequent pieces of evidence in the adult learning literature. The first refers to **the principles of adult learning being generally formulated in opposition and comparison with the principles of classical pedagogy** applied to school-age learners. For this reason, as we have been anticipated and as will be explained, comparative proposals abound. Within these proposals, andragogy is defined as opposed to classical pedagogy (Istituto Superiore Mario Boella, 2007), and heutagogy as opposed to these first two (Bansal et al., 2020). The second evidence present in the literature concerns the most recent formulations on the subject of adult learning, and especially the proposal of heutagogy. These are not configured starting from empirical evidence allowing the formulation of assumptions and the proposition of a theory, but on epistemic principles developed logically in the absence of empirical evidence. Therefore, **the proposals are based on prin-**

ciples developed from the observation of the greater or lesser effectiveness of a given practical solution applied to narrow learning situations. Following Bangura, it should be better to abandon theoretical ambitions and 'to treat the terms pedagogy and andragogy as the adult education literature has used them like "pure types" in a Weberian sense, or as "models" as the concept is commonly employed in contemporary social science' (2005, p. 27).

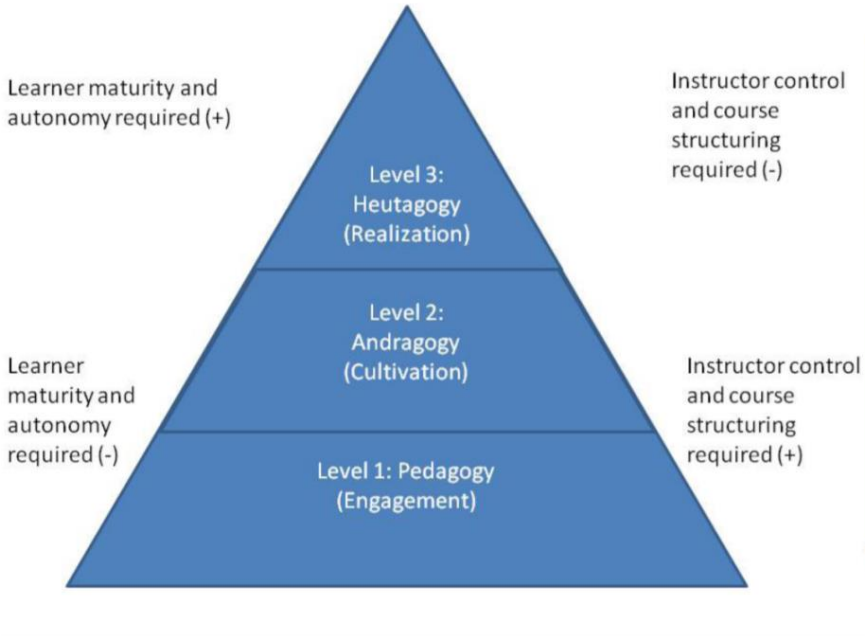
These first aspects, now clarified, allow us to bound the scope of the concepts we are going to analyse and it is useful to start from some basic definitions. These will be detailed in the following pages, and from an example of classification and interpretation.

Regarding the basic definitions, we can observe a convergence of numerous authors around the following definitions (Bangura, 2005; Bhoyrub et al., 2010; Blackley & Sheffield, 2015):

- **pedagogy as the art and science of teaching;**
- **andragogy as the art and science of teaching and leading adult learners;**
- **heutagogy as the study of self-determined learning.**

As can be seen from the definitions, a similar description is dedicated to pedagogy and andragogy; a more general definition is applied to the former. In both cases, they are defined as 'arts' and as 'science'. As for heutagogy, it is explained as the study of a specific learning sector – the self-determined one.

An aspect to return to, is that these three 'arts' or 'sciences' or again, 'fields of study' of learning, are easily juxtaposed with each other. For example, with the aim of explaining the differences of the heutagogic approach, Blaschke and Hase (Blaschke, 2012; Blaschke & Hase, 2016) exemplify a sort of **hierarchical organisation and classification** of the three '-gogies' based on two opposing vectors. The the first of these represents the greater or lesser **autonomy and maturity** requested to the learner. The second vector represents the degree of **structuring and degree of control** of the teacher over learning. The graphical representation of this classification is shown in Figure 3.



(Blaschke, 2012, p. 60)

Figure 3: Progression from pedagogy to andragogy then to heutagogy

Starting from the graphic representation with pedogogy, it can be deduced that this represents the basis of learning processes. It has the aim of stimulating the engagement towards knowledge by a learner with little autonomy and by means of a strong structuring of learning and control by the teacher. Andragogy has the purpose to stimulate the cultivation of learning through a certain degree of control by the teacher in learners with higher levels of autonomy. This is placed in an intermediate position in the proposed hierarchy. Heutagogy implies the highest level of autonomy and maturity in the learners with minimum structuring and control exerted by the teacher, to stimulate personal fulfilment through learning. These differences will be explained in detail in Section 4.2.3 when presenting and discussing the ideal-typical classification of the three '-gogies'.

However, some other clarifications must be kept in mind. As Bangura has highlighted:

> *the basic difference between pedagogy and andragogy is that between treating leamers as passive and dependent individuals and treating them as relatively autonomous and self-directed individuals. […] Specifically, pedagogy is aimed at transmitting knowledge to leamers who are presumed not to have the means or ability to leam on their own. It is characterised by a relationship of dependency between teacher and leamer, where the latter is mostly passive and is taught by, or leams from, the former. Pedagogy assumes that the leamer lacks relevant knowledge and experience and generally is incapable of determining the leaming or educational agenda. As such, the agenda is to be set by the teacher or educational institution* (2005, p. 27).

Heutagogy can be defined as 'the study of self-determined leaming, […] a natural progression from earlier educational methodologies [that] may well provide the optimal approach to leaming in the 21st century' (2005, p. 31).

When we talk about pedagogy, andragogy and heutagogy we are not referring to the only '-gogies' present in the literature, but only to the main and the most in-depth ones studied in adult learning. Although they are not the object of interest of this discussion, it is worth mentioning that in the selected scientific literature reference is also made to others. For example, **ergonagy** (the science of teaching people to work), **geragogy** and **eldergogy** (the science of teaching older people) or **ubuntugogy** (the science that recovers the philosophical foundations of African pedagogy, against Eurocentric approaches) (Ashton & Newman, 2006; Bangura, 2005; Blackley & Sheffield, 2015).

In the next sections we will deepen the characteristics of both models and analyse them in a comparative key in contrast to the characteristics of classical pedagogy.

4.2 Methodological contributions: the founding principles of andragogy and heutagogy

Andragogy and heutagogy share, in their conception, a reference to classical Greece. As reported by Blackley & Sheffield, the use of the term andragogy can be traced back to 1883 when it was first used to describe 'Plato's instructional practices with young adults' (2015, p. 397). 'Heut' is the ancient Greek term that denotes the 'self' (Bhoyrub et al., 2010; Blaschke, 2012).

4.2.1 Andragogy

Regarding the andragogic approach to adult learning, it is possible first of all to explain the **main assumptions** on which it is based. Once again, in the words of Bangura:

> *The basic assumption of andragogy is that adults have a preference for self-directed learning. […] A corollary of this assumption is that the accumulated experience of learners is a valuable learning resource that should be integrated into the educational process. The learning content of andragogy is determined by the learners in collaboration with their*

teacher or facilitator because of the autonomy, desire to learn, and experience of the former (2005, p. 28)

With respect to this first description of the assumptions on which andragogy is based, we can highlight several elements. First, explicit reference is made to the fact that **adults express a preference about how to be trained.** This preference moves in the direction of **self-directed and not hetero-directed learning**, as traditional pedagogy assumes. Second, emphasis is placed on the learning adult not being an actor devoid of knowledge. On the contrary, **they are a bearer of experience** (accumulated knowledge and skills) that can represent an important resource during the practice of training process. Finally, this accumulated experience, together with the **intrinsic motivation to learn**, shows that in andragogy it **is the learner who determines the content of the learning.** Adults generally possess a greater autonomy (despite this being a questionable and criticised factor in the literature), although they require the help of a trainer or facilitator.

Moreover, andragogy defines 'an adult learner as someone who (1) wants to learn the things that they think they need to learn, (2) has an independent self-concept and who can direct [their] own learning, (3) has accumulated a reservoir of life experiences that is a rich resource for learning, (4) has learning needs closely related to changing social roles, (5) is problem-centred and interested in immediate application of knowledge, and (6) is motivated to learn by internal rather than external factors (Merriam, 2001)' (Aksoy & Meral, 2020, p. 3).

Bangura's exposition of the assumptions of andragogy (2005) contrasts in part with – or at least proves to be inaccurate with respect to – the original vision of the approach presented by Knowles in his work *The Adult Learner* (Knowles et al., 2005).

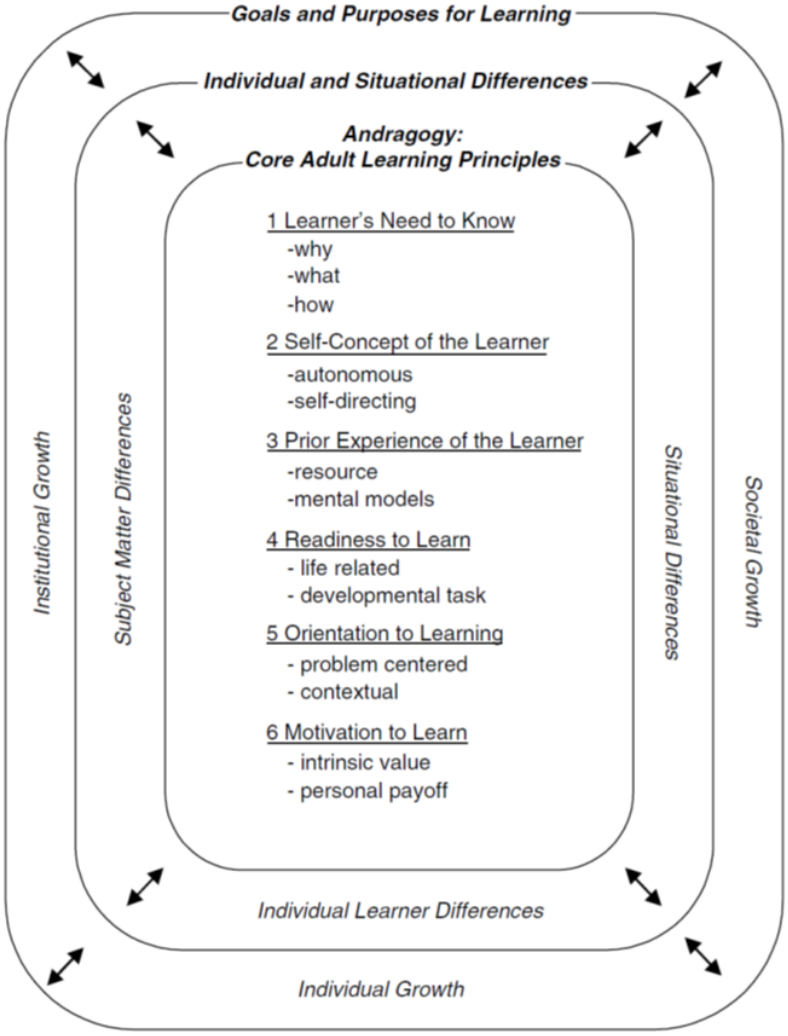
Within the latter, it is explained that what andragogy defines are the **principles** and the learning process (what the authors define as a '**process model**'). This is in contrast to the approaches that focus on the **content** to be transferred to the learner (what the authors define as a '**content model**'). Therefore, the constituent elements of andragogy are a series of basic and practical principles to be used in designing the learning process of adults, **whatever the contents of such learning**. On the other hand, Knowles's vision of andragogy has evolved in the direction of an **integrated set of principles.** Such a system developed starting from the initial intuition focused on a set of less integrated and more flexible assumptions. This systemic and practical vision of andragogy is shown in Figure 4.

Following Knowles et al. (2005), we can therefore observe that **there are six core adult learning principles of andragogy**. The first concerns the **learner's need to know**. The principle is based on identifying the reason for the need to know (the 'why'), the content of the knowledge (the 'what') and the way in which the need to know can be satisfied (the 'how'). Overall, this first principle reflects the importance of identifying, in the context of the adult learning process, the fundamental reasons that justify their need to know. In the light of the institutional, social and individual context factors that frame the core adult learning principles (see Figure 4), we could add the time coordinate (the 'when'). This is important for identifying, in relation to these circumstantial factors, the timing when the need-to-know manifests itself. As Bangura explains:

pedagogy treats education more in terms of preparation for the future than as a matter of doing in the present. An implied distinction exists between the world of leaming and that of doing. Andragogy assumes that leaming is central to what it means to be human. Consequently, very little distinction is made between leaming and doing, between education and everyday problem-solving. Andragogy calls for identifying and solving problems in the present (2005, p. 28).

The second principle of andragogy refers to the need to take into account, in the adult learning process, the **concept of self** that the learner shows as a subject in learning. Adults – according to the interpretation given by andragogy – are autonomous actors, capable of identifying their learning

needs with independence of judgement, but not only this. They are also actors inclined to self-direction; they prefer control over themselves as opposed to hetero-direction, which – as seen above – is a situation that typically characterises traditional pedagogy. The trainer therefore finds themselves interacting in the learning process with autonomous and self-directed subjects – characteristics that cannot be underestimated or denied.



(Knowles et al., 2005, p. 4)

Figure 4: Andragogy in practice

The third core principle of andragogy refers to one of the elements that can probably be considered the most distinctive of adult education. This is the **learner's previous experience**. We have already seen how, in the description of the andragogy by Bangura (2005), the element of the previous adult experience is central. In this case, returning to the justification provided by Knowles et al. (2005), we find, within the adult learning processes, that this experience is to be considered an important resource. The adult reaches the training experience already with a wealth of knowledge acquired from formal education, skills resulting from work-oriented training, and skills acquired in non-formal and informal contexts. The teacher, trainer, tutor or mentor must take it into account, but not only this. The trainee adult uses this prior knowledge, skills and abilities as a mind map that preselects their

preferences. As in Bourdieu's concept of 'habitus' (1993; 1992; Dubar, 1992), the actor's previous experience in relation to the socio-institutional context of reference feeds a series of mental maps in the adult. These preselect, on the basis of successful antecedents and failures in the trial and error that experience produces, the field of possible and desired options. For this reason, the adult in learning is a subject with, generally, already formed ideas about the a priori possible and impossible choices about learning.

The fourth basic principle of andragogy is the adult's **readiness to learn**. According to andragogy, the adult is not interested in accumulating other knowledge for the sole fact of storing it in the case it has future usefulness. Learning for adults takes on meaning if it is for the 'here and now', related to the vital context that the person is experiencing. It does not concern the acquisition of a potential for future growth and development; it is related to a need for growth and development, according to specific tasks, in the present time.

This fourth fundamental principle of andragogy relates directly to the fifth, which refers to **adult learning orientation**. Within the learning processes, the teacher must take into account that, in addition to the characteristics already described according to the previous principles, this orientation refers to problem-solving. Adult education must be problem-solving centred. Even more, this problem-solving orientation favoured by adult learners is contextual, and this must be taken into account. This aspect is not explicitly mentioned in Figure 4, and what is important is not the only problem to be solved, but also the 'when' and 'where'. This problem, in relation to specifical socio-institutional and individual context constraints, has to be solved through new learning. A clear reference to this position can be found in the current centrality given to the problem-solving in technology-rich environments (PS-TRE) competences through critical and computational thinking (CCT) (Iñiguez Berrozpe et al., 2020; Iñiguez Berrozpe & Boeren, 2019) (Section 4.3.1).

The sixth and last core principle of the andragogy concerns one of the less empirically explored aspects when it comes to adult education and training: the **motivation to learn** (Iñiguez Berrozpe & Marcaletti, 2016; Marcaletti et al., 2018). It is an issue not covered in the official surveys on lifelong learning in Europe. Adults' motivation to learn is different from that of, for example, learners engaged in initial formal education, vocational training or organisational training and upskilling. Adults' motivation is generally not justified by reasons external to the individual. On the contrary, the adult motivation to be taken into account is an intrinsic motivation. This refers to the value of learning itself in relation to previous experience, the solution of concrete problems in the present moment and generally interpreted as personal payoff.

According to Arghode et al. (2017) and their study comparing behaviourism, cognitivism, constructivism, humanism and andragogy, the **core beliefs on which andragogy is based** can be summariased as: a) adults are self-directed learners and learn through experience; b) adults want immediate application; c) adults learn best when they choose content and method of learning. To conclude, it should be also noted that andragogy suffers from numerous **criticisms**, among which the Authors cite the following: a) assumes all adults learn identically; b) ignores variations among adult learners; c) focus mainly on intrinsic motivation; d) focus more on process, less on content; e) is an ideology not theory; f) is not empirically based; g) is incomplete; leaves many questions unanswered h) overlooks serendipity in adult lives; i) prior conditioning of adults may not align well with andragogy tenets(2017, p. 600).

4.2.2 Heutagogy

With foundations on some of the principles of andragogy, the **heutagogic approach** develops some of its dimensions, in particular the principle of self-direction. In this model it is made to evolve until it assumes the characteristics of **self-determination**. Another distinctive element of heutagogy is its orientation towards the development not so much of skills as of **capabilities**. All this takes into account

the current changing context that characterises **access to training** (in principle, made easier thanks to technology) and the challenges posed by globalisation. In summary, heutagogy is defined as a **holistic learning model**.

> *Heutagogy [is] a holistic model for advancing lifelong learning within multiple contexts, and a model further supported and propagated by technological developments such as Web 2.0 and the potential for Web 3.0* (Blaschke & Hase, 2016, p. 27).

Heutagogy, as we have seen (Section 4.1), defines itself as the study of self-determined learning (Hase & Kenyon, 2001). Its goal includes helping learners develop the capacity of **self-direction**, supporting **transformational knowledge** and allowing **emancipatory learning** and social action (Merriam, 2001).

> *The goals of self-directed learning include helping learners develop the capacity for self-direction, supporting transformational learning, and promoting "emancipatory learning and social action" (Merriam, 2001, p. 9). Within transformational learning, learning occurs along a self-directed path; as the learner matures and reflects on life experiences in relation to [their] self-perception, beliefs, and lifestyle, the learner perspective is adjusted and transformative learning can occur* (Blaschke, 2012, p. 58).

Thanks to this definition and following certain authors who have defended this new approach to training and lifelong learning (Blaschke, 2012; Blaschke & Hase, 2016; Blaschke & Marin, 2020; Hase et al., 2006; Hase & Kenyon, 2003; Kenyon & Hase, 2001), we meet some of heutagogy characteristic elements that should be specified. In the first place, as can be seen in the quote, it is possible to find **a use as equivalents of 'self-directed' and 'self-determined' learning** expressions. This is despite the distinctions that in the comparative description of the approaches of andragogy and heutagogy these same authors make (see Table 5, Section 4.2.3).

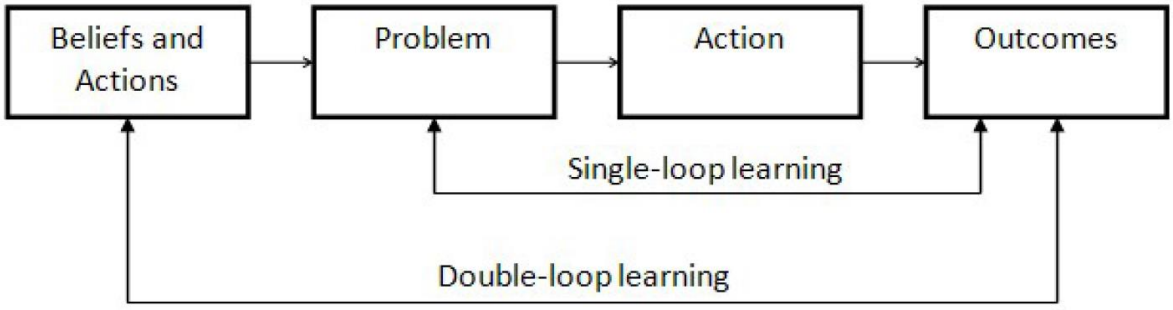
A second element to consider is the **transformative potential of self-directed and self-determined learning**. In this sense, it is explained that self-direction (turning the learning of contents decided in autonomy inwards) is self-determination. When this happens, it is because the subject in learning has reflected on their needs, exercising their **reflexivity** around the most important factors of their own vital experience. Therefore, it is triggering a process which, by its nature, it is also **transformative**. In this sense, the heutagogic model is an approach inspired by the theory of **human agency**. Reflexivity that combines with agency and transformative potential that transforms into capabilities are also based on **metacognition** (Blaschke & Hase, 2016; Hase & Kenyon, 2007), and the understanding of the mechanisms that make it possible to learn (**learning to learn**).

Therefore, a key concept in heutagogy is that of **double-loop learning** and self-reflection (Hase & Kenyon, 2001).

> *In double-loop learning, learners consider the problem and the resulting action and outcomes, in addition to reflecting upon the problem-solving process and how it influences the learner's own beliefs and actions* (Blaschke, 2012, p. 59).

According to Argyris et al. (1978), double-loop learning occurs when learners question their own values and mental categories as a fundamental strategy for improving their learning to learn.

In summary, **there are five founding principles of heutagogy**, and they are explained in Table 4: learner-centred and learner-determined learning; capability; self-reflection and metacognition; double-loop learning; non-linear learning and teaching.



Eberle (2009, p. 183)

Figure 5: Double-loop learning

Table 4: The principles of heutagogy

Principle	Description
Learner-centred and learner-determined	The role of human agency in learning is a fundamental principle. The learner is at the centre of all heutagogic practice. The learner is self-motivated and autonomous, and is primarily responsible for deciding what will be learned and how it will be learned and assessed.
Capability	Capability is characterised by the following: being able to use competencies in unfamiliar as well as familiar circumstances, learner self-efficacy, communication, creativity, collaboration (teamwork) and positive values.
Self-reflection and metacognition	Within heutagogy, it is essential that reflection occurs in a holistic way. This translates to the learner reflecting not only what they have learned, but also the way in which it has been learned – and understanding how it is learned (metacognition).
Double-loop learning	Double-loop learning requires that learners are both psychologically and behaviourally engaged. They reflect on not only that they have learned, but also the way in which this new knowledge and the path to learning have influenced their values and belief system.
Non-linear learning and teaching	As learning is self-determined, the path to learning is defined by the learner and is not established by the teacher. As a result of learners choosing their own path, learning happens in a non-linear format.

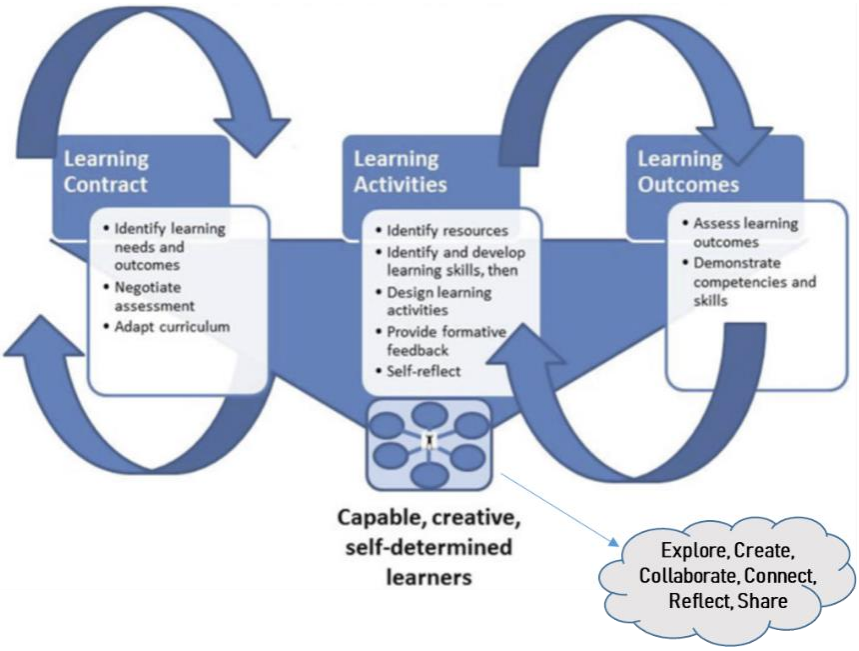
Adapted from Blaschke & Hase (2016, p. 28)

An interesting aspect of the heutagogic approach is represented by its presentation as a learning model. Thanks to its characteristics, it can be effectively provided both in the field of **VET** (Hase & Kenyon, 2001) and in the **development of human resources** at an organisational level (Hase et al., 2006). This is justified by:

> *Complex and chaotic environments require a different style of learning, which is informal, driven by the experience of work, involves double-loop learning, is collaborative, and is cooperative. People in these environments need to know how to learn, and the organization needs to be adept at harnessing knowledge as it emerges. There is no time for formal training programs. Learning is 'just-in-time' and emergent* (Blaschke & Hase, 2016, p. 29).

Looking at the fundamental elements of the design of a heutagogic learning process, one of the aspects deserving attention is this approach being based on **individualised learner-defined learning contracts** (Blaschke, 2012).

In Figure 6, which describes the design of the **heutagogic process**, it can be observed that the **learning contract** represents the first step to be carried out to start the learning process. With the learning contract – which is postulated to be individualised (Blaschke, 2012) – the learner defines what they will learn (scope), how they will learn it (teaching and learning approaches), what will be assessed and how.



Blaschke & Hase (2016, p. 30)

Figure 6: Heutagogic design process

This way, the learning contract defines the **learning activities** that will be carried out and the outcomes. The achievement of the **outcomes** implies these have been assessed, according to the procedures defined initially. The result of this can in turn interact with – in terms of adaptation – the curriculum and setting defined in the learning contract itself. The result of this process is a capable, creative and self-determined learner able to explore, create, collaborate, connect, reflect and share (Blaschke & Hase, 2016).

Further design elements of the heutagogic approach are: the **learner centredness**, in terms of both learner-generated contexts and contents; a **flexible curriculum**; guiding the learner to define **self-directed questions**; flexible and **negotiated assessment** (Blaschke, 2012).

In conclusion, and based on other citations taken from the literature, it is possible to highlight some other salient aspects of heutagogy. First, the position assigned by this model to the adult learner.

Ashton & Newman (2006) state that the work of Hase and colleagues (Blaschke & Hase, 2016; Hase & Kenyon, 2007, 2001, 2003):

> *drew our attention to the need for different models and new paradigms. The thesis underpinning their work is that people learn from a full range of life experiences and that educators must be guides to the development of ideas rather than force-feed the wisdom of others (Coughlan, 2004; Findlay, 2002). Hase and his colleagues place the responsibility for knowledge appropriation using a heutagogical model very clearly with the learner* (Ashton & Newman, 2006, pp. 828–829).

Second, there are contributions that emphasise the importance, within adult learning processes, of factors such as emotional intelligence and soft skills.

> *Hase and Kenyon (2007), who originally devised the conceptual framework of heutagogy, see capability as the utilisation of self-efficacy competence to respond to complexity theory. These competencies partially reflect those of Daniel Goleman's emotional intelligence framework through highlighting adaptability, initiative and team work, and have been successfully applied across a broad array of leaning organisations* (Cherniss et al., 1998) (Bhoyrub et al., 2010, p. 323).

Third, regarding the implications surrounding the function of the teacher within the heutagogic approach, it is possible to highlight the role of facilitator and broker assigned to them.

> *Heutagogy is underpinned by Roger's (2007) hypothesis that focuses upon the relationship within teaching. Within this theory, learners are seen as only facilitated toward learning, rather than being directly taught. This facilitation reduces the opportunity for the learner to experience being under threat, subsequently allowing a relaxation of ego boundaries and hence being more open to learning* (Bhoyrub et al., 2010, p. 324).

Following this, Ashton & Newman define the educator in heutagogic approaches as a 'knowledge broker' (2006, p. 835).

Several criticisms have also been directed at the heutagogic model, some of which will be considered in Section 4.3.3.

4.2.3 Comparing pedagogy, andragogy and heutagogy

We have introduced, at the beginning of this section, a theoretical-conceptual framework of adult learning, and have deepened the assumptions and principles of andragogy and heutagogy. This paragraph presents what, in much of the scientific literature, is proposed as a comparative analysis of approaches aimed at adult learning. We have already recalled that the tendency to make comparisons is mainly based on the method of **ideal-typical classification –** or on the extrapolation of characteristics in their 'pure' or 'extreme' state from each approach. This makes it possible to identify more clearly the distinctive features of each, and the differences between them.

