



Erasmus+



INTELLECTUAL OUTPUT 2

# ADAPTATION OF FREIRE METHODOLOGY FOR THE ICT NEEDS

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## INTELLECTUAL OUTPUT 2

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## ABOUT PROJECT

In Europe, at least 20% of adults have deficiencies in the field the ability to write, read, understand written text, perform simple calculations, and even more in the field of digital skills using new technology in everyday life. Lack of interest in lifelong learning shows a primal need to target the educational activities to adults and make them aware of the existence of a learning offer or to enable them to cooperate in creating learning services tailored to their individual needs. Moreover, 6.5% of adults (25-64 years) in Europe - which is approximately 20 million people – have left school before finishing the lower secondary school.

According to demographic forecasts, in 2030 almost 25 percent of Europe's population will exceed 65 years. In Poland, this percentage will be only slightly lower - it will reach 22 percent. And now Poland is the last but one in the ranking of EU-friendly seniors according to the Active Aging Index (AAI). Greece is even behind us. The active aging index is developed within the framework of the European Union and results from the results in four areas - the level of employment, participation of older people in the life of society, independent living in health and safety as well as opportunities and conditions conducive to active aging.

Basing on the specified needs, the project entitled “Yes We Can!” will be an attempt to enable senior citizens with low ICT literacy to use the existing and new IT tools which will support this target group in their life-long learning process.

Target groups of which the project will focus on will be:

- Senior Adults with low ICT literacy
- Adult workers designing and delivering educational programs for senior adults on life-skills in particular ICT literacy
- Adult education providers such as NGO’s public bodies, training institutions

The cross-sectoral consortium with partners from Poland, Greece, Turkey, Czechia will implement the frame composed of 18 steps during the 34 months - between the September 2019 and June 2022.

The main project results, planned across the implementation period will be:

- State of the art report on senior ICT education
- Publication: Adaptation of Freire methodology for the ICT needs of modern senior students
- Guide for senior EDUCATORS with the adaptation of Freire Methodology in the ICT learning
- Online Portal dedicated for educators
- Mobile Device Application for Educatees
- The Training Module for the LTT activities, basing on the Freire and Experiential Learning Methodologies, with usage of the IT tools developed in the project

## WHAT'S THIS MANUAL FOR?

Freire says that those who commit themselves to the people must question themselves constantly and expresses that we must die as an educator to be born again as an educator-learner. The main questioning here pertains to how the educator positions the learners and himself/herself in the educational process. While the banking education model sees the learners as passive objects, he argues that a dialoguer educator must establish a subject-subject relationship with the learners. This means that the educator does not only open space for his/her participants, learners, but sees the learning process as an area to be built together. Any educator to start the Experiential Pedagogy of the Oppressed journey can begin by asking himself/herself whether he/she is a banking model of educator or a dialoguer who establishes a subject-subject relationship.

When discussing the banking education model that sees the educator as a subject and a learner as an object that is just responsible for receiving the given information, only formal education and schools should not come to mind. Regardless of the training method, a non-formal trainer employs, even if the theme is from social development topics, if the trainer views his/her participants as objects to be transformed and designs a training program from top to bottom, then this is something he/she should question himself/herself about. Making trainings interactive by using experiential learning games does not mean that we are not banking model of educators. Moreover, making this distinction is much more difficult for non-formal educators. Because a non-formal educator who uses methods and approaches contrary to the banking education which is labeled on formal education, may not think of the possibility that he/she may also become a banking model of educator by making sentences beginning with “already ...” In the words of Freire, “If we objectify the learners in the training activities, we unknowingly become the oppressor for them even if our goal is to liberate.”

In the light of this perspective, such adaptation will provide a framework for the beneficiaries to conduct the Freirean Methodology on how to design an ICT program for senior adults from bottom-to-top. The main scientific approach of this manual is based on the Freire Pedagogy of the Oppressed, which will be transformed into the modern reality and used as a methodology of ICT learning together with experiential learning approach. This way, we hope to bring innovation and dialogue approach to the education of senior education in IT. In this manual, there will be seen the digital Experiential Pedagogy of the Oppressed, Seniors Learning Needs, Digital Literacy among Senior Adults, ICT Education Information and Good Practises to provide a methodological coherence for enhancing the doors of innovation for the senior adults with ICT Needs.

To all of you who will read this, we hope you find it useful in your works with senior adults across Europe.

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# CHAPTER 1

# EXPERIENTIAL PEDAGOGY OF THE OPPRESSED

PREPARED BY

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## CHAPTER 1 - EXPERIENTIAL PEDAGOGY OF THE OPPRESSED

### 1. PAULO FREIRE'S EDUCATIONAL PERSPECTIVE

Paulo Freire, one of the building blocks of critical pedagogy, defines education as a tool that enables the emancipation of the individual. Freire revealed the connection of many difficulties that people face with education, and gained a different place among educational philosophers with his unique ideas.

Freire says education cannot be impartial. Accordingly, education is considered in two dimensions, either as a tool used to facilitate the integration of the human with the existing dominant system or as a tool (practice of freedom) in which people look critically at the reality they are in and at the same time discover how they will be involved in the transformation of this order. Freire takes place in the second dimension.

According to Freire, the main purpose of education is "consciousness" (conscientização), which can be defined as providing learners with a critical perspective on society and being aware of their potential to transform society. Therefore, Freire considers education as an auxiliary factor in the awareness process.

Freire tried to create a critical consciousness in people through education and to establish a liberated world where human values work. If these thoughts come true, the distinction between oppressor and oppressed will be eliminated (Yılmaz, 2016). Freire states that the great human and historical duty of the oppressed who have reached this level of consciousness is to liberate both themselves and their oppressors (Yılmaz, 2016). Liberation can only happen when the oppressed reach the consciousness that they do not oppress like the oppressors.

Freire argues that the unity of thought and action must be simultaneously. He explains this human-specific situation with the concept of 'praxis'. Praxis refers to the conscious action in which theory and practice affect each other dialectically, enabling the world to be transformed (Freire, 2015). The education of Freire should support people to understand the world critically and take action to change it. (Ayhan, 2013).

The concept of "dialogue", which is defined as a process where the educated and educator investigate information together, has a very important place within Freire's educational

theory. In a dialogue-based educational approach, the teacher's domination of being the sole authority over the student disappears and education turns into a process where knowledge is shared. On the other hand, teacher and student can be both learner and teacher. The teacher and the student participate in the dialogue environment under the same conditions, they take place as discoverers with a critical point of view without establishing power over each other. Students' perceptive capacity improves and they define the world as a dynamic reality that evolves and transforms over time.

Freire defines traditional education, which imposes the knowledge that the dominant society wants to provide, as a "banking education model" and stands against it. In this model, where learners are defined as objects and teachers as subjects, there is a one-sided imposition rather than a dialogue-based structure. Thus, the traditional education model has an oppressive, authoritarian nature and serves the continuation of the status quo. Freire advocates the "problem-defining education" model, which is based on dialogue, instead of the "banking education model" he stands against. With this model, people become aware of their potential and get the opportunity to define the problems in their relations with the world.

In the literacy method that Freire divided into 5 stages, there are issues that take an important place in the language and lives of the participants as a focal point. Therefore, he argues, the literacy process is as much about reading the world as reading words. According to Freire, literacy is a cognitive tool that separates literate and illiterate people from each other.

Finally, the most important element that covers the essence of Freire's educational philosophy is the dialectical structure between objectivity and subjectivity. According to him, an objectivity that ignores and excludes subjectivity is unacceptable. These two concepts are two important elements that complement each other, the world and human beings can only exist in interaction with each other. Freire finds it important to implement an emancipatory education, despite the danger of being caught in objectivism in the name of objectivity or, conversely, in subjectivism in the name of subjectivity.

### ***1.1.CONCEPTUAL DIMENSION***

- ***Banking Model of Education***

In this form of education, the teacher deposit in the minds of the learners who are considered to be empty or ignorant, bits of information or knowledge, much like we deposit money in an account. This is why Freire called this model of education 'banking education'.

Freire criticized this model of education because he believed it made students into passive objects to be acted upon by the teacher. He argued that the goal of ‘banking education’ is to demobilize the people within the existing establishment of power by conditioning them to accept the cultural, social, political status quo of the dominant culture. In the banking education model knowledge/education is seen as a gift given to the student by the teacher who considers the learner as marginal, ignorant and resource-less. Freire saw this as false generosity from the dominant group (oppressors) and a way of dominating and controlling the people (the oppressed) to improve or maintain their own interests. Freire argued that conventional learning was the tool of the elite because it treated students as objects upon which knowledge is “deposited.” (Rugut & Osman, 2013).

- ***Problem Posing Education***

To challenge the banking education model, Freire proposed a problem-posing model of education. In this model, the teacher and learner discuss and analyses their experiences, feelings and knowledge of the world together. Instead of the belief that learners’ and teacher’s situation in the world is fixed, as the banking model suggests, the problem-posing model explores problems or realities people find themselves in as something which can be transformed.

It is not the job of the teacher to provide answers to the problems, but to help the learners achieve a form of critical thinking about the situation, Freire called this conscientization. This makes it possible to understand that the world or society is not fixed and is potentially open to transformation. It becomes possible to imagine a new and different reality. In order to undertake this process successfully, the people (oppressed) must challenge their own perception of the dominant group (oppressor).

Freire argued that the oppressed think of themselves as ‘less than’ or something lacking. He suggested that they have been conditioned to view the practices and behaviours of the dominant groups as complete, whole and correct. To become whole complete and correct means to simulate the practices of the dominant culture. To counter this perception means engaging the learner in a process of dis-identification with dominant culture/oppressor and to help the learner to imagine a new being and a new life according to their own rationality. Learning can best be achieved through critical thinking and analysis of one’s experiences and feelings (Rugut & Osman, 2013).

- *Dialogue*

Freire advocated for dialogue, constant communication unlocks doors for prosperity and victory in any situation. When teachers and learners dialogue, there are always breakthroughs. Dialogic action challenges mediating social realities by posing them as problems that can be analyzed critically by those who have direct experience of them. Freire argues that dialogue is not just about deepening understanding but is part of making a difference in the world. Dialogue becomes a form of collective praxis directly concerned with unveiling inequitable conditions obscured by the ruling classes. The process is important and can be seen as enhancing community and building social capital that leads to justice and human flourishing.

To enter into dialogue presupposes equality amongst participants. Each must trust the others; there must be mutual respect and love (care and commitment). Each one must question what he or she knows and realizes that through dialogue existing thoughts will change and new knowledge will be created. Freire's emphasis on dialogue has struck a very strong chord with those concerned with popular and informal education. Informal education is dialogical or conversational and involves respect and people working with one another (co-operative activity).

Dialogue is an encounter, mediated by the world itself, between men and women to name the world (make sense of the world). Dialogue is the means by which we achieve significance as human beings. Those in the dialogue must each want to name the world. Everyone must be able to speak the word to name the world. "The domination implicit in dialogue is that of the world by the dialoguers; it is conquest of the world for the liberation of humankind" (Rugut & Osman, 2013).

- *Conscientization*

Freire has described this as the process of developing a critical awareness of one's social reality through reflection and action. Action is fundamental because it is the process of changing the reality. Paulo Freire says that we all acquire social myths which have a dominant tendency, and so learning is a critical process which depends upon uncovering real problems and actual needs. The idea that "experiences are lived and not transplanted" is a central tenet of Freire's philosophy. Conscientization is the key process by which students develop a critical awareness of the world based on the concrete experience of their everyday lives. The development of critical awareness through conscientization alters power relations between students and

teachers, the colonized and the colonizer, thereby transforming objects of knowledge into historical subjects (Rugut & Osman, 2013).

