



Neuroandragogy
against exclusion

Neuroandragogy in the Education of Adults from Groups at Risk of Exclusion

Training Programme for Teachers and Educators of Adults

Project: "Neuroandragogy Against Exclusion"

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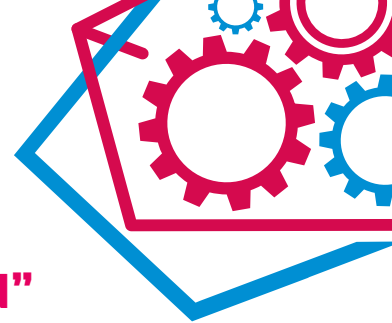
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1. “NEUROANDRAGOGY AGAINST EXCLUSION” – GENERAL ASSUMPTIONS AND PROJECT OBJECTIVES

Andragogy is a relatively young discipline in educational sciences. For a long time adult education was marginalised by many teaching theoreticians and practitioners. Methodical research on the conditioning of adult education only began in the 19th century. Also the newest educational trends and strategies permeate firstly, to pedagogical sciences and practice focusing on working with children and teenagers. Thus, although neuropedagogy as a strategy that postulates basing the process of teaching and learning on knowledge about brain and neuroscience achievements, has been developing dynamically for over a decade, neuroandragogy as a discipline including neurobiological knowledge in adult education is still a new and not fully investigated field of education.



The „Neuroandragogy against exclusion” project

is to promote among the teachers and educators, the use of knowledge on the functioning of human brain in the process of developing adult teaching and learning processes. Ultimately, this activity will make it possible to support people from disadvantaged groups (like low-skilled or unskilled adults, the unemployed and people not active professionally, the elderly and people whose qualifications have expired) in the field of self-study competences development, selection of learning methods and tools and diagnosing own cognitive abilities. These groups often experience or are at risk of the problem of exclusion because of a low level of basic skills, lack of information competences, etc. Applying neuroandragogy as a methodological basis for training organized for adults aims at increasing their motivation to engage in supplementary educational activity and increase their effectiveness.

Training programme: „Neuroandragogy in the education of adults threatened with exclusion”

is the first outcome produced within the project. Its objective is to promote modern teaching methods based on knowledge of brain functioning among teachers and educators of adults. This will allow teachers to develop their didactic competences related to building an educational environment and relationships with learning adults to more effectively motivate them to extend their knowledge and develop competences.

The implementation of workshops for people threatened with exclusion, run by the participants of the training programme, is a separate element of the “Neuroandragogy Against Exclusion” project. The implementation of the abovementioned workshops will make it possible to evaluate the effectiveness of the methodology offered in the programme.

Who we address the training programme to?

The programme is dedicated to people, institutions and non-governmental organizations implementing training, courses, and workshops for teachers, educators, instructors working with adults, and in particular with people belonging to disadvantaged groups. The programme can be used as the basis for the extension of their offer with the training in neuroandragogy as a method of educational work with learners from groups threatened with exclusion. However, it is worth mentioning that it can also be useful in further training of the staff of the institutions and organizations working in the field of life-long education.

Coaches training the abovementioned groups of teachers and educators should have knowledge and experience in education of adults and implementation of training processes for adult participants. As well as this, they should possess some knowledge in the scope of use of neurosciences in teaching would be a desirable competence. First of all, however, they should be willing and ready to develop their knowledge and practical skills in the field of neuroandragogy, also on the basis of information, advice and resources included in this study.

Educators

- Teachers and instructors in continuing education
- Educators and instructors in non-formal adult education
- Coaches working with adults
- NGO employees working with people from disadvantaged groups
- Social workers

Adults from disadvantaged groups

- Unemployed and professionally inactive people
- People aged 50+
- Disabled
- Immigrants
- People with low qualifications
- Young people entering the job market

Why is it worth taking part in the training?

During the training, there will be information presented on designing didactic activities and preparing educational materials relevant to cognitive conditioning of adult learners.