A typical way of proceeding is to compare andragogy with pedagogy, to highlight the differences between initial formal education and adult learning (Knowles et al., 2005; Istituto Superiore Mario Boella, 2007). Or we can compare differences between heutagogy with andragogy, to highlight the differences between self-directed and self-determined learning (Blaschke, 2012) and the principles of all three approaches (Bansal et al., 2020). Table 5 summarises the comparative description of traditional and adult learning approaches.

Table 5: Traditional and adult learning approaches

Feature	Pedagogy	Andragogy	Heutagogy
Target learners	School-age pupils or inexperienced students	Adults with or without experience	Adults with some experience
Objective of learning	Acquiring knowledge to reach the subsequent stage of knowledge - Acquisition process	Developing skills based on the need to solve specific problems - Personal development process, linked to vital needs	Developing capabilities based on the need and the potential to learn – Transformative process
Organisation of learning	Standardised curricula – Teacher-centred model	Based on needs, it allows learners to learn how to learn, with or without the help of the teacher – Problem-centred contextual model	Not standardised – Learner-centred model
Role of learners and teachers in learning and assessment	Learners are totally dependent and teachers decide what, how and when regarding learning and its assessment –Dependency model	Learners are autonomous and teachers act as guides and facilitators to help adults become self-directed learners – Self-direction model	Learners are independent and the role of educators is limited to stimulating their curiosity and offering opportunities to learn – Self-determination model
Learning process	Unidirectional, from teacher to learner	Bidirectional, between teacher and learner	Multidirectional
Learning resources	Limited: designed and recommended by teachers	Controlled: decided collaboratively by teacher and learner	Unlimited: can be provided by the teacher but mainly decided by the learner
Level of cognition and learning	Cognitive	Meta-cognitive	Epistemic (evidence-based)
Assumptions related to the learning process for change	Absent (single-loop learning)	Absent (single-loop learning)	Present (double-loop learning)
Motivational factors	Externals, driven by rewards	Internal, driven by desires and needs (intrinsic value, personal payoff)	Internal, driven by reflexivity
Allows creativity	No	No	Yes
Requires interaction and collaboration between learners	No	Not essential	Yes

Own processing based on Arghode et al. (2017), Bansal et al. (2020), Blaschke (2012), Istituto Superiore Mario Boella (2007) and Knowles et al. (2005)

For the **target subjects of learning**, it is evident that pedagogy, andragogy and heutagogy differ substantially. An important emphasis to be made in this regard concerns this differentiation not being based solely on the age factor (i.e. pupils of school age for pedagogy, adults for andragogy and heutagogy). Above all, as explained in the previous Section 4.2.1 and Section 4.2.2, it depends on whether

or not the learner has already gained previous experience. The classifications encountered in the literature do not provide an explanation as to what this previous experience may consist of. However, it is possible to infer that experience refers to that gained in education and that gained in the workplace, or in non-formal and informal contexts. In this sense, pedagogy is the science of learning applied to individuals with no previous experience. According to some authors (Bansal et al., 2020), andragogy is the science of learning that is aimed at individuals with or without previous experience, while heutagogy is aimed at individuals also with some experience.

For the **learning objectives**, these have already been introduced by presenting the progression between the approaches proposed in Figure 3 (Section 4.1). In the case of pedagogy, it is stated that its aim is to allow learners to reach a further level of knowledge, which they have not yet achieved. For this reason, learning is referred to as an acquisition process. For andragogy, as explained by presenting its approach in detail, it is stated that its goal is the development of skills. This is based on the need to solve contingent and specific problems affecting individuals' vital spheres, so andragogic learning has to be interpreted as a process of personal development. For heutagogy, the learning objective refers – also explained earlier – not so much to the development of skills, but to the development of capabilities based on specific needs and on the human potential for learning. In this way, heutagogy is specified as a process transforming the person.

In terms of **organisation of learning**, within ideal-typical classifications, pedagogy is traditionally presented as an approach centred on the teacher who defines, structures and delivers standardised curricula. On the contrary, andragogy is once again explained in terms of an approach centred on the problems to be solved by the learner. This involves the support, to a greater or lesser degree, from a teacher and has an orientation towards learning how to learn. Finally, for heutagogy its context of the organisation of learning is exactly the opposite to what occurs with the pedagogical approach – it is devoid of standardisation.

Therefore, the **respective role of learners and teachers** in the three respective approaches is also profoundly different in terms of learning and evaluation processes. In pedagogy, consistent with what has just been described regarding the organisation of learning, learners depend totally on teachers. For this reason, pedagogy is also described as a dependency model. On the other hand, in the case of andragogy the role of teachers is to support and facilitate the learning of learners who are considered autonomous. They are self-directed with regard to their learning needs and assessment of what has been learned, so andragogy is considered as the learning model of self-direction. Emphasising even more the characteristics of autonomy and self-direction, heutagogy interprets the relationship between learners and teachers in terms of self-determination. This means the substantial independence of the learners in determining the form and content of learning and its evaluation; the role of the teachers limited to the function of stimulating and proposing possible areas of attention.

A direct consequence of what has just been illustrated is that pedagogy is characterised by unidirectional **learning processes**, from the teacher to the learner. Andragogy adopts bidirectional processes between teacher and learner, and heutagogy adopts multidirectional processes. This can be understood as the involvement of other actors and stakeholders related to the context within which the learning process takes place.

In terms of **learning resources**, we can make an observation, consistently with what has been described so far, for pedagogy. Adopting the perspective of the learner, their influence on those resources is extremely limited, as they are basically designed and recommended by the teacher. As for andragogy, this space of autonomy expands, granting a certain degree of control on the learning resources to the learner in collaboration with the teacher. Heutagogy does not postulate any limitation in terms of the proposal of learning resources by both the learner and the teacher.

As regards the **cognitive process involved in learning**, the three approaches presented comparatively differ – once again – substantially. Pedagogy is presented as a typically cognitive learning process, aware and oriented towards the acquisition of information and knowledge, establishing relationships

between them. The cognitive learning processes also incorporate the ability to learn to learn, a competence which nevertheless develops fully when, as in the case of andragogy, meta-cognitive approaches are privileged (Flavell, 1979). These processes emphasise the learning of mechanisms and products of the cognitive processes themselves. Assuming these same cognitive and meta-cognitive bases of learning as its fundamentals, heutagogy sums up epistemic knowledge. This refers to the knowledge of the procedures and theories of science, with a clear emphasis on evidence-based information, the foundation of any scientific theory.

With regard to the **assumptions regarding the potential for change** as a product of learning, it is reaffirmed in a comparative key by describing the approach of heutagogy. This is characterised by the adoption of a double-loop learning process, which it feeds back on the learner's beliefs and motivations for action. It leads them to reconsider their own assumptions and change their attitude towards learning itself, at the same time contributing to the change of their own vital environment. It is a characterisation that, in the comparative description of the approaches, is absent in both pedagogy and andragogy.

Also, in terms of **motivation to learn**, the differences that emerge between the three approaches are substantial.

> *A classic definition of motivation distinguishes intrinsic motivation from extrinsic motivation. Intrinsic motivation is what motivates a person to engage in an activity for its "inherent satisfaction", while extrinsic motivation is associated with the performance of an activity that is directed at achieving some separable outcome […]. Extrinsic and intrinsic motivation can coexist in a fluid and interrelated way* (Bjursell, 2019, p. 220).

In the pedagogical approach to learning, motivating factors tend to be justified by the emphasis on aspects external to the individual (extrinsic motivation), in training contexts of initial or compulsory formal education. The literature that has comparatively analysed the approaches indicate that this is a motivation supported by the goal of obtaining rewards. These can be formal educational qualifications, or the certification or other recognition of professional skills. Moving towards the field of adult learning, the motivational factors of learning evolve into internal (or intrinsic) ones. These are guided by the desire to reach learning goals that take on personal values, or obtain a payoff in terms of acquiring the knowledge to solve a specific problem. In heutagogy, the achievement of a further level of awareness is postulated. Intrinsic motivation is inspired by reflexivity about a person's own needs and desires, considered in constant evolution in a transformative way, bound to learning to learn.

The last two aspects considered in a comparative key concern **allowing learners to be creative** within learning processes, and the need for **interaction and collaboration** between them. In the case of pedagogy, both creativity and collaboration would not represent basic learning requirements. In the case of andragogy, only collaboration between learners can represent an option, although it is considered non-essential. Both of these learning credentials are instead fundamental in the heutagogic approach.

In conclusion, we can observe that despite the profound differences, these can be assumed as steps of processes that can be configured in multiple combinations, not only as polar options. This aspect will be discussed in depth in Section 6 concerning the new andragogic conceptual model oriented to adult learning.

4.3 Evidence-based findings and other research outcomes

Before considering some critical issues related to the literature on adult learning, we will turn our attention to two further aspects that can be detected within the most recent publications. These are in addition to what the literature review returned in the previous sections have made possible to highlight.

Section 4.3.1 concerns the application to adult learning of the process of acquiring skills considered essential in the field of transformative learning, or fundamental competences in the twenty-first century. These are critical and computational thinking (CCT), applied to problem-solving in technology-rich environments (PS-TRE).

Section 4.3.3 concerns the ever-evolving reflection around the motivation to learn of adult or late-career workers, employers' attitudes toward adult learning and the development of inclusive learning-based strategies.

Some critical remarks on the quality of the available scientific output will be added in Section 4.3.3.

4.3.1 Computational and critical thinking applied to problem-solving in technology-rich environments (CCT in PS-TRE)

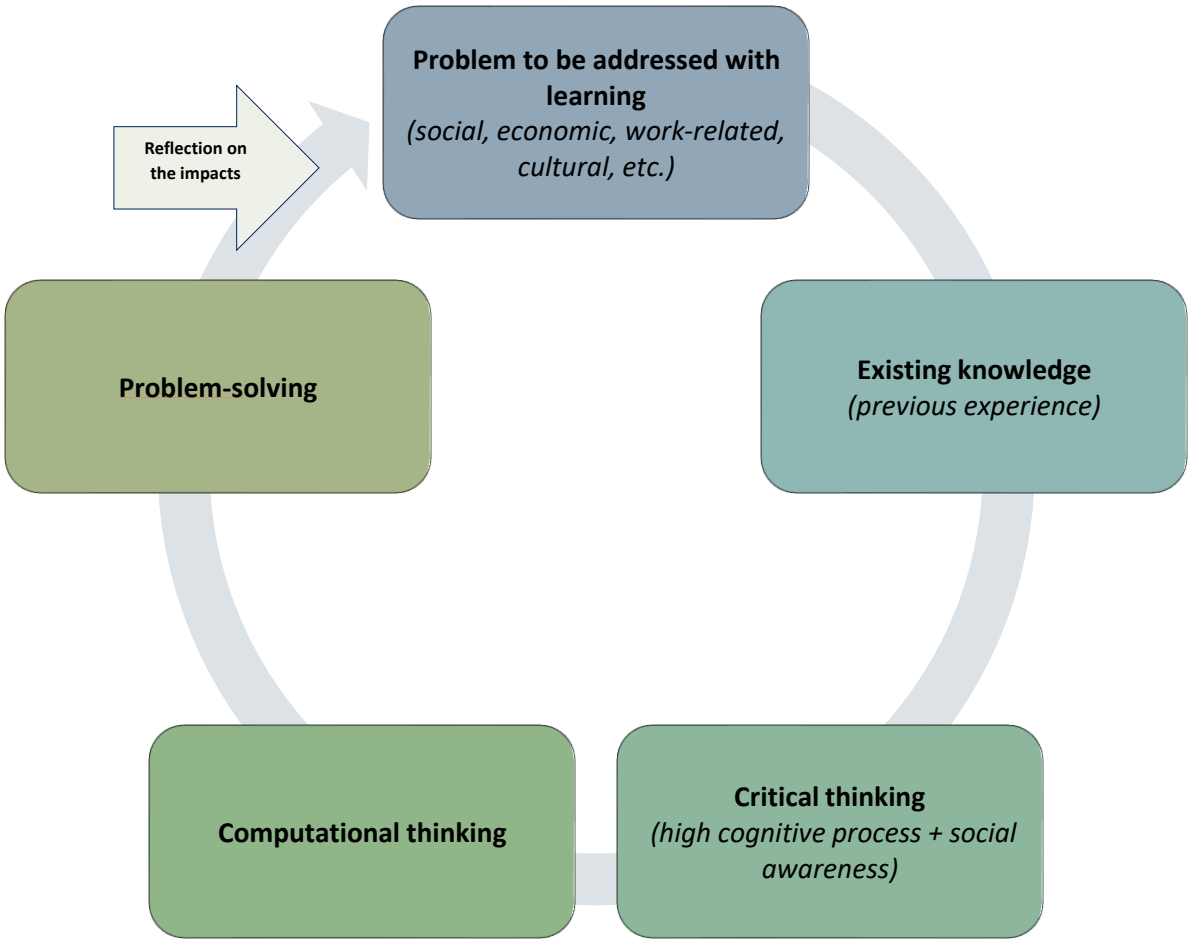
Critical thinking, and the skills associated with it, represent a core skill in the context of the changes and challenges of the twenty-first century. Critical thinking is the ability manifested by the human being to analyse and evaluate existing information on a given topic. It means trying to clarify the truthfulness of information and reach reasoned conclusions about it, ignoring any external prejudices, and constitutes an individual and social key resource in the information age.

Similarly, computational thinking, understood as the process by which an individual, through computer skills and critical thinking[2] manages to tackle problems of different nature, constitutes a fundamental transversal competence.

In terms of the relationship between the two concepts, the computational thinking synthesises critical thinking and existing knowledge related to the problem. Computational thinking needs critical thinking for its development, because it can help to reach a deeper understanding of the different perspectives on the problem and the consequences of its solution (Iñiguez Berrozpe et al., 2020).

Critical and computational thinking, when applied to problem-solving in technology-rich contexts such as the current ones, can be organised as a learning process, with a key function associated with the principle of double-loop learning. At each stage of the learning process (Figure 7), in the light of reflection on the impact, it is possible to return to the initial problem to redefine it in the light of the experience gained with learning, critical reflection and computational thinking. This is where double and multiple-loop learning applies.

[2] That is: subdivide a problem into the individual phases that need to be solved, and organise the solution through the development of algorithmic formulas or processing.



Adapted from Iñiguez Berrozpe et al.(2020, p. 152)

Figure 7: CCT in PS-TRE process

According to Vanek (2017) – who applies the PIAAC Framework for the PS-TRE to adult education – this same process scheme can be summarised according to phases and activities associated with the learning process aimed at problem-solving. This is also shown in Table 6.

Table 6: Steps and activities for PS-TRE process

Step	Activity
Step 1: Set a goal This is 'problem-finding', or working out the end result – what you need to accomplish so that task completion is possible. You can set a goal after you recognise the difference between what is happening and what you want to be happening. Recognise that this might not be immediately clear. Decide how you will know when you have accomplished your goal.	Use the scenarios or problems that the learners identified in the previous exercise. Have them work at problem-finding: what is happening and what do I want to happen?
Step 2: Plan and organise Create a plan for solving the problem. This is 'problem shaping', setting up and moving through a series of phases of reflection and corresponding actions. Each phase supports a sub-goal, which when achieved triggers a new sub-goal and its constituent reflection and actions. What strategies, technology resources or type of information is critical for accomplishing your goal? How will you employ it or access it?	Use the scenarios or problems that the learners identified in the previous exercise. One at a time, ask learners to make a planning chart showing the technology to be employed and for what task. This will be the first draft of their plan.
Step 3: Monitor progress Moving to reach a goal is a reflexive process where how a strategy or action impacts progress is constantly monitored. Pay attention to your progress. Did you make a mistake in your planning and now need to reassess the tasks and technology resources?	As an extension to the activity above, teachers ask learners to discuss how they will know if the steps they laid out are useful and if they are making progress. The table in Step 2 could be expanded with an additional column for registering such information. Teachers follow up with an activity about what to do if a plan fails.
Step 4. Acquire and evaluate information Not all information is equally useful or reliable. Selecting helpful information involves an awareness of the source and a critical reading of the content provided. After finding information, consider these questions: Is this what I need to know? Can I trust the source? Do I understand it and know how to use it?	A useful focus for developing proficiency with this step is building awareness about how to interpret information and evaluate its source. There are a number of resources available online for building evaluation skills, especially critiquing information found online.
Step 5: Use the information Consider what the task requires to make the information useful: does it need to be organised? Combined with information from another source? Put into a different format? Consider how it will be best presented or shared.	Ask learners to consider the task and what final action is required to make use of the information or solution gleaned through the previous steps. You might create a T-Chart showing the task description on one side and a space for noting the action(s) required for making use of information on the other side. Remind learners that they have finished after they have completed some final action.

Adapted from Iñiguez Berrozpe et al.(2020, pp. 158–159) and Vanek (2017)

As can be seen, the phases of activity place the emphasis on a series of factors already commented on in the previous sections. The main ones can be indicated as the following:

- Focus the learning activity on solving problems significant for learners.
- Interpret information through the activation of reflective practices.

- Use double-loop strategies.

The proposal of the new andragogic model of adult learning is presented in Section 6. This will examine these factors for their continuity with the inspiring principles of andragogy and heutagogy, and the basic procedural scheme.

4.3.2 More literature findings

Within the literature on adult learning in an active (or even inactive) situation, there is an abundance of studies devoted to **stereotypes associated with age-related learning attitudes and motivations**.

As we have already seen (Section 2.1), 'studies have shown […] that older workers experience devaluing of their knowledge, stereotyping, subtle barriers to learning opportunities, and pressures to present themselves as younger and technologically savvy (Ainsworth, 2006; Carroll, 2007)' (Fenwick, 2013, p. 300). Therefore, several contributions address – without referring to a specific approach to learning – the basic principles to be followed in adult education, especially considering adults in employment.

> *Industrial gerontology model suggests that five factors must be considered when designing training programs for older learners (Sterns & Doverspike, 1989). They are motivation, structure, familiarity, organization and time. In general, these factors refer to issues such as: (1) whether the learner perceives the training content and materials as relevant; (2) whether sufficient time is provided to complete the training successfully; (3) whether the information is provided in a logical difficulty-graded sequence, i.e., from simple to complex; (4) whether the opportunity to master all training tasks is provided; (5) whether the training builds on current knowledge base; and (6) whether memory building instructions precedes contents instructions (Sterns & Doverspike, 1989). Additionally, Simpson (2004) proposed that allowing ample discussion time during the training and less reading material are both favored training strategies* (Hsu, 2013, p. 292).

Moreover:

> *Older workers learn best when they can learn at their own pace, when they are allowed to learn with their age peers, and when the anxieties associated with learning something new are addressed (Hogarth & Barth, 1991; Knowles, 1987)* (Hsu, 2013, p. 293).

An important aspect added to the principles set out in the previous quotation concerns the **enhancement of the previous experience** of the subject in learning. As we have seen, this represents a key element of andragogy. What also has to be mentioned is the element relating to the **preference with respect to learning methods.** This principle is incorporated into the new andragogic conceptual model that will be proposed in Section 6.

To sum up, as another author points out, 'employers […] should be concerned less with provision of learning [and] training and more with explicit recognition and valuing of mature professionals' knowledge […] and their approaches to learning' (Fenwick, 2013, p. 311).

In even more general terms, the principles of adult education refer to **geragogy**, which is a strategy to increase the inclusion of older adults in educational activities. Explaining this approach, Bjursell (2019) presents some principles that do not differ much from those identified in the literature concerning employed adults and previously outlined (Hsu, 2013).

> *The basic premise in geragogy is that learning should be based on enjoyment and curiosity, and consequently, tutors should stimulate learner engagement with positive comments and encouragement. Geragogy further provides tutors with a set of principles that can guide them in how they might structure a course. For example, to present the outcomes of a course before the course is taught. Other principles refer to (i) using of a variety*

of teaching methods, (ii) adopting a flexible approach, (iii) taking the learners' past experiences into consideration, since they can be useful in grounding the learners' understanding, (iv) maintaining a clear focus on the topic, (v) adapting the course structure to the learners' pace, and (vi) paying attention to cases where a participant may need to "unlearn" certain information from the past (2019, pp. 216–217).

In conclusion, this stream of adult learning literature confronts a set of principles already included in the approaches considered above.

4.3.3 Criticism concerning the literature on adult education and training

It has to be noted that most of the studies on pedagogy, andragogy and heutagogy which can be found in the literature, whether comparative or not, fall into two basic typologies:

a) **Conceptual reworking contributions** aspire to reinterpret existing paradigms by proposing advancement – these are contributions that Knowles et al. (2005) would define as proposed by 'interpreters'.
b) **Contributions of an empirical nature**, also on the basis of a conceptual reworking, seek to demonstrate the validity and greater effectiveness of a learning approach compared to others, according to specific training contexts.

Regarding this last stream of the literature, however, it is important to underline one fact. Most of the studies on approaches to adult learning presented in specialised scientific journals respond to the standards of academic publications. However, in terms of conceptual accuracy and methodological correctness a substantial part of the available literature, especially that which reports results of empirical studies, borders on **insignificance at a scientific level**. The most serious aspect is that such scientific journals publish articles which, formally, should be subjected to a double-blind peer review procedure. This would guarantee control by the academic community on the conceptual and methodological correctness of what is published. Despite this, among the literature selected to elaborate this contribution it was possible to encounter not only inaccuracies, but factual errors. All this undermines the credibility of some journals and, indirectly, frustrates the efforts of researchers capable of presenting solid studies and who genuinely produce advances in scientific knowledge. To document just a few examples, among the many encountered:

- Arifin et al. (2020), authored a journal indexed in Scopus (which is one of the main quality indexing database of scientific journals). They present a theory called 'Technology Andragogy Work Content Knowledge Model (TAWCK)' that was devoid of any empirical foundation. They also explain andragogy as 'a new concept that is derived from the previous concept of revised pedagogy' (2020, p. 790).
- Aksoy & Meral (2020) use the 'Principles of Adult Learning Scale (PALS)' with a sample of 227 teachers from private night high schools in Turkey, to carry out an exploratory factor analysis (EFA). The results of this, however, are not presented or discussed.
- Bansal et al. (2020) perform statistical analyses of normal distribution, principal components analysis (PCA) and ANOVA using nominal (categorical) variables. The researchers' inexperience is such that explains the insignificance of their research. Moreover, they candidly admit that in their study, as a survey tool, 'a questionnaire was developed as no validated questionnaire could be found on [the] Internet' (2020, p. 3).

Therefore, the possibility of encountering studies in the literature that report **solid evidence-based results** was limited. This meant that fewer studies could be used as a starting point from which to advance in the knowledge of adult learning principles and build new conceptual elaborations. To summarise, the main weaknesses found in the literature examined – albeit with some exceptions – concern the following:

- There is a **lack of results based on scientific evidence** in the studies carried out, which compromises the validity of the conclusions they propose.
- **The conceptual and methodological references have weakness**: most of the studies insist on re-proposing a simple application of the concepts deriving from few key publications on the subject of andragogy and heutagogy. The use of research tools already validated in the literature is infrequent. There are no documented attempts to develop new tools, on the basis of existing ones, and to validate them to produce a methodological advancement.
- There is a **high degree of fragmentation of the studies** carried out on extremely heterogeneous samples of the population involved in learning programmes in general, carried out using the most varied investigation techniques. This does not allow the identification of research streams potentially capable of allowing an advancement in knowledge about adult learning.
- There is a **multitude of small-scale studies**, with little or no statistical representativeness; this limits their scope and significance.

The most frequent cases of investigation on the principles of adult learning are:

- the proposal of a conceptual reworking (of limited scope) of a learning paradigm by university lecturers and researchers;
- the development of an ad hoc survey tool to be used to examine a researcher's own hypotheses;
- the use of this tool with a sample of students or teachers, in many cases from the same school or university;
- the extrapolation of general conclusions from the analysis of the results and the pretention of findings' representativeness.

4.4 Discussion

The review of the scientific literature carried out has shown that **there is no lack of theoretical or conceptual approaches to adult learning.** Over the last few years, also due to the growing importance that lifelong learning is assuming in European societies, there has been renewed attention towards it. This has included the attempt to propose, if not new theories, at least advances in terms of the conceptual elaboration underlying the existing ones.

In particular, the review of the literature made it possible to deepen the characteristics of **two distinctive paradigms of adult learning.** One has been consolidating for over half a century – andragogy. The second is presented as its evolution and as being more closely related to it: training and learning needs of the twenty-first century.

Section 6 is dedicated to the proposal of a new model for adult learning. One of the regrettable aspects in the analysis of models found in the literature, is their proposition in a **comparative key aimed at highlighting the differences**. Several studies that defend the superiority in efficacy of one model over the others rely on demonstrations of empirical evidence which generally hold **little scientific validity** (Section 4.3).

However, ideal-typical comparative analyses in the field of adult learning models, while very useful, do not seem to have produced significant advances in the scientific knowledge. **The debate seems to revolve endlessly around the observation that traditional pedagogical approaches in adult education are neither effective nor desired by adult learners.** These learners have other needs and preferences that need to be met by applying learning principles adapted to their own inclinations.

In examining the literature, the underlying feeling that remains with the reader is that of seeing paradigms of adult learning treated as unique and exclusive approaches. This has been done with the aim of justifying the incorrectness of one in favour of the correctness of the other. In this report (Section 6) we defend the idea that **these approaches are neither univocal nor mutually exclusive.** There is no

empirical evidence of such univocity, at least according to how the studies carried out have tried to prove it.

5. Good practices analysis

5.1 Overview

Lifelong learning covers education and training across all ages and in all areas of life, be it formal, non-formal or informal. In an ageing society supporting the upskilling and reskilling of adult and senior workers and citizens it is a key tool for empowerment, at personal and societal levels. For society, lifelong learning may improve the social and economic growth potential of a territory or country; at the individual level it improves senior citizens' personal development, active citizenship and employability.

As indicated in the previous sections, the academic literature is developing models for adult and senior education and training. These have distinctive features that take into account the specificities of seniors' learning patterns and valorise their lifelong experience. To this end, useful inputs are provided by new training approaches to adult learning adopted and experimented with on the ground by training practitioners. This section presents a selection of training practices addressing senior learners and trainers implemented by the *To Switch* partners on the ground.

A 'good practice'[3] can be defined as a practice that, according to a set of criteria, has proved to work well and produce good results, and it is therefore considered a concrete example for the implementation of a policy[4]. It is usually a method or technique that has been applied in real life and that has consistently shown results superior to those achieved by other means. The practice and the adopted approach are therefore often used as benchmarks against which other activities can be assessed.

Sixteen good practices have been collected by the *To Switch* partners according to the criteria explained in Section 3.3 (Box 1).

In the following sections we present a comparative analysis of the collected practices according to their main dimensions of interest: the training approach and methodology adopted, the training content and the lessons learned. The aim is to draw useful elements arising from seniors' concrete training practices to integrate the findings of the literature review. It will also provide inputs for the development of a new reference framework for senior workers' training and learning.

5.2 Classification criteria

The sixteen collected practices have been described by the partners in 'good practice' fiches that will be included in the learning platform to be developed in the next stage of the *To Switch* project (WP3). The good practice fiche (Annex 5.1) is structured into two main sections; the first presents the main descriptive elements of the practice. The second describes the elements characterising each practice as a 'good' one, according to the selection criteria described above and the objectives of the *To Switch* project. A summary comparative table (Annex 5.2) and descriptions of the selected practices collected provide additional details.

---

[3] We do not use the term 'best practice', which is often improperly adopted for collections of good practices, because it should involve an in-depth evaluation process to rank practices and derive the best ones for given policy fields.

[4] FAO, Good practice template, 2015: https:andandwww.fao.organdpublicationsandcardandenandcand54bceab2-3250-51b3-96c3-01980c3b6a0aand.

To facilitate the comparative analysis, **the collected practices have been classified into four groups according to the target population of the training activities**. In two cases (the Norwegian NO01a,b and the Romanian RO02a,b cases) the target group involves trainers and senior learners. Therefore, these cases have been included in both the training-for-trainers group and the senior learners group.

The first group includes **nine practices focused on the development of training methodologies for adult and senior learners. These have been implemented in the training of trainers, teachers, tutors and HR managers**. These practices include a large range of models, methodologies and tools, often based on the andragogic approach.