- *Praxis – Action/Reflection*

Paulo Freire, whose perspective is derived from both Marxist and Existentialist thought, maintained that for the oppressed to become authentic selves they must fight not only for freedom from hunger, but for freedom to create and construct, wonder, and venture. True knowledge, Freire contended, emerges only through restless, impatient, continuing, hopeful, critical inquiry with other people about their relations to the world.

A core component of Freirean theory is that learning begins with action is then shaped by reflection, which gives rise to further action. Learning is thus a continuous process, directed at enhancing the learner's capacity to act in the world and change it. For Freire, whether it is called literacy or learning, this is the principal political task of any society committed to people-power. Freire put forward the notion that authoritarian forms of education such as banking education prevented learners from 'knowing' the world and seeing it as something which can be changed. He believed that authoritarian forms of education inhibited the liberation and freedom of the oppressed. Freire argued that change could come through a process of dialogue and reflection leading on to change through action or intervention and or political change. Freire called this process praxis (Rugut & Osman, 2013).

- *Eastern Experience*

According to Paulo Freire those who authentically commit themselves to the people must re-examine themselves constantly. To him this conversion is so radical and does not allow for ambivalent behavior. Conversion to the people requires a profound rebirth. Those who undergo it must take on a new form of existence; they can no longer remain as they were. A number of informal educators have connected with Paulo Freire's use of metaphors drawn from Christian sources. An example of this is the way in which the divide between teachers and learners can be transcended. The educator for liberation has to die as the unilateral educator of educatees in order to be born again as the educator-educatee of the educatees-educators. An educator is a person who has to live in the deep significance of Easter (Rugut & Osman, 2013).

- *Generative Themes & Codification*

Freire's literacy pedagogy, or "method" as it has come to be called, was based in learners' linguistic and social realities. He recommended that literacy teachers conduct

ethnographic research in the learners' community, document their linguistic universe, draw “generative themes” and key words from that local culture, and engage in a dialogical process with students to elaborate a social analysis, while simultaneously studying words at the syllable level, phonetically. In this way, students learn to “read the word and the world” (Bartlett 2005).

Participants explore generative themes which are of interest to them. A generative theme is a cultural or political topic of great concern or importance to participants, from which discussion can be generated. These generative themes are then represented in the form of ‘codifications’ (either represented by a word or short phrase or a visual representation - a picture or photograph). Participants are able to step back from these visual representations of their ideas or history and decode or explore them critically by regarding them objectively rather than simply experiencing them (Rugut & Osman 2013).

### ***1.2.FREIRE’S LITERACY METHOD***

The Paulo Freire Method of literacy training is most clearly presented in *Education for Critical Consciousness* (Elias, 1975).

The first stage is the study of the context. An investigating team examines the lives of people in a given area. Their common vocabulary and the problems confronting them are recorded and lengthy interviews are held to discover their longings, frustrations, and hopes. Efforts are made to involve them as much as possible, even at this first stage, for Freire insists that the words used in literacy training should come, not from the educator, but from the people.

The second stage of the method is the selection of the generative words. Words are “generative” for Freire if they have the capacity of leading learners to new ones. Three criteria are used in choosing these words:

1. They should contain the basic sounds of the Portuguese and Spanish languages;
2. When organized, they should enable the learner to move from simple letters and sounds to more complex ones;
3. They should be useful for confronting the social, cultural, and political reality in which the people live.

Freire’s coordinators developed different lists of words for each area in which they worked.

The third stage of the method is the actual literacy training. In Brazil, literacy training was preceded by at least three motivation sessions in which the students analysed the concept

of culture in order to see themselves as genuine creators of it, In Chile, these sessions were incorporated into the actual training sessions. The training sessions themselves consisted of discussions around the generative words and the pictures which illustrated them. Each word was broken down into its syllables, e.g. favela (slum) was broken down into fa-ve-la. The family of syllables was shown: Fa, Fe, Fi, Fo, Fu. This was done with all the syllables, the learners were then 100 to create other words using these syllables and their families. When the second generative word was shown, the learners began to make combinations of its syllables and also combinations with all the syllables of the two words presented.

At the same time that the students were de-codifying the word favela, they were also de-codifying the reality of the slum in which they were involved. For Freire, literacy training is no mere mechanical process for teaching a person to read and write. It is rather a process that should lead a person to critical consciousness. It should lead him to a greater awareness of the oppressive forces in his life and to the realization of his own power to denounce these forces in the name of freedom.

A fourth stage has been added to the method which Freire himself has called “post literacy” or political literacy.” This is concerned with the raising of critical consciousness among those who are already literate. Rather than generative words, generative themes now form the basis of education. Pedagogy of the Oppressed shows how this form of education may be the preparatory stage of revolutionary action. Such themes as “oppression,” “domination,” “imperialism,” “welfarism” would serve as the basis for discussion and action.

## **2. EXPERIENTIAL LEARNING THEORY OF KOLB**

We all learn from our experiences. In fact, this learning process, which starts in infancy and later in childhood, continues in our youth and adulthood as well. We try to push our personal limits, to acquire new skills, and to be able to overcome our difficulties. Each and every try gives us an experience. We think about this experience, we analyze it, we observe our own experience and the experiences of others. These analyses and observations give us new conclusions and ideas. We apply these new ideas and naturally get a new experience from this practice too. This cycle which is the natural learning process of human beings has been integrated into the education and learning processes by the leading scientists of the 20th century (Erdogan, 2016).

## *2.1. An Overview of Experiential Learning*

Experiential learning theory is based on the works of the leading scientists of the 20th century, such as Dewey who uses experience as base of learning, Lewin who emphasizes the importance of individual effectiveness in the learning process, and Piaget who does not see intelligence only as an innate trait and qualifies it as an end result of the interaction between people and the environment. These scientists tried to develop a holistic experiential learning process and model for adult education (Kolb 1984). David A. KOLB is who framed the theory of experiential learning in its most commonly accepted form. Kolb defines learning as a process in which “experience is transformed into knowledge”.

Kolb (1984) has built his theory on six propositions that are shared by these scholars:

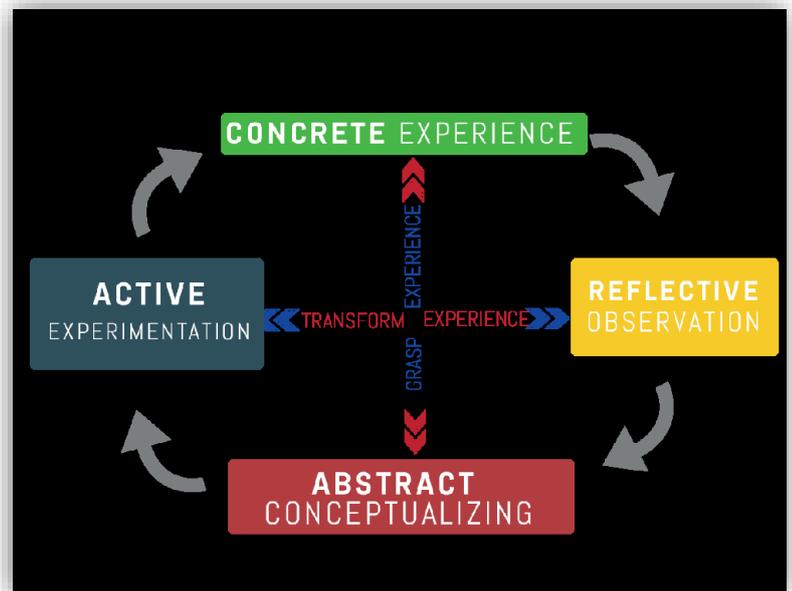
1. Learning is best conceived as a process, not in terms of outcomes. Although punctuated by knowledge milestones, learning does not end at an outcome, nor is it always evidenced in performance. Rather, learning occurs through the course of connected experiences in which knowledge is modified and re-formed. To improve learning in higher education, the primary focus should be on engaging students in a process that best enhances their learning – a process that includes feedback on the effectiveness of their learning efforts. “...education must be conceived as a continuing reconstruction of experience: ... the process and goal of education are one and the same thing.”
2. All learning is re-learning. Learning is best facilitated by a process that draws out the students’ beliefs and ideas about a topic so that they can be examined, tested and integrated with new, more refined ideas. Piaget called this proposition constructivism— individuals construct their knowledge of the world based on their experience and learn from experiences that lead them to realize how new information conflicts with their prior experience and belief.
3. Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. Conflict, differences, and disagreement are what drive the learning process. These tensions are resolved in iterations of movement back and forth between opposing modes of reflection and action and feeling and thinking.
4. Learning is a holistic process of adaptation to the world. Learning is not just the result of cognition but involves the integrated functioning of the total person— thinking, feeling, perceiving and behaving. It encompasses other specialized models of adaptation from the scientific method to problem solving, decision making and creativity.

5. Learning results from synergetic transactions between the person and the environment. In Piaget's terms, learning occurs through equilibration of the dialectic processes of assimilating new experiences into existing concepts and accommodating existing concepts to new experience. Following Lewin's famous formula that behaviour is a function of the person and the environment, ELT holds that learning is influenced by characteristics of the learner and the learning space.
6. Learning is the process of creating knowledge. In ELT, knowledge is viewed as the transaction between two forms of knowledge: social knowledge, which is co-constructed in a socio-historical context, and personal knowledge, the subjective experience of the learner. This conceptualization of knowledge stands in contrast to that of the "transmission" model of education in which pre-existing, fixed ideas are transmitted to the learner. ELT proposes a constructivist theory of learning whereby social knowledge is created and recreated in the personal knowledge of the learner.

### *2.2. Experiential Learning Cycle*

Experiential Learning Theory is a dynamic view of learning based on a learning cycle driven by the resolution of the dual dialectics of action/reflection and experience/abstraction. Learning is defined as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience." (Kolb, 1984, p. 41). Grasping experience refers to the process of taking in information, and transforming experience is how individuals interpret and act on that information. The Experiential Learning Theory Model portrays two dialectically related modes of grasping experience—Concrete Experience and Abstract Conceptualization—and two dialectically related modes of transforming experience—Reflective Observation and Active Experimentation.

Learning arises from the resolution of creative tension among these four learning modes. This process is portrayed as an idealized learning cycle where the learner “touches all the bases”—experiencing, reflecting, thinking, and acting—in a recursive process that is sensitive to the learning situation and what is being learned. Immediate or concrete experiences are the basis for observations and reflections. These reflections are assimilated and distilled into abstract concepts from which new implications for action can be drawn. These implications can be actively tested and serve as guides in creating new experiences.