- Participants will also improve their skills connected with work individualization and supporting particular individuals in development of universal ability of self-learning.
- They will get to know the most important strategies of motivating adults to learn and of shaping an efficient and friendly environment for teaching and learning.
- The purpose of this part of the project is optimum preparation of adult educators to modernize and develop their didactic skills and tools, enriching them with the latest andragogy strategies and methods, including those that draw on experience from knowledge on neurobiological aspects of cognitive processes.

The participants of the training will get substantive support, not only from coaches running the workshops, but also from the training materials that contain theoretical information on neuroandragogy as an effective strategy of adult education as well as practical advice on design and implementation of a “brain friendly” teaching and learning processes. Within the project, an educational platform has been launched which can support the implementation of trainings for teachers, and when they are completed, it will function as a forum for opinion and information exchange as well as a place to collect and share the outcomes, experience, and good practice.





Participation in training and coach's support

Training materials

Access to the educational platform

Structure and implementation of the training programme

The training programme consists of 4 thematic modules:

Module 1. Neuroandragogy and building educational environment supporting the motivation to learn, individualizing teaching and learning in the context of adults from disadvantaged groups.

Module 2. The development of basic skills of adults from disadvantaged groups based on neuroandragogy principles

Module 3. The support of adults in taking up independent studies and continuing education with the support of information and communication technology

Module 4. The development of learning competences in the professional environment based on principles of neuroandragogy

The programme implementation should take 20 training hours.

Unless an organiser or coach of the training decide otherwise, the following time frames are suggested:

- Day 1: 7 training hours
- Day 2: 7 training hours
- Day 3: 6 training hours



2. NEUROANDRAGOGY AS AN EFFECTIVE STRATEGY OF EDUCATION OF ADULTS FROM GROUPS THREATENED WITH EXCLUSION

Disadvantaging and social exclusion

The notion of disadvantaging is not unfamiliar to any European society (nor any society in the world, probably). Putting it simply, it means that some groups in the society are in a worse situation than others (H. Silver, 1995, p. 74-75).



Social exclusion can be defined as “a set of elements in everyday life related to economic and social situation where people are unable to fulfill their needs, as a result of which their participation in professional life, cultural, educational, and health services and activity related to their free time is seriously limited” (Kalinowski, 2010).

Among numerous factors increasing the risk of social exclusion (such as: poverty, unemployment, individual deficiencies resulting from low level of education, deficiencies of human capital, diseases, disabilities, old age, addictions, pathologies, domestic violence, ethnic, language, and sexual “otherness”, discrimination and violence inflicted by stronger groups), this project focuses on the determinants relating social exclusion or its risk to:

- **low level of education,**
- **experience of school dropout,**
- **low qualifications level,**
- **low level of basic skills,**
- **lack of information literacy,**
- **lack of motivation for professional and personal development.**

Numerous surveys carried out in the EU clearly show that education and the participation in continuing education is most efficient in levelling the phenomena of social exclusion (Eurostat, 2010). However, people in greatest need of such activity – adults with low qualifications or lacking them, the unemployed and professionally inactive, elderly people – are the least likely to participate in them (Eurostat, 2017). Unwillingness to participate in formal or non-formal education or in any other forms of self-study can have multiple sources for people belonging to the discussed groups: too many responsibilities, lack of access to educational or cultural institutions, lack of financial resources, complicated family or health situation, etc. (A. Litawa, Z. Szarota, 2016). However, it often happens that such attitudes result from bad educational childhood and youth experiences, translating into lack of motivation for studying and developing in adult life. This kind of negative experience may be connected with failures in education, difficulties in adapting to school requirements, lack of school success and satisfaction with learning, early school dropout, recognized or unrecognized cognitive deficits, or upbringing in an environment depreciating the importance of knowledge and education (A. Czerkawski, 2012, p. 109). In such a case the first problem to overcome is not the choice of profile of education or self-study, but aversion to learning and developing as processes of gaining information and skills.