Practices Targeted to Adults, Seniors' Trainers, Teachers, Tutors and HR Managers	
Title: Training for Adult Educators in the Framework of the RESET Project **Country:** Switzerland [Cod. CH01] **Period**: 2019	The RESET project was an Erasmus+ project adopting a proactive approach to the ageing of the workforce, to support senior workers upskilling and reskilling in both soft skills and new professional skills, to increase their employability. The training was targeted to trainers involved in vocational guidance and occupational reintegration of adult and senior workers, to enable them to: - become acquainted with the tools available for seniors' vocational reintegration; - evaluate and adapt the tools to the needs of the territory; - develop trainers' skills for seniors' training and labour reintegration; - provide trainers with socio-psycho-pedagogical skills.
Title: Career Learning Model **Country**: Denmark [Cod. DEN02] **Period:**	The Career Learning Model aims at preparing the client mentally and to build up self-belief by assessing talents in combination with an overall clarification of the person's feelings and attitudes towards career change. The model is based on the following: • It takes a holistic approach integrating all mental, physical and social preconditions and capacities of the learner. • It adopts a talents and competences perspective, focusing on the learner's strengths rather than on the gaps and shortcomings as in the traditional needs assessment. This allows the learner to keep a positive view on their own opportunities rather than feeling outdated and left behind. Learning activities are therefore designed on the basis of the learner's own investigations on themselves, job or training opportunities, and the ability to take appropriate action. The model, based on Bill Law's theories on community interaction, was originally developed by the Danish Centre for Youth Research (CeFU) and aimed at high school students. It has been modified and adapted to adult and senior workers looking for a new career perspective and appears especially useful for professionals working with senior learners (guidance counsellors, trainers, case workers etc.) for the design and planning of training and counselling interventions.
Title: Formación EPA: competencias para la educación de personas adultas en Aragón **Country**: Spain [Cod. ES01] **Period**: 2021	Training course for educators involved in adult education and training in the Autonomous Community of Aragón. The aim was to compensate for the little or no presence of permanent education in the training of adult teachers and to introduce learning by a competencies method in the training of educators of adults and senior workers. The approach is similar to the andragogic model with the following objectives: a) train the adult education faculty; b) share good practices of the centres for adult education (CPEPAs); c) contribute to create an interconnected teachers' community; d) contribute to the creation of new profiles of adult trainers. An online course was implemented structured in three sessions providing: • basic skills (reading, writing and calculation); • professional skills (e.g. skill assessment, accreditation processes, professional certificates); • digital skills.
Title: Fáilte Isteach – Welcoming Migrants Through Conversational English Classes **Country**: Ireland [Cod. IRE02] **Period**: since 2006	Fáilte Isteach is a community project involving 1 200 predominantly senior volunteers welcoming migrants through informal conversational English classes, to improve language and support social integration for over 3 200 migrants. This initiative was established for the first time in October 2006 with the aim to: - provide the necessary language skills to migrants in a student-centred, welcoming and inclusive manner;

	- involve older volunteer tutors and recognise their skills, expertise and contribution to the community; - establish a network of Fáilte Isteach groups in communities throughout Ireland; - promote social integration and community spirit, by facilitating learning among and about different cultures.
Title: AWARE – Ageing Workers Awareness to Recuperate Employability **Country**: Italy [Cod. ITA01] **Period**: 2004–2007	Funded under ESF Article 6, Innovative Actions, AWARE developed an integrated approach to improve the knowledge and abilities of ageing workers in the labour market. The project outlined the employment and training needs of senior workers, identifying ways to improve the social perception of their potential, developing innovative environments in which to acquire and actively use knowledge. Significant effort was dedicated to identifying the simultaneous factors needed to create effective conditions to stimulate the demand and supply of training, and support the employability of ageing workers. A project work methodology for trainers and teachers was adopted, as well as: - the assessment of the local context and the involvement of the economic and social partners in the analysis of emerging socio-institutional conditions; - the development of training approaches and strategies for adult learning: - awareness and activation of individual skills, expectations and motivation; - the experimentation of an adult training model with two cycles of seminars targeted to trainees and teachers. The project implemented 22 seminars involving 40 trainers and teachers in Italy, and 15 in Spain.
Title: Maestri del Mestiere **Country**: Italy [Cod. ITA03] **Period**: 2013–2019	The project, implemented within a public urban transport company in Milan, dealt with the identification of one or more maestros (masters) for each profession (linked to transport). They were specifically trained to be involved in the activation of an intergenerational tutoring process. The project was aimed at preserving the internal know-how of senior workers and knowledge transfer to young workers through training courses. The selection and training of the masters was based on the MAUT approach (Motivation to Acquire, Use and Transfer Knowledge) involving a two-day training course exploring the new role (maestro or mentor) and: - learning how to transmit positive attitudes and behaviours to others, first of all with the daily example, to be recognised as a model; - learning the skills necessary to best perform the various activities envisaged by the role; - monitoring and evaluation.
Seniornett – we help the seniors to get on the Internet (for senior ICT trainers) **Country**: Norway [Cod. NO01a] **Period**: since 1997	The project was started in 1997 to support seniors aged 55 years and over, to acquire sufficient competence to be able to use ICT devices. The initiative provides two types of courses: one aimed at senior trainers who will hold courses for seniors in the associations around Norway, and the other to senior trainees (classified as NO01b). The older volunteer trainers are trained to hold courses for the seniors. Volunteer trainers are often senior ICT experts, freelance ICT teachers or ICT students specifically trained to train seniors adopting a 'train-the-trainer' system. Local training centres are provided with a common curriculum tailor made for the needs and the special learning requirements of the senior population. The older trainers are trained to hold ICT courses for the elderly by: - using a 'teach-the-teacher' method to cover as many seniors as possible; - offering a training curriculum and material to be used by the training centres; - training of the local trainers by Seniornett Central personnel.
Title: Ubiquitous Information for Seniors Life **Country**: Romania [Cod. RO01] **Period**: 2013–2015	The aim of the UISEL project was to improve the content and quality of training courses for teachers and other operators working with senior citizens. In particular, it included support in the use of mobile devices based on multimedia digital training tools. Beyond raising awareness for the benefits of using this equipment among the population over 50, the project intended to achieve practical apprenticeship on how to take the best advantage of it. The project developed six multimedia training modules in seven different languages and integrated these in an app available for piloting.
Title: BeOLD – Better Work in Old Age: Supporting older workers and organisational environment in coping with age transitions and work requirements	The BeOLD project focused on improving the social inclusion of older workers by using two educational programmes: one targeted to Human Resources (HR) managers, coordinators and directors of organisations, and the other to senior workers. The two programmes involved 77 older workers (55+ years old) from private companies, and 56 HR managers and coordinators of private companies from different sectors (e.g. industry, cooperatives, services).

Country: Romania [Cod. RO02] **Period**: 2017–2019	The programme targeted to HR managers and operators was aimed at supporting age management within organisations and to adapt the organisational environment to all generations. It included combating ageism, eliminating social stereotypes regarding older workers and facilitating the mentoring of young workers. Based on an intergenerational approach, the training included two face-to-face workshops and two e-learning modules, in which the participants explored and identified new ways to create intergenerational and age-friendly work environments.

The four collected practices of the second group are **targeted to senior workers** (employees in private companies, factory blue-collar workers, healthcare workers, public sector workers). They refer to approaches related to career and work environments, and are aimed at the upskilling and reskilling, and supporting the motivation of senior workers.

Practices Targeted to Senior Workers	
Title: General training as a springboard **Country**: Denmark [Cod. DEN01] **Period**: 2019	The two weeks full-time training course involved senior blue-collar workers of a Danish company during a temporary layoff period. Participation was voluntary and the training course was designed to address the senior workers' need to develop means to cope with the threat of unemployment and the fear of being left behind. The training approach was close to an andragogic model to support personal development through group discussion, role playing practising tools for verbal communication and study visits.
Title: Changing Gears **Country**: Ireland [Cod. IRE01] **Period**: ongoing	Changing Gears is a six-session course of 6 months. It involves senior workers in the healthcare sector to support the individuation of a personal life strategy when close to retirement or in mid-career, and to develop skills which build confidence for the future. The project developed a model for resilience development based on mindfulness tools, meditation and a reflective journal to identify the major sets of influences on an individual's ability to cope with transitions. It helps participants to plan their goals for the next ten years – and give them the opportunity to reflect on life as it is now, and how to plan for the future.
Title: Mo.S.E. – Mobilità Senza Età (Mobility at every age) **Country**: Italy [Cod. ITA02] **Period**: 2007–2009	The Mo.S.E. project aimed to train 40 adults over 40, living in Trentino and working in local companies or the public administration. They had sufficient language knowledge, but needed to improve their language skills and experiment with short transnational work experience abroad. The training was related to new ICT technologies for employees at SMEs, those working in import and export occupations, know-how exchange and production processes and instruments. A 'dual system model' was adopted, combining classroom training with work experience in another country.
Title: BeOLD – Better Work in Old Age: **Country**: Romania [Cod. RO02] **Period**: 2017–2019	The already mentioned BeOLD project, besides the training programme targeted to HR managers and operators, also included a training programme targeted to senior workers in private companies. This vocational counselling programme promoted five workshops to enhance older workers' skills for coping with professional challenges. It adopted a Rickter Scale® process, to evaluate from the older workers' perspective the changes produced in the learning process and the impact obtained. The training involved 77 workers aged over 55.

The three training practices of the third group are targeted to **seniors out of the labour market** (either long-term unemployed or inactive) and are aimed at improving their employability. The adopted approaches mainly intervene on motivational aspects and in one case on supporting entrepreneurship.

Practices Targeted to the Senior Unemployed and Inactive	
Title: Club Experiences **Country**: France [Cod. FR01] **Period**: since 2015	The Alpes-Maritimes department, in partnership with Pôle emploi, offers targeted support to senior women (over 45) seeking long-term employment. The initiative aims to allow beneficiaries to become aware of their assets and skills acquired in informal or non-formal contexts, such as in their family and social life. The project involved the implementation of two training modules on improving skills and self-confidence by addressing gender stereotypes, of employers, relatives and women themselves, repositioning and motivating them; and removing common and specific obstacles (e.g. low mobility, family constraints, disabilities, poor command of technological tools, lack of self-confidence, reduced motivation, feeling of wear and tear).

Title: CODEV Seniors **Country**: France [Cod. FR02] **Period**: 2019–2020	Pôle emploi organised training targeted to senior executives aged 45 and over. The service aims at a dynamic remobilisation with activities supporting self-confidence, image, background, but also with activities related to job and sector-specific skills to improve knowledge of the learners' professional environment and discover new trades or career paths, and develop networking capacity. The reflection activities, carried out individually and in groups, are facilitated by a structured consultation exercise dealing with issues experienced by the participants.
Title: Donne e micro-imprenditorialità – Women and micro-entrepreneurship **Country**: Switzerland [Cod. CH02] **Period**: July 2021	The project is targeted to women and promoted by the Equi-Lab Association that offers advice and support in projects concerning work–family balance and the valorisation of gender diversity. The aim is to help new women entrepreneurs develop a micro-entrepreneurial project and to activate a network of skills, support and solidarity among women entrepreneurs in the Ticino area. The training activity is adopting a learning-by-doing approach based on the valorisation and validation of previous competences through skills' assessment and counselling, as well as the acquisition of transversal and soft competencies and job and sector-specific competencies. The attention to the work-life balance needs of women is another aspect of the project.

The fourth group includes three projects **targeted to senior citizens,** aimed at promoting training approaches based on the voluntary involvement of senior citizens both as trainers and learners and on a strong attention to the involvement of local communities and peer learning approaches.

Practices Targeted to Senior Citizens	
Title: La Verneda Learning Community Adult School using Interactive Groups (Barcelona, Spain) **Country**: Spain [Cod. ES02] **Period**: since 1978	The Learning Community Adult School La Verneda-St. Martí promotes training courses targeted to the local community, based on an approach involving learners in decision-making and the management and of the courses through the setting up of different commissions and on an interactive groups approach in training, where learners help each other, teach and collaborate with each other. The objectives are: - to improve the community environment and gradually support a process of social transformation; - to create participation of individuals involved in managing and organising the formative process from an active and innovative pedagogical approach. - to develop the acquisition of skills, attitudes, techniques and habits to a continuous process of training and self-learning; - to leverage the knowledge acquired by adults for their participation and collaboration in the training of others. The School, open 7 days a week from 9 am to 10 pm, implemented 80 training groups (310 hours per week) free of charge, involving more than 150 teaching volunteers and 2 400 trainees from more than 60 nationalities.
Title: Seniornett – we help the seniors to get on the Internet **Country**: Norway [Cod. NO01b] **Period**: since 1997	The project was started in 1997 to support seniors aged 55 years and over, to acquire sufficient ICT competence to be able to use ICT devices. The initiative provides two types of courses: one aimed at senior trainers (NO01a), the other to senior citizens to learn to use ICT devices. Courses are held in centres around all of Norway and Norwegian citizens in Spain and Portugal. To this end, Seniornett supported the creation of 235 local training centres spread all over the country, manned with volunteer trainers. Local training centres are provided with a common curriculum tailor made for the needs and the special learning requirements of the senior population. Besides providing ICT training for the senior population at the local level, the local centre activities include: a digital maintenance agenda to keep the seniors digitally active over time and to prevent drop-outs, and local and a central help desk function for seniors. Seniors are also kept digitally informed and up-to-date with a periodic magazine and an active web page. The costs are relatively low, and financing derives from both private and governmental resources.

5.3 Cross-reading of the selected practices

Despite differences in the target groups and in approaches, some **common, recurring features** emerge from the cross-reading of the collected training practices, independently of the specific target group.

These features prove useful for the contributions they can make to the *To Switch* project and, specifically, to the new methodological paradigm that the project aims to outline. In fact, independently of the country where the practices have been implemented, useful methodological inputs emerge for the new training paradigm to be developed, together with concrete operational indications. While these features are independent of the target group , other features appear to be more specifically related to the target groups of the training. Some concrete examples emerging from the collected practices are presented in boxes.

Common features of the collected training good practices

The collected practices are rather different in terms of contexts, scope, targets, contents, tools and even for the adopted terminology. As mentioned before, some of the approaches and methods reported are however common to most of the practices.

All the practices move from a common perception: the **need to adopt a learning logic based on *change* rather than *addition***. As well described in the AWARE project (ITA01), the experiential structure that distinguishes mature workers is mainly defined by the role they play and their self- and hetero-representations and perceptions. Training adult workers therefore means mainly acting on a complex learning mechanism. This combines content and process factors, linked to the evolution of a person's self-image in the organisational context of his/her professional culture. In learning, adult workers do not merely add knowledge but change ideas, connections and logical associations they previously used to organise their mental representations and concepts based on their own experience. They change the emotional aspects, behaviours and representation of the relationship system associated with their role. Training for adult workers must therefore move from the awareness that traditional training methods cannot work adequately for mature people. This starts with the characteristics of the traditional training setting (of a scholastic or classroom type) that is far away from the experience of these workers, who have not been in a classroom for years.

To this end the collected practices present training approaches that involve the adoption of:

- collaborative and interactive approaches in training settings;
- blended training methods;
- initial needs and skills assessment, and validation.

The collected practices also provide indications on the skills needed by adults and seniors' trainers, useful to derive inputs for the definition of the professional profile of trainers. They also provide operational indications on how to set up training courses and training material addressed to senior learners.

Collaborative and interactive approaches are adopted in most of the collected practices, although implemented in different forms. For example, good practices include:

- the 'Project work' approach based on the co-design of the contents by trainees (ITA01);
- the 'Community-based and dialogic learning' approach centred on the participation of the local community (ES02);
- the 'Common reflection' approach, which is adopted to support awareness on the training path followed by learners (NO02, IRE01, DEN01, FR02).

Training methods supporting collaboration and interaction among learners tend to be based on group work (ITA01, ITA03, FR01, FR02, ES02, DEN01), and peer learning, peer support and peer networks (IRE01, IRE02, CH01, CH02, FR02, ITA02) to facilitate and support mutual learning. Intergenerational and intercultural approaches are also adopted to facilitate mentoring and reverse mentoring, and intergenerational and intercultural collaboration within workplaces or local communities (IRE02, RO02,

ES02). In some cases specific methods and tools are used such as MAUT (Motivation to Acquire, Use and Transfer knowledge) adopted in an Italian company (ITA03).

Another common feature of almost all the collected practices is the creation and valorisation of peer networks among both trainers and trainees, starting from the class participants.

CH01	Training was targeted to trainers and counsellors working at the CFP, confronted with an increasing number of senior workers needing to be reintegrated into the labour market. Trainers were able to **confront each other and exchange good practices**, as well as implement what was proposed by the project. The **training was strongly experiential**. The participants experienced emotions and situations at first hand, just like the participants over 50.
DEN01	The model is based on: - a **holistic approach** integrating all mental, physical and social preconditions and capacities of the learner; - **competence assessment** rather than needs assessment; - **focus on the learner's potential talents** – learning activities designed to support the learners' own investigations on their talents, job or training opportunities, and the ability to take appropriate action.
ES02	Training is based on a **dialogic learning methodology** through the creation of interactive groups in classes, in which people help each other, teach and collaborate with each other. Those who know the subject reinforce the content explaining it to colleagues. Those who do not, learn it more easily when it is explained by a colleague or a partner. This way of organising the class benefits everyone: the person who receives aid and the person who gives it, because they also strengthen and learn what they know best. This training and learning model is being implemented in many regions in Spain and South America.
FR02	The project aim was to develop a **reflective approach** among unemployed senior executives who believe they can learn from each other to improve their employability. The reflection carried out, individually and in groups, is facilitated by a structured consultation exercise that deals with issues experienced by the participants. The approach is based on the combination of individual and collective work and by the active involvement of participants in defining the programme and the topics to be considered. A topic is proposed to the groups by one participant and the others bring in ideas and proposals for solutions.
IRE01	Use of mindfulness tools and reflective journals to support **reflective learning** through: - group dynamics to facilitate peer support and peer learning; - blended learning for building resilience (drawing on Mindfulness, CBT, Meditation); - a reflective journal to promote the use of reflective learning; - life satisfaction audit tools for use in the group and after the course has finished; - teaching the participants how to take stock of their most transferable skills; - a follow-up action by each participant targeting a personal goal to be achieved within three months (this goal is posted to participants three months after the course).
ITA01	**Project work methodology** was based on the active involvement of participants, with activities centred on shared reflection with: - the definition of a training pact; - use of the group as a key tool in the learning process; - the presence of tutors or helpers during the training course; - adoption of a blended approach integrating training activities in presence and at distance; - writing a 'project work' by the participants. The project work allowed the contextualisation of knowledge, input and reworking that emerged throughout the course, and summarised the reflections and the work that took place within the groups. The project work was carried out mainly by the tutors and facilitators, able to manage active involvement in the workshops planned during the seminars. Additional times were established by the group, on the basis of the group's needs. Tutors and trainees were tasked with guiding the groups in preparing the projects and with supporting the participants in searching for any materials required for the project work. They stimulated sharing and reflection within and

	between groups, facilitated group organisation (in presence and at distance), the sharing of activities to be carried out and the production of project work outputs.
ITA03	The **MAUT (Motivation to Acquire, Use and Transfer knowledge) test battery** adopted in the practice had a dual aim. The first was to help to identify the senior workers to be involved as masters in the mentoring and intergenerational exchange process. The second aim was to give senior workers applying for it feedbacks on their strengths for the intergenerational exchange process. Once identified, the 20 masters were involved in a two-day training course during which the results of the MAUT battery were returned. The MAUT battery highlights how people represented themselves and workers of other generations, and helps to identify the characteristics that facilitate and hinder intergenerational exchange. The MAUT battery is divided into seven sections that people were asked to complete. The first six are common to senior and junior workers, while the seventh is only for seniors: 1. beliefs on the importance, transmissibility and decline of skills; 2. beliefs related to age in the workplace; 3. willingness to exchange knowledge and competencies; 4. preference for young-old exchange; 5. general age-related beliefs; 6. emotions; 7. after retirement (for senior workers only).
RO02	The BeOLD training programme for human resources managers, coordinators and directors of organisations was based on an **intergenerational approach.** It includes face-to-face workshops and e-learning modules, in which the participants confronted, integrated and modified their perception regarding old age in work environments. They explored and identified new ways to create intergenerational and age-friendly work environments.

In most cases, the training **methods adopted** are **blended**, as they combine different aspects including the following:

- The experiential part (**learning-by-doing**) with the theoretical part (IRE01, NO01/02, ITA02). This is also evident in the **dual learning** processes that characterise some of the practices (ITA01, ITA02, CH02) and in cases where theoretical contents are proposed together with practical exercises based on real-life examples and on concrete experience (IRE01, NO01/02).
- **Face-to-face training and distance learning** (RO01, RO02a), which nowadays is becoming more usual.

CH02	The project, started on July 2021, adopts a **learning-by-doing approach** targeted to women micro entrepreneurs. It is based on the valorisation and validation of previous competences acquired also in non-formal and informal contexts, through skills assessment and counselling.
ITA02	The language training for senior workers was based on a **dual system model**, combining classroom training with workplace training abroad. The process included the preparation phase (pedagogical, cultural, linguistic) and followed three steps: 1. language training organised in Trentino before the stay abroad period, for a maximum of 50 hours (outside working hours), inserted into the personal trainee portfolio; 2. two weeks of linguistic, cultural, professional training with the hosting partner; 3. five weeks training on the job (first two weeks alternating with the linguistic-technical support; the last three weeks exclusively in the company).
RO01	The UISEL project was aimed at improving ICT knowledge and use among the over 50s. It was based on a **blended learning methodology integrating face-to-face sessions and mobile multimedia contents** with the support of an e-platform for collaboration and communication. In detail, a two-stage approach was adopted: 1. First, a training phase based on immersion in mobile content and a multimedia environment was targeted to trainers and caretakers in direct contact with senior citizens. A blended learning methodology was adopted integrating face-to-face sessions and mobile multimedia contents with the support of an e-platform for collaboration and communication.

	2. Second, mobile technology was transferred to the senior citizens through direct training by the trainers and caretakers with support of mobile multimedia modules. This included a self-learning model to allow senior citizens to recall how to use the mobile device's functionalities.

Many of the approaches are based on **an initial needs and skills assessment or analysis** that operates at different levels:

- initial needs' assessment and self-assessment (ES01, CH01, ITA01 and 03, ES02);
- initial skills assessment (CH02) to build training contents based on needs;
- background assessment (ITA01, FR01) considering also the institutional and socio-economic context where the practice operates.

Some of the practices also promote **new approaches to skills assessment, validation and certification**, also considering skills acquired in non-formal and informal learning (e.g. ITA01, ITA02, CH02). Specific skills are assessed using informal assessment methods, based on interviews with course participants, rather than formal assessment methods (DEN01). Self-assessment may also be used, applying specific methodologies and tools such as the Rickter Scale process for self-assessment (RO02). Some practices promote the assessment of (potential) unexpressed skills and talents, adopting methods and tools such as MAUT, to find out the potential of knowledge transfer between young and senior workers (ITA03). A career, forward looking perspective can also be taken rather than a backward-looking approach, based on the assessment of competences (DEN02), and on Competence Assessment and Accreditation Processes – CAAP (ES01).

DEN02	The **career learning model** focuses on the **assessment of the clients' talents and strengths** rather than on the gaps and shortcomings, as in the traditional needs assessment. This allows the learners to keep a positive view on their own opportunities rather than the feeling of being outdated and left behind. The career learning model includes: - three main categories of interest (myself, job and education, choice, and taking action) constituting the material areas of contents and setting goals for the activity; - a taxonomy of four learning levels (sensing, sifting, focusing, understanding) represent different stages of the learner's progression in each main category.
FRA01	The initiative, targeted to long-term unemployed women over 45, combines training with an **assessment of the skills needed in the local context** and jobs availability in the territory to support job search and employability.
ITA02	The project developed a **Personal Trainee Portfolio** as a tool to assess the competencies acquired with the training activities (also through non-formal and informal learning during the work experience abroad). This is based on self-evaluation of learning progress and certification of the acquired competencies (on the basis of the European Mobility and Training booklet).
RO02	The **Rickter Scale© process** (http:andandwww.rickterscale.comand) adopted in the project is a tool developed in 1993 by Keith Stead and Rick Hutchinson. It is built on the so-called four Rs (Rapport, Relationships, Respect, Results) and follows a structured conversational dialogue guiding individuals through present and future aspects of their life. The tool is useful to measure both the hard and soft outcomes present in a person's life, through looking at the distance individuals have travelled towards their desired skills (e.g. interpersonal skills, organisational and analytical skills, and personal attributes – motivation, awareness, confidence and self-esteem).

The collected practices do not precisely define **the professional profile of the trainers** of adult and senior learners. However, those targeted for the training of trainers (adults' and seniors' trainers, teachers, tutors, HR managers) provide useful inputs on the learning model and skills promoted for

adult and senior trainers. These practices tend to promote a competence-based learning model involving basic skills, digital skills and professional skills (ES01), where tutoring and mentoring skills are particularly relevant. The latter include listening capacity, a maieutic role, empathy, facilitation, motivation-building, intercultural awareness, problem-solving and equal partnerships with learners. (CH01, DEN01and02, IRE01, ITA01, NO01and02). These practices also underline the need for trainers to be able to adopt the previously mentioned intergenerational and intercultural approaches (RO02, ITA03, IRE02).

CH01	Trainers involved in the five 4-hour face-to-face meetings worked on the **10 key competences considered necessary to implement in their senior employees**, besides digital skills: facilitation skills; organisational skills; critical thinking; creative skills; networking; communication; intercultural awareness; problem-solving; interpersonal skills; motivational skills.
DEN02	According to the career learning model, **professionals should develop the following capacities**: coaching, according to the clients emotional and mental transition processes; a facilitating role to support the learners' own search for relevant information; being 'the competent ear', listening carefully and enquiring before suggesting any kind of solution or steps forward; adopting a maieutic role rather than an expert role; building an equal partnership with the learner.
ES01	The Autonomous Community of Aragón is incorporating **competence-based learning** not only in school education, but also in adult education and training (AET). Focusing on competencies underlines the central role that they occupy in the curriculum (together with other objectives, contents, pedagogical methods and evaluation criteria). In relation to professional skills, the training was focused on: **competence assessment and accreditation processes** (CAAP); professional certificates; basic professional training in public adult education centres; preparation of key competencies tests N2 and N3; and preparation of the entrance exams to intermediate and higher vocational training.
IRE02	Fáilte Isteach offers teaching **support to the voluntary tutors and teaching materials.** The topics addressed within the classes are language and communication skills based on and related to everyday interactions. The classes are informal and there are no formal evaluation activities.
ITA03	A total of 20 masters (**mentors)** were involved in a two-day training course exploring the new role from a double perspective: - learning **how to transmit positive attitudes and behaviours to others**, first of all with the daily example, to be recognised as a model; - learning the **skills necessary** to best perform the various activities envisaged by the role.

The collected practices also provide **concrete indications and recommendations for training bodies and trainers. They indicate how to design and conduct training courses addressed to adults and seniors**, taking into account their specific needs and learning patterns. These indications may be listed as follows:

- organisation of small size classes with few learners per trainer and tutor;
- use of multiple media and flexible work schedules;
- organisation of short sessions (attention decreases over time) and frequent pauses;
- use of frequent checks and repetitions (to consolidate the learning);
- alternating between listening and dialogue to create variety;
- use of practical exercises and real-life examples;
- provide enough time for completing the tasks;
- promotion of group discussion and dynamics (to support activation and participation, commitment, engagement);
- organisation of a final dialogue and wrap-up with the participants;
- using documentation to accompany the course;
- provide accessible and comfortable learning places, possibly widespread over the territory to reduce commuting.

An example in this respect is the Norwegian Seniornett project (NO01 and 02).

NO01and02	The Seniornett training approach is based on the following key factors: - Small class size and adequate number of instructors and sub-instructors: there is a maximum of 18 students, with one instructor or sub-instructor for every six students. - Low pace and resting periods: the length of a course is a maximum of 3 or 4 hours each day, due to the reduced attention span and the need not to get too much information at a time. This is organised in short sessions (maximum 45 minutes with a 15-minute break) to be able to stand up from a sitting position. - Appropriate environment: a central place is needed, easy to reach and access for older people. - Alternating between listening and dialogue, repetitions and practices, checking and repeating after the breaks to verify that the participants have learned what has been covered. Clarifying what is to be learned by the course leader, constantly asking if the syllabus has been understood, with a final dialogue every day with the participants. - Use of practical exercises, real-life examples and sufficient details and time for completing the tasks: the need to use documentation that accompanies the course (theme and day booklets).

The collected practices also produced **training material, toolkits, handbooks, guidelines, learning platforms and portals.** These can be considered and included in the digital platform (IO2) to be developed in the next stage of the *To Switch* project.

For example, the IRE01 'Changing Gears' project developed specific exercises to be used during the training to support self-reflection. This was in addition to the development of an online age-friendly platform for age management courses, for senior workers and learners. Another example is the RO01 UISEL project, which developed a set of six mobile multimedia modules (introduction module; e-interaction and e-communication; e-information and e-government; e-entertainment and media; e-health; e-shopping and e-banking) in seven different languages, integrated in a video repository app. The project also developed a mobile game for senior citizens. Other tools used in the collected practices include the MAUT approach adopted in the IT03 project for intergenerational skills exchange. The Rickter Scale© process was adopted in the RO02 project to assess skills acquired.