### 2.3. Learning Styles

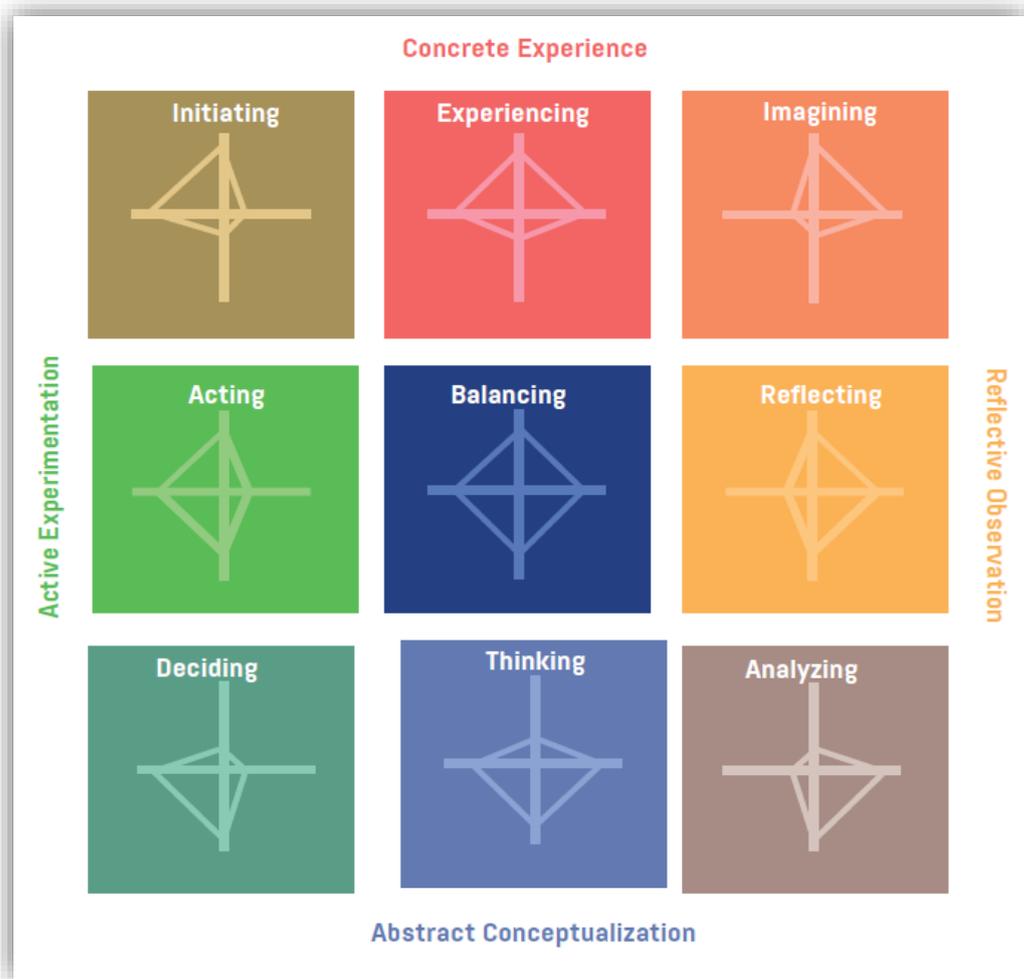
Learning style describes the unique ways individuals spiral through the learning cycle based on their preference for the four different learning modes. Because of one’s genetic makeup, particular life experiences, and the demands of the present environment, a preferred way of choosing among these four learning modes is developed.

#### The Nine Learning Styles of the KLSI 4.0 (Kolb & Kolb 2013)

Data from empirical and clinical studies over the years has shown that original four learning style types—Accommodating, Assimilating, Converging and Diverging— can be refined further into a nine style typology that better defines the unique patterns of individual learning styles and reduces the confusions introduced by borderline cases in the old 4 style typology. With feedback from users, Kolb first began noticing a fifth “balancing” style describing users who scored at the center of the Learning Style grid.

The new KLSI (Kolb Learning Style Inventory) 4.0 introduces these nine style types by moving from a 4 pixel to 9-pixel resolution of learning style types as described below. The learning style types can be systematically arranged on a two-dimensional learning space defined by Abstract Conceptualization-Concrete Experience and Active Experimentation-Reflective

Observation. This space, including a description of the distinguishing kite shape of each style, is depicted in the figure below:



#### 2.4. Creating A Learning Environment

Establishing an appropriate learning environment is very important for the efficiency of the training programs based on experiential learning. Participants are not only in the individual learning process, but the intensive learning process is the group learning process. In order for the group to be able to learn together, it is first required to turn the group in which different individuals come together into a “learning group”. In learning group building, it is very important to raise the group dynamics. Kolb refers to this issue as follows; “For a learner to engage fully in the learning cycle, a space must be provided to engage in the four modes of the cycle—feeling, reflection, thinking, and action. It needs to be a hospitable, welcoming space that is characterized by respect for all. It needs to be safe and supportive, but also challenging” (Kolb & Kolb 2013).

Learning is a pleasant but a challenging process as well. Participants who enter into the process of behavior, approach and skill development/transformation must come out of their “comfort zones” and go “into the learning area” where they must “challenge” with difficulties, and they will do self-evaluation and self-criticizing. It is not easy for everyone to come out of his/her comfort zone and furthermore, does it among a group of people. In a methodological flow based on the experiential learning cycle, the participant must first experience and then reflect on their experience. During the experience that corresponds to the concrete experience stage of the cycle (learning game, practice etc.), it is necessary that the participant do not resist against experience and he/she really experiences. For this, it is essential that he/she trusts the group members whom he/she lives the experience together with. The more active the group is in the debriefing phase, the more they feed each other and the higher the level of group learning is. Trust and open communication are very important again for the participants to share especially their emotions and observations in the group.

### **Suggestions for Building Learning Group:**

- Begin with name and get to know each other games. Icebreakers and trust games will draw participants closer. Play fun games. Those who have fun together learn together.
- Present the learning objectives of the program clearly.
- Get the participants’ expectations from the program and contributions they can make to the program.
- Have them prepare the group learning contract. (Rules to be followed throughout the program)
- Play teamwork games with them. Those who overcome the challenges together become groups faster.
- Make room for your participants in the program according to their personal talents, knowledge, and experiences.
- Create free times. Create times for participants to spend time and share together, outside of the sessions as well.
- Take care not to keep lunch breaks and coffee breaks too short.

### *2.5. Debriefing*

John Dewey, one of the most influential thinkers in educational theory in the twentieth century, argued that education is the combination of experience and reflection. This theory has been embodied in the concepts of experiential games and simulations through techniques known as reviewing or debriefing that encourage learners to mentally process the experience. As Thaigi, an expert in training, says, “People don’t learn from experience; they learn from reflecting on their experience” (as cited in Nicholson, 2012). Debriefing is a must for experiential learning based educational methodology. An experience (learning game) remains only an activity unless it is reflected on, analyzed, and conceptualized. A well-planned and properly managed debriefing session is an integral part of the experiential learning cycle so that experience can be transformed into learning.

## **3. CONCEPTUAL SYNTHESIS / CONTEXT APPROACH**

### *3.1. From the Banking Model to the Dialoguer*

Freire says that those who commit themselves to the people must question themselves constantly and expresses that we must die as an educator to be born again as an educator-learner. The main questioning here pertains to how the educator positions the learners and himself/herself in the educational process. While the banking education model sees the learners as passive objects, he argues that a dialoguer educator must establish a subject-subject relationship with the learners. This means that the educator does not only open space for his/her participants, learners, but sees the learning process as an area to be built together. Any educator to start the Experiential Pedagogy of the Oppressed journey can begin by asking himself/herself whether he/she is a banking model of educator or a dialoguer who establishes a subject-subject relationship.

### *3.2. Flexibility In Education*

Applying the Pedagogy of the Oppressed and experiential learning methods together brings flexibility in these three areas: Time - Method - Topic and Plan

Flexibility in **Time**; being able to look at the education as a dialogue and process and to operate this process requires flexibility in time. As the experiential learning theory underlines, each individual is different and learns in different ways. Learners need time until they move into a learning environment close to their own learning style. Similarly, in the dialogue process,

a person who has begun his/her journey of critical consciousness needs time to be able to overcome his/her patterns.

Flexibility in **Method**; a dialoguer educator should be flexible in method selection. The methods specified in the pre-designed programs may not always meet the needs of the participants. Educators may sometimes want to immediately apply an interactive method that they have recently learned and liked very much. It should not be forgotten that the methods are merely tools to convey us to the learning objective. Learning objectives can not be discovered without revealing the real needs of the learners. Besides, since each individual's learning style is different, it will not be right to set all the methods without considering the learning styles. Discovery of real learning needs and learning styles is only possible with a dialogue spreading to the process. The trainer should have the flexibility to apply changes in his methods every time he makes new discoveries.

Flexibility in **Topic and Plan**; perhaps the element in which a dialoguer educator should be flexible the most is the content. We can assume that the curriculum is more flexible in non-formal education, but here, the detailed identification of all aspects of the program without discovering the real needs of the participants, doesn't it mean to design a program just with the educator's vision? Do the topics, chosen from up to bottom, make the participants a subject or an object? The trainers who actuate the experiential pedagogy of the oppressed are the dialoguers who are flexible about the topic and the plan, and progress along the discovery process with the learners step-by-step.

# CHAPTER 2

# SENIORS LEARNING NEEDS

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## CHAPTER 2 - SENIORS LEARNING NEEDS

### Introduction

It is undeniable the fact that in the future, the number of older people will have a higher educational and social background, better level of physical health and more involvement in their education. Subsequently, this will cause better quality programs (Peterson, 1990). Moreover, according to the World Health Organization ("Healthy Ageing and the Sustainable Development Goals"), by 2050 the number of people over the age of 60 will have been doubled.

However, the current situation is not the same. Senior Adults face a lot of difficulties in the modern Learning process, due to a variety of factors. Following, we will examine some of the most significant obstacles in the Learning and Educational procedure of Senior adults, as well as this specific group's learning characteristic and some Theoretical information. Moreover, a list of Good practices of the field will be presented.

### 1. WHICH ARE THE LEARNING CHARACTERISTICS OF SENIORS?

The difficulty in identifying the characteristics of adult learners, especially older adults, arises from the prevailing approach to later childhood education.

However, if we start with the mature adult at 40 or 50, we have a clearly marked different starting point. During mature adulthood, people have a mind full of experiences and knowledge, a good deal of credibility, many skills, capabilities, and an intellectual framework built on years of trials and errors. The mature adult, also, has a rich range of emotional experiences which affect – usually positively – the disposition towards formal and informal learning. Therefore, it is difficult, if not impossible, to start educating a person based on the schooling track that is offered to young people in secondary school.

According to Rogers (1996), a distinction must be made between adult education, in general, and education of elderly people, in specific. The difference lies in two areas:

- On the one hand, the objectives, and the contents of the programs, so that they can be better assimilated by older people, as they relate to their age and the skills they want to master.
- On the other hand, the way the learning approach will be adopted as addressed to experienced and older individuals.

Moreover, Bastable (1997, p.94-98) has made a useful table, as seen below, in which there have been gathered all the learning characteristics of Senior adult learners.

<b>Age Group</b>	<b>Learners' Characteristics</b>
<p style="text-align: center;"><b><i>Middle-Aged Adulthood</i></b> <b><i>(40-65 Years)</i></b></p>	<ul style="list-style-type: none"> <li>✓ Sense of self well-developed</li> <li>✓ Concerned with physical changes</li> <li>✓ At peak in career</li> <li>✓ Reflects on contributions to family and society</li> <li>✓ Re-examines goals and values</li> <li>✓ Have confidence in abilities</li> </ul>
<p style="text-align: center;"><b><i>Older Adulthood</i></b> <b><i>(65 Years and older)</i></b></p>	<ul style="list-style-type: none"> <li>✓ Cognitive changes</li> <li>✓ Decreased ability to think abstractly, process information</li> <li>✓ Decreased short-term memory</li> <li>✓ Increased reaction time</li> <li>✓ Stimulus persistence (afterimage)</li> <li>✓ Focuses on past life experiences</li> <li>✓ Sensory/motor deficits</li> <li>✓ Auditory changes</li> <li>✓ Visual changes</li> <li>✓ Fatigue/decreased energy levels</li> <li>✓ Chronic illness</li> <li>✓ Psychosocial changes</li> <li>✓ Decreased risk taking</li> <li>✓ Selective learning</li> <li>✓ Intimidated by formal learning</li> </ul>

## 2. THE LEARNING BARRIERS ON EDUCATION OF SENIOR ADULTS

### 2.1. *Obstacles to education of senior adults*

The third age of the second decade of the 21st century is the youth of the 40's, 50's and 60's, which are historically difficult times for the daily lives of people, who favour insecurity and suspicion. Therefore, it is a normal reaction not to easily trust the processes of a group, even if this a group of learners whose aims is personal development and improvement, and to develop dysfunctional behaviours. Manifestations of these behaviours are fear of exposure and insecurity, while they, also, hardly accept any learning technique other than traditional teaching. All the above are self-defence mechanisms that apply to adult learners in general, and that are consolidated as age progresses (Rogers, 1996).

Some of the major learning barriers on the Education of senior adults are the following:

#### 2.1.1. *Age-related barriers*

According to the World Health Organization (WHO, 2015), the cognitive functions which are more affected, when a person is getting older, are memory and the speed of information processing. This loss reduces the ability to respond to new data, while increasing crystallized knowledge, the “wisdom of old age” as it is commonly called (Jones, 1984). These include limitations in learning ability, in terms of management, reorganization of thinking and assimilation.

As far as the physical functions are concerned, as well as mental ones, they are directly related to the physiology of each individual, but also to their full participation in productive and creative activities of daily life. Decreased muscle strength, vision and hearing loss, weakening of vital organs, belong to the normal decline of the human body. Regarding the psychological consequences of aging, a percentage of people entering old age suffer from depression, which is often expressed through isolation. Therefore, the physiological decline combined with isolation, which is also associated with a lack of social interaction and access to resources, contribute to the restricted access to educational opportunities (Taylor, Morin, Parker, Cohn, & Wang, 2009).

#### 2.1.2. *The Digital Age*

Most classes today require computer access. Therefore, a certain degree of technological skills are essential before an older learner will be able to enter the majority of the modern learning environments. Subsequently, a lack of accessibility means, also, that some older learners are being left out of the computer age and, in consequence, out of the educational

process. Furthermore, not only senior adult learners have to deal with a lack of technological skills, but also, physical problems limit, as well, an older learner's ability to successfully engage in the modern educational and learning opportunities. More specifically, many common health problems that affect an older adult's decision to engage in new learning include a decrease in vision, in hearing, immobility, etc. (Coudin & Alexopoulos, 2010).

### *2.1.3. Ageism*

Ageism is, also, a significant obstacle to educational opportunities for seniors. Ageism is any attitude, or even an action, that subordinates a person, a group or any role in society, such as retirement, solely based on age (Woolf, 1998). As an "ism," ageism reflects a prejudice in our society against senior adults. Older people are also stereotyped and considered of being slow to accept change, physically dependent, conservative, in poor health or even alienated (Coudin & Alexopoulos, 2010). Therefore, barriers can come from prejudices around education of older adults, which may also prevent the influx of new knowledge, as well as habit and thinking according to conquered standards. This prejudice may cause a resistance to the educational process on behalf of the senior adults, which in turn lies on the fact that they see themselves as very old, lack motivation and self-confidence, are afraid of comparison with younger seniors, or that their educational background may be delayed (WHO, 2015).

### *2.1.4. Practical problems*

There are also practical problems which senior adults face in the learning process, such as the cost of the courses, the lack of time, the lack of information about the available programs, the lack of knowledge or the possibility of access and difficulty in transportation.

## *2.2. Methods for overcoming the barriers in Education and Teaching strategies to consider for older adults*

In order for the teaching-learning procedure to be effective, it must be individualized to fit the needs, both cognitive, physical and mental, and lifestyle of the senior adults, who should be encouraged to actively participate in the process.

For example, some older adult learners have increasing difficulty in understanding complex sentences. Therefore, the teacher/trainers can present new information at a slower rate than s/he does for younger learners, in order to allow enough time for the learners to assimilate and integrate the new material. In addition, it has proven to be important for seniors to work in groups and with peers, so that they can share experiences. Moreover, in order to meet the challenge of learning, senior adult learners need more motivation, than assessment procedures,

in order to better familiarize with the opportunities given to them. Furthermore, a supportive environment is always the of utmost importance. Bastable (1997, p.94-98) has, again, provided a brief table with some Teaching strategies, while working with Senior adult learners:

<b>Age Group</b>	<b>Teaching Strategies</b>
<p style="text-align: center;"><b><i>Middle-Aged Adulthood</i></b> <b><i>(40-65 Years)</i></b></p>	<ul style="list-style-type: none"> <li>✓ Focus on maintaining independence and re-establishing normal life patterns</li> <li>✓ Assess positive and negative past experiences with learning</li> <li>✓ Provide information to coincide with life concerns and problems</li> </ul>
<p style="text-align: center;"><b><i>Older Adulthood</i></b> <b><i>(65 Years and older)</i></b></p>	<ul style="list-style-type: none"> <li>✓ Use concrete examples</li> <li>✓ Build on past life experiences</li> <li>✓ Make information relevant and meaningful</li> <li>✓ Present one concept at a time</li> <li>✓ Allow time for processing/response (slow pace)</li> <li>✓ Use repetition and reinforcement of information</li> <li>✓ Avoid written exams</li> <li>✓ Use verbal exchange and coaching</li> <li>✓ Encourage active involvement</li> <li>✓ Keep explanations brief</li> <li>✓ Use analogies to illustrate abstract information</li> <li>✓ Speak slowly</li> <li>✓ Face client when speaking</li> <li>✓ Minimize distractions</li> <li>✓ Avoid shouting</li> <li>✓ Use visual aids to supplement</li> </ul>

	<ul style="list-style-type: none"><li>✓ Use white backgrounds and black print</li><li>✓ Use large letters and well-spaced print</li><li>✓ Avoid colour coding with blues, greens, purples, and yellows</li><li>✓ Increase safety precautions/provide safe environment</li><li>✓ Ensure accessibility to prostheses (glasses)</li><li>✓ Keep session short</li><li>✓ Provide frequent rest periods</li><li>✓ Establish realistic short-term goals</li><li>✓ Identify and present pertinent material</li><li>✓ Use informal teaching sessions</li><li>✓ Demonstrate relevance of information to daily life</li><li>✓ Assess resources</li><li>✓ Make learning positive</li><li>✓ Identify past experiences</li><li>✓ Integrate new behaviours with formally established ones</li></ul>
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### 3: THEORETICAL UP-TO-DATE INFORMATION

The academic community has developed a variety of theories about how adults become better learners. In this subchapter, some of the most prevalent theories are presented, based on the possibility of their application to the population range of senior adults.

#### 3.1. *The theory of Andragogy*

The peculiarities of the way adults learn compiled the theory of andragogy (Kokkos, 2005), which was demonstrated by Knowles between 1960-1990, and emphasises the value of motivation, in order to educate senior adults, describing the special features of their education. According to this theory, adult students need to control the design of their education and are

aware of what knowledge they are seeking. Also, they like to contribute to the educational process, which needs to be experiential. Also, adult learners are fully aware of why they are involved in the learning process, therefore, the knowledge gained should be useful in real life by choosing practical learning objects, away from academic standards. Finally, their motivations are inherent, usually involving self-development, recognition, and improvement of their quality of life.

Thus, the educational process is formed, with the following main characteristics, which are briefly mentioned below (Kokkos, 2005):

1. It is important that the educational process is occupied by interaction between educators/trainers and learners and freedom of expression.
2. The program needs to reflect the social needs of the trainees.
3. The trainees are invited to actively participate in the training process, from planning to evaluation.
4. The coordinator is the main source of learning material, but always with the trainees choosing the knowledge they will acquire.
5. Active learning techniques are more suitable and preferred compared to traditional ones.

### ***3.2. Person-Centred theory of Education***

As in the previous theory, the emphasis is on the senior learner's need for self-development. The difference is that the driving force behind learning is the people themselves. This force lead individuals to learning actions, in order to redefine themselves. Rogers, who was the inspirer of Person-centred theory and identified the educational process through it, formulated its basic principles (Kokkos, 2005):

1. Essential learning occurs when it meets the personal needs of the individual, which also lead to his/her personal development.
2. Learning needs to be compatible with the learner's perception of his/her self, in order to avoid resistance.
3. Practice as an educational method is necessary, with the learners also participating in the design of the educational process, activating its emotional and mental reserves.
4. It is important the fact that the learner's self-confidence and independence of opinion to be visible, so that self-assessment will become more important than the evaluation of others.
5. The integration of new knowledge is a special process towards evolution.

### *3.3. Experiential-Transformative Learning*

This theory, which supports a learning process through "processing experiences" (Kokkos, 2005), is a relatively recent method that has been embraced by the educational community. According to this theory, the key elements of learning are experiences, critical thinking and rational discussion, which are the tools for transforming knowledge into new beliefs, usually deeper and more mature. Thus, the new knowledge begins with an empirical fact, the educational value of which is proven if it arouses the curiosity of the learner and, additionally, through observation and reflection, the new knowledge emerges. This learning method is highly communicative and can lead to profound changes in a person's lifestyle.

### *3.4. The role of the Adult Educator/Trainer*

In adult education, the concept of "Group" plays an important role. It seems that the group acts as a safety net in adult education, as it offers security that counteracts the stress of the trainees. Subsequently, the emotional stability of the team members ensures better fulfilment of its goals (Tsimboukli, 2012).

In order for an educator's work to be effective, he/she should be emotionally involved with the group of learners and be genuinely interested in it, believe in teamwork, and feel that his/her role is important and supportive. Innovative thinking and to be receptive to criticism are also significant traits (Tsimboukli, 2012). Regarding the management of learners, the adult trainer should encourage the active participation of learners and evaluate it, maintain balance and boundaries in their relationships and communicate with them.

More specifically, the skills needed are the following (Kokkos, 2004):

- To be interested in the trainees and to receive their acceptance.
- Communicate effectively with them.
- Coordinate the team.
- Be flexible in terms of using various educational techniques.
- To connect the acquired knowledge with the needs of real life of the senior adults.
- Have self-awareness.

## 4. GOOD PRACTICES

### 4.1. *The “MATURE” programme*

This is an action funded by the European Commission's Lifelong Learning Program and implemented in 2012-2014 in eight countries, including Greece. It included training educators on the motivation and involvement of older people, who have difficulty in participating in learning programs, due to age barriers, whether they are social stereotypes or dependence on others. The philosophy of the program was that the activation of the elderly benefits not only themselves but also the economy and society (MATURE, 2013).

### 4.2. *The Grundtvig programme*

The Grundtvig program points out four advantages, which emerge from educating the elderly:

- ✓ Through self-directed and experiential learning, the elderly people are personally involved in the educational process and gain worthy life experiences.
- ✓ Volunteering: senior adults volunteer as trainers for other seniors. Volunteering has a lot of benefits, such as counteracting the effects of stress, anger, and anxiety, combating depressions, increase of self-confidence, providing a sense of purpose, etc.
- ✓ Contribution to cultural heritage and human capital.
- ✓ Large field of trainers from various organizations are being employed or occupied and gain experience and knowledge.

### 4.3. *The ForAge5 programme*

This is a European network that aims at exchanging experiences and knowledge about the education and learning of senior adults. Good educational practices and various activities and their promotion are the major goals of this action.

### 4.4. *The programme of the Scientific Association for Adult Education*

This project took place a few years ago, with funding through private sponsorship, and was presented in 2012 at an international conference. It was created for senior adults of low educational and living standards, in order to give them the opportunity to participate in the educational processes. In consequence, the programme aimed at the personal development and expression of senior adults, since the subjects of education were creative expression, craftsmanship, health and nutrition, new technologies and human relations and communication.