Most of the collected practices have also implemented **monitoring and evaluation** systems to assess the results, and in some cases (e.g. in the IRE01 project) evaluations have been carried out by external evaluators.

Specific approaches according to the senior trainees' target groups

The analysis of the practices in relation to the senior's target group highlights specific training approaches and methods, depending to the trainees' labour market conditions and the course aims.

The four collected practices on the training of **senior workers** in workplaces are largely based on the use of the andragogic model to support personal development and empowerment. These practices tend to combine general training in soft and horizontal skills (e.g. motivation and learning capacity, problem-solving) with job specific training, including ICT and digital skills, and language skills. Some of the approaches are focused to the job, while others also consider the worker's life (e.g. DEN01, RO02B, ITA02). In the selected practices, the adopted approach is based on the promotion and enhancement of:

- self-confidence and positive expectations to a person's own strength and power to make a difference for themselves;

- capacity to identify more complex patterns of meaning within individuals, in their social relations and in society at large;
- motivation for and capacity to learn new things;
- emotional and resilience capacity through specific techniques.

An important indication coming from some of the practices (e.g. ITA01) is the need to adopt a **preventive life cycle approach.** This promotes a positive attitude towards learning, and upskilling and reskilling throughout the workers' lifecycle.

DEN01	The course, targeted to blue-collar senior workers in temporary unemployment, was **interest driven** and aimed at improving the participants with 1) cognitive abilities for abstract thinking and shift of mind-set and perspective, 2) emotional development of self-belief, courage, and a broader perception of identity, and 3) motivation for social participation and interaction. To this end, the course was designed to develop means to cope with the inevitable threat of unemployment. It also had a focus on more personal aspects, allowing deeper needs to be addressed. Most of the planning was on a day-to-day basis, following the participants' interests. The methods employed involved: o teacher presentations of topical knowledge, models and theories including open questions to the class and constant invitations to comment, using a Socratic maieutic method of questioning for the conveying of new knowledge; o group discussions of the topic's related questions followed by group presentations, where classmates are constantly invited to comment on each other's findings; o role-play exercises resembling the law-making process in parliament to prepare a social bill proposal and meeting the obligation of reaching a final agreement; o short exercises practising tools of verbal communication; o guided field trips to public bodies of interest.
IRE01	The reflective approach adopted in the project aims at supporting seniors in transitions and to prepare for later life. It offers participants time to think about the health challenges they face and steps they can take to manage them better. It develops skills that build **confidence for the future, reimagining ageing** as a time with positive opportunities. Designed for people in mid-career or anticipating retirement, the courses promote resilience in later life. They facilitate participants to be more self-directive in making lifestyle choices to optimise older age. The courses also improved workers' feelings in the organisation. Participants reported feeling more valued by their organisation and they felt that the organisation was investing in them and their future by allowing them to attend the course. For some, this led to a renewed sense of commitment to the organisation. This supports the evaluation findings for the increase in job involvement over the mid to long term for those with low levels to start with.
ITA02	The mobility abroad proposed by the Mo.S.E project aims **at motivating people to learn** according to certain principles: adults learn if they are motivated; a **stimulating learning context is crucial; adults want to be the protagonist of their learning** (also getting involved in outside-work contexts).

Training practices targeted to **senior unemployed or inactive** are usually aimed at the empowerment and reintegration in the labour market. Again, they are especially aimed at enhancing motivation, self-confidence, and identification and valorisation of talents and skills (FR01, FR02, CH02). They also **complement training activities with guidance services for labour market integration** (FR01, FR02), with attention to the specific barriers faced by some population groups. For example, women who are facing gender stereotypes and work–life balance problems as in the case of one French (FR01) and the Swiss (CH02) practices, or senior executives (FR02).

CH02	The women's micro-entrepreneurship training and support project is aimed at women who want to start up a new business. It offers advice and **support concerning work–family balance and the valorisation of gender diversity**, to overcome social inequalities, especially gender inequalities. The course includes the following activities: - initial individual counselling for the definition of the personal objective and feasibility; - modular training to acquire the necessary skills and focus on the project such as o development of the entrepreneurial idea and transversal skills (critical thinking, creative skills, interpersonal and intercultural competences) o digital competences o budget and business model o organisation and management o motivation and relationship building through: - individual support throughout the process; - creation of a network for exchange and sharing; - facilitating contact with possible financiers.
FR01	The initiative, targeted to long-term unemployed women over 45, supports beneficiaries **to become aware of their assets and skills** also from non-formal and informal contexts, e.g. acquired in family and social life. It helps them overcome stereotypes, both of employers and relatives but also of ready-made representations about themselves, by repositioning and motivating them. The initial training modules on skills and self-confidence allow beneficiaries to become aware of their assets. The training is complemented by job search support, with counselling on job prospects depending on the careers, skills and aspirations of participants and job availability in the territory. A third step is providing support in applying for jobs, through the updating of CVs and presentation to potential employers, and the removal of obstacles. These can include low mobility, family constraints, disabilities, poor command of technological tools, lack of self-confidence, reduced motivation or feeling of 'wear and tear'.
FR02	The initiative targeted to senior executives aged 45 and over was aimed at the **dynamic remobilisation** of these workers, with specific work on the issues of self-confidence, image, background and on their networks. The implementation and success of the workshops relies on participants motivated by the sharing of experiences. Two sessions of two months for 10 people were implemented in 2019, with a final three-month review in December in which all job seekers received recruitment interviews. The activity allowed them to regain self-confidence, establish a new job search strategy, open up to others, assert themselves, reactivate their network and support each other.

Training practices targeted to **senior citizens** are focused on enhancing motivation, self-confidence and talent and skills valorisation, to promote and support active ageing and reduce social isolation. The considered practices (NO01and02, ES02, IRE02) introduced an interesting community-based approach, where (senior) citizens and volunteers are activated as trainers and tutors in a peer-to-peer learning perspective.

ES02	La Verneda Learning Community Adult School promotes formal and non-formal education related to very different topics (including job training and a course for educators of adult education). To carry out educational activities, they encourage the formation of **interactive groups**, small groups of participants in which people help each other, teach and collaborate together. These groups encourage solidarity, dialogue among equals, the expression of implicit knowledge and skills and cultural awareness. Nowadays the school has a total of 2 400 students, with more than 60 nationalities represented and more than 150 volunteers involved in the training activities.
IRE02	Fáilte Isteach is a **community project involving predominantly older volunteers** acting as tutors for migrants in conversational English classes. Local organisations and individuals across Ireland are supported in the setting up of conversational English classes in their local community. Training and teaching material is provided to establish group and ongoing support, and refresher

	training and updated resources are made available to groups nationwide. Tutors are older volunteers within the local community comfortable with leading an informal, conversational-style class, while students are non-native English speakers looking to increase their language skills.
NO02	The Seniornett approach is to establish local training centres all over the country manned **with volunteer workers, with a common curriculum** to as large a degree as practical. The project is run using voluntary, non-paid resources.

An important element emerging from the collected practices is also **the role of other stakeholders, besides training institutions, in the design and implementation of training policies for seniors**. For seniors outside the labour market (inactive or retired), the role of the local community in promoting and activating training activities is particularly important (NO01/02; ESP02). In the case of senior workers or unemployed seniors, some of the collected practices underline the importance to involve the economic and social partners, which can support awareness-raising on the importance of lifelong learning among both employers and workers (ITA01/O2).

ES02	The Adult Community School of La Verneda is currently managed by two learners' associations: Àgora, with a president from Ecuador, and Heura, a women's association with a president from Morocco. The diversity of backgrounds helps to prevent everyone from feeling foreign. The school activity is based on a **strong participatory approach** in the school decision-making and management, **involving the local community**. All those participating in the activities of the school, e.g. representatives of the learning community and public authorities, are invited to participate in the decision-making spaces of the School. These include the General Assembly, the College Council, the Monthly Coordination Committee (COME), and the various Commissions for Democracy that define the courses to be implemented, schedules and other school decisions.
ITA01and02	A strong point of the project is the assessment of the local context and the involvement **of the social partners.** This is achieved through the creation of a mixed consultation group in which the social partners play the dual role of project actors and facilitators. There is active involvement of the network socio-economic actors at the local level in the planning and design of training activities. This ensures adequate knowledge of the skill needs and support for the planning intervention lines.
NO01and02	**The Local Communities are involved in identifying volunteers to act as teachers and local centre administrators. Teachers**, primarily on a voluntary basis, are hired from digitally competent resources: - pensioners' associations of companies within the ICT field; - former colleagues of participants (word-of-mouth); - students (part-time and for a modest fee); - freelance ICT teachers (for a modest fee).

5.4 Discussion

The collected training practices present elements that can be ascribed to the andragogic paradigm and in some cases are also evident elements of the heutagogy approach (self-determination).

The main inputs arising from the collected practices can be summarised as follow:

- attention to age-specific learning needs, and patterns and adoption of group dynamics, active participation and interactions between learners and trainers, peer learning, emotional and resilience-building techniques in the conduction of training classes;
- use of collaborative planning and an experience-based approach, integrating class training with work experience and use of digital technologies in the design of training activities for senior learners;

- support for learners' capacity to act and interact, valorising real-life experience and skills and potentials, building motivation and self-confidence, promoting peer learning, critical thinking, and problem-solving;
- creation of informal learning environments based on small groups and involve tutors, mentors and coaches to support both the activation of the seniors and the teachers;
- production of training material, toolkits, handbooks, guidelines, learning platforms and portals that can be included in the digital platform (IO2) to be developed in the next stage of the *To Switch* project.

There are many positive inputs for the development of a new framework of reference for senior workers' training. However, the collected practices also show some of the drawbacks and gaps in the current state of the art regarding seniors' training.

The main issue is the high fragmentation of practices, tools, concepts and terminology used. These need to be systematised in a common conceptual paradigm to be capitalised and internalised in mainstream lifelong learning policies.

The lack of a common conceptual paradigm for seniors' training is also emerging from the still little attention to the development and adoption of the following:

- A life cycle approach in training models for adult and senior workers[5], where the lifelong learning approach addresses workers and individuals throughout their lives with age-specific training approaches. Among the collected practices, only the AWARE project (ITA01) explicitly underlines this issue.
- A clear definition of the competences and professional profile of trainers to be involved in adult and senior education and training.
- Methods for the validation and certification of skills for adults' trainers.

The lack of a structured mainstream training system addressing the adult and senior population is particularly evident in some of partners' countries (e.g. Romania and Italy). Here, most of the projects are EU-funded and are likely to present a low sustainability when the EU funding ends.

[5] A good practice in this respect is the Centre for Senior Policy in Norway, supporting and developing policies concerning older workers in the workplace. The Centre provides counselling and training activities on senior issues for the government, businesses, social partners and human resource organisations: https://seniorpolitikk.no/om-oss/

6. A new andragogical conceptual paradigm

In this section of the Intellectual Output, we present the proposal of **a new andragogic conceptual paradigm**. Starting from a definition that aims to explain what is meant by paradigm, some conceptual streams, functional to the development of this new paradigm, will be drawn. These will come from the evidence obtained in the literature review and from the good practices analysed in the previous sections. The proposal presented, also in this case, **represents an interpretation and reworking of the existing models, updated on the basis of what is considered the most solid scientific evidence**. This will be followed by an illustration of how the new model works and a discussion of its characteristics.

6.1 Theoretical, methodological and evidence-based assumptions

The Oxford Dictionary (https://premium.oxforddictionaries.com/definition/english/paradigm) provides the following definition of the term '**paradigm**': it is 1. 'a typical example, pattern or model of something ... 1.1 a world view underlying the theories and methodology of a particular scientific subject ...' For the purposes of this Intellectual Output, it can be said that both definitions are appropriate and relevant. What we intend to propose is **a new model** that develops the approach of andragogy and adapts it to the needs and characteristics of **twenty-first century adult learners**. We also intend to propose **a new vision** of adult learning that applies with greater rigour the scientific evidence produced on the subject – theoretical and conceptual, and methodological.

A first assumption that we want to defend in the proposal for a new model concerns the **rejection of typified classifications that amplify the divergences** between learning approaches. As observed in Section 4.2.3 and Section 4.4, the comparative interpretations overemphasise the principles and characteristics that differentiate the approaches. This produces an accentuation of the divergences, when instead it proves to be more interesting and potentially promising to insist on the **common principles and convergence factors**. Therefore, we can call this first assumption on which the proposition of the new model is based '**convergence as opposed to divergence (typification)**'. As well known and already noted, ideal-typical classifications tend to take the characteristics on which the respective models are based to their extremes.

Second and third assumptions on which to base the proposal for a new andragogic paradigm of adult learning are taken directly from the analysis of the literature. In particular, and as we have seen, the literature dedicated to describing the characteristics of andragogy and heutagogy. Regarding the second assumption, we can summarise it through the following formula: **the principles of andragogy already incorporate self-direction**, which is one of the principles that in heutagogy underpins the self-determination of adults in learning. We thus recognise and defend in this proposal the idea that the semantic distinction between self-direction and self-determination is particularly subtle, scarcely discriminating and is of little use. Self-direction implies by definition a decision relating to directing a certain learning content towards a person, which implies **freedom, autonomy and independence of judgement.** These are nothing more than properties that also explain the meaning of self-determination. Therefore, rather than discussing defining subtleties, in this proposal we defend the use of terms such as freedom, autonomy and independence of judgement because of their best semantic quality. Moreover, they are principles which, rather than differentiate, highlight the convergence between the andragogic approach and the heutagogic one. For the third assumption, we observed (Section 4.2.2) that the key starting point of a heutogogical learning process is the joint definition. This is based on independent judgement between learner and teacher, of individualised learning contracts. In this, the field of self-determination of the individual in learning is summarised and takes shape. **Within this space of self-determination, it cannot be excluded in principle that the concrete design of learning incorporated in the contract does not contemplate the adoption of principles of traditional pedagogy and andragogy, and heutagogy**. At the procedural level, the most important knot of heutagogy

is the self-determination that takes the form of the learner's autonomy in choosing and fixing in a learning contract. This incorporates their preferences regarding what, how, when and where to learn. This does not exclude the fact that the learner, according to certain contents, may prefer pedagogical principles, for others the andragogic principles, and for others still the heutagogic ones.

In consideration of the previous three assumptions, there is a fourth and final assumption underlying the proposal of a new andragogic paradigm for adult learning. This concerns the choice of field for **a model based on hybridised and harmonised learning principles**. It must be recognised that in the practice of learning processes, what is actually achieved is the use of a mix. The effectiveness of this depends equally on the ability and preparation of the teacher and trainer as well as on the motivation and self-directedness of the learner. The principles of learning are made explicit in the design of the learning process itself and formalised in the learning contract. This is true not only in the field of adult education and training, but also in higher education (e.g. the Bologna Process), in vocational training, organisational training and professional upskilling. We take as an example, an adult needing to learn the use of spreadsheet-based software to perform statistical data analysis. The learning contract can include – without this leading to imbalances in the effectiveness of the designed learning process – the following:

- A traditional and unidirectional module is devised, from teacher to learner, in which the functions of the software and the use of commands are explained.
- A module is developed, inspired by andragogic principles through which the learner, tutored by the teacher, carries out exercises to become familiar with the software. This is done in relation to their own needs and what they have learned.
- A project work module is used, inspired by heutagogic principles through which the learner performs an original study using the software they have learned to use. This done with the supervision and suggestions of the teacher to respond to a personal need or desire, thus succeed in transforming and modifying its own reality.

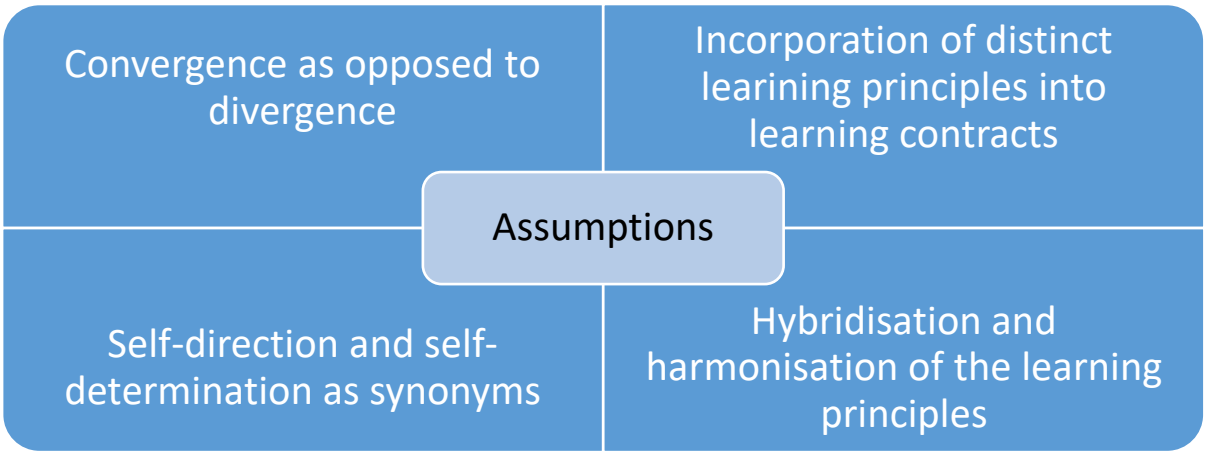


Figure 8: New conceptual paradigm four assumptions

In summary, **the new 'hybridised and harmonised' andragogic conceptual paradigm for adult learning proposed in this Intellectual Output is a convergent model. It recognises the autonomy and independence of judgement of the adult learner in formalising learning contracts. Within these, the hybridisation between multiple principles of pedagogy, andragogy and heutagogy is rewarded, in relation to learners' previous experience, preferences, desires, needs and personal payoffs**.

6.2 Conceptual development of the principles founding the model

In Table 7, the principles that should characterise the new 'hybridised and harmonised' andragogic conceptual paradigm are reviewed. These adopt the same categories used to present in a comparative key the differences between the approaches of pedagogy, andragogy and heutagogy (Table 5). The aim is to identify the points of convergence of the three approaches that can benefit the practice of adult learning.

As for the **target subjects of learning**, clearly the new paradigm and model is oriented towards adult individuals. However, most of its principles can also be applied in the fields of second-cycle secondary education or higher education. The reference to having previous experience is to consider is virtual, since it largely depends on the field of learning to which it refers. As for adults, both employed and unemployed, it is possible to hypothesise to be always in presence of individuals carrying different volumes of previous experience.

The **learning objectives** in the new hybridised paradigm are comprehensive. They can be specified as the acquisition of knowledge that facilitates the development of new skills – developed in terms of capabilities – that allows problem-solving in complex situations including the need to use technology. In this regard, the acquisition of meta-cognitive skills, or abilities related to 'learning how to learn', is considered a fundamental element of the development of skills interpreted as capabilities.

In terms of **organisation of learning**, we refer to the example provided in the description of the assumptions of the new paradigm in Section 6.1. We can affirm that the hybridised and harmonised model is inevitably based on a modular learning design. It is once again appropriate to repeat that the modular organisation of learning is also used within standardised curricula, which often leave different margins of freedom to teachers. This means they can flexibly design and use principles not strictly derived from traditional pedagogy, e.g. classroom exercises, project works or gamification. The practice of education and training – especially in adult learning – is much more complex, and richer than the learning models described in an ideal-typical way intended to convince us.

Analysing the **relationship between the learner and the teacher**, in adult learning emphasising the importance of mutual recognition of their respective roles is significant, however negotiable and adaptable they are. This principle of reciprocity therefore recognises the autonomy of the learner in reaction to their learning needs and desires. However, it also applies to the teacher, both in identifying the modalities and contents of learning and those of the evaluation of what has been learned. On the teacher's side, they recognise the learner's need for autonomous and self-directed learning, and are promoting it. On the learner's side, they recognise the importance of the experience and the guidance, orientation, supervision that the teacher can offer when necessary to achieve the learning objectives. These learning objectives are formalised within a learning contract.

The **learning process** is considered unidirectional in pedagogy, bidirectional in andragogy and multidirectional in heutagogy. According to the principles of the new adult learning paradigm, this can be considered comprehensive. Therefore, it can be open to the intervention of all the subjects that weave the network of relationships that surrounds the teacher-learner training relationship. These include peers – other adults in learning, but also bearers of interest in the learning relationship itself, agents of the social environment and the wider community of reference. For this reason, as heutagogy advocates, the acquisition of new capabilities can be considered a potential transformation factor, since the training relationship takes place within a specific social context.

In relation to **learning resources**, the inflection point of the new proposed model is represented not only by their breadth or degrees of freedom, but by their quality. In the information society, the fundamental problem that challenges the individual in learning, and also the teacher who guides and supports them, concerns the management of information. The quantity and pervasiveness, as well as the ease of access to information, far from being a facilitating factor for learning, currently represents an obstacle or challenge. As we will see a little further on, there is a fundamental prerequisite for

learning how to learn when referring to the cognitive processes that underlie adult learning. This concerns the development of the ability to access information based on evidence and coming from reliable sources from the methodological and scientific point of view. The ability to recognise reliable sources, to know how the information was produced and validated, to process data, nowadays represent fundamental capabilities. This is also, and above all, for the teacher who intends to supervise adults' learning processes.

Table 7: Features of the new hybridised andragogic model

Feature	Hybridised and harmonised principles
Target learners	Adult and senior learners, with or without experience
Objective of learning	Acquiring new knowledge and developing new competencies and capabilities, based on the need to solve new problems, including the meta-cognitive 'learn how to learn' skill
Organisation of learning	Modular, combining standardised curricula, self-directed and self-determined learning
Role of learners and teachers in learning and assessment	Learners and teachers are 'autonomously co-dependent and co-hybridising', both in learning and assessment, according to and within the limits of the learning contract they have set; reciprocal bipolar model
Learning process	All-encompassing, between teacher, learner, peers learning process stakeholders, social environment and the community
Learning resources	Multilevel, evidence-based designed, based on trustworthy sources
Level of cognition and learning	Cognitive, meta-cognitive, epistemic and based on critical and computational thinking addressed to problem-solving and directed to change
Assumptions related to the learning process for change	Double and multiple-loop learning
Motivational factors	Holistic, based on reflexivity, melding extrinsic and intrinsic values associated with learning and personal payoff
Allowing creativity	Yes, at every learning stage
Requiring interaction and collaboration between learners	Yes, at every learning stage

In line with what is stated in relation to the organisation of learning, the **underlying cognitive process** is multiple. There will be aspects of the learning process that will require the activation of purely cognitive mechanisms relating to the understanding, interconnection of elements and their interpretation. At the same time, these mechanisms – especially in adults – will stimulate the activation of meta-cognitive mechanisms. In adults, the performance differentials associated with age that emerge in tests on fluid intelligence are contrasted by the stability of performance in tests on crystallised intelligence (Marcaletti et al., 2014; Warr, 1994b). Hence, to bring adult learners to develop the ability to

learn how to learn, it is necessary to stimulate, with reference to any area of learning, the epistemic mechanism. That is the one based on critical and computational thinking applied to problem-solving, and which feeds off scientific evidence. Only at this cognitive level is it possible to alter previous values and knowledge, stimulate the change of the individual and, consequently, of their social surrounding.

Regarding the **assumptions concerning the potential for change** that learning can produce, the application of the principles described in this model indicate that the default option is double-loop learning. If learning activities always move up to the meta-cognitive and epistemic level, a feedback effect is produced that stimulates the change of the adult in learning and their environment. Following these premises to the end, however, it would be more correct to refer to a multiple-loop learning processes, for which a constant feedback effect is observed. This is even more evident from a lifelong learning perspective, when adults are frequently engaged in learning processes.

As a consequence of all this, the **factors that motivate learning** in the new model must be interpreted in a holistic sense. They must consider the coexistence of intrinsic and extrinsic thrusts that feed back to each other and are the prerogative of the reflexivity of the adult in learning. This is the only one that can define a balance between the value attributed to learning and the personal payoffs – in relation to needs – of the training activity.

Ultimately, **creativity and interaction between learners** are two inevitable (positive) consequences of the basic assumptions of the new hybridised and harmonised paradigm. Learners' creativity must be promoted at every level, as well as the opportunities to interact and collaborate with peers, including in peer-assessment and self-assessment activities.

6.3 Procedural translation of the new model's principles: a map

Summarising the main assumptions of the hybridised model, the key principles that can be translated into procedural rules are the following:

- Collaboratively use the learning contract strategy, also taking into account the expectations of learning's stakeholders.
- Base the learning activities on the PS-TRE process.
- Organise learning in phases and subphases (subset cases), taking into account learners' previous experience and motivation.
- Define, in relation to each subphase, the model and the most suitable learning principles (dependency, self-directed or self-determined model).
- Use double-loop learning (or multiple-loop learning) to return to the definition of learning objectives and update them with respect to the satisfaction of the single learning need and problem.
- Assess using tools for self-evaluation and peer evaluation.

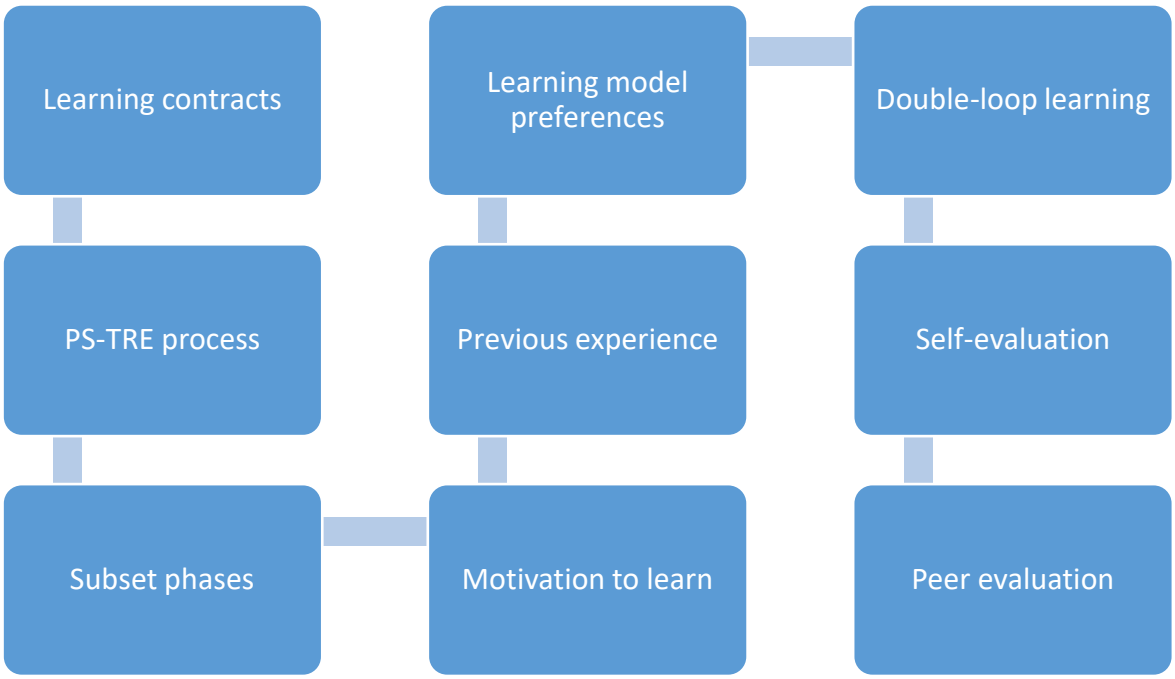


Figure 9: Key principles of the new conceptual paradigm

In summary, these are the **principles derived from the new hybridised andragogical conceptual model** of adult learning (illustrated in Table 7). Elements taken from the literature review and good practices analysis have been added. The translation of these principles and elements into a procedural scheme can guide the planning of training activities inspired by the new andragogic model. It can then take advantage of the procedural framework offered by the PS-TRE process presented in Section 4.3.1.