#### *4.5. The University of the Third Age*

The University of the Third Age is an international organization that has existed for many decades worldwide with the participation of many countries. Its goal is to allow the elderly community to get in touch with education and learn new things. It is not a university in the classical sense, as there are no exams and it does not lead to a diploma. This is a global mobilization created as a need arising from the socio-economic reality that the elderly demand to be more informed about the current reality. It even deals with deepening in subjects that they were not able to deal with at an early age, such as the digital world (The Origin and Purpose of The University Of The Third Age, n.d.). Courses vary from country to country, depending on the needs of the community: arts, literature, philosophy, computer science, languages, law, etc., in order to keep older people active and to fight against dementia and loneliness.

# CHAPTER 3

## DIGITAL LITERACY AMONG SENIOR ADULTS

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## CHAPTER 3 - DIGITAL LITERACY AMONG SENIOR ADULTS

### Introduction

As an educational target group, senior adults can be a demanding challenge for professionals like adult educators and teachers. Above all else, this social group absorbs information more slowly and has problems with following technical novelties. Previous studies have shown that among the barriers that older adults face are lower memory, self-efficacy, more time to gather new information or materials (Western University, 2020). Additionally, technology develops in a speedy way, which causes troubles. The senior adults cannot catch the new digital world, which pushes them to the social life margin. Even if the senior citizens make an attempt to follow technical innovations and make use of it, they are often lost or deceived by others. They are not aware of ways to make good use of modern innovations and protect themselves. As a result, they are excluded, lonely, and have problems with finding their own place in the modern world.

All older adults need to be able to think critically, clearly express ideas, ask relevant questions, maintain respect, and build trust while using modern technology (Western University, 2020). Therefore, many studies and research were undertaken to find the best solutions and ways of improving digital literacy and gather the necessary knowledge to be a part of the digital society.

This research is an attempt to gather information about digital literacy among senior citizens. It was undertaken within the framework of the project Yes We Can!, an initiative that attempts to enable senior citizens with low digital literacy to use existing and new IT tools, which can be useful in their lifelong learning process. It also supports adult workers and trainers who design learning methods and teach senior people. The project has been created and implemented by partners from four countries, Poland, Greece, Turkey, and the Czech Republic, with the support of the Erasmus+ Programme of the European Union.

During the research carried out for this analysis, its authors noted that many times the scientific term ICT (information and communications technology) education was often used alternatively with the term digital literacy.

## 1. THEORETICAL BACKGROUND AND KEY SKILLS.

Digital or ICT (information and communications technology) literacy is to have skills "to live, learn, and work in a society where communication and access to information are increasingly through digital technologies like internet platforms, social media, and mobile devices" (Western University, 2020).

One of the essential sources of knowledge about the critical skills is the European Union's publication "DigComp 2.0: The Digital Competence Framework for Citizens. Update Phase 1: the Conceptual Reference Model", which is the updated version of the former one from 2013. It presents the model of improving the citizens' digital competence. The other researchers pointed out (Vuorikari et al., 2016) the following digital skills, which were also pointed as key ones by the EU publication DigComp 2.0:

### *1.1.Information (and data literacy)*

Its description says to "identify, locate, retrieve, store, organize, and analyze digital information, judging its relevance and purpose" (Phuapan et al., 2016). The more detailed one contains browsing, searching, and filtering data, information, and digital content, then evaluating data, information, and digital content as well as managing data, information, and digital content. Thanks to this skill, the citizens know their digital needs and navigate in digital environments. They can define their search strategies and judge information and data they find (Vuorikari et al., 2016).

### *1.2.Communication (and collaboration)*

Its description says to "communicate in digital environments, share resources through online tools, link with others, and collaborate through digital tools, interact with and participate in communities and networks, cross/cultural awareness" (Phuapan et al., 2016). It also contains interacting, sharing, engaging in citizenship, and collaborating through digital technologies, as well as netiquette and managing digital identity. Thanks to this skill, the citizens know the digital techniques to communicate and collaborate in digital societies (Vuorikari et al., 2016).

### *1.3.(Digital) Content Creation*

Its description says to "create and edit new content (from word processing to image and video)" (Phuapan et al., 2016). It contains developing digital content, integrating and re-elaborating digital content, copyright and licenses, and programming. Thanks to this skill, the

citizens understand the concept of content, its creation, and editing processes, as well as copyright rules and licenses (Vuorikari et al., 2016).

#### *1.4.Safety*

Its description contains "personal protection, data protection, digital identity protection, security measures, safe and sustainable use" (Phuapan et al., 2016), as well as protecting devices, personal privacy, health and well-being, and the environment. Thanks to this skill, the citizens are able to understand the potential risks and threats of the digital world (Vuorikari et al., 2016).

#### *1.5.Problem-solving*

Its description says to "identify digital needs and resources, make informed decisions as to which are the most appropriate digital tools according to the purpose or need, solve conceptual problems through digital means, creatively use technologies, solve technical problems, update one's own and others' competences" (Phuapan et al., 2016), as well as creatively use digital technologies and identify digital competence gaps. Thanks to this skill, the citizens know ways to detect and solve digital problems and be a part of innovative digital processes (Vuorikari et al., 2016).

The importance is also put into the practical skills in using technology to "access, manage, manipulate and create information" ethically and sustainably (Western University, 2020). Phuapan et al. (2016) stated that digital skills are built on the definitions:

1. **Access** - knowing about and knowing how to collect and/or retrieve information.
2. **Manage** - applying an existing organizational or classification scheme.
3. **Integrate** - interpreting and representing information. It involves summarizing, comparing, and contrasting.
4. **Evaluate** - making judgments about the quality, relevance, usefulness, or efficiency of information.
5. **Create** - generating information by adapting, applying, designing, inventing, or authoring information."

## 2. DIGITAL LITERACY CURRICULUMS

Among the main problems highlighted in terms of being a part of the digital world, the senior citizens struggle with lack of knowledge about the terminology, safety rules and technology usage. Additionally, while teaching the seniors, they show their different motivations and miss different ways and levels of support (Jungwirth, 2015). The development of key skills can be a good basis to overcome the problems and concerns among the seniors.

According to Tsai et al. (2015), digital literacy should be improved based on several aspects. Among them, the researchers highlighted a supportive environment, background, personal willingness or motivations, support from the family and friends, open attitude towards novelty, and personal abilities or limitations. They also pointed out that the experiences gathered before the learning process are also crucial, as the first experiences with computers. The senior adults are eager to learn and absorb new information.

Some research clearly (Martínez-Alcalá et al., 2018) showed that the most beneficial approach is learning-by-doing. It can be especially crucial to use problem-based activities, which are connected to their own lives. Vintere and Kopeika (2013) paid even more attention to the importance of active participation of the participants. As it was mentioned by Martínez-Alcalá et al. (2018), it is essential for participants to have an open and active attitude. This way, the participants face potential problems and make an attempt to find a solution.

Jungwirth (2015) in his presentation highlighted that, while teaching and developing digital literacy among senior citizens, it is important to focus on personal needs and lives of the participants. Particularly, it is worth developing self-confidence in the individual Internet usage and removing the lack of trust towards using new technologies.

## 3. GOOD PRACTICES

Based on the European Union's publication "DigComp 2.0: The Digital Competence Framework for Citizens. Update Phase 1: the Conceptual Reference Model", the teachers created a new training syllabus model to improve adult education digital competencies. The Spanish Ministry of Education, Culture and Sports presented "A Common Framework for Digital Competence for Teachers." The Belgian Department of Education created a commission whose task was to study and revise ways of organizing the education based on curriculums.

Moreover, as a result, new programs were supposed to be presented and put into practice in various adult centers (Vuorikari et al., 2016).

Similar steps were undertaken by Lithuania, Portugal, Croatia, and Norway. The ministries or departments of education in those countries decided to follow the DigComp publication to implement the presented framework in their educational environment (Vuorikari et al., 2016).

In South Korea, the research (Kim & Choi, 2014) carried out by the researchers showed seniors' high interest in seeking information. Usually, they looked for information in order to update themselves about health issues and hobbies. This need can be fulfilled by improving their digital skills and providing access to the digital world. At the same time, Canadian senior adults improve their digital literacy by regularly exchanging social support (Quan-Haase, 2017).

In the research carried in Finland, the Finish senior respondents thought in the past that using mobile phones made people dependent. However, recently they pointed out that mobile phones can be used in their daily lives to communicate with their relatives and as a tool for informing them in case of emergency (Oksman, 2006).

The German researchers (Hetzner et al., 2014) studied the usage of tablets among German seniors. The results showed that the tablets are more senior-friendly since they are mobile and easier to use. Although they pointed out that the usage of those devices has to be supported by qualified people "through face to face course, blended or E-Learning environment or through empathic support in their social network."

At the same time, according to the researchers, to provide the best access to knowledge in the USA, it is essential to have the devices "in independent living communities, hospitals, and local community centers" (Tsai et al., 2015).

In Cyprus, the GRANKIT project (Grandparents and Grandchildren Keep in Touch) was co-funded by the LLP under GRUNDTVIG multilateral programs (2013-15). In collaboration with the Cypriot university, four partners from Cyprus, Greece, Romania, and Germany undertook the initiative to connect grandparents and grandchildren's generation to build a bond of mutual help. The senior adults participate in professional lessons learning how to navigate the digital world with their young relatives' help (Charalambides, 2015).

#### 4. CONCLUSIONS

From the short review above, key findings emerge that seniors' digital literacy improvement should be prioritized. Personal or environmental limitations can be a barrier to make this improvement. That is why it is necessary to create a proper environment to ensure good learning and developing processes. Nevertheless, it is crucial to find a solution for this matter. Therefore, it is worth attempting to find a path for senior adults to help them be a part of the digital world, which is their right as every human being.

Around the world, the researchers study and seek to create the best way. One of the essential attempts was the publication of European Union, which presented the crucial skills needed for citizens. Among them, there are information and data literacy, communication and collaboration, digital content creation, safety and problem-solving.

Among the best practices, the several European countries started changing the framework of learning models and implementing them in their national educational systems. Additionally, the educators and teachers started focusing on the participants' needs, motivations and levels of their confidence. It was also proved that it was worth finding the senior-friendly devices which were more comfortable in using. The last example of good practices was engaging the younger generations like relatives to support their parents or grandparents in their learning processes.

# CHAPTER 4

A REVIEW OF  
**ICT EDUCATION  
INFORMATION AND  
GOOD PRACTICES**

PREPARED BY

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## CHAPTER 4 - A REVIEW OF ICT EDUCATION INFORMATION AND GOOD PRACTICES

### Introduction

Information and Communication Technology (ICT) education and competences among older citizens are a difficult area of learning and teaching since the older people absorb information not in the same way as the younger generations. Although the majority of the ICT tools users are these younger generations, nevertheless the older ones are open and interested in this area of the modern world (Esteller-Curto & Escuder-Mollon, 2012). Therefore, it is important to create the tools to enable them to gather information, because as Vintere and Kopeika (2013) pointed out that the knowledge of ICT services can be beneficial in their everyday life, since these services can be a basis of the communication and social relations, life independence (Vintere & Kopeika, 2013), wellbeing, mental and physical health (Hamborg, Rogstad & Thevarajah, 2015) or even the quality of their life (Amaroa, Gil, Lessa & de Vasconcelos, 2011). This knowledge is required from everyone in the modern world at least at the basic level (Vacek & Rybenska, 2014) and it is essential to create a space for the senior citizens to gather these information and be a part of this ICT society (Esteller-Curto & Escuder-Mollon, 2012).