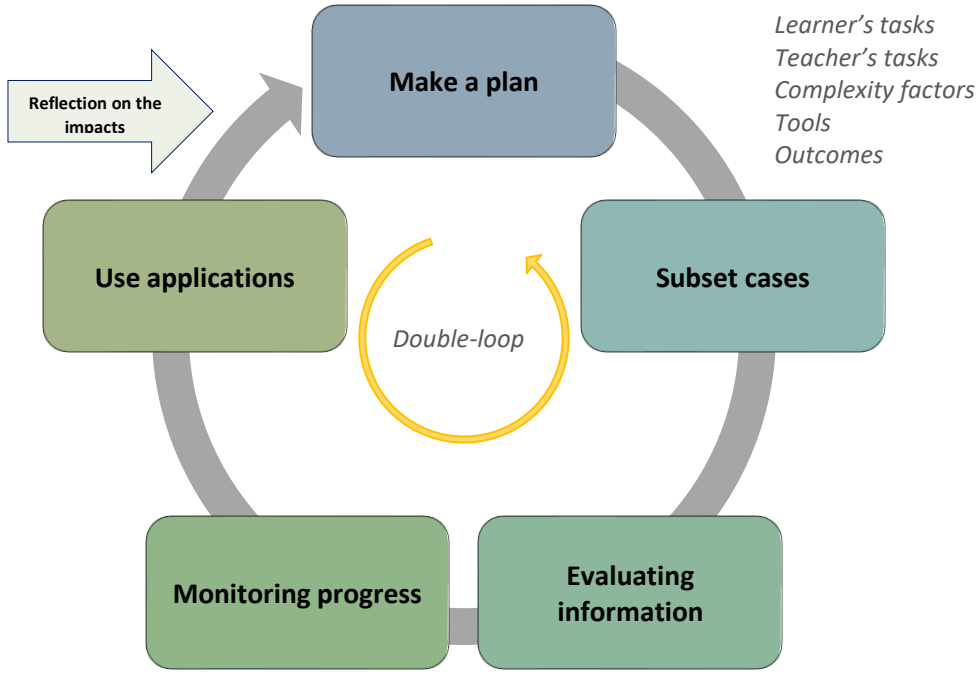


Figure 10: Procedural map for the translation of the new model's principles

According to the process principles, what can represent an **'orientation map' in the planning of training activities** is presented in Table 8. The columns of the table exemplify the centrality assumed by the learner in the new model. This represents the interdependence between tasks assigned to the

learner and tasks assigned to the teacher, both dependent in turn on complexity factors that must be assumed and resolved. All this is through the use of specific tools in each learning phase, with a view to obtaining specific outcomes. The rows of the table exemplify the main phases and subphases of the adapted PS-TRE process, to which pre- and post evaluation phases have been added.

Each step of the proposed scheme, but especially steps 3, 4 and 5, can be conceived in a modular and iterative way. They are a **sequence of learning units organised in a logical form, stimulating critical reflexivity and offering the possibility of returning to the previous steps to review and update them.** In this way, they activate a transformative process that allows the learner to develop new skills which can be interpreted in terms of capability.

Table 8: Procedural map for the translation of the new model's principles

Learner's tasks (steps)	Teacher's tasks	Complexity factors	Tools (example of)	Outcome(s)
0) Pre-activity self evaluations	Setting the test, collaboratively	Align pre-activity evaluation with learning needs	Education & Skills Online Assessment (ESO) or adaptations	Score before the learning activity
1) Make a plan (learning contract)				
- **Set goals** - How can I define the learning problems I have to solve and goals I have to achieve? - How can I investigate them? - Which source of information can I use? How can I store information? How long will it take? - How can I use my previous experience?	- Support the learner in clearly identifying the learning problems and goals - Support the learner in clearly identifying which elements of their previous experience can be taken into account - Suggest sources of information and ways to access and store it - Support drafting the organisation of the study and learning, and the preliminary definition of its phases	- Definition of the learning problems and goals - Number of ICT environments to be used - Degree of monitoring	ICT tools, indexed databases, data warehouses, literature repositories	Initial definition of learning goals, steps to investigate them, organisation of the study and learning (draft planning chart and learning contract)
- **Identify constraints** - How can I evaluate as feasible what I want and need to learn? Which other characteristics of my learning problem and needs constitute a constraint? How can I address them?	Orientate the learner in choosing strategies and steps to address the constraints, adopting a reflexive and critical outlook	- Number and type of constraints - Number of steps to address the constraints	SWAT analysis	Initial definition of the strategy for dealing with constraints
2) Subset cases				
- **Plan and organise** - How can I design a planning chart? How can I split up the learning problems and goals I have to solve and achieve into phases? - According to each phase and subphase, which kind of information and tools can support me? How can access them (back to Step 1)? Which constraints do I have to address (back to Step 1)? - Which learning preferences do I have with respect to each phase and subphase? - How can I organise the learning activities into time planning?	- Orientate the learner in adopting a reflexive and critical outlook on their planning chart, and learning preferences (dependency, self-directed, self-determined) - Suggest sources of information and ways to access and store it - Support the timing organisation of learning activities	- Number and order of the steps and operators to achieve the learning goals - Number of ICT environments to be used - Reflexivity concerning learning preferences - Allowing self-pacing	Project work tools, GANTT charts	- Planning chart of goals and subgoals to address the learning needs - Time planning - Further revisions of planning chart and time planning
3) Evaluating information (double-loop process)				
- **Acquiring and evaluating information** - *(While acting to achieve the learning goals of each subphase)*: Is this what I really need to learn (back to Step 2)? Can I trust the information? Do I understand it and know how to use it (back to Step 1)?	- Orientate the learner in adopting a reflexive and critical outlook on their learning - Facilitate the transfer of content and information according to learning preferences	- Number of ICT environments to be used - Stimulate a constant reflexive and critical attitude in the learner	- Didactic tools for synchronous and asynchronous sessions - Monitoring sheets	- Acquire information - Develop skills and capabilities - Critically reflect on them - Further revisions of planning chart and time planning, adding a monitoring plan

- What kind of skills do I need to understand the content of the information? Which part do I still miss? How can I reach it (back to Step 1)? - Do I need to modify my planning chart (back to Step 2)? - How can organise a monitoring plan? - Which kind of feedback do I need? When, where, how and from who?	- Suggest alternative sources of information and ways to access and store it - Constantly provide appropriate feedback	- Use distinct learning principles in modular form - Allowing self-pacing - Handle the double-loop		
4) Monitoring progress (double-loop process)				
- **Moving to reach goals** - *(While acting to achieve the learning goals of each subphase)*: How can I assess if a learning activity is allowing progress? - How can I assess if I really achieved my learning goals (back to Steps 2 and 3)? Do I still miss information (back to Step 1)? - Do I need to modify my planning chart (back to Step 2)? - Which kind of feedback do I need? When, where, how and from who?	- Orientate the learner in adopting a reflexive and critical outlook on their learning - Facilitate the transfer of content and information according to learning preferences - Suggest alternative sources of information and ways to access and store it - Constantly provide appropriate feedback	- Number of ICT environments to be used - Stimulate a constant reflexive and critical attitude in the learner - Use distinct learning principles in modular form - Allowing self-pacing - Handle the double-loop	- Didactic tools for synchronous and asynchronous sessions - Monitoring sheets - Self-evaluation tools	- Develop skills and capabilities - Critically reflect on them - Further revisions of planning chart, time planning and monitoring planning
5) Use applications (double-loop process)				
- **Applying the information** - *(While acting to achieve the learning goals of each subphase)*: Am I consistently applying the information to the solution and achieving my learning problems and needs? - How can I critically evaluate the effectiveness of information, skill and capability I acquired and developed (back to steps 2, 3 and 4)? - How can I consistently describe the body of learning I acquired? - How can I present the outcomes of the learning activities I undertook? - Which kind of feedback do I need? When, where, how and from who?	- Highlight the applicative aspects (to problem-solving) of learning - Support drawing conclusions about problem-solving - Support the presentation of the conclusions reached - Constantly provide appropriate feedback	- Number of ICT environments to be used - Stimulate a constant reflexive and critical attitude in the learner - Draw conclusions about learning objectives and problem-solving - Consciously reflect on the capabilities that have developed - Allowing self-pacing - Handle the double-loop	- Presentation tools - Monitoring sheets - Self-evaluation tools	- Presentation of learning results and acquisitions
00) Post-activity self-evaluation(s)				
- How can I consistently describe the body of learning I acquired? - How can assess the social impact of the learning activity? - Which kind of feedback do I need? When, where, how and from who?	- Highlight the applicative aspects (to problem-solving) of learning - Support drawing conclusions about problem-solving - Constantly provide appropriate feedback	- Stimulate a constant reflexive and critical attitude in the learner	- Self-evaluation tools	- Assessment scores after the learning activity

		- Draw conclusions about learning objectives and problem-solving - Consciously reflect on the capabilities that have been developed		

Following a preliminary phase pretesting skills or knowledge at the entrance to the learning activity, the **first step** of the process is the definition of the learning plan itself. This entails two strictly connected subphases: the definition of the learning objectives and the identification of the main constraints to achieve them. This is the same general phase that in the PS-TRE process is referred to as problem-finding (Table 6, Step 1). Fundamental in this phase is the identification of the key information to be accessed, as well as the identification of the limits it presents. The identification of the learning objectives in this phase allows a formalisation of the main elements of the learning contract jointly defined by the learner and the teacher.

The **second activity** concerns the splitting up of the learning activities to be carried out to reach the solution of the problem into subphases of activities (subset cases). This also relates to elementary learning units organised in sequence and over time, i.e. the phase that in the PS-TRE is referred to as plan and organise (Step 2). Related to this activity is the preference that is accorded in each of the sub-phases or elementary learning unit for a specific approach to adult learning. For example, whether it is more oriented to the principles of pedagogy, andragogy or heutagogy. Changes or deviations from what was previously planned may lead to a revision of what was settled in the learning agreement, referred to in Step 1.

The **third fundamental activity** concerns the acquisition of the information necessary to reach the solution of the problem through what is being learned. Essential to this phase is the quality of the information, being transmitted by a teacher as well as that which the learner has had independent access to. This is what in the PS-TRE process is presented under the name of acquiring and evaluating information (Step 4). In this case the need to fill any gaps in access to reliable and truthful information can lead to a review of the objectives of the learning subphases previously planned. This becomes more effective when the information acquisition is accompanied by the definition of a monitoring plan (self-directed, hetero-directed, among peers) and the planning of moments where the teacher returns feedback to the learner.

The **fourth activity** does not constitute a separate phase from the others. It represents a transversal activity to the other phases, since it specifically concerns the monitoring of progress in achieving the learning objectives, based on the constant application of the double-loop principle. This is what constitutes Step 3 in the PS-TRE process, called ‘monitor progress’. It can therefore lead to the revision of part of the objectives, the need to acquire new information, monitoring tools and feedback activities related to previous phases.

The **fifth activity** concerns the application and use of what has been learned to solve the problem that stimulated the learning activity. This involves the critical evaluation of the results obtained, the evaluation of the impact, and the personal and social effectiveness of the solution to the problem. This is what constitutes Step 5 in the PS-TRE process, called ‘use the information’. This activity is a prelude to the final assessment of the learning achieved. It can also take the form of a formal presentation and assessment of the body of learning acquired by the learner.

For operational purposes, what has been illustrated can be organised in procedural terms through the identification and collection of a series of tools and resources. Learners and teachers can use these jointly to implement the distinct training activities in accordance with the proposed learning model. Table 9 provides some examples.

Table 9: Example of resources to be activated in the learning processes based on the new conceptual andragogical model

Learning activity steps	Description of the content, tools and resources to be activated
0. Pre-activity evaluation	• Tools for the assessment and self-assessment of knowledge and skills prior to training, such as in the field of digital skills: OECD's Education and Skills Online Assessment (ESO) • Tools for assessing learners' previous experience • Tools for the ex-ante evaluation of preferences regarding teaching methods and learning
1. Make a plan	
Set goals	• Any repository, database, data warehouse, etc. that allows access to reliable sources of information and content in the various fields of interest of the project partners (in relation to the field in which they will test the training activities through the use of the digital platform) • Guidelines and principles for adult learning and the implementation of learning activities aimed at adults • Methods, tools and contents of learning processes should be taken from good practices
Identify constraints	• Guidelines or digital applications that explain and facilitate the implementation of a SWAT analysis
2. Subset cases	
Plan and organise	• Guidelines or digital applications that explain and facilitate the realisation of project work • Guidelines or digital applications that explain and facilitate the implementation of a GANNT
3. Evaluating information	
Acquiring and evaluating information	• Monitoring guidelines, applications, sheets • Self-assessment guidelines, applications, sheets • Tutorials on the use of videoconferencing platforms
4. Monitoring progress	
Moving to reach goals	• Monitoring guidelines, applications, sheets • Self-assessment guidelines, applications, sheets • Tutorials on the use of videoconferencing platforms
5. Use applications	
Applying information	• Self-assessment guidelines, applications, sheets • Presentation tools
00. Post-activity evaluation	• Tools for the assessment and self-assessment of the knowledge and skills (including soft skills) acquired at the end of the training and the social impact of problem-solving

Examples of consolidated methodologies and appropriate digital resources are provided for the implementation of the activities and the achievement of learning outcomes. These apply to each of the phases or steps of the PS-TRE model adapted to the new andragogical approach defined above.

6.4 Discussion

At the end of this section it is pertinent to critically discuss some of the characteristics and the **potential limitations** the new andragogic conceptual paradigm presents. We presented the principles governing it, its development in procedural terms inspired by the PS-TRE and its practical implementation in learning activities aimed at adults (whether in a situation of employment or not).

A first aspect that deserves to be discussed concerns the **concrete implementation of adult learning processes** in accordance with the new hybridised paradigm.

In this context, one of the critical elements concerns the **definition of the learning contract**. This operative solution has been indicated as one of the potentially unifying elements of pedagogy, andragogy and heutagogy, as the guiding principles of these paradigms can coexist under its umbrella. Heutagogy, as a form of learner's self-determined learning, postulates the definition of personalised learning contracts, a solution not always feasible when put into practice. In learning contexts synchronously involving large groups of learners, it is not always possible to create conditions so that, with each learner's individual objectives and personalised implementation, practices can be defined. A solution to this criticality that is generally used concerns the definition of areas, methods and learning objectives common to the group of learners, which are accompanied by personalised tutoring and feedback. Another effective technique in this regard is the use of the project work method, individually or in small groups, associated with supervision and monitoring by the teacher.

At the critical level of the first area – those associated with the concrete implementation of the learning process aimed at adults – a further aspect concerns the design of the process itself. In particular, this regards the **articulation of learning modules oriented to distinct principles referable to pedagogy, andragogy and heutagogy**. The criticality lies in the ability and experience of the teacher in knowing how to effectively guide and direct learners, for each training module, towards the choosing the most appropriate principles. The learners themselves must show, on their own account, awareness of the specificities of each of the approaches and principles that govern them. They need to possess a priori a reflexive competence on teaching methods that cannot be taken for granted in all adult learners. However, even with respect to this criticality it is possible to rely on didactic principles that can dilute it. In particular, one way to overcome this critical aspect is represented by the use of the double-loop principle. This requires experience from the teacher and reflexivity in the learner, and allows the identification of specific gaps in terms of learning in the different phases of the activity. Thus, it can be more easily identified and resolved by returning to define the objectives and resources to be used in the learning process. The organisation of learning as a sequence of modules and subphases is a prerequisite for the success of this strategy.

A further criticality of the first area concerns the **realisation of assessment activities**, pre and post realisation of the learning activities as well as ongoing. These use appropriate tools and are agreed with the learners. Even this type of activity requires a fair level of awareness and reflexivity, which cannot always be taken for granted. An important recommendation is to steadily provide information with clarity regarding the implementation of such evaluation activities.

A second critical area, which will be developed and discussed in Section 7, concerns the **profile of the trainer, tutor, mentor or coach of adult learners**. The aspects to be considered in this area essentially concern two issues: the first is the pedagogical-methodological skills of the trainer, especially with regard to the techniques to be applied to stimulate critical and computational thinking. This should include the development of learning activities compatible with the PS-TRE process and the adaptation of the training proposal to the revisited andragogic paradigm, as proposed in this Intellectual Output. Second, ICT skills and in particular, those relating to the design of tools – typical of social research – for carrying out surveys and evaluation, and self-evaluation activities. Those relating to access to sources of information – in specific fields of interest – that are reliable and based on empirical evidence must also be included. These are three areas of competence of the trainer that are essential in the context of adult learning in the twenty-first century.

The third aspect to consider concerns the **learner's profile**. In previous studies on adults' motivation to learn, adults who were interested in benefiting from learning opportunities based on traditional pedagogy, with lectures and unidirectional teacher-learner relationship, clearly emerged (Iñiguez Berrozpe & Marcaletti, 2016). Therefore, it is necessary to consider the greater heterogeneity of adults in relation to the motivation to learn. The proposal can vary a lot and must therefore be equipped

with the necessary flexibility to adapt to concrete personal situations, depending on the target adult subjects in learning. Aspects such as their active or inactive condition, previous experiences, learning needs and preferences regarding learning methods as well as age and gender characteristics also need to be considered.

The fourth critical aspect concerns the applicability of the new paradigm with respect to the **different contexts of adult learning**:

- The good practices analysis (Section 5) has highlighted the heterogeneity of these contexts and how, in relation to these, the organisation of learning changes substantially.
- Contexts and recipients, with the motivation to learn they bear, are the main coordinates that circumscribe the spectrum and the limits of the learning that can be achieved (in contrast to the 'abstract' vision of heutagogy which supports the substantial absence of limits with respect to learning).

This last area of potential criticality reaffirms the importance of **redefining adult learning starting from a human-centric, humanist and holistic posture.** This should be oriented to the development of capabilities and with transformative potential, disconnected from functionalist aims and economic efficiency (Giannoukos et al., 2015).

7. Adult trainer competence profile

7.1 Overview

There is an abundance of scientific literature that discusses the characteristics, merits and limitations of pedagogical, andragogical and heutagogic approaches applied to adult learning. However, **the number of contributions that focus on the characteristics that teachers, educators, trainers, mentor and coach of adults should possess is extremely limited**. Reading the available scientific contributions, it appears that the profile of the adult teacher can be implicitly derived, described and assumed starting from one of the approaches to adult learning. Therefore, it is assumed that a teacher engaged in an andragogic learning process with adults is able to properly take into account learner's needs. These include self-direction, their previous experience, organised, modular and flexible teaching activities, offering self-pacing options, correctly interpreting the motivation to learn of all adult learners, and so on. Also in the literature, it is assumed that the teacher is able to reproduce the models, methods and techniques of learning experienced in distinct adult learning situations. This includes adapting them to their own goals and targets.

The scarcity of contributions specifically dedicated to the adult learner teachers needs to be augmented in this section of the Intellectual Output which describes their competence profile. Therefore, the scarce evidence encountered in the scientific literature is joined by the observations resulting from the analysis of good practices (Section 5). A description of the characteristics of the profile is proposed in line with the new andragogic conceptual model proposed (Section 6). In the conclusion of this section, some final considerations are proposed regarding the modelling and implementation of the professional profile of the teacher and adult trainer.

7.2 Innovative inputs from literature, good practices and implemented andragogical paradigm

As for the contributions from the scarce literature on the subject, it is worth mentioning among the most focused the paper by Wahlgren (2016) dedicated to the core competencies of adult educators. In this contribution, explicit mention is made of the **wide spectrum of complex and heterogeneous skills that currently the teacher of adult learners must possess**. Among the fundamental skills, the author mentions some that can be considered as skills that transcend national, cultural and functional borders. These are core competencies organised into four sub-categories: (1) communicating subject knowledge; (2) taking students' prior learning into account; (3) supporting a learning environment; and (4) the adult educator's reflection on their own performance' (Wahlgren, 2016, p. 343). With respect to these four areas, it is worth noting the transversality of the skills indicated, with an important role assigned to the reflexive capacity of the teacher. However, the conclusions reached by the author of the contribution show an explicit failing. The ability of the teacher to train adults so they can apply and use what they have learned in practice seems to be one of the most neglected skills of teachers.

The observations proposed by Levy-Feldman (2018) regarding the characteristics of **the 'good teacher' in the field of heutagogy are more general.** As the author puts it, the 'mentoring teacher' is equipped with heutagogic skills aimed at promoting self-determined learning through dialogic teaching. The use of dialogic teaching can be linked to the communicative skills of the adult teacher, as evidenced by the previous contribution cited. It allows teachers to 'promote the self-learning abilities of different learners and better prepare them to navigate the challenges of the current era' (Levy-Feldman, 2018, p. 177).

Finally, a contribution already presented in this Intellectual Output (Section 2.2.2) concerns the general alignment of the competences of teachers (including adult trainers) to **the framework of digital**

competences for the twenty-first century. This is a background sufficiently generic to be applied to different educational scenarios and to adapt to technological evolution (Caena & Redecker, 2019). In this context, the alignment of the digital skills of educators:

> *... can serve multiple purposes at different levels in education systems. At the micro level, it can support and guide teachers' practice and continuous professional development. At the meso level, it can support […] common ground for dialogue, collaboration and reflection in professional communities of practice. At the macro level of quality assurance, it can provide reference standards for initial teacher education* (Caena & Redecker, 2019, p. 356).

In conclusion, what is confirmed in our literature review is that even the most specific only reaffirm the importance of some principles already present in paradigms such as andragogy or heutagogy.

The contribution to **the profile of the adult teacher coming from the good practices** selected by the partners of the *To Switch* project is shown in Section 5.3. These are mostly indications (or recommendations) that are concrete and related to the methods for carrying out tasks in the act of designing and implementing training activities aimed at adult learners. From these, however, some core competences can be pull out, exemplified as follows:

- **Design of training, organisational, logistical and managerial skills**: the teacher must master the ability to organise modular, theoretical-practical paths, using adequate support materials. This should be done in small groups that ensure self-pacing, provide sufficient breaks that adapt to learners' schedules and reduce their commuting for attending the learning activities.
- **Skills related to individual and group learning dynamics**: the teacher must master the knowledge about how adults learn, attention profiles, ways of consolidating learning, evaluation and feedback.
- **Communication skills**: the teacher must master the techniques that allow active, participatory and dialogic learning. This should be both in communication and exchange between teacher and learner, as well as in the dynamics of exchange between learners.

The core competencies presented in the next section arise from the reflection of the partnership regarding the definition of the new andragogic conceptual model for adult learning and its implementation. These, and the above elements, fulfil the objective of proposing a profile of the adult trainer updated to the characteristics and needs of learning in the twenty-first century.

7.3 Adult trainer profile

Further core areas of competence of the adult trainer arise directly from the design of the new andragogic conceptual model. Some of the elements of this have been anticipated in Section 6 of the Intellectual Output, and it is possible to consider the five that are described below.

1. The first element to highlight concerns an aspect that is not reported in the literature despite its centrality. **The trainer must be an expert trainer in their field of knowledge –** that is, they must have a specific theoretical and applicative knowledge that they are able to transfer to learners. Deprived of this wealth of knowledge, the figure of the trainer, facilitator, tutor, coach or mentor of adults loses meaning.
2. **The trainer must be an expert in learning processes;** they must possess a methodological and applied knowledge regarding the most appropriate principles, processes and tools to be used in adult education. Therefore, they are a figure able to use and adapt the principles of pedagogy, andragogy and heutagogy in the most effective way for achieving training goals. They own the knowledge that allows them to identify when it is more appropriate to resort to one or the other.

3. **The trainer must be able to handle procedural and applicative knowledge relating to critical and computational thinking applied to problem-solving in technology-rich environments (CCT in PS-TRE).** That is, in transformative learning practices aimed at strengthening learner's capabilities. In this context, the adult educator is able to orient themselves among the twenty-first century skills, to apply the main ones and teach them. These include skills in the fields of information and data literacy, communication and collaboration, digital content creation, safety and problem-solving. Stemming from this, the trainer owns the knowledge about how the main web applications that allow interaction in real time and remotely between teacher and learner work, and can be used for learning purposes.
4. A further element to consider in relation to the profile of the adult workers' trainer, considers the context of information density that characterises the current information society. This concerns the **possession of methodological and technical knowledge relating to the retrieval and use of reliable information empirically contrasted and based on scientific evidence**. Expertise in an individual's own field of knowledge must be based on such evidence and in the ability to transmit to learners the methodologies for obtaining such evidence-based information. It follows the ability to use the most up-to-date sources of information available.
5. Considering the complexity of the learning processes and their evaluation, **the trainer of adult (workers) must also possess basic social research methodological and technical knowledge**. This must be addressed to the construction of quantitative and qualitative tools for the monitoring and evaluation of learning outcomes.

The complexity of considering further fundamental elements of adult trainer lies in the multiplicity of profiles to which we can refer. Alongside the traditional profile of trainer, other specific profile competences can be associated with the figures of the tutor, coach, mentor and facilitator in the transmission of knowledge.

Partially compensating for the potentially critical elements introduced by these complexity factors, the contribution of the project partners regarding the profile of the adult trainer concern two specific dimensions. In many respects, these are linked:

1. Skills related to the ability to understand and consider learners' motivation to learn in the design and execution of learning activities, will encourage constant involvement and reduce drop-outs.
2. Soft skills, which can be referred to the teacher, represent an attitude towards learners which considers themselves a learning partner more than a traditional teacher. They act as a counsellor and facilitator, and an information and knowledge broker rather than a simple transmitter. To the learners, they act in the sense of stimulating the development of reflective, dialogic learning skills, aware of the learning transformative impact on an individual and peer level.

7.4 Discussion

It is possible to summarise the analysis on the core competencies of adult trainers. These are identified thanks to the analysis of the literature, good practices, the reflection on the implementation of the new andragogic conceptual model and its discussion with the project partners. The **ten fundamental elements of the adult trainer profile** are presented in Figure 11.

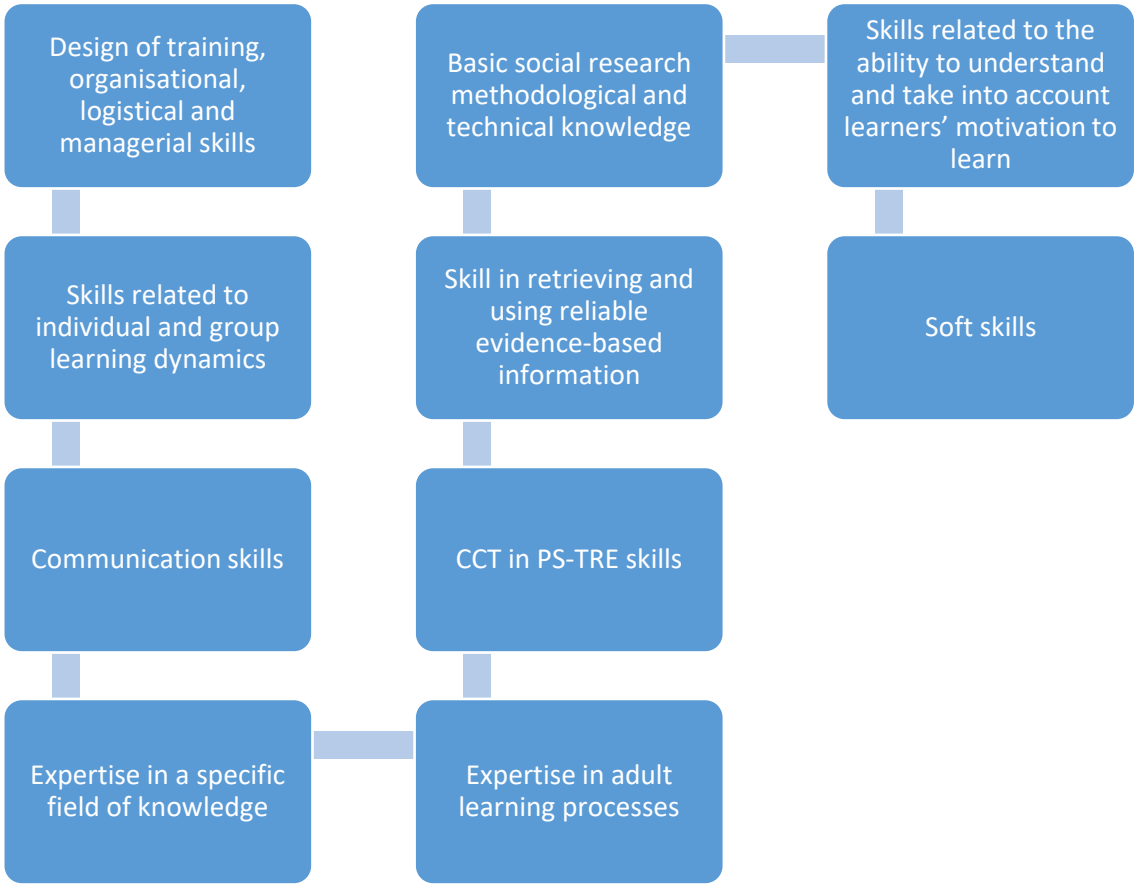


Figure 11: Ten fundamental elements of the adult trainer profile

In presenting these core competences of the adult trainer profile, we are aware of the limits of what is proposed, for the reasons that have already been widely described:

- lack of literature;
- greater attention paid to training processes and targets in learning than to teachers;
- difficulties in formalising sufficiently flexible profiles to be able to adapt to extremely heterogeneous adult learning situations.