### 1. THEORETICAL BACKGROUND AND ICT EDUCATION EXAMPLES

It is essential for the senior citizens that even without the physical prowess they are still able to be a part of the society and take care of themselves by having access to the online services. Thanks to these tools they are capable of reading, shopping, participating in social activities (Takagi, Kosugi, Ishihara & Fukuda, 2014) and communicating with people. All of these elements build their wellbeing and mental health (Jacob & Pocinho, 2019). It inspires them to look for the possibilities to gather the knowledge and improve their skills (Esteller-Curto & Escuder-Mollon, 2012).

Nonetheless, the senior learning path can be challenging. It is worth noting that the teaching content has to be prepared and presented in a way proper for the senior adults giving them the space to learn, understand and practice. Esteller-Curto and Escuder-Mollon (2012) paid attention that the most important elements of the teaching process is its correctness, motivation, enjoyability, lack of pressure, willingness to participate and discover new aspects

of the modern world (Esteller-Curto & Escuder-Mollon, 2012). Their learning activities should include the elements of their own daily lives, respect their needs and meet their expectations (Vintere & Kopeika, 2013). In addition, it is important to keep the program interesting, based on the expectations, preferences and experiences of the student participants (Vacek & Rybenska, 2014) and let them also to be the creators of their own content (Esteller-Curto & Escuder-Mollon, 2012).

Vintere and Kopeika (2013) highlighted the importance of active participation of the participants. The senior adults can be involved in the learning process by participating in an active way, doing something on their own and solving potential problems. The support of the younger generation representatives can also be beneficial, but it requires these people to fully respect the way of the seniors learning (Vintere & Kopeika, 2013). The learning process is the most useful when student groups are small (2-6 people) (Takagi, Kosugi, Ishihara & Fukuda, 2014). It is also needed to secure the technical support and the understandable way of instructions (Liou, 2019).

It is also valuable when the educator becomes a guide to show the senior students the right learning direction, but at the same time not to push or hurry them if they need more time or force them to use the electronic devices if they are afraid (Lenić, Kustura, Jurković & Mikelić Preradović, 2013). This way this guidance will provide a supportive learning environment which can ensure that the participants will not feel demotivated or left alone (Vacek & Rybenska, 2014).

Nguyen, Tapanainen and Obi (2014) stated that “the places where the senior citizens can find training courses are community training centers, ICT associations for elderly people, Universities of the Third Age, seniors’ associations, peer volunteer networks” (Nguyen, Tapanainen & Obi, 2014).

Among the most important elements while designing the curriculum for the seniors should be: current modern technologies, Internet and multimedia, e-mail, socialisation on the internet, digital photos, office software, e-learning and distance education. It was also advised to teach: “browsing the Internet, sending emails, reading news, sending postcards, taking care of personal banking, managing Facebook and Skype profiles (Vacek, Rybenska, 2014; Lenić, Kustura, Jurković & Mikelić Preradović, 2013).

## 2. GOOD PRACTICES

In Japan, where the senior citizens are the 25% of the population, Takagi, Kosugi, Ishihara and Fukuda (2014) studied the situation of Japanese senior citizens in terms of ICT education. They interviewed IT educators focused on senior courses who admitted that the effectiveness of teaching could be ensured by the senior adults themselves. They described the model of teaching which includes the senior adults as educators and students. It was explained that the senior educators are aware of the learning and thinking berries, understand the needs and are able to present the IT knowledge in a way which is understandable for their peers. Moreover, they share similar interests and amount of time which can be beneficial in the learning process (Takagi, Kosugi, Ishihara & Fukuda, 2014).

Additionally, the Japanese researchers presented the concept of distance learning in a form of remote learning and e-courses in the real time as the senior students want to feel comfortable and safe in their learning processes. This way the educators could run lessons with the assistance of the supporters, with a video streaming or gesture-based devices (Takagi, Kosugi, Ishihara & Fukuda, 2014).

In Sweden, the main elements of education were “tutoring, guidance, stimulating learning environments, e-learning, technology support, etc.” and the participants could get access to this learning path in the adult centers (Ala-Mutka, Malanowski, Punie & Cabrera, 2008).

In Croatia, the students offered their knowledge and help to the senior citizens in increasing their basic knowledge about ICT and improving their digital skills. The main drive of these students was the belief that this initiative could bring positive change in the seniors’ lives. The senior students participated in the workshops with the content created especially for them, but also in the learning processes where they were treated in a respectful and patient way by their student educators (Lenić, Kustura, Jurković & Mikelić Preradović, 2013).

Among the other interesting practices in terms of teaching the ICT knowledge are the special universities for senior citizens. In Taiwan, the Ministry of Education supported the creation of “Active Aging Universities” with the emphasis on the Facebook course (Liu & Yang, 2014). In Spain, Esteller-Curto and Escuder-Mollon (2012) presented the Senior Citizens’ University which was created as a programme of the Jaume I University. Among other courses, the senior students were offered the opportunity to participate in the basic, intermediate

and advanced ICT courses. The first one included the basic knowledge of the computer, laptop and basic tool usage. The intermediate one was prepared to offer the students the improvement of digital literacy skills such as the use of websites, online shops, chats, mails and other digital programs. The advanced one was a continuation of the previous courses and focused on the increase of digital skills. The university also offered the ICT theory course as a complementation of the knowledge (Esteller-Curto & Escuder-Mollon, 2012).

The same situation could be noticed in Portugal. Jacob and Pocinho (2019) presented the concept of the Universities of the Third Age or Senior Universities. They were built on three elements: gerontopedagogy, non-formal education and lifelong learning. The reason for the elderly to participate in the offered courses was “to eliminate the feeling of exclusion from the digital world”, because the need existed to follow the younger generations as since 2016 it has been noticed that the senior students pay more attention to the usage of smartphones and tablets than computers or laptops. After the research the authors confirmed that the universities had “a real positive impact on the improvement of their computer skills” (Jacob & Pocinho, 2019).

Moreover, the researchers in Croatia highlighted a significant role of libraries in the learning processes since it is a sphere which enables the senior adults to gather the knowledge and share it with others (Lenić, Kustura, Jurković & Mikelić Preradović, 2013).

### 3. CONCLUSION

It is noticeable that many countries and their citizens understand the importance of ICT education among the senior adults and try to create the space for them to gather the needed knowledge and improve their digital skills. It is well known that the lack of ICT education will bring the social and digital exclusion of these people which may cause the increase of social inequalities.

The ICT education enables the senior citizens to be a part of the society and take care of themselves. That is why they look for the opportunities to learn. Nonetheless, the teaching process should be prepared carefully, taking into account the senior participants needs, preferences and limitations. The support of the other senior adults or the younger people can be valuable, but only if the learning path is respected. The most beneficial results can be achieved by learning in the small groups and if all the technical issues are explained and understandable. The most important elements which should be presented to the senior students are: current

modern technologies, Internet and multimedia, e-mail, socialisation on the internet, digital photos, office software, e-learning and distance education.

The presented good practices showed clearly that the ICT education is provided mostly by the special universities or organizations which create the programs dedicated to the senior citizens. Other seniors or younger students can be involved in the learning processes as the educators. The form of the courses can be remote or face-to-face and the students are able to learn with the assistance of the electronic devices. Additionally, they can gather information and share the knowledge in the public spheres as libraries or adult centers.

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## IMPLICATIONS FOR FURTHER STUDIES

Freire expresses that those who devote themselves to people constantly question themselves, we must die as an educator and experience a rebirth as an educator-learner. Therefore, when designing educational processes, how teachers and learners are positioned is very important. Experiential Pedagogy of the Oppressed emphasizes the necessity of establishing a subject-subject relationship between the educator and the learner while constructing a dialogue-based process. Moreover, it reveals that the need analysis of the target group is not an observation from outside, but a process that is discovered step by step on a path set out with learners. The educator conducts ethnographic research in the community where the learners live, and reveals their linguistic universes. They start a process based on dialogue with learners to elaborate a social analysis.

Indisputably, the dizzying rapid development of technology affects all individuals as well as older individuals. Studies reveal that seniors people have some difficulties in using technology. These difficulties; age-related biological and behavioral difficulties (such as vision, dexterity and coordination, understanding and comprehension level), the characteristics of the technological tools used (such as complexity, small writings, technical terms, some technological innovations not working), attitude towards technology (technology is dangerous, expensive, complicated and surprising, perception that it is difficult to learn), education and support issues (lack of educational opportunities, inadequate support during learning, linear structure of educational processes) stand out as the main obstacles to the digital literacy development of the seniors. On the other hand, there are studies showing that the senior citizens are interested in technology and are successful in using technology when they are empowered sufficiently.

The experiential pedagogy of the oppressed shows us an enlightening way to overcome these challenges in the digital literacy development processes of the seniors. A dialogue-based education process will enable to explore the thematic universe of them. When we join this universe, the words in their world will give us clues for their digital universe. These words that we encounter in linguistic universes will not only help for designing the educational process but also open the doors of a new phase based on their own experiences. The interaction that will emerge in the experiential learning spiral will turn the view of the digital world from linear perception to a critical dimension.

## Thematic Universe

Before preparing a training program based on the Experiential Pedagogy of the Oppressed, educators should go to the field and do research. First of all, it is necessary to explore the thematic universe of the seniors. This research should of course be shaped by creating a dialogue based environment. The dialogue process should continue during the training.

Freire emphasizes that the words used in literacy education should come from learners, not educators. In the first stage of the literacy method, it is necessary to include them as much as possible. Determining the most basic challenges faced by the seniors in the process of digital literacy development, the factors that cause them frustration, and in which areas they most need digital competence, will be possible by traveling in their thematic universe.

## Linguistic Universe

Educators should start by exploring what words for digital literacy exist in the learners' linguistic universe. It is important to find out the concepts to be presented to the learners in the context of digital literacy correspond to their linguistic universe. For example, what does “search” mean for someone who has spent his life farming? Or what does "safety" mean for a housewife who has been taking care of her husband and children all her life? In the digital world, terms such as filtering, storage, memory types, communication, and mail correspond to the concepts in the daily lives of the seniors and how do they use these concepts?

This inter-word context will enable us to build a bridge between the seniors and digital literacy. It will enable us to create an educational environment that will support their thematic universe rather than teaching all the concepts in the digital universe.

## Generative Words / Themes

A productive topic is a cultural or political topic that is of great interest or importance to the participants and can be sparked by discussion. These productive topics are then represented in the form of 'coding'.

While preparing the content of the training program, coding to reflect the thematic universe is very important. It is necessary to order the content presented from simple to complex. The learner should be able to generalize the information learned and be able to apply it in similar situations. The information that enters the re-coding process will reflect the linguistic universe, and at the same time ensure the internalization of learning.

### **Problem-Based**

Paulo Freire says that we all acquire social myths that we all have a dominant tendency, and therefore learning is a critical process based on revealing real problems and actual needs. Before designing a digital literacy training program for the participants, an analysis process that will reveal the problems, limitations and needs of the target group should be run. It should be given before the abstract in the content. A spiral learning experience that evolves from concrete to abstract should be made possible.

### **Educator / Educatees**

The way to learn is through encountering. Education is a state of encounter and the important thing is mutual transformation. Studies that will feed the inner motivation of the learner should be included in the education process. For example, an individual who learns how to prepare a presentation from Powerpoint software should be able to add something from his / her thematic universe to that presentation. For example; a housewife can present the preparation of a meal she has made best by making a presentation, or someone who has been beekeeping for years can prepare a presentation on beekeeping. This will both motivate him and create a new learning space for other learners.

### **Critical Consciousness**

Literacy is very important in Freire's educational philosophy. He does not describe this skill as mere mechanical combining letters and reading them. For him, being literate means understanding the world. However, it is to have the power to transform the world. Having a critical awareness in the literacy process is an important criterion for initiating transformation.

When we do not consider Freire's critical awareness approach, the content to be presented in the digital literacy development process of the seniors will not go beyond a mere presentation of information to the learner. On the contrary, a training program based on Freire's philosophy will strengthen the learner's critical perspective. An individual who is on the way of digital literacy will understand why similar ads appear when he clicks on an ad that comes in front of him while surfing on social media and the waiting time increases. He will realize the manipulation effect of the virtual world. His critical perspective will enable him to gain awareness of what awaits him in the digital world.

## Experiential Learning Methodology and Digital Literacy

According to Kolb, knowledge emerges from a combination of understanding and transformation experience. Kolb defines learning as the process by which knowledge is created through the transformation of experience.

While comprehending experience means absorbing knowledge, transforming experience is about how individuals acquire and experience this knowledge and how to transfer it to the rest of their lives.

The Experiential Learning Theory Model defines two dialectically interconnected modes of comprehending experiences - Concrete Experience and Abstract Conceptualization - and two dialectically interconnected modes of transforming experiences - Reflective Observation and Active Application. The thematic universe we have discovered based on dialogue and the words that emerge according to this universe should be a reference to the shaping of the experiential learning environment.

Learning process; it should be based on experiencing, reflecting, thinking and doing, that it represents the basic needs of the learner. The learning spiral built on digital literacy should lay the groundwork for concrete experiences, observations and reflections (thoughts). These reflections must be assimilated and transformed into abstract concepts that will enable the creation of new practices for action. These practices can be actively tested and should guide in creating new experiences.

As the experiential learning theory underlines, every individual is different and learns in different ways. Learners need time to move to a learning environment close to their learning style. Likewise, in the process of dialogue, the person who has begun the critical consciousness journey needs time to overcome the patterns. Therefore, a training process that will allow this time should be designed.

Learning objectives cannot be discovered without revealing the true needs of the learners. The first condition for revealing these needs is through a dialogue-based needs analysis. Therefore, it should not be forgotten that the pedagogy of the Oppressed and the Experiential Learning methodology complement each other in eliminating these needs.

Since each individual's learning style is different, it will not be correct to determine all methods without considering learning styles. The discovery of real learning needs and learning

styles is possible through a dialogue spread throughout the process. The trainer should have the flexibility to change his methods every time he makes a new discovery.

Perhaps the most flexible element of a dialogue educator is the subject of education. Determining all the topics of the program in detail without discovering the real needs of the participants means designing the program only from the perspective of the educator. The educators who apply the experiential pedagogy of the oppressed are dialogues who are flexible in subject and plan and progress through the discovery process step by step with the learners. In the digital literacy process, a learning space based on subject-subject relationship should be created instead of subject-object relationship.

## REFERENCES

- Ala-Mutka, K., Malanowski, N., Punie, Y. & Cabrera, M. (2008). Active Ageing and the Potential of ICT for Learning. JRC Scientific and Technical Reports. Retrieved May 14, 2020, from <ftp://ftp.jrc.es/pub/EURdoc/JRC45209.pdf>
- Ala-Mutka, K., Malanowski, N., Punie, Y. & Cabrera, M. (2008). Active Ageing and the Potential of ICT for Learning. JRC Scientific and Technical Reports. Retrieved May 14, 2020, from <ftp://ftp.jrc.es/pub/EURdoc/JRC45209.pdf>
- Amaroa, F., Gil H., Lessa, R. A. & de Vasconcelos, F. (2011). ICT for Elderly People: «Yes, 'They' Can!». 2011 e-CASE & e-Tech International Conference, pp. 3792-3803. Retrieved May 14, 2020, from [https://www.researchgate.net/publication/277243287\\_ICT\\_for\\_elderly\\_people\\_Yes\\_They'\\_Can](https://www.researchgate.net/publication/277243287_ICT_for_elderly_people_Yes_They'_Can)
- Amaroa, F., Gil H., Lessa, R. A. & de Vasconcelos, F. (2011). ICT for Elderly People: «Yes, 'They' Can!». 2011 e-CASE & e-Tech International Conference, pp. 3792-3803. Retrieved May 14, 2020, from [https://www.researchgate.net/publication/277243287\\_ICT\\_for\\_elderly\\_people\\_Yes\\_They'\\_Can](https://www.researchgate.net/publication/277243287_ICT_for_elderly_people_Yes_They'_Can)
- Ayhan, S. (2013). Paulo Freire: Yaşamı, Eğitim Felsefesi ve Uygulaması Üzerine. A. Yıldız and M. Uysal (Editor). Yetişkin Eğitimi (pp. 145-160). İstanbul: Kalkedon Yayıncılık
- Bastable, B. S., (1997), *Nurse as Educator*, pp. 94-98. Jones and Bartlett Publisher.
- Charalambides, A. (2015). Promoting Digital Literacy and Active Ageing for Senior Citizens: The GRANKIT Project – Grandparents and Grandchildren Keep In Touch. Retrieved May 14, 2020 from <https://conference.pixel-online.net/ICT4LL/files/ict4ll/ed0008/FP/1952-SLA1219-FP-ICT4LL8.pdf>
- Coudin, G. & Alexopoulos, T., (2010). 'Help me! I'm old!' How negative aging stereotypes create dependency among older adults. *Aging & mental health*. Vol. 14, p. 516-23. DOI: 10.1080/13607861003713182.
- Elias, J. L. (1975). The Paulo Freire Literacy Method: A Critical Evaluation. *McGill Journal of Education*, 10(2), 207-217.
- Erdogan, M. (2016, July 09). Experiential Learning. Retrieved December 10, 2020, from <http://www.demturkey.com/deneyimsel-ogrenme/>
- Esteller-Curto, R., Escuder-Mollon, P. (2012). Non-practical ICT courses for seniors for a comprehensive involvement to provide a global understanding of the Knowledge Society. *Procedia - Social and Behavioral Sciences*, 46(2012), pp. 2356-2361. Retrieved May 14, 2020 from <https://doi.org/10.1016/j.sbspro.2012.05.484>
- Esteller-Curto, R., Escuder-Mollon, P. (2012). Non-practical ICT courses for seniors for a comprehensive involvement to provide a global understanding of the Knowledge Society. *Procedia - Social and Behavioral Sciences*, 46(2012), pp. 2356-2361. Retrieved May 14, 2020 from <https://doi.org/10.1016/j.sbspro.2012.05.484>
- Freire, P. (2015). *Ezilenlerin Pedagojisi*. (D. Hattatoğlu ve E. Özbek, Trans.). İstanbul: Ayrıntı Yayınları.
- Freitas, de R. (2013). The Planning and Creation of an E-Learning and Recreational Platform for Seniors. [Master's thesis, Lisbon University Institute]. ISCTE Instituto Universitário De Lisboa. Retrieved May 14, 2020 from <https://ciencia.iscte-iul.pt/publications/the-planning-and-creation-of-an-e-learning-and-recreational-platform-for-seniors/17074>
- Freitas, de R. (2013). The Planning and Creation of an E-Learning and Recreational Platform for Seniors. [Master's thesis, Lisbon University Institute]. ISCTE Instituto Universitário De Lisboa. Retrieved May 14, 2020 from <https://ciencia.iscte-iul.pt/publications/the-planning-and-creation-of-an-e-learning-and-recreational-platform-for-seniors/17074>
- Hamborg, T. B. S., Rogstad, O.F. M. & Thevarajah, N. (2015). ICT-Based Exercise Concepts for Seniors to Support Fall Prevention - What Do Seniors Really Want?. [Master's thesis, Norwegian University of Science and Technology]. NTNU Open. Retrieved May 14, 2020 from <https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/2353514>

- Hamborg, T. B. S., Rogstad, O.F. M. & Thevarajah, N. (2015). ICT-Based Exercise Concepts for Seniors to Support Fall Prevention - What Do Seniors Really Want?. [Master's thesis, Norwegian University of Science and Technology]. NTNU Open. Retrieved May 14, 2020 from <https://ntnuopen.ntnu.no/ntnu-xmlui/handle/11250/2353514>
- Hlezner, S., Tenckhoff-Eckhardt, A., Slyschak, A., Held, P. (2014). Promoting digital literacy for seniors, the aptitude of tablet-pcs. Retrieved May 14, 2020 from [https://www.researchgate.net/profile/Sonia\\_Hetzner/publication/271203973\\_Promoting\\_Digital\\_Literacy\\_for\\_Seniors\\_the\\_apitude\\_of\\_tablet-pcs/links/54c11de20cf2d03405c4e0b6/Promoting-Digital-Literacy-for-Seniors-the-aptitude-of-tablet-pcs.pdf](https://www.researchgate.net/profile/Sonia_Hetzner/publication/271203973_Promoting_Digital_Literacy_for_Seniors_the_apitude_of_tablet-pcs/links/54c11de20cf2d03405c4e0b6/Promoting-Digital-Literacy-for-Seniors-the-aptitude-of-tablet-pcs.pdf).
- Jacob, L., Pocinho R. (2019). ICT, Senior universities and digital security. Geopolitical, Social Security and Freedom Journal, 2(1). doi: 10.2478/gssfj-2019-0004
- Jacob, L., Pocinho R. (2019). ICT, Senior universities and digital security. Geopolitical, Social Security and Freedom Journal, 2 (1). doi: 10.2478/gssfj-2019-0004
- Jones, K. (1984). Psychological Problems in the Elderly. *Canadian Family Physician/Médecin de Famille Canadien*, Vol. 30, p. 591-593. Retrieved at 12/05/2020 from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2154185/>.
- Jungwirth, B. (2015). Support for senior citizens in our digital world. Retrieved May 14, 2020 from [https://www.ohchr.org/Documents/Issues/OlderPersons/bestpractices/Presentation\\_Mr.BernhardJungwirth.pdf](https://www.ohchr.org/Documents/Issues/OlderPersons/bestpractices/Presentation_Mr.BernhardJungwirth.pdf)
- Kim, S. & Choi, H. (2014). Still Hungry for Information: Information Seeking Behavior of Senior Citizens in South
- Kokkos, A., (2005). *Adult Education Methodology: Educational Methods* (Vol. B). Patras, Greece: EAP.
- Kolb, A. Y., & Kolb, D. A. (2013). The Kolb Learning Style Inventory 4.0 A Comprehensive Guide to the Theory, Psychometrics, Research on Validity and Educational Applications.
- Kolb, D. A. (1984). *Experiential learning: experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Korea. In iConference 2014 Proceedings, p. 889–894. doi:10.9776/14300
- Lenić, M., Kustura, A., Jurković, I. & Mikelić Preradović, N. (2013). Students for Seniors: Basic ICT Education for the Elderly. INFUTURE2013: "Information Governance". Retrieved May 14, 2020, from <http://infoz.ffzg.hr/INFUTURE/2013/papers/INFUTURE2013.pdf>
- Lenić, M., Kustura, A., Jurković, I. & Mikelić Preradović, N. (2013). Students for Seniors: Basic ICT Education for the Elderly. INFUTURE2013: "Information Governance". Retrieved May 14, 2020, from <http://infoz.ffzg.hr/INFUTURE/2013/papers/INFUTURE2013.pdf>
- Liou, I. H. (2019). A Case Study of Designing a Mobile App Prototype for Seniors. [Master's thesis, The University of Texas at Austin]. Texas ScholarWorks, University of Texas Libraries. Retrieved May 14, 2020 from <https://repositories.lib.utexas.edu/handle/2152/75797>
- Liou, I.H. (2019). A Case Study of Designing a Mobile App Prototype for Seniors. [Master's thesis, The University of Texas at Austin]. Texas ScholarWorks, University of Texas Libraries. Retrieved May 14, 2020 from <https://repositories.lib.utexas.edu/handle/2152/75797>
- Liu, C.-J., Ching Yang, S. (2014). Using the Technology Acceptance Model to Examine Seniors' Attitudes toward Facebook. *World Academy of Science, Engineering and Technology International Journal of Educational and Pedagogical Sciences*, 8(6), pp. 1012-1017. doi.org/10.5281/zenodo.1093648
- Liu, C.-J., Ching Yang, S. (2014). Using the Technology Acceptance Model to Examine Seniors' Attitudes toward Facebook. *World Academy of Science, Engineering and Technology International Journal of Educational and Pedagogical Sciences*, 8 (6), pp. 1012-1017. doi.org/10.5281/zenodo.1093648
- Martínez-Alcalá, C. & al. (2018). Digital Inclusion in Older Adults: A Comparison Between Face-to-Face and Blended Digital Literacy Workshops. Retrieved May 14, 2020 from <https://www.frontiersin.org/articles/10.3389/fict.2018.00021/full>