Advancement in this field could be achieved through research practices aimed at the operationalisation of such nuclei of expertise for empirical purposes, data collection and validation of results. For example, this could follow the approach adopted in literature to empirically validate the principles of the andragogical approach (Holton et al., 2009). This objective, however, does not fall within the purposes and possibilities of the *To Switch* project.

8. Conclusions

The analyses carried out in this report for the definition of Intellectual Output 1 achieved the objectives. These were to extrapolate, building on a critical analysis of the most recent scientific literature, the prevailing paradigms and models in the field of adult and senior worker learning. In addition, they were to define a new andragogic conceptual model updated to the challenges and the skills needed in the twenty-first century.

The analysis of the good practices selected and proposed by the partners of the *To Switch* project has enriched the analysis of the literature. This has been achieved through:

- the reconstruction of a typology of learning experiences aimed at adults and senior workers;
- the identification of common transversal elements ranging from collaborative approaches, to blended methods, up to the assessment of needs and certification of skills;
- the specification of the learning paths starting from the characteristics of their recipients.

The set of these elements has converged in the proposal of a new conceptual model of adult learning. The salient features are:

- the enhancement of the converging elements of the prevailing paradigms;
- the hybridisation and harmonisation of the principles extrapolated from these paradigms;
- the inclusion of these principles in learning contracts as a basis for the development of training proposals;
- the enhancement of self-direction and self-determination of adult learning subjects.

To link Intellectual Output 1 with the subsequent Intellectual Outputs of the *To Switch* project, the proposal of the new conceptual model was formulated. This was to support a development in operational terms, starting from the explanation of its key principles and their development into a modular, flexible and adaptable process sequence. This is inspired by an updated version of the PS-TRE, organised in subphases and dynamised by means of the principle of double-loop learning. The operational translation of the new andragogic conceptual paradigm favours the transition from the basic principles identified to their implementation within learning activities aimed at adults. This is supported by the digital platform that will be the subject of Intellectual Output 2 of the *To Switch* project.

An analysis of the literature and good practices was carried out in the context of this Intellectual Output. This also made it possible to identify elements of the profile of the adult trainer in harmony with the principles of the new andragogic model. The ten core competences proposed as constitutive of the professional profile represent an unprecedented attempt in the literature to arrive at a definition of the competences that the adult educator must have. The new andragogic conceptual model, the process and the tools that make it possible to apply it, represent resources that can also be used in the training of adult educators.

In carrying out the activities related to the production of this Intellectual Output, numerous limitations were faced. They are documented in each section dedicated to the analysis of the literature, analysis of good practices, definition of the new model, and identification of the professional profile.

A first order of limitations concerns the extreme fragmentation of the scientific literature on the subject of adults and senior workers learning. It covers the general scientific weakness of this production, the limited scale of the practices carried out and documented, and the general lack of information based on scientific evidence.

Part of the weakness of the existing literature is due to the prevailing tendency to justify the proposal of approaches oriented towards adult learning. For example, it may indicate andragogic or heutagogic as an alternative and in opposition to approaches inspired by classical pedagogy, without ever trying to identify the elements with convergence between them.

Finally, the literature on the characteristics and competence profiles of adult trainers and senior workers is extremely scarce and lacking in specific insights.

References

Ainsworth, S. (2006). Constructing older workers: cultural meanings of age and work. In M. Hearn & G. Michelson (Eds.), *Rethinking Work: Time, Space and Discourse* (pp. 308–328). Cambridge University Press.

Aksoy, A. N., & Meral, A. (2020). How to Develop Adult Educators' Technological and Andragogical Knowledge : A Case Study in a Private Night High School. *Journal of Educational Leadership and Policy Studies*, *4*(1).

Andrisani, P., & Daymont, T. (1987). Age changes in productivity and earnings among managers and professionals. In S. H. Sandel (Ed.), *The Problem isn't Age: Work and Older Americans* (pp. 52–70). Praeger.

Arghode, V., Brieger, E. W., & McLean, G. N. (2017). Adult learning theories: implications for online instruction. *European Journal of Training and Development*, *41*(7), 593–609. https://doi.org/10.1108/EJTD-02-2017-0014

Argyris, C., Schön, D. A., & N, D. A. S. (1978). *Organizational Learning: A Theory of Action Perspective* (Issue v. 1). Addison-Wesley Publishing Company. https://books.google.es/books?id=2aYOAQAAMAAJ

Arifin, Z., Nurtanto, M., Priatna, A., Kholifah, N., & Fawaid, M. (2020). Technology Andragogy Work Content Knowledge Model as a New Framework in Vocational Education: Revised Technology Pedagogy Content Knowledge Model. *TEM Journal*, *9*(2), 786–791. https://doi.org/10.18421/TEM92-48

Ashton, J., & Newman, L. (2006). An unfinished symphony: 21 st century teacher education using knowledge creating heutagogies. *British Journal of Educational Technology*, *37*(6), 825–840. https://doi.org/10.1111/j.1467-8535.2006.00662.x

Bangura, A. K. (2005). Ubuntugogy: An African Educational Paradigm that Transcends Pedagogy, Andragogy, Egonagy and Heutagogy. *Journal of Third World Studies*, *XXII*(2), 13–54.

Bansal, A., Jain, S., Sharma, L., Sharma, N., Jain, C., & Madaan, M. (2020). Students' perception regarding pedagogy, andragogy, and heutagogy as teaching–learning methods in undergraduate medical education. *Journal of Education and Health Promotion*, *9*(1), 301. https://doi.org/10.4103/jehp.jehp_221_20

Bauer, W., Hämmerle, M., Schlund, S., & Vocke, C. (2015). Transforming to a Hyper-connected Society and Economy – Towards an "Industry 4.0." *Procedia Manufacturing*, *3*(Ahfe), 417–424. https://doi.org/10.1016/j.promfg.2015.07.200

Bhoyrub, J., Hurley, J., Neilson, G. R., Ramsay, M., & Smith, M. (2010). Heutagogy: An alternative practice based learning approach. *Nurse Education in Practice*, *10*(6), 322–326. https://doi.org/10.1016/j.nepr.2010.05.001

Billett, S. (2002). Critiquing workplace learning discourses: Participation and continuity at work. *Studies in the Education of Adults*, *34*(1), 56–67. https://doi.org/10.1080/02660830.2002.11661461

Bjursell, C. (2019). Inclusion in education later in life: Why older adults engage in education activities. *European Journal for Research on the Education and Learning of Adults*, *10*(3), 215–230. https://doi.org/10.3384/rela.2000-7426.rela20192

Blackley, S., & Sheffield, R. (2015). Digital andragogy : A richer blend of initial teacher education in the 21st century. *Issues in Educational Research*, *25*(4), 397–414.

Blaschke, L. M. (2012). Heutagogy and Lifelong Learning: A Review of Heutagogical Practice and Self-

Determined Learning. *The International Review of Research in Open and Distance Learning*, *13*(1), 56–71.

Blaschke, L. M., & Hase, S. (2016). Heutagogy: A Holistic Framework for Creating Twenty-First-Century Self-determined Learners. In B. Gros, Kinshuk, & M. Maina (Eds.), *The Future of Ubiquitous Learning. Learning Designs for Emerging Pedagogies* (pp. 25–40). Springer. https://doi.org/10.1007/978-3-662-47724-3

Blaschke, L. M., & Marin, V. (2020). Applications of Heutagogy in the Educational Use of E-Portfolios. *Revista de Educación a Distancia (RED)*, *20*(64), 1–21. https://doi.org/10.6018/red.407831

Blau, D., & Shvydko, T. (2007). Labor Market Rigidities and the Employment Behavior of Older Workers. *Industrial and Labor Relations Review*, *64*(3), 464–485. https://doi.org/10.1166/jnn.2011.2709

Boehm, S. A., Schröder, H. S., & Kunze, F. (2013). Comparative Age Management: Theoretical Perspectives and Practical Implications. In J. Field, R. J. Burke, & C. L. Cooper (Eds.), *The SAGE Handbook of Aging, Work and Society* (pp. 211–237). SAGE.

Bohlmann, C., Rudolph, C. W., & Zacher, H. (2018). Methodological Recommendations to Move Research on Work and Aging Forward. *Work, Aging and Retirement*, *4*(3), 225–237. https://doi.org/10.1093/workar/wax023

Bourdieu, P. (1993). *Sociology in Question*. SAGE.

Bourdieu, P., & Wacquant, L. (1992). *An invitation to refexive sociology*. University of Chicago Press.

Bratton, J., Mills, J. C. H., & Sawchuk, P. (2003). *Workplace Learning: A Critical Introduction*. University of Toronto Press. https://books.google.es/books?id=0i6HNP80GX4C

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W W Norton & Co.

Caena, F., & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu). *European Journal of Education*, *54*(3), 356–369. https://doi.org/10.1111/ejed.12345

Care, E. (2018). Twenty-First Century Skills: From Theory to Action. In E. Care, P. Griffin, & M. Wilson (Eds.), *Assessment and Teaching of 21st Century Skills. Educational Assessment in an Information Age* (pp. 3–17). Springer International Publishing. https://doi.org/https://doi.org/10.1007/978-3-319-65368-6_1

Care, E., Griffin, P., & Wilson, M. (Eds.). (2018). *Assessment and Teaching of 21st Century Skills. Educational Assessment in an Information Age*. Springer International Publishing. https://doi.org/10.1007/978-3-319-65368-6

Carroll, T. (2007). Curious conceptions: learning to be old. *Studies in Continuing Education*, *29*(1), 71–84. https://doi.org/10.1080/01580370601146338

Cedefop. (2006). *Promoting Lifelong Learning for Older Workers. An International Overview* (T. Tikkanen & B. Nyhan (Eds.)). Office for Official Publications of the European Communities.

Cedefop. (2019). *2018 European Skills Index. Technical report*. Publications Office of the European Union. https://skillspanorama.cedefop.europa.eu/sites/default/files/ESI - Technical Report.pdf

Cherniss, C., Goleman, D., Emmerling, R., Cowan, K., & Adler, M. (1998). *Guidelines for best practice*. https://www.eiconsortium.org/reports/guidelines.html

Coughlan, R. (2004). From the challenge to the response. *BITE Project Conference Proceedings*.

de Lange, A., Kooij, D., & van der Heijden, B. I. J. M. (2015). Human Resource Management and Sustainability at Work across the Life-span: An Integrative Perspective. In L. Finkelstein, D. M. Truxillo, F. Fraccaroli, & R. Kanfer (Eds.), *Facing the challenges of a multi-age workforce: A use-inspired approach* (pp. 50–79). Routledge.

Dubar, C. (1992). Formes identitaires et socialisation professionnelle. *Revue Française de Sociologie*, *33*(4), 505–529. https://doi.org/10.2307/3322224

Eberle, J. (2009). Heutagogy: What Your Mother Didn't Tell you About Pedagogy and the Conceptual Age. *ECEL2009 - Proceedings of the 8th European Conference on E-Learning*, 181–188.

European Commission. (2019). *Digital Competence Framework 2.0*. https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework

European Foundation for the Improvement of Living and Working Conditions. (2015a). *Sustainable work over the life course: Concept paper*. Publication Office of the European Union.

European Foundation for the Improvement of Living and Working Conditions. (2015b). *Towards 'better jobs': Eurofound's approach to measuring the quality of work*. https://www.eurofound.europa.eu/publications/article/2015/towards-better-jobs-eurofounds-approach-to-measuring-the-quality-of-work

European Foundation for the Improvement of Living and Working Conditions. (2020). *Living, working and COVID-19*. Publications Office of the European Union. http://eurofound.link/ef20059

European Foundation for the Improvement of Living and Working Conditions. (2021). *COVID-19: Implications for employment and working life*. Publication Office of the European Union.

European Network of Public Employment Services. (2020). *Upskilling, reskilling and prevention in times of crisis. PES Thematic Review Workshop* (p. 18). Publications Office of the European Union.

Farrow, A., & Reynolds, F. (2012). Health and safety of the older worker. *Occupational Medicine*, *62*(1), 4–11. https://doi.org/10.1093/occmed/kqr148

Fenwick, T. (2013). Older Workers in the Professions: Learning Challenges and Strategies. In J. Field, R. J. Burke, & C. L. Cooper (Eds.), *The SAGE Handbook of Aging, Work and Society* (pp. 300–313). SAGE.

Findlay, J. (2002). *Learning in teams using collaborative tools that scaffold facilitation, knowledge creation and thinking skills*. Learning Technology Newsletter. http://www.lttf.ieee.org/learn_tech/issues/january2002/index.html#5

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, *34*(10), 906–911. https://doi.org/10.1037/0003-066X.34.10.906

Fuller, A., & Unwin, L. (2005). Older and wiser?: workplace learning from the perspective of experienced employees. *International Journal of Lifelong Education*, *24*(1), 21–39. https://doi.org/10.1080/026037042000317329

Gallie, D. (2007). *Employment Regimes and the Quality of Work* (D. Gallie (Ed.)). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199230105.001.0001

Gallie, D. (2017). The Quality of Work in a Changing Labour Market. *Social Policy and Administration*, *51*(2), 226–243. https://doi.org/10.1111/spol.12285

Garavaglia, E., Marcaletti, F., & Iñiguez Berrozpe, T. (2020). Action Research in Age Management: The Quality of Ageing at Work Model. *Work, Aging and Retirement*, waaa25. https://doi.org/10.1093/workar/waaa025

Giannoukos, G., Besas, G., Galiropoulos, C., & Hioctour, V. (2015). The Andragogy, the Social Change

and the Transformative Learning Educational Approaches in Adult Education. *Journal of Education and Practice*, *6*(10), 46–51.

Griffin, P., McGaw, B., & Care, E. (Eds.). (2012). *Assessment and Teaching of 21st Century Skills*. Springer Netherlands. https://doi.org/10.1007/978-94-007-2324-5

Hager, P. (2004). Lifelong learning in the workplace? Challenges and issues. *Journal of Workplace Learning*, *16*(1/2), 22–32. https://doi.org/10.1108/13665620410521486

Hase, S., & Kenyon, C. (2007). Heutagogy: A Child of Complexity Theory. *Complicity: An International Journal of Complexity and Education*, *4*(1), 111–118. https://doi.org/10.29173/cmplct8766

Hase, S., & Kenyon, C. (2003). Heutagogy and developing capable people and capable workplaces : strategies for dealing with complexity. *Proceedings of The Changing Face of Work and Learning Conference*, 1–7. http://epubs.scu.edu.au/cgi/viewcontent.cgi?article=1123&context=gcm_pubs

Hase, S., & Kenyon, C. (2001). Moving from andragogy to heutagogy: implications for VET. *Proceedings of Research to Reality: Putting VET Research to Work: Australian Vocational Education and Training Research Association (AVETRA)*, 28–30. http://www.avetra.org.au/abstracts_and_papers_2001/Hase-Kenyon_full.pdf

Hase, S., Tay, B. H., & Goh, E. (2006). Developing learner capability through action research: From pedagogy to heutagogy in the workplace. *Proceedings of Global VET: Challenges at the Global, National and Local Levels: Australian Vocational Education and Training Research Association (AVETRA) Conference*, 1–10. http://epubs.scu.edu.au/cgi/viewcontent.cgi?article=1135&context=gcm_pubs

Hilsen, A. I., & Ennals, R. (2005). An action research approach to work ability, health and well-being of ageing workers. *International Congress Series*, *1280*, 365–370. https://doi.org/10.1016/j.ics.2005.02.097

Hitachi-UTokyo Laboratory. (2020). *Society 5.0*. Springer Open. https://doi.org/10.1007/978-981-15-2989-4

Hodkinson, P., Biesta, G., & James, D. (2008). Understanding Learning Culturally: Overcoming the Dualism Between Social and Individual Views of Learning. *Vocations and Learning*, *1*(1), 27–47. https://doi.org/10.1007/s12186-007-9001-y

Hogarth, T., & Barth, M. C. (1991). Costs and Benefits of Hiring Older Workers: A Case Study of B&Q. *International Journal of Manpower*, *12*(8), 5–17. https://doi.org/10.1108/EUM0000000000896

Holton, E. F., Wilson Swanson, L., & Bates, R. A. (2009). Toward development of a generalized instrument to measure andragogy. *Human Resource Development Quarterly*, *20*(2), 169–193. https://doi.org/10.1002/hrdq.20014

Hsu, Y.-S. (2013). Training Older Workers: A Review. In J. Field, R. J. Burke, & C. L. Cooper (Eds.), *The SAGE Handbook of Aging, Work and Society* (pp. 283–299). SAGE.

Ilmarinen, J. (2006). *Towards a longer worklife! Ageing and the quality of worklife in the European Union*. Finnish Institute of Occupational Health.

Ilmarinen, J. (2011). 30 years' work ability and 20 years' age management. In C.-H. Nygård, M. Savinainen, T. Kirsi, & K. Lumme-Sandt (Eds.), *Age Management during the Life Course. Proceedings of the 4th Symposium on Work Ability* (pp. 12–22). Tampere University Press.

Iñiguez Berrozpe, T., & Boeren, E. (2019). 21st Century Skills for All: Adults and Problem Solving in Technology Rich Environments. *Technology, Knowledge, and Learning*, *First Online*, 1–23. https://doi.org/10.1007/s10758-019-09403-y

Iñiguez Berrozpe, T., & Marcaletti, F. (2016). “We Are Not a Small Island, We Are the Ocean”. Becoming a Student in Mature Age. An Exploratory Analysis on Italy and Spain. *Research on Ageing and Social Policy*, *4*(2), 56–95. https://doi.org/10.17583/rasp.2016.2080

Iñiguez Berrozpe, T., Marcaletti, F., Elboj Saso, C., & Garavaglia, E. (2020). Conceptualising, Analysing and Training Computational-Critical Thinking (CCT) in Adults in the Knowledge Society. *Sociologia Del Lavoro*, *156*, 143–169. https://doi.org/10.3280/SL2020-156007

Kenyon, C., & Hase, S. (2001). Moving from andragogy to heutagogy in vocational education. *Proceedings of the 4th Annual Australian Vocational Education and Training Research Association (AVETRA) Conference*, 8. http://www.avetra.org.au/abstracts_and_papers_2001/Hase-Kenyon_full.pdf

Kim, Y., Park, J., & Park, M. (2016). Creating a Culture of Prevention in Occupational Safety and Health Practice. *Safety and Health at Work*, *7*(2), 89–96. https://doi.org/10.1016/j.shaw.2016.02.002

Knowles, M. S. (1973). *The Adult Learner: A Neglected Species*. Gulf.

Knowles, M. S. (1987). Adult Learning. In R. L. Craig (Ed.), *Training and Development Handbook: A Guide to Human Resource Development* (pp. 168–179). McGraw-Hill.

Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2005). *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development* (6th Editio). Elsevier.

Kooij, D. T. A. M. (2015). Clarifying and Discussing Successful Aging at Work and the Active Role of Employees. *Work, Aging and Retirement*, *1*(4), 334–339. https://doi.org/10.1093/workar/wav024

Kooij, D. T. A. M., Nijssen, H., Bal, P. M., & van der Kruijssen, D. T. F. (2020). Crafting an Interesting Job: Stimulating an Active Role of Older Workers in Enhancing Their Daily Work Engagement and Job Performance. *Work, Aging and Retirement*, *6*(3), 165–174. https://doi.org/10.1093/workar/waaa001

Leisink, P. L. M., & Knies, E. (2011). Line managers’ support for older workers. *International Journal of Human Resource Management*, *22*(9), 1902–1917. https://doi.org/10.1080/09585192.2011.573969

Levy-Feldman, I. (2018). The good teacher for the twenty-first century: a “mentoring teacher” with heutagogical skills. *International Journal of Mentoring and Coaching in Education*, *7*(2), 177–190. https://doi.org/10.1108/IJMCE-10-2017-0067

Marcaletti, F. (2014). Age management and sustainable careers for the improvement of the quality of ageing at work. In G. Riva, P. Ajmone Marsan, & C. Grassi (Eds.), *Active Ageing and Healthy Living: A Human Centered Approach in Research and Innovation as Source of Quality of Life* (Vol. 203, pp. 134–144). IOS Press. https://doi.org/10.3233/978-1-61499-425-1-134

Marcaletti, F., & Garavaglia, E. (2016). Surveying the Quality of Ageing at Work: Tools and Findings to Support HRM Processes. In A. P. Müller & C. Braedel-Kühner (Eds.), *Re-thinking Diversity. Multiple Approaches in Theory, Media, Communities, and Managerial Practice* (pp. 139–156). Springer. https://doi.org/10.1007/978-3-658-11502-9_9

Marcaletti, F., Garavaglia, E., & Milone, A. M. (2014). *Age management. Teoria e pratica per la gestione dell’età nelle organizzazioni*. Franco Angeli.

Marcaletti, F., Iñiguez Berrozpe, T., & Koutra, K. (2018). Overcoming age barriers: motivation for mature adults’ engagement in education. *International Journal of Lifelong Education*, *38*(4), 451–467. https://doi.org/10.1080/02601370.2018.1505782

Merriam, S. B. (2001). Andragogy and Self-Directed Learning: Pillars of Adult Learning Theory. *New*

Directions for Adult and Continuing Education, *2001*(89), 3–14. https://doi.org/10.1002/ace.3

Midtsundstad, T. (2019). A review of the research literature on adult learning and employability. *European Journal of Education*, *54*(1), ejed.12321. https://doi.org/10.1111/ejed.12321

Moore, S. (2009). 'No matter what I did I would still end up in the same position': age as a factor defining older women's experience of labour market participation. *Work, Employment and Society*, *23*(4), 655–671. https://doi.org/10.1177/0950017009344871

Naegele, G., & Walker, A. (2011). Age Management in Organisations in the European Union. In M. Malloch, L. Cairns, K. Evans, & B. N. O'Connor (Eds.), *The SAGE Handbook of Workplace Learning* (pp. 251–267). SAGE.

Nygard, C.-H., Savinainen, M., Kirsi, T., & Lumme-Sandt, K. (Eds.). (2011). *Age Management during the Life Course. Proceedings of the 4th Symposium on Work Ability*. Tampere University Press.

OECD. (2006). *Live Longer, Work Longer*. Oecd.

OECD. (2017). *Preventing Ageing Unequally*. OECD. https://doi.org/10.1787/9789264279087-en

P21-Partnership for 21st Century Learning. (2017). *P21's framework for 21st century learning*. https://www.battelleforkids.org/networks/p21

Pereira, A. C., & Romero, F. (2017). A review of the meanings and the implications of the Industry 4.0 concept. *Procedia Manufacturing*, *13*, 1206–1214. https://doi.org/10.1016/j.promfg.2017.09.032

Perry, J. S., & Varney, T. L. (1978). College Students' Attitudes toward Workers' Competence and Age. *Psychological Reports*, *42*(3_suppl), 1319–1322. https://doi.org/10.2466/pr0.1978.42.3c.1319

Piore, M. J. (1983). Labor Market Segmentation: To What Paradigm Does It Belong? *The American Economic Review*, *73*(2), 249–253.

Porcellato, L., Carmichael, F., Hulme, C., Ingham, B., & Prashar, A. (2010). Giving older workers a voice: constraints on the employment of older people in the North West of England. *Work, Employment and Society*, *24*(1), 85–103. https://doi.org/10.1177/0950017009353659

Riva, G., Ajmone Marsan, P., & Grassi, C. (Eds.). (2014). *Active Ageing and Healthy Living: A Human Centered Approach in Research and Innovation as Source of Quality of Life*. IOS Press.

Roberts, I. (2006). Taking age out of the workplace: putting older workers back in? *Work, Employment and Society*, *20*(1), 67–86. https://doi.org/10.1177/0950017006061274

Rosen, B., & Jerdee, T. H. (1976). The nature of job-related age stereotypes. *Journal of Applied Psychology*, *61*(2), 180–183. https://doi.org/10.1037/0021-9010.61.2.180

Sánchez, M., & Hatton-Yeo, A. (2012). Active Ageing and Intergenerational Solidarity in Europe: A Conceptual Reappraisal from a Critical Perspective. *Journal of Intergenerational Relationships*, *10*(3), 276–293. https://doi.org/10.1080/15350770.2012.699819

Schalk, R., van Engen, M. L., & Kooij, D. (2015). Sustainability in the second half of the career. In A. De Vos & B. I. J. M. van der Heijden (Eds.), *Handbook of Research on Sustainable Careers* (pp. 287–303). Edward Edgar Publishing.

Siegrist, J., Wahrendorf, M., Von Dem Knesebeck, O., Jürges, H., & Börsch-Supan, A. (2007). Quality of work, well-being, and intended early retirement of older employees - Baseline results from the SHARE Study. *European Journal of Public Health*, *17*(1), 62–68. https://doi.org/10.1093/eurpub/ckl084

Simpson, P. A. (2004). Academic perspective on training older workers. In P. T. Beatty & R. M. S.

Visser (Eds.), *Thriving on an aging workforce: strategies for organizational and systemic change* (pp. 62–69). Krieger Publishing.

Skoglund, B., & Skoglund, C. (2005). Can age management promote work ability among older workers? *International Congress Series*, *1280*, 392–396. https://doi.org/https://doi.org/10.1016/j.ics.2005.02.049

Stagner, R. (1985). Aging in industry. In James E. Birren & K. W. Schaie (Eds.), *Handbook of the psychology of aging* (2nd ed., pp. 789–817). Van Nostrand Reinhold Co.

Sterns, H. L. (1986). Training and retraining adult and older adult workers. In J. E. Birren, P. K. Robbinsons, & J. E. Livingstone (Eds.), *Age, health, and employment.* (pp. 93–113). Prentice-Hall, Inc.

Sterns, H. L., & Doverspike, D. (1989). Aging and the retraining and learning process in organizations. In I. Goldstein & R. Katzel (Eds.), *Training and development in work organizations* (pp. 229–332). Jossey-Bass.

Straka, J. W. (1992). *The Demand for Older Workers: The Neglected Side of a Labor Market*. U.S. Department of Health and Human Services, Social Security Administration, Office of Research and Statistics. https://books.google.es/books?id=5w-nQl05oFYC

Vaidya, S., Ambad, P., & Bhosle, S. (2018). Industry 4.0 - A Glimpse. *Procedia Manufacturing*, *20*, 233–238. https://doi.org/10.1016/j.promfg.2018.02.034

Vanek, J. B. (2017). *Using the PIAAC Framework for Problem Solving in Technology-Rich Environments to Guide Instruction: An Introduction for Adult Educators*. https://static1.squarespace.com/static/51bb74b8e4b0139570ddf020/t/589a3d3c1e5b6cd7b42cddcb/1486503229769/PSTRE_Guide_Vanek_2017.pdf

Wahlgren, B. (2016). Adult educators' core competences. *International Review of Education*, *62*(3), 343–353. https://doi.org/10.1007/s11159-016-9559-4

Warr, P. (1994a). Age and employment. In H. C. Triandis & M. D. Dunnette (Eds.), *Handbook of Industrial and Organizational Psychology* (pp. 485–550). Consulting Psychology Press.

Warr, P. (1994b). Age and job performance. In J. Snel & R. Cremer (Eds.), *Work and Aging: A European Prospective* (pp. 309–322). Taylor & Francis.

World Health Organization. (2002). *Active Aging. A Policy Framework*.

Zacher, H. (2015). The importance of a precise definition, comprehensive model, and critical discussion of successful aging at work. *Work, Aging and Retirement*, *1*(4), 320–333. https://doi.org/10.1093/workar/wav020

References on andragogy and heutagogy (open access)

Aksoy, A. N., & Meral, A. (2020). How to Develop Adult Educators' Technological and Andragogical Knowledge : A Case Study in a Private Night High School. *Journal of Educational Leadership and Policy Studies*, *4*(1).

Arghode, V., Brieger, E. W., & McLean, G. N. (2017). Adult learning theories: implications for online instruction. *European Journal of Training and Development*, *41*(7), 593–609. https://doi.org/10.1108/EJTD-02-2017-0014

Arifin, Z., Nurtanto, M., Priatna, A., Kholifah, N., & Fawaid, M. (2020). Technology Andragogy Work Content Knowledge Model as a New Framework in Vocational Education: Revised Technology Pedagogy Content Knowledge Model. *TEM Journal*, *9*(2), 786–791. https://doi.org/10.18421/TEM92-48

Ashton, J., & Newman, L. (2006). An unfinished symphony: 21 st century teacher education using knowledge creating heutagogies. *British Journal of Educational Technology*, *37*(6), 825–840. https://doi.org/10.1111/j.1467-8535.2006.00662.x

Bangura, A. K. (2005). Ubuntugogy: An African Educational Paradigm that Transcends Pedagogy, Andragogy, Egonagy and Heutagogy. *Journal of Third World Studies*, *XXII*(2), 13–54.