- MATURE (2013, June 13). *MATURE Research Report*. MATURE Project. Retrieved at 12/05/2020 from [http://matureproject.eu/wp-content/uploads/2013/01/MATURE-Research\\_upload\\_versionC\\_100613.pdf](http://matureproject.eu/wp-content/uploads/2013/01/MATURE-Research_upload_versionC_100613.pdf)
- Nguyen, T. T. H., Tapanainen, T., & Obi, T. (2014). A Review of Information and Communication Technology (ICT) Training for Elderly People - Toward Recommendations for Developing Countries. PACIS 2014 Proceedings. 267. Retrieved May 14, 2020 from <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1121&context=pacis2014>
- Nguyen, T. T. H., Tapanainen, T., & Obi, T. (2014). A Review of Information and Communication Technology (ICT) Training for Elderly People - Toward Recommendations for Developing Countries. PACIS 2014 Proceedings. 267. Retrieved May 14, 2020 from <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1121&context=pacis2014>
- Oksman, V. (2006). Young People and Seniors in Finnish 'Mobile Information Society'. *Journal of Interactive Media in Education*, 2006 (02). Retrieved May 14, 2020 from <https://www-jime.open.ac.uk/articles/10.5334/2006-3/>.
- Peterson, D. (1990). A History of the Education of Older Learners. Στο R. Sherron, & B. Lumsden, *Introduction to Educational Gerontology* (p. 4-19). USA: Hemisphere Publishing Corporation.
- Phuapan, P., Viriyavejakul, C. & Pimdee, P. (2016). An Analysis Of Digital Literacy Skills among Thai University Seniors. *iJET*, 11 (03), 2016. doi: 10.3991/ijet.v11i03.5301
- Quan-Haase, A., Ying Mo, G. & Wellman, B. (2017). Connected seniors: how older adults in East York exchange social support online and offline, *Information, Communication & Society*, 20:7, pp. 967-983, doi: 10.1080/1369118X.2017.1305428
- Rogers, A. (1996). *Teaching Adults (2<sup>nd</sup> Edition)*. Buckingham, England: Open University Press.
- Rugut, E. J., & Osman, A. A. (2013). Reflection on Paulo Freire and Classroom Relevance. *American International Journal of Social Science*, 2, 2nd ser., 23-28.
- Takagi, H., Kosugi, A., Ishihara, T. & Fukuda, K. (2014). Remote IT Education for Senior Citizens. doi: 10.1145/2596695.2596714
- Takagi, H., Kosugi, A., Ishihara, T. & Fukuda, K. (2014). Remote IT Education for Senior Citizens. doi: 10.1145/2596695.2596714
- Taylor P., Morin R., Parker K., Cohn D., Wang W., (2009). *Growing Old in America: Expectation vs Reality*. Chicago, IL: Pew Research Centre.
- The Origin and Purpose Of The University Of The Third Age*. (n.d.). Retrieved at 15/05/2020 from <http://www.aiu3a.com/origin-and-purpose/>.
- Tsai, H. S., Shillair, R. & Cotten, S. R. (2015). Social Support and “Playing Around”: An Examination of How Older Adults Acquire Digital Literacy With Tablet Computers. doi: 10.1177/0733464815609440
- Tsimboukli, A. (2012). *Team Dynamics and Communication in Adult Education*. Athens, Greece: INE / GSEE.
- Vacek, P., Rybenska, K. (2014). Research of interest in ICT education among seniors. *Procedia - Social and Behavioral Sciences*, 171(2015), pp. 1038 – 1045. doi: 10.1016/j.sbspro.2015.01.276
- Vacek, P., Rybenska, K. (2014). Research of interest in ICT education among seniors. *Procedia - Social and Behavioral Sciences*, 171 (2015), pp. 1038-1045. doi: 10.1016/j.sbspro.2015.01.276
- Vintere, A., Kopeika, E. (2013). Seniors' Perspectives on the Learning and Using ICT: Findings Within the Project AWAKE. *International Conference on Applied Information and Communication Technologies (AICT2013)*, pp. 208-215. Retrieved May 14, 2020, from [https://ilufb.llu.lv/conference/AICT/2013/Vintere\\_AICT2013.pdf](https://ilufb.llu.lv/conference/AICT/2013/Vintere_AICT2013.pdf)

Vintere, A., Kopeika, E. (2013). Seniors' Perspectives on the Learning and Using ICT: Findings Within the Project AWAKE. International Conference on Applied Information and Communication Technologies (AICT2013), pp. 208-215. Retrieved May 14, 2020, from [https://lufb.llu.lv/conference/AICT/2013/Vintere\\_AICT2013.pdf](https://lufb.llu.lv/conference/AICT/2013/Vintere_AICT2013.pdf)

Vuorikari, R., Punie, Y., Carretero Gomez, S., Brande van den, G. (2016). DigComp 2.0: The Digital Competence Framework for Citizens. Update Phase 1: the Conceptual Reference Model. Publications Office of the European Union. doi: 10.2791/11517.

Western University. (2020). What is digital literacy?. Retrieved May 14, 2020 from [https://www.westernsydney.edu.au/studysmart/home/digital\\_literacy/what\\_is\\_digital\\_literacy](https://www.westernsydney.edu.au/studysmart/home/digital_literacy/what_is_digital_literacy)

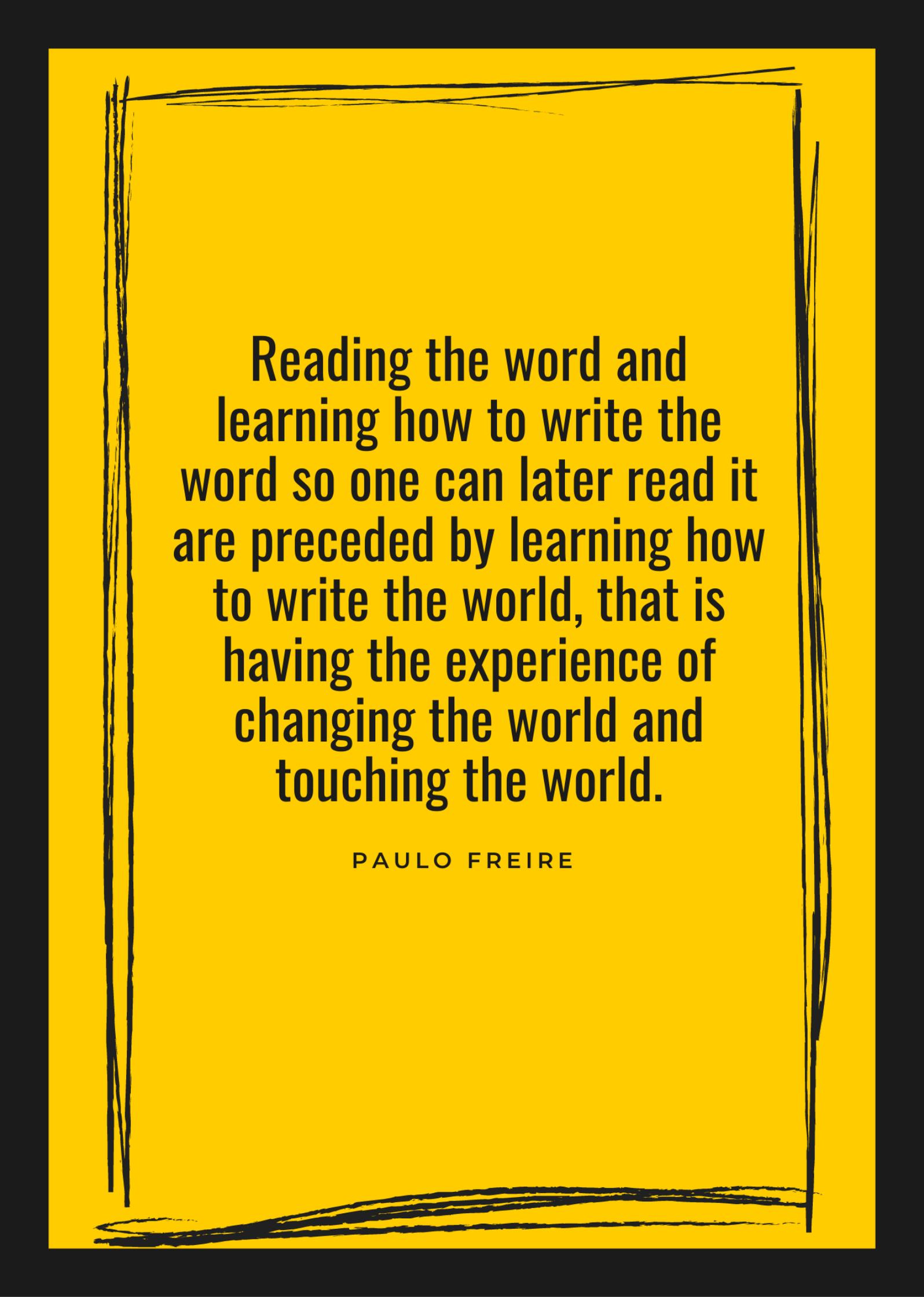
Wolf, L.M. (1998). *Ageism: Myth and Biases against Aging and Older Adults*. Crestwood, MO: Crestwood Community Centre.

World Health Organization-WHO (2015). *World Report on Ageing and Health*. World Health Organization Publications.

World Health Organization-WHO. *Healthy Ageing and the Sustainable Development Goals*. Retrieved at 13/05/2020 from: <https://www.who.int/ageing/sdgs/en/>.

Yıldırım, A. (2011). *Eleştirel Pedagoji: Paulo Freire ve Ivan Illich'in Eğitim Anlayışı Üzerine*. (2nd Edition). Ankara: Anı Yayıncılık.

Yılmaz, Z. (2016). Education As A Mediator Of Freedom In Philosophy Of Paulo Freire. *Journal of Philosophy and Social Sciences*, 11(22), 299-314. Retrieved December 12, 2020, from: [www.flsfdergisi.com](http://www.flsfdergisi.com)

The image features a solid yellow background. A black, hand-drawn border with a slightly irregular, sketchy appearance frames the central text. The text is centered and reads: 

**Reading the word and  
learning how to write the  
word so one can later read it  
are preceded by learning how  
to write the world, that is  
having the experience of  
changing the world and  
touching the world.**

**PAULO FREIRE**