Bansal, A., Jain, S., Sharma, L., Sharma, N., Jain, C., & Madaan, M. (2020). Students' perception regarding pedagogy, andragogy, and heutagogy as teaching–learning methods in undergraduate medical education. *Journal of Education and Health Promotion*, *9*(1), 301. https://doi.org/10.4103/jehp.jehp_221_20

Bhoyrub, J., Hurley, J., Neilson, G. R., Ramsay, M., & Smith, M. (2010). Heutagogy: An alternative practice based learning approach. *Nurse Education in Practice*, *10*(6), 322–326. https://doi.org/10.1016/j.nepr.2010.05.001

Bjursell, C. (2019). Inclusion in education later in life: Why older adults engage in education activities. *European Journal for Research on the Education and Learning of Adults*, *10*(3), 215–230. https://doi.org/10.3384/rela.2000-7426.rela20192

Blackley, S., & Sheffield, R. (2015). Digital andragogy : A richer blend of initial teacher education in the 21st century. *Issues in Educational Research*, *25*(4), 397–414.

Blaschke, L. M. (2012). Heutagogy and Lifelong Learning: A Review of Heutagogical Practice and Self-Determined Learning. *The International Review of Research in Open and Distance Learning*, *13*(1), 56–71.

Blaschke, L. M., & Hase, S. (2016). Heutagogy: A Holistic Framework for Creating Twenty-First-Century Self-determined Learners. In B. Gros, Kinshuk, & M. Maina (Eds.), *The Future of Ubiquitous Learning. Learning Designs for Emerging Pedagogies* (pp. 25–40). Springer. https://doi.org/10.1007/978-3-662-47724-3

Blaschke, L. M., & Marin, V. (2020). Applications of Heutagogy in the Educational Use of E-Portfolios. *Revista de Educación a Distancia (RED)*, *20*(64), 1–21. https://doi.org/10.6018/red.407831

Brieger, E., Arghode, V., & McLean, G. (2020). Connecting theory and practice: reviewing six learning theories to inform online instruction. *European Journal of Training and Development*, *44*(4/5), 321–339. https://doi.org/10.1108/EJTD-07-2019-0116

Caena, F., & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu) . *European Journal of Education*, *54*(3), 356–369. https://doi.org/10.1111/ejed.12345

Canduela, J., Dutton, M., Johnson, S., Lindsay, C., McQuaid, R. W., & Raeside, R. (2012). Ageing, skills and participation in work-related training in Britain: assessing the position of older workers. *Work, Employment and Society*, *26*(1), 42–60. https://doi.org/10.1177/0950017011426303

Canţer, M. (2012). E-heutagogy for lifelong e-learning. *Procedia Technology*, *1*, 129–131. https://doi.org/10.1016/j.protcy.2012.02.025

Chacko, T. V. (2018). Emerging pedagogies for effective adult learning: From andragogy to heutagogy. *Archives of Medicine and Health Sciences*, *6*(2), 278–283. https://doi.org/10.4103/amhs.amhs_141_18

Chan, S. (2010). Applications of Andragogy in Multi-Disciplined Teaching and Learning. *Journal of Adult Education*, *39*(2), 25–36.

Dämmrich, J., Kosyakova, Y., & Blossfeld, H.-P. (2015). Gender and job-related non-formal training: A comparison of 20 countries. *International Journal of Comparative Sociology*, *56*(6), 433–459. https://doi.org/10.1177/0020715215626769

Djadir, D., Rusli, R., Rahman, A., Ahmar, A. S., & Abdullah, H. (2020). "OnLaing" a distance learning management information system platform with heutagogy approach in Industrial Revolution 4.0: A Design. *Library Philosophy and Practice*, *4750*, 1–8.

Duff, M. C. J. (2019). Perspectives in AE-Adult Black males and andragogy: Is there a goodness of fit. *New Horizons in Adult Education & Human Resource Development*, *31*(4), 51–58.

European Commission. (2019). *Digital Competence Framework 2.0*. https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework

European Network of Public Employment Services. (2020). *Upskilling, reskilling and prevention in times of crisis. PES Thematic Review Workshop* (p. 18). Publications Office of the European Union.

Fenwick, T. (2013). Older Workers in the Professions: Learning Challenges and Strategies. In J. Field, R. J. Burke, & C. L. Cooper (Eds.), *The SAGE Handbook of Aging, Work and Society* (pp. 300–313). SAGE.

Galustyan, O. V., Borovikova, Y. V., Polivaeva, N. P., Bakhtiyor, K. R., & Zhirkova, G. P. (2019). E-learning within the Field of Andragogy. *International Journal of Emerging Technologies in Learning (IJET)*, *14*(9), 148–156. https://doi.org/10.3991/ijet.v14i09.10020

Giannoukos, G., Besas, G., Galiropoulos, C., & Hioctour, V. (2015). The Andragogy , the Social Change and the Transformative Learning Educational Approaches in Adult Education. *Journal of Education and Practice*, *6*(10), 46–51.

Halsall, J. P., Powell, J. L., & Snowden, M. (2016). Determined learning approach: Implications of heutagogy society based learning. *Cogent Social Sciences*, *2*(1), 1223904. https://doi.org/10.1080/23311886.2016.1223904

Hase, S., & Kenyon, C. (2007). Heutagogy: A Child of Complexity Theory. *Complicity: An International Journal of Complexity and Education*, *4*(1), 111–118. https://doi.org/10.29173/cmplct8766

Hase, S., & Kenyon, C. (2003). Heutagogy and developing capable people and capable workplaces : strategies for dealing with complexity. *Proceedings of The Changing Face of Work and Learning Conference*, 1–7. http://epubs.scu.edu.au/cgi/viewcontent.cgi?article=1123&context=gcm_pubs

Hase, S., & Kenyon, C. (2001). Moving from andragogy to heutagogy : implications for VET. *Proceedings of Research to Reality: Putting VET Research to Work: Australian Vocational Education and Training Research Association (AVETRA)*, 28–30. http://www.avetra.org.au/abstracts_and_papers_2001/Hase-Kenyon_full.pdf

Hase, S., Tay, B. H., & Goh, E. (2006). Developing learner capability through action research: From pedagogy to heutagogy in the workplace. *Proceedings of Global VET: Challenges at the Global, National and Local Levels: Australian Vocational Education and Training Research Association (AVETRA) Conference*, 1–10. http://epubs.scu.edu.au/cgi/viewcontent.cgi?article=1135&context=gcm_pubs

Hatcher, T. G., & Cutler-White, C. (2009). Catching up to our past: Vocational education, andragogy, and real work. *Human Resource Development Quarterly*, *20*(3), 231–235. https://doi.org/10.1002/hrdq.20018

Henrikson, R. (2019). Using online lectures to promote engagement: Recognising the self- directed learner as critical for practical inquiry. *Journal of Open, Flexible and Distance Learning*, *23*(1), 17–32.

Henschke, J. A. (2008). New Horizons in Adult Education and Human Resource Development. *New Horizons in Adult Education & Human Resource Development*, *22*(3/4), 44–52.

Henschke, J. A. (2011). Considerations Regarding the Future of Andragogy. *Adult Learning*, *22*(1), 34–37. https://doi.org/10.1177/104515951102200109

Holton, E. F., Wilson Swanson, L., & Bates, R. A. (2009). Toward development of a generalized instrument to measure andragogy. *Human Resource Development Quarterly*, *20*(2), 169–193. https://doi.org/10.1002/hrdq.20014

Housel, D. A. (2020). When Co-Occurring Factors Impact Adult Learners: Suggestions for Instruction, Preservice Training, and Professional Development. *Adult Learning*, *31*(1), 6–16. https://doi.org/10.1177/1045159519849910

Hsu, Y.-S. (2013). Training Older Workers: A Review. In J. Field, R. J. Burke, & C. L. Cooper (Eds.), *The SAGE Handbook of Aging, Work and Society* (pp. 283–299). SAGE.

Iñiguez Berrozpe, T., & Boeren, E. (2019). 21st Century Skills for All: Adults and Problem Solving in Technology Rich Environments. *Technology, Knowledge, and Learning*, *First Online*, 1–23. https://doi.org/10.1007/s10758-019-09403-y

Janchai, W., Siddoo, V., & Sawattawee, J. (2019). Andragogical teaching patterns appropriate for work-integrated learning in the information technology industry. *International Journal of Work-Integrated Learning*, *20*(3), 283–299.

Jiang, M., & Koo, K. (2020). Emotional Presence in Building an Online Learning Community Among Non-traditional Graduate Students. *Online Learning*, *24*(4), 93–111. https://doi.org/10.24059/olj.v24i4.2307

Jimoyiannis, A., & Gravani, M. (2010). Digital Literacy in a Lifelong Learning Programme for Adults. *International Journal of Digital Literacy and Digital Competence*, *1*(1), 40–60. https://doi.org/10.4018/jdldc.2010101903

Jones, C., Penaluna, K., & Penaluna, A. (2019). The promise of andragogy, heutagogy and academagogy to enterprise and entrepreneurship education pedagogy. *Education + Training*, *61*(9), 1170–1186. https://doi.org/10.1108/ET-10-2018-0211

Juarez, B. (2019). The Intersection of Theory and Practice in Teacher Preparation Course. *Journal of Instructional Research*, *8*(2), 84–88.

Kanwar, A., Balasubramanian, K., & Carr, A. (2019). Changing the TVET paradigm: new models for lifelong learning. *International Journal of Training Research*, *17*(sup1), 54–68. https://doi.org/10.1080/14480220.2019.1629722

Kenyon, C., & Hase, S. (2001). Moving from andragogy to heutagogy in vocational education. *Proceedings of the 4th Annual Australian Vocational Education and Training Research Association (AVETRA) Conference*, 8. http://www.avetra.org.au/abstracts_and_papers_2001/Hase-Kenyon_full.pdf

Knowles, M. S. (1978). Andragogy: Adult Learning Theory in Perspective. *Community College Review*, *5*(3), 9–20. https://doi.org/10.1177/009155217800500302

Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2005). *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development* (6th Editio). Elsevier.

Kraiger, K. (2017). Designing Effective Training for Older Workers. In E. Parry & J. McCarthy (Eds.), *The Palgrave Handbook of Age Diversity and Work* (pp. 639–667). Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-46781-2_26

Kroth, M., Taylor, B., Lindner, L., & Yopp, M. (2009). Improving Your Teaching Using Synergistic Andragogy. *Journal of Industrial Teacher Education*, *46*(3), 135–141.

Kruszelnicki, W. (2020). Self-Directedness and the Question of Autonomy: From Counterfeit Education to Critical and Transformative Adult Learning. *Studies in Philosophy and Education*, *39*(2), 187–203. https://doi.org/10.1007/s11217-019-09697-6

Levy-Feldman, I. (2018). The good teacher for the twenty-first century: a “mentoring teacher” with heutagogical skills. *International Journal of Mentoring and Coaching in Education*, *7*(2), 177–190. https://doi.org/10.1108/IJMCE-10-2017-0067

Loeng, S. (2018). Various ways of understanding the concept of andragogy. *Cogent Education*, *5*(1), 1–15. https://doi.org/10.1080/2331186X.2018.1496643

MacLellan, J., Callary, B., & Young, B. W. (2019). Adult Learning Principles in Masters Sport: A Coach's Perspective. *The Canadian Journal for the Study of Adult Education/La Revue Canadienne Pour l'étude de l'éducation Des Adultes*, *31*(1), 31–50.

Massing, N., & Gauly, B. (2017). Training Participation and Gender: Analyzing Individual Barriers Across Different Welfare State Regimes. *Adult Education Quarterly*, *67*(4), 266–285. https://doi.org/10.1177/0741713617715706

Mazurkiewicz, G. (2009). Adult educators: An example of the new approach to lifelong learning in Poland. *European Journal of Education*, *44*(2), 243–255. https://doi.org/10.1111/j.1465-3435.2009.01381.x

McKenna, K., Gupta, K., Kaiser, L., Lopes, T., & Zarestky, J. (2020). Blended Learning: Balancing the Best of Both Worlds for Adult Learners. *Adult Learning*, *31*(4), 139–149. https://doi.org/10.1177/1045159519891997

Meier, D. (2020). Emerging adulthood and its effect on adult education. *Australian Journal of Adult Learning*, *60*(2), 213–224.

Midtsundstad, T. (2019). A review of the research literature on adult learning and employability. *European Journal of Education*, *54*(1), ejed.12321. https://doi.org/10.1111/ejed.12321

Midtsundstad, T. I., & Nielsen, R. A. (2019). Lifelong learning and the continued participation of older Norwegian adults in employment. *European Journal of Education*, *54*(1), 48–59. https://doi.org/10.1111/ejed.12322

Muduli, A., Kaura, V., & Quazi, A. (2018). Pedagogy or andragogy? Views of Indian postgraduate business students. *IIMB Management Review*, *30*(2), 168–178. https://doi.org/10.1016/j.iimb.2018.01.008

Muneja, M. S. (2015). A Theoretical Basis for Adult Learning Facilitation : Review of Selected Articles. *Journal of Education and Practice*, *6*(31), 54–61.

Murthy, S., & Pattanayak, B. (2019). Implementing the principles of Academagogy for effective learning facilitation in corporate organizations: a case study. *Development and Learning in Organizations: An International Journal*, *34*(4), 21–24. https://doi.org/10.1108/DLO-06-2019-0135

Note, N., De Backer, F., & Donder, L. De. (2020). A Novel Viewpoint on Andragogy: Enabling Moments of Community. *Adult Education Quarterly*, *71*(1), 3–19. https://doi.org/10.1177/0741713620921361

Olsen, D. S., & Tikkanen, T. (2018). The developing field of workplace learning and the contribution of PIAAC. *International Journal of Lifelong Education*, *37*(5), 546–559. https://doi.org/10.1080/02601370.2018.1497720

Ozuah, P. O. (2016). First, There Was Pedagogy And Then Came Andragogy. *Einstein Journal of Biology and Medicine*, *21*(2), 83. https://doi.org/10.23861/EJBM20052190

Perguna, L. A., Idris, I., & Widianto, A. A. (2021). From Paper to Screen: Encouraging Theory of Sociology through Sosiopedia by Heutagogy Approach. *International Journal of Interactive Mobile Technologies (IJIM)*, *15*(1), 155–167. https://doi.org/10.3991/ijim.v15i01.14357

Peterson, C. M., & Ray, C. M. (2013). The Evolution of Neologisms. *Journal of Adult Education*, *42*(2), 80–85.

Picchio, M. (2015). Is training effective for older workers? *IZA World of Labor*, *January*, 1–10. https://doi.org/10.15185/izawol.121

Rachal, J. R. (2002). Androgogy's Detectives: A Critique of the Present and a Proposal for the Future. *Adult Education Quarterly*, *52*(3), 210–227.

Şahin, M., & Doğantay, H. (2018). Şahin & Dogantay (2018) Critical thinking and transformative learning.pdf. *Journal of Innovation in Psychology, Education and Didactics*, *22*(1), 103–114.

Shpeizer, R., & Glassner, A. (2020). Free Will and Heutagogy. *Dialogic Pedagogy: An International Online Journal*, *8*, SF80–SF86. https://doi.org/10.5195/dpj.2020.347

Skiba, R. (2020). Incorporating Adult Learning Principles in High-Risk Equipment Operations Training. *International Education Studies*, *13*(10), 60–69. https://doi.org/10.5539/ies.v13n10p60

Stoten, D. W. (2021). Building adaptive management capability: the contribution of heutagogy to management development in turbulent times. *Journal of Management Development*, *40*(2), 121–137. https://doi.org/10.1108/JMD-10-2019-0448

Sumarsono. (2020). The paradigms of heutagogy and cybergogy in the transdisciplinary perspective. *Jurnal Pendidikan Dan Pengajaran*, *52*(3), 172–182. https://ejournal.undiksha.ac.id/index.php/JPP/article/view/22882

Taylor, B., & Kroth, M. (2009). Journal of Adult Education. *Journal of Adult Education*, *38*(1), 1–12.

Tümen Akyıldız, S. (2019). Do 21st Century Teachers Know about Heutagogy or Do They Still Adhere to Traditional Pedagogy and Andragogy? *International Journal of Progressive Education*, *15*(6), 151–169. https://doi.org/10.29329/ijpe.2019.215.10

Vintilă, M., & Istrat, D. (2014). Improving the Skills for True Wellbeing of Adult Educators and Learners. *Procedia - Social and Behavioral Sciences*, *142*, 610–615. https://doi.org/10.1016/j.sbspro.2014.07.674

Wahlgren, B. (2016). Adult educators' core competences. *International Review of Education*, *62*(3), 343–353. https://doi.org/10.1007/s11159-016-9559-4

Widiaty, I., Riza, L. S., Abdullah, A. G., & Mubaroq, S. R. (2020). Multiplatform Application Technology – Based Heutagogy on Learning Batik: A Curriculum Development Framework. *Indonesian Journal of Science and Technology*, *5*(1), 45–61. https://doi.org/10.17509/ijost.v5i1.18754

References on andragogy and heutagogy (golden access)

Agonács, N., & Matos, J. F. (2019). Heutagogy and self-determined learning: a review of the published literature on the application and implementation of the theory. *Open Learning: The Journal of Open, Distance and e-Learning*, *34*(3), 223–240. https://doi.org/10.1080/02680513.2018.1562329

Altrichter, H., & Posch, P. (1989). Does the 'Grounded Theory' Approach offer a Guiding Paradigm for Teacher Research? *Cambridge Journal of Education*, *19*(1), 21–31. https://doi.org/10.1080/0305764890190104

Argyris, C., Schön, D. A., & N, D. A. S. (1978). *Organizational Learning: A Theory of Action Perspective* (Issue v. 1). Addison-Wesley Publishing Company. https://books.google.es/books?id=2aYOAQAAMAAJ

Bartle, S. M. (2019). Andragogy. In *Salem Press Encyclopedia*. http://search.ebscohost.com/login.aspx?direct=true&db=ers&AN=89164070&site=eds-live

Belbin, E., & Belbin, R. M. (1972). *Problems in Adult Retraining*. Heinemann.

Callahan, J. S., Kiker, D. S., & Cross, T. (2003). Does Method Matter? A Meta-Analysis of the Effects of Training Method on Older Learner Training Performance. *Journal of Management*, *29*(5), 663–680. https://doi.org/10.1016/S0149-2063_03_00029-1

Care, E. (2018). Twenty-First Century Skills: From Theory to Action. In E. Care, P. Griffin, & M. Wilson (Eds.), *Assessment and Teaching of 21st Century Skills. Educational Assessment in an Information Age* (pp. 3–17). Springer International Publishing. https://doi.org/https://doi.org/10.1007/978-3-319-65368-6_1

Care, E., Griffin, P., & Wilson, M. (Eds.). (2018). *Assessment and Teaching of 21st Century Skills. Educational Assessment in an Information Age*. Springer International Publishing. https://doi.org/10.1007/978-3-319-65368-6

Charungkaittikul, S., & Henschke, J. A. (2017). Applying Andragogical Concepts in Creating a Sustainable Lifelong Learning Society. *International Journal of Adult Vocational Education and Technology (IJAVET)*, *8*(4), 38–51. https://doi.org/10.4018/IJAVET.2017100104

Eberle, J. (2009). Heutagogy: What Your Mother Didn't Tell you About Pedagogy and the Conceptual Age. *ECEL2009 - Proceedings of the 8th European Conference on E-Learning*, 181–188.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, *34*(10), 906–911. https://doi.org/10.1037/0003-066X.34.10.906

Giuseffi, F. G. (Ed.). (2019). *Self-Directed Learning Strategies in Adult Educational Contexts*. IGI Global. https://doi.org/10.4018/978-1-5225-8018-8

Griffin, P., McGaw, B., & Care, E. (Eds.). (2012). *Assessment and Teaching of 21st Century Skills*. Springer Netherlands. https://doi.org/10.1007/978-94-007-2324-5

Knowles, M. S. (1987). Adult Learning. In R. L. Craig (Ed.), *Training and Development Handbook: A Guide to Human Resource Development* (pp. 168–179). McGraw-Hill.

Knowles, M. S. (1973). *The Adult Learner: A Neglected Species*. Gulf.

Ledden, L., Kalafatis, S. P., & Samouel, P. (2007). The relationship between personal values and perceived value of education. *Journal of Business Research*, *60*(9), 965–974.

Loeng, S. (2017). Alexander Kapp – the first known user of the andragogy concept. *International Journal of Lifelong Education*, *36*(6), 629–643. https://doi.org/10.1080/02601370.2017.1363826

McNamara, T. K., Parry, E., Lee, J., & Pitt-Catsouphes, M. (2012). The effect of training on organizational performance: differences by age composition and cultural context. *The International Journal of Human Resource Management*, *23*(6), 1226–1244. https://doi.org/10.1080/09585192.2011.561253

Merriam, S. B. (2001). Andragogy and Self-Directed Learning: Pillars of Adult Learning Theory. *New Directions for Adult and Continuing Education*, *2001*(89), 3–14. https://doi.org/10.1002/ace.3

Moore, R. L. (2020). Developing lifelong learning with heutagogy: contexts, critiques, and challenges. *Distance Education*, *41*(3), 381–401. https://doi.org/10.1080/01587919.2020.1766949

P21-Partnership for 21st Century Learning. (2017). *P21's framework for 21st century learning*. https://www.battelleforkids.org/networks/p21

Sterns, H. L., & Deverspike, D. (1988). Training and developing the older worker: Implications for Human Resource Management. In H. Dennis (Ed.), *Fourteen steps in managing an aging work force* (pp. 97–110). Lexington Books.

Stoten, D. W. (2020). Practical Heutagogy: Promoting Personalized Learning in Management Education. *Adult Learning*, *31*(4), 161–174. https://doi.org/10.1177/1045159520905364

Youde, A. (2018). Andragogy in blended learning contexts: effective tutoring of adult learners studying part-time, vocationally relevant degrees at a distance. *International Journal of Lifelong Education*, *37*(2), 255–272. https://doi.org/10.1080/02601370.2018.1450303

Annex 1: Good practice fiche

Annex B1 - Good practice fiche		
SECTION 1 – MAIN DESCRIPTIVE ELEMENTS		
Name of the practice and country		
Period of implementation	From __/__/__ to __/__/__	
Funding (amount and source: EU funding or national/regional; private)	- *Amount* - *Private funding: % and source* - *Public funding :% and source (e.g. EU, national, local. Specify:_____)*	
Contact person/ link to web site	**Name**	
	E-mail **Tel**	
	Web site for info	
Intervention Typology	☐	Skill needs assessment for adult/ senior workers
	☐	Skills needs assessment for adult/senior trainers
	☐	Training of adult/senior workers ☐ transversal/soft competencies ☐ job/sector specific competencies
	☐	Training of unemployed adults/seniors ☐ transversal/soft competencies ☐ job/sector specific competencies
	☐	Training of adult/senior trainers
	☐	Adults/seniors education
	☐	Mentoring
	☐	Intergenerational/reverse mentoring
	☐	Coaching of adult/senior worker/trainers
	☐	Training and/ or awareness raising measures for supportive stakeholders (social partners, managers/ employers, PES operators, etc.)
	☐	Development of training methods and tools
	☐	Development of training platforms
	☐	Age management measures
	☐	Assessment, Validation and Certification of skills
	☐	Other - specify

Implementing body/organisation **(name and typology)**	Name	
	☐	Training institution
	☐	Educational institution
	☐	Public institution/Agency
	☐	Third sector institution (NGOs, associations, etc.)
	☐	Company
	☐	Trade union
	☐	Employer(s)' association
	☐	Consortium(s) of pulic bodies
	☐	Consortium (s) of public-private bodies
	☐	Consortium(s) of private bodies
	☐	Other (specify)
	Synthetic description of the implementing body/bodies and link	
Stakeholders and networks involved (*in implementing the practice)*	List and typology of stakeholders involved: - at local level: - at national level: - at European/international level:	
Brief description of the practice		

Background and objectives	*Synthetic description of the background and need for intervention* *Synthetic description the objectives and of the needs addressed by the practice*

Activities implemented	*Description of the main activities implemented, detailing if present:*
	- *pre-post skills assessment :*
	- *training/education methods:*
	- *training/ education contents:*
	- *Skills / competences addressed:*
	  ○ *transversal or soft skills: describe ……;*
	  ○ *job/sector specific skills: describe*
	- *Type of skills competences addressed:*
	  ○ *Transferable/Functional (Actions taken to perform a task, transferable to different work functions and industries). Describe:*
	  ○ *Personal traits/attitudes (Traits or personality characteristics that contribute to performing work). Describe:*
	  ○ *Knowledge-based (Knowledge of specific subjects, procedures, and information necessary to perform particular tasks). Describe:*
	- *skills' validation/certification methods:*
	- *monitoring/evaluation activities (follow up, etc.):*
	- *networking/partnerships:*
	- *others (specify):*

Target groups in the case of training activities	*Selection criteria of the target groups:* *Description of the target groups if any:* *Description of the trainees: Typology (adult/senior workers; adult/senior unemployed or inactive; trainers; social partners, tutors, mentors, coaches, PES operators, etc.) and personal characteristics (e.g. sex, age, qualification, labour market status, education, citizenship)* *Description of the companies involved in the training activities if any : Number and characteristics (sector, size, location, etc.)*
Territorial area(s) involved	☐ Local / regional (specify)_____ ☐ National (specify) _____ ☐ EU/International (specify)_____
Sector(s)/ occupations addressed	☐ *Sectors:*_____ ☐ *Occupations:* _____

Monitoring activities and main results (synthesis)	*Description of (please consider the information on the aspects listed in section 2 and insert links to monitoring/evaluation reports if any):* • *monitoring / evaluation activities implemented (follow up, etc.):* • *main outputs:* • *main outcomes:*
Main strenghts/ success factors	*Description of main success factors of the project and actions implemented*
Main critical aspects	*Description of main critical aspects of the project and of the actions implemented* *Were these criticalities addressed? How?:*

SECTION 2 – SELECTION CRITERIA

(This section describes for each selected practice the elements that characterise it as a good practice according to our selection criterion. Below are listed some examples of the type of information to be provided in order to assess whether and how the practice answers to each criterion. The actual info to be provided will depend on the selected practice

Elements characterizing the practice as a "good" practice	
Adequacy of the design and implementation framework	☐ *Clear, achievable and consistent definition of goals and expected outcomes_____* ☐ *Previous needs assessment (e.g. surveys on skills' needs,…): describe_____* ☐ *Involvement of beneficiaries and of main stakeholders in the design and implementation of envisaged actions: describe _____* ☐ *Clear definition of the management system and of the roles and responsibilities among stakeholders: describe_____* ☐ *On-going monitoring of implementation and of outputs, outcomes: describe_____* ☐ *Other features: _____*
Effectiveness	☐ *Main outputs compared to expected ones _____*

	☐ *Main outcomes compared to expected ones _____* ☐ *Number and type of organizations (training bodies, research institutes/universities, public institutions, third sector organisations, companies, social partners) that use the training model, tools/methods/approaches developed by the practice:* *in the country:_____* *In other countries: _____* ☐ *Other results_____*
Sustainability	*Is the practice financially sustainable in the medium – long term?* *How? e.g. through* - *Users' fees* - *Fund rising activities* - *Funding from employers* - *Funding from the social partners* - *Public funding* - *Other_____*
Innovation	☐ *New training and learning methods (e.g. collaborative experience-based approach; remote, in class, work-based learning; sector/occupation-based training;…): describe* ☐ *New training and learning contents (e.g. digital skills, basic skills, socio-psyco-pedagogical skills….): describe_* ☐ *New training and learning tools (e.g. adults' training toolkits/guidelines, (self)evaluation tools of learning needs, training platforms, etc.): describe* ☐ *New targets (e.g. adult/senior workers; adult/senior unemployed or inactive; trainers; social partners, tutors, mentors, coaches, PES operators, etc.): describe* ☐ *New professional profiles for adult trainers* ☐ *New partnerships or stakeholders involved: describe* ☐ *New models for the assessment, validation and valorization of skills acquired in formal, non-formal and informal settings: describe _____* ☐ *Other _____*

(potential) Reproducibility and Transferability	*Use and transfer of the tools/methods/approaches developed in the practice to other contexts, other networks, and other territories beyond the ones involved in the project:* ☐ *in other sectors or occupations: describe* ☐ *for other target groups: describe* ☐ *in other areas of the same country: describe* ☐ *in other EU countries: describe* ☐ *Other_*
(potential) Main-streaming	☐ *Internalization of the implemented practices in adults' training and lifelong learning systems at national and/or EU level (Skills Agenda): describe* ☐ *Internalization of the implemented practices in the skills' assessment and certification systems: describe* ☐ *Diffusion and promotion of the practice's approach and results among training institutions, the social partners, policymakers:* ☐ *Other*

Contribution to the To Switch project	*With focus on the contribution of the project to the aims of To Switch:* ☐ *contribution to the update of adults/seniors training paradigms: describe* ☐ *contribution to the definition of the professional profile of adults'/seniors' trainers: describe* ☐ *contribution to the training of adult/senior workers and of adult/senior unemployed or inactive: describe* ☐ *contribution to the development of new models of skills' validation/certification: describe* ☐ *contribution to the development of guidelines/toolkits/learning platforms…: describe* ☐ *other: describe*

Annex 2: Good practices cross-reading table

ANNEX 5.2 – Main features of the collected practices (to be completed with additional information from the partners)						
Target group	**Practice**	**Methods/approaches**	**Activities**	**Results**	**Innovative aspects**	**Inputs for To Switch**
Adults/seniors trainers-teachers-tutors- HR managers	**CH01** **Training for adult educators in the framework of the RESET project - Pedagogy for workforce transition supporting innovation - Erasmus+** (for trainers in vocational guidance and occupational reintegration)	**Integration of practical and experiential aspects** in the training of trainers involved in vocational guidance and occupational reintegration. **Support professional development** : - to become acquainted with the tools available for seniors' vocational reintegration; - to evaluate and adapt the tools to the needs of the territory; - to develop trainers' skills for seniors' training and labour reintegration; - to provide trainers with socio-psyco-pedagogical skills. **Focus on the 10 key competences** considered necessary for senior employees: facilitation skills; organisational skills; critical thinking; creative skills; networking; communication; intercultural awareness; problem solving; interpersonal skills; motivational skills.	Initial needs assessment and design of training with CFP directors. Five meetings of 4-hour face-to-face during which trainers tried out the tools and adapted them to their professional reality. Structure of meetings: - presentation/theoretical introduction; - practice/exercise on the material; - brainstorming; - collecting observations; - comparison with everyday life; - synthesis and evaluation.	Outputs: - material and training manual available in several languages and integrated into the trainers' practices. Trainers exchanged good practices. Outcomes (effects on for the over 50 involved vocational reintegration programme): - acquisition of new professional skills; - positive impact on well-being and self-confidence; - creation of a peers network stimulating applications for new jobs. Outcomes (trainers): - awareness of trainers of the need to adapt the tools to the target audience. **Critical aspects**: **cost and length** of the training with need to maintain motivation in the long term.	**The training was strongly experiential**. The participants experienced emotions and situations at first hand, just like the participants over 50.	Contribution to the update of adults/seniors training paradigms through the **integration of practical and experiential aspects**. Contribution to the definition of the **professional profile of adults'/seniors' trainers.**
	DEN02 **The Career Learning Model** (training model)	**Career learning model based on:** **Holistic approach** integrating all mental, physical, and social preconditions and capacities of the learner. **Competence assessment** prior to needs assessment. The model focus on the client's **potential talents by letting the client explore her/his own resources in relation to career choice.** Learning activities are therefore designed as the **learner's own investigations on oneself, job- or training- opportunities**, and ability to take appropriate action.	The model consists of two dimensions: - three main categories of interest (myself, job and education, choice and taking action) constituting the material areas of contents and setting goals for the activity; - a taxonomy of learning levels (sensing, sifting, focusing, understanding) labelling different stages of the learner's progression in each main category.	The career learning model focus on the client's potential talents by letting the client explore her/his own resources in relation to career choice. This way the focus on the clients' strengths is maintained rather than focussing on the shortcomings as it is the case in the traditional needs assessment. This allows the client to keep a positive view on her/his own opportunities rather than the feeling of being "outdated" and left behind.	The career learning model aims at **preparing the client mentally and to build up self-belief** by setting off with assessing talents in combination with an overall clarification of the persons feelings and attitudes towards career change.	The model suggests a **common framework** for developing and organizing the materials in the To Switch **IOs 2 and 3:** - contribute a piece of **material to and/or structuring frame for the digital platform (IO 2);** - introduce an underlying **theoretical orientation (talent perspective) which might contribute to the formation of a new andragogic paradigm.**
	ES01 **Adult Education Training: Competences for Adult Aducation in Aragon** (for adult educators/ teachers)	Introductory course **for educators**, based on **learning by competencies methods.** Incorporate **competency-based learning** in the training of educators involved in Adult Education and Training. Approximation to the andragogic model. Four objectives: - train the EPA (Adult Education) faculty;	Initial needs' assessment: asked by adults' trainers who wanted to be updated on the learning by competencies method. Online course structured in 3 sessions providing: - basic skills (reading, writing and calculation);	Outputs: - around 200 adult trainers involved (more than expected). Outcomes: - first time in which adult educators were involved in a course on learning by competencies; - begin to incorporate learning by competencies in the methodology of adult educators.	New training and learning methods. New training and learning contents. New professional profiles for adult trainers. Focusing on competencies reinforces the idea of the central role that they occupy - or aspire to occupy - in the curriculum (together with objectives, content, pedagogical methods and evaluation criteria) also in Adult Education and Training. Indeed, it has been the	Contribution to the definition of the **professional profile of adults'/seniors' trainers** based on competency-based learning linked to basic skills, digital skills and professional skills. Materials used during the course, duly translated and

ANNEX 5.2 – Main features of the collected practices (to be completed with additional information from the partners)						
Target group	**Practice**	**Methods/approaches**	**Activities**	**Results**	**Innovative aspects**	**Inputs for To Switch**
		- share good practices of the centres for adult education (CPEPAs); - contribute to create an interconnected teachers' community; - contribute to create new profiles of adult trainers.	- professional skills (e.g., skill assessment, accreditation processes, professional certificates); - digital skills. In relation to professional skills, focus on: - competency assessment and accreditation processes (CAAP); - professional certificates; - basic professional training in public adult education centers; - preparation of key competencies tests N2 and N3 and preparation of the entrance exams to intermediate and higher vocational training.		first time in which adult educators were involved in a course on learning by competencies.	adapted could be included in the platform.
	IRE02 **Fáilte Isteach – Welcoming Migrants through Conversational English Classes** (for senior language trainers/tutors of migrants)	**Conversational and informal community based language courses with an intergenerational approach** to provide English language support and tutoring to non-English speakers and to facilitate intercultural exchange and integration at community level. **Tutors are senior volunteers** within the local community. **Leaners** are non-native English speakers within local communities.	Topics and skills requirement are those required by students. Most of the topics addressed in the classes are **language and communication skills** related to everyday interactions.	Outputs: - 127 groups in 104 locations, with over 1,200 volunteer tutors who supported the integration of 3,200 migrant by delivering over 96,000 hours of free tuition annually. Outcomes: - increased confidence levels of tutors and students; - 99% of tutors reported to enjoy interaction with students from different cultural groups; - 94% of tutors volunteered to make their local community more inclusive; - 96% of tutors reported that students enjoy participating in the courses and 89% that their students become more confident in their day-to-day activities.	It is a **platform** where the seniors are given opportunities to increase their personal skill level and give back to their community on a voluntary basis while socializing and meeting new people.	**Intergenerational, informal, and collegiate learning approach**, could help to update our understanding of adult teacher-student relationships. The structure could be amended and used to offer **accredited certificates** of completion for the tutors and students. It is a case study on **how successful informal learning structures can be**.
	ITA01 **AWARE - Ageing Workers Awareness to Recuperate Employability** (for trainers and educators/ teachers)	**Project work methodology** for trainers and teachers based on skills analysis (assessment tested). The cardinal elements of the training were: - emphasis on a preliminary phase for the **definition of a training pact**; - use of the **group as a fundamental instrument in the learning process**; - the presence of **tutors/helpers during the training course**; - the "**blended" training mode** with training activities carried out both in presence and at distance.	The main activities are: - assessment of the local context; - involvement of the economic and social partners in the analysis of emerging socio-institutional conditions; - development of training approaches and strategies for adult learning; - a key initial preparatory skills assessment phase; - awareness and activation of individual skills, expectations, and motivation. Experimentation of an adult training model with two cycles of seminars: - the Trainers' course;	Outputs: - 2 educational portals (in Italy and Spain) for distance learning; - 5 international conferences for dissemination and awareness raising; - 1 European network involving 36 partners from 14 different European States interested in active ageing; - 12 policy recommendations.	**Project work methodology for trainers and teachers.** Skills analysis (assessment tested). **Involvement of the social partners at local level** (Creation of a Social partners committee in the Province of Trento).	Contribution to the **update of adults/seniors training paradigms.** Contribution to the **definition of the professional profile of adults'/seniors' trainers.** Contribution to the training of adult/senior workers and of adult/senior unemployed or inactive. Contribution to the development of **new models of**

ANNEX 5.2 – Main features of the collected practices (to be completed with additional information from the partners)						
Target group	**Practice**	**Methods/approaches**	**Activities**	**Results**	**Innovative aspects**	**Inputs for To Switch**
			- the Teachers' course.			**skills' validation/certification.** Contribution to the development of **guidelines/ toolkits/ learning platform.**
	ITA03 **Maestri del Mestiere** (mentoring model in a urban transportation company)	**Interactive Groups mentoring model using MAUT.** The project, implemented within a public transportation company Italy, dealt with the identification of one or more "Maestro" (Master) for each profession (linked to transport) and specifically trained to be involved in the activation of an intergenerational tutoring process. The project was aimed at preserving the internal know-how of senior workers and knowledge transfer to young workers through training courses. The selection and training of Masters was based on the MAUT approach (Motivation to Acquire, Use and Transfer Knowledge) involving a two-days training exploring the new role Selection and involvement of the target group based on the MAUT (Motivation to Acquire, Use and Transfer Knowledge). The monitoring/evaluation activities (follow up, etc.) were based on: self-assessment by the seniors; evaluation of senior workers providing a detailed insight into their representations of work with younger colleagues.	**Two-days training** exploring the new role (**maestro/mentor**) from a double perspective: - learning how to transmit positive attitudes and behaviors to others, first of all with the daily example, so as to be recognized as a model; - learning the skills necessary to best perform the various activities envisaged by the role. The activities include also: - monitoring and evaluation; - communication.	Outputs: -20 (seniors) people assessed and trained every year to became Masters (mentors); -20 Youngsters involved every year. Outcomes: - self-assessment, self-esteem and personal self-defense approach; - participation of those involved in the managing and organizing training processes; - bridging the interpersonal relationship with learning; continuous process of training and self-learning.	**Active and innovative pedagogical perspective**. Leveraging the knowledge acquired by senior workers for the training of other workers.	**ITA03** **Maestri del Mestiere** (mentoring model in a urban transportation company)
	RO01 **Ubiquitous Information for Seniors Life** (for trainers & caretakers in contact with seniors)	**Training model for trainers and seniors to support the use of mobile devices based on multi-media digital training tools**. Two-stage learning methodology: - a training phase based on a **blended learning methodology integrating f2f sessions and mobile multimedia** contents and the support of an **e-platform for collaboration and communication** among the transnational groups of trainees (**trainers and caretakers that are in direct contact with senior citizens**); - the **transfer of the mobile technology to senior citizens through direct training** by the trainers and caretakers involved in stage 1 with support of mobile multimedia modules	**Six multimedia modules** (Introduction module; e-Interaction/e Communication; e-Information / e-Government; e-Entertainment/Media; e-Health; e-Shopping / e-Banking) **developed in 7 different languages and integrated in an App** available for piloting. Each module is divided in four units for 16 hours, of which 8 hours are self- practice.	Outputs: - a set of 6 multi-media modules; - an interactive training Platform accessible through Moodle (for professionals); - a set of pedagogical materials; - a Video Repository App (for senior citizens); - a Mobile Game (for senior citizens); - reports on the Pedagogical Model, Senior Learning and ICT Usage, Training for Trainers Evaluation Report, Senior training pilot.	Training model for trainers and seniors based on multi-media digital training tools. Development of a training platform and App.	**Training model for trainers and seniors based on multi-media digital training tools**. **Interactive platform** to be created in WP3 and the **design of the pilot training for trainers in WP4.**

ANNEX 5.2 – Main features of the collected practices (to be completed with additional information from the partners)						
Target group	**Practice**	**Methods/approaches**	**Activities**	**Results**	**Innovative aspects**	**Inputs for To Switch**
		with a self-learning model so that senior citizens can, later on, recall how to use any of the mobile devices functionalities.				
	RO02 a **BE OLD – Better Work in Old Age: Supporting older workers and organizational environment in coping with age transitions and work requirements'** (for HR managers)	**Training program based on intergenerational approach for HR managers/coordinators/ directors of organizations** to support **age management** within organizations and to adapt the organizational environment to all generations, combating ageism, eliminating social stereotypes regarding older workers and facilitating mentoring of young workers.	The program includes: - 2 face-to-face workshops; - 2 e-learning modules, in which the participants confront, reason, integrate and modify their perception regarding old age in work environments and explore and identify new ways to create intergenerational and age-friendly work environments.	Outputs: - 56 HYR managers trained; - 1 e-book with background information; - 1 training program for HR managers, coordinators, directors of organizations/institutions; - 1 guide with recommendations for public policies on supporting senior workers. Outcomes: - improved public policies for senior workers; - increased intergenerational cooperation and active ageing promotion.	Training program for HR managers, managers, coordinators, directors of organizations/institutions.	Contribution to the development of **training models and tools targeted to HR managers**, coordinators, directors of organizations / institutions employing a multi-generational staff.
	NO01a **Seniornett – we help the seniors to get on the Internet** (for senior ICT trainers)	The initiative provides two types of courses: one aimed at senior trainers who will hold courses for seniors in the associations around Norway, and the other to senior trainees (classified as NO01b). The elder volunteer trainers are trained to hold courses for the elderly. Volunteer trainers are often senior ICT experts, or free-lance ICT teachers, or ICT students specifically trained to train seniors adopting a "train-the-trainer" system. Local training centers are provided with a common curriculum tailor made for the needs and the special learning requirements of the senior population.	The elderly trainers are trained to hold ICT courses for the elderly by: - using a "teach-the-teacher" method to cover as many seniors as possible; - offering a training -curriculum and material to be used by the training centers; - training of the local trainers by Seniornett Central personnel.	Outputs: - Seniornett network of 235 senior teaching centers. Outcomes: - promotion of modern communication techniques for seniors to enable them to actively participate in the social life and the work force.	Elderly (over 55) trained to hold ICT courses for the elderly.	How to make teaching senior friendly. Training of voluntary senior trainers for seniors. Critical aspects: financing and finding local training centres, finding volunteering teachers.
Senior workers	**RO02 b** **BE OLD – Better Work in Old Age: Supporting older workers and organizational environment in coping with age transitions and work requirements'** (private companies workers)	Vocational counseling program targeted to older workers with new methodology to assess the results of the educational program for the participants using the **Rickter Scale Process**, **to evaluate from the older workers' perspective the changes produced in the learning process and the impact obtained**.	5 workshops to enhance older workers skills for coping with professional challenges.	Outputs: - 77 over 55 trained - 1 e-book with background information; - 1 vocational counselling methodology for older workers 'Better work at old age'; - 1 guide with recommendations for public policies for older workers. Outcomes: - new practices in adult education, targeting older workers specific needs, and promoting older workers rights among employers and other stakeholders.	The inter-generational approach, bringing older and younger generations together, enhancing mutual learning and also the value recognized and enhanced for older workers' skills and experience to mentor the younger workers. Vocational counselling methodology for older workers 'better work at old age'.	The project developed counseling materials to be used by trainers, vocational counselors, adult educators working with older workers, offering resources and methodologies to support them improving their employability and developing new career paths at older age.

ANNEX 5.2 – Main features of the collected practices (to be completed with additional information from the partners)						
Target group	**Practice**	**Methods/approaches**	**Activities**	**Results**	**Innovative aspects**	**Inputs for To Switch**
	DEN01 **General training as a springboard** (machine operators)	**Training courses for senior workers close to andragogic model to support personal development**, rather than learning the material content of the subject. Activities were typically composed of a short presentation of knowledge by the teacher followed by group discussions governed by a simple set of rules for democratic, inclusive conversation and a set of guiding questions, allowing for a high degree of active participation.	A two-weeks fulltime course based on: - teacher presentations of knowledge, models, and theories including open questions to the class and constant invitations to comment on the presented matters; - group discussions of topic related questions put by the teacher; - role play exercise resembling the lawmaking process in parliament, where the class is divided by persuasion in a "blue" and "red" party before preparing a social bill proposal and political arguments in support of the bill; - short drills practicing tools of verbal communication; - guided field trips to public bodies of interest: The county court witnessing a criminal trial, a museum at a mental institution, and a large construction site.	Outcomes (trainees): - growing feeling of being able to identify, comprehend, and master new and more complex patterns of meaning within themselves, in their social relations, and in society at large; - increased self-confidence and positive expectations to one's own strength and power to make a difference for oneself; - increased motivation for and capacity to learn new things in general.	Innovative practice using contents from general subjects for the purpose of personal development, rather than learning the material content of the subject. The main issue is to present a content of interest to the participants that can spark discussions involving both reflection, argumentation, and emotion.	It is an example of a collaborative experience-based approach where the teacher takes on the role of servant to the participants switching between investigating the participants interests and needs and subsequently preparing and presenting relevant knowledge. Also, the method involves the permanent invitation to comment and voice opinions and several exercises of discussion and interaction.
	IRE01 **Changing gears** (health care sector; seniors with life changing illnesses)	**Age management course** involving senior workers to support the individuation of a personal life strategy when close to retirement or in mid- career. Tacking stock of past life experiences and learning to apply them for the future. **Innovative use of mindfulness tools, meditation and reflective journals**. Sessions are based on: - group dynamics to facilitate peer support and peer learning; - blended learning to develop the presentation and delivery of Changing Gears for building resilience (drawing on Mindfulness, CBT, Meditation); - a reflective journal to promote the use of reflective learning; - life satisfaction audit tools for use in the group and after the course has finished; - teaching the participants how to take stock of their most transferable skills; - a follow-up action by each participant targeting a personal goal to be achieved within three months (this goal is posted to participants three months after the course).	6 session course of 6 months, articulated in: - session 1 & 2: Life Transitions (Up to Now); - session 3 & 4: Building Resilience (Here and Now); - session 5 & 6: Mapping the future (Where to from Here).	Outcomes (related to the external evaluation) - significant improvements in: - self-kindness, wellbeing, acceptance of change and self-judgement sustained; - improvements in attitudes to retirement; - 64% of participants reporting reduced levels of job involvement two weeks after completing the course (initial decrease), but some participants felt more **positively about their organisation** following the course and in the mid-term, feeling more valued by their organisation, greater commitment to organisation and that the organisation was investing in them and their future. **Critical aspects:** length of the course too long; more attention to easily accessible and comfortable rooms.	It is an effective model of that involves the individual senior worker/learner in using their personal life experience to create their own personal life strategy. Innovative use of mindfulness tools, meditation and reflective journals.	The relationship **between the mentors/coaches and the senior learners/workers** to understand how to create the most equitable relationship. **Tools (exercises) and guidelines** to support self-resilience; use of meditation, reflection and journals. The program is currently being run on an **online platform** (due to COVID-19) and this could be used as an example of how to run age management courses for senior workers/learners online in the most age friendly manner.

ANNEX 5.2 – Main features of the collected practices (to be completed with additional information from the partners)						
Target group	**Practice**	**Methods/approaches**	**Activities**	**Results**	**Innovative aspects**	**Inputs for To Switch**
	ITA02 **Mo.S.E. - Mobilità Senza Età (Mobility without age)** (TN companies and PA)	Project based on the '**dual system model' that combines training in the classroom and work experience in specific and relevant sectors**. The project methodology mixed training with the experience abroad intended to provide participants with a 'personal' improvement of cognitive and relational competences.	The activities include five phases: - operational planning: definition-planning of partners' activities and creation of devices; - information/Selection: promotion, mentoring activities and participants' selection; - experience abroad: all activities included cultural-language training in alternance with a work experience; - quality, evaluation and validation with monitoring activities (included tutoring and mentoring), project assessment, quality of partners' involvement, validation of the competence gained by participants; - dissemination.	Outputs: - 73 mobility abroad for workers over 40; - linguistic, cultural, professional training in the hosting partners (2 weeks) and training on the job (5 weeks). Outcomes: - involvement of mentors supporting participants (in the sending and hosting partner); - personal Portfolio of the trainee developed by the Province of Trento as 'assessment of the results' and 'recorded certifications' of gained competences; - validation of competences (Europass-Mobility, Training citizen booklet -experimental legislation at national level, language certifications) that facilitated the recognition and transparency of competence acquisition.	New training and learning methods. New training and learning contents: relation techniques, communication techniques, communication in a language other than the mother tongue, resilience and adaptability techniques, problem solving. New training and learning tools. New targets: unemployed people (so called workers 'on the move') regardless of their age, characterized by low education, low level of qualification, absence from formal education since long periods. New partnerships involved: foreign partners 'competent' in hosting fragile (or potentially fragile) subjects or anyway 'not traditional' subjects. New models for the assessment, validation and valorization of skills acquired in formal, non-formal and informal settings: Personal trainee Portfolio on the basis of Europass-Mobility and Training citizen booklet.	Dual model based on EU mobility experiences for senior worker. Lessons leaned on: - importance of coaches and mentors; - the learning context, etc.
Senior unemployed/Inactive	**FR01** **Club Experiences** (women)	**Training model based on combination of building motivation and self-confidence and job/sector specific skills**. Activities were characterized by: - motivation and adherence of participants to practices; - strong collective dynamic; - friendly environment; - adaptation of the activities according to the members of the group; - small groups.	The activities include: - two modules on skills and self-confidence; - a module on job/sector specific skills: improve your CV, your pitch and presentation in a recruitment interview; get to know your professional environment better and new job opportunities; - three-month review at the end of the experimentation.	Outcomes: - 30% of positive exits at the end of the service (resumption of employment); - improvement of posture and professional project; - entry into vocational training or reorientation.	Supporting women overcoming stereotypes, both of employers, relatives but also of ready-made representations about oneself, in order to let them reposition themselves, motivate and develop inspiration and to apply across a wide range of non-stereotypical professions, depending on the singularities of the careers, skills and aspirations of the participants as well as jobs in tension in the territory.	Motivation and voluntary adherence. Small targeted group with varied audiences. Combating gender stereotypes, in particular affecting women over 45.
	FR02 **CODEV seniors** (executives/ managers)	Activities were characterized by: - motivation and adherence of participants to practices; - alternate between the individual and the collective; - adapt the activities according to the members of the group; - small group. Some activities are related to job/sector specific skills such as improving your pitch and presentation in a recruitment interview; getting to know your professional environment better; discovering new trades or career paths; developing the network.	10 persons per session; 2 months per session. In the morning, co-development workshop: a topic is proposed to the group by one of the participants on whom they wish to benefit from the lighting and experience of the other participants who will bring ideas and proposals for a solution. In the afternoon, the program is free and co-built with the group remaining based on morning learning, mixing individual and collective work.	Outcomes: - for the first group, 2 trainees found a job at the end of the course; - for the second group, 3 out of 10 found a job; - in general about 30% of positive exits at the end of the service (resumption of employment); - improvement of posture and professional project; - entry into vocational training or reorientation.	A specific work on the issues of self-confidence, image, background but also a work on the environment and on the analysis of its argument. The reflection carried out, individually and in groups, is facilitated by a structured consultation exercise that deals with issues experienced by the participants.	Motivation and voluntary adherence; autonomy. Flexibility of support practices and educational content. Small targeted group with varied audiences. Short duration.

ANNEX 5.2 – Main features of the collected practices (to be completed with additional information from the partners)						
Target group	**Practice**	**Methods/approaches**	**Activities**	**Results**	**Innovative aspects**	**Inputs for To Switch**
	CH02 **Women and micro-entrepreneurship** (women micro entrepreneur) Project started in July 2021	Activities are characterized by: **- learning by doing approach** targeted to women micro entrepreneurs; **- valorisation and validation** of previous competences through **skills' assessment and counselling;** - acquisition of transversal/soft competencies; job/sector specific competencies; - mentoring; - attention to **work- life balance** needs and use of appropriate language for the target group.	The activities include: - initial individual counselling to assess needs and define personal objectives and feasibility; - modular training to acquire soft and entrepreneurial skills: - development of entrepreneurial idea; - acquisition of transversal, digital, business & management skills; - motivation and relationship building; - creation of a peer support network for exchange and shared business projects; - facilitation of contacts with possible financiers.	The project is not yet completed.	The project is going to act in an area, that of "female training", which is still little explored. An important part of the training will be devoted to the reconciliation of work and family life, and the language will also be appropriate for the target group. The project is innovative also because it is a modular course and this meets the target group's needs. It also combines theory with practice (learining by doing). The participants are accompanied but at the same time acquire managerial skills.	Contribution to the update of adults/seniors training paradigms for women. Contribution to the development of new models of skills' validation/certification.
Senior citizens	**ES02** **La Verneda Adult Education Center using Interactive Groups** (community training/learning)	**Dialogic learning methodology**: through the creation of **interactive groups in classes**, in which people help each other, teach and collaborate with each other; those who know the subject reinforce the content explaining it to colleagues, and those who don´t, learn it more easily when it is explained by a colleague or a partner. **Strong participative approach: learners participate in management and decision-making**: General Assembly, College Council, Commissions for Democracy in the School participate democratically in deciding on the courses, schedules and school decisions. From the first day attending the center, everyone is invited to participate in the decision spaces of the school. Transversal/soft competencies and job/sector specific competencies.	Formal and not formal education courses on different topics (including job training and a course for educators of adult education) and skills' validation/certification through Formal and non formal exams. Main topics of the training groups: - access to University; - basic Training; - computers; - languages; - leisure and culture activities; - family education; - accreditation of professional skills.	Outputs: - 80 training groups (310 hours per week) free of charge; - open from Monday to Sunday, from 9am until 10pm; - more than 150 teaching volunteers wanting to participate in cultural and educational activities, with focus on women without educational and training qualifications; - 2400 participants from more than 60 nationalities involved in formal training activities. Outcomes (improvements in): - critical awareness, cultural, social and ideological awareness; - promotion of own environment and social transformation; - self-assessment, self-esteem and personal self-defense; - participation in managing and organizing formative process with an active and innovative pedagogy; - interpersonal relationship with learning; - acquisition of skills, attitudes, techniques and habits to self- learning and lifelong learning; - communication skills; - leverage the knowledge acquired in training others. **Critical aspect**: lack of volunteers.	The **interactive groups methodology** exported to other contexts in Spain and South America. More than 1000 institutions adopt this method with success. Scientific papers on the successful experience have been published in high impact journals.	**Dialogic learning** methodology implemented in adult education. **New profiles for adult trainers** need this vision to be aligned with the demands of labour markets and society in learning basic skills, digital skills and professional skills.

ANNEX 5.2 – Main features of the collected practices (to be completed with additional information from the partners)						
Target group	**Practice**	**Methods/approaches**	**Activities**	**Results**	**Innovative aspects**	**Inputs for To Switch**
	NO01b Seniornett – we help the seniors to get on the Internet (Digital upskilling of the over 55)	Close to **Andragogic model**. Courses based on: - motivation; - use of multiple media; -short sessions (attention decreases over time); - checking and repeating; - alternation between listening and dialog to create variety; - use of practical exercises, real-life examples and sufficient details and time for completing the tasks; - a final moment of dialogue with the participants; - use of documentation that accompanies the course (theme / day booklets). Seniornett organisation based on: - high number of local training centers all over the country, manned with volunteer workers and adopting a "train-the-trainer" system; - local autonomy with a common curriculum tailor made for the needs and the special learning requirements of the seniors; - local center activities include a "digital maintenance agenda" to keep the seniors digitally active over time and to prevent "drop-outs"; - local and a central Help-desk function for seniors; - seniors kept digitally informed and up-to-date with a periodic Magazine and an active web-page.	Max training 3 or 4 hours a day, with sessions max 45 minutes and 15' minutes break. Day of rest between every 1 to 2 days of instructions. Frequent pauses during instructions to observe if everybody follow teachings and frequent positive feedbacks. Class size maximum 18 students, with 6 students for each instructor/tutor. The main instructor goes through the curriculum of the day, the tutors observe the students individually for progress and aid the ones with difficulties. Interventions from centre offered in case of deviations.	Outputs: - Seniornett network of 235 senior teaching centers. Outcomes: - promotion of modern communication techniques for seniors to enable them to actively participate in the social life and the work force.	Elderly (over 55) trained to hold ICT courses for the elderly. ICT user friendly upskilling for all seniors.	How to make teaching senior friendly. Training of voluntary senior trainers for seniors. Critical aspects: financing and finding local training centres, finding volunteering teachers.