DISADVANTAGED GROUPS:

- *unemployed, professionally inactive*
- *people with low qualifications*
- *disabled people*
- *foreigners, refugees and immigrants*
- *racial, religious, language and ethnic minorities*
- *people 50+*
- *people suffering poverty*
- *people with addictions*

Among educational needs of adults from disadvantaged groups

the most important are:

- **Lack of basic learning skills**, inability to select learning methods relevant and effective for the given cognitive predispositions
- **Lack of skills to organize one's own learning environment** in a friendly way, adequate to the given resources and conditioning
- **Lack of auto-motivation skills**
- **Lack of knowledge on factors facilitating and obstructing learning** from the point of view of individual, neurobiological, and social abilities of an individual.

In the context of the problems described above and the needs of adult students from disadvantaged groups, the use of the neuroandragogy strategy as a methodological basis of trainings organized for adults can truly increase the efficiency of the teaching and learning processes.

Why neuroandragogy?

The notion of neuroandragogy is relatively new. As the name suggests, it is a discipline combining knowledge about adult education with the achievements of neurobiology. In the light of the concept's principles, the adults' teaching process should be based on information of brain working and changes in it at different stages of human life. The work of an adult education specialist requires being familiar with the following issues:

- The process of receiving and processing stimuli from the surrounding world.
- The functioning of various types of memory.
- The role and significance of experience and prior knowledge in the process of memorizing and constructing knowledge.
- Differences in working of the two cerebral hemisphere.
- The impact of stress and affective functions of a human being in the cognitive processes.
- Individual differences between learners in the scope of sensory preferences, learning styles.
- Conditioning of cognitive functions resulting from the process of maturing and aging.

NEUROANDRAGOGY

combines the elements of neuropsychology, neurophysiology, and neuroanatomy with current knowledge on adult education



Is there a neuroandragogy methodology?

Neuroandragogy is perceived as a very effective strategy in adult education because it is based on proven results of research on the cognitive processes in the brain and on verified knowledge on psychophysical functioning of an adult. In search of effective teaching and learning methods and tools it is based on measurable indicators and outcomes of tests carried out with the use of tools for the measurement of brain activity.

Neuroandragogy
against exclusion

Neuroandragogy does not supply a ready, completely new methodology of teaching and learning. It formulates general rules and principles on the way adult educators and adult students act, which can considerably increase the efficiency of education. It verifies the didactic methods and tools used so far from the point of view of measurable outcomes of their application for the processes of information processing and memorizing (Sikorski, 2015, p. 10).

Therefore, in the context of knowledge and didactic competences of teachers and educators of adults, neuroandragogy is not a revolution, nor does it negate the majority of the existing achievements in the scope of adult education. Instead, it develops them with new threads and locates them in the context of now researchable brain functions responsible for learning processes.

How does neuroandragogy respond to educational problems of adults from disadvantaged groups?

Why do teachers of adults need knowledge about neuroplasticity?



The first good news that neurobiologists pass over to adult education specialists and adult students refers to **neuroplasticity**. Brain research makes it possible to completely deny sceptics who claim that human learning skills decrease or even completely disappear with age – like in the saying “you can’t teach an old dog new tricks”. **Neuroplasticity is a scientifically confirmed brain’s ability of (lifelong) development of structures and neuroanatomical connections, but also removing the ones that are no longer used** (M. Żylińska, 2013, p. 78-84).

Neurobiology gives us knowledge on the changes taking place in the brain structure and its cognitive functions process in a lifetime. It is a fact that such changes take place, influencing our abilities of learning, modifying them, but never blocking. The knowledge transferred to the field of education will help teachers of adults adapt methods and tools to specific conditioning of brains of people of different age, with various “cognitive habits” and varied educational background. Thanks to neuroandragogy we can be sure that an old dog will learn new tricks, provided it will take up a new training, apply relevant methods, and given proper motivation.

NEUROPLASTICITY

is the ability of the nervous tissue to create new connections, the aim of which is its reorganization, adaptation, changeability and self-repair, as well as learning and memorizing. (Polish language Wikipedia)

Neuroplasticity of brain means that depending on living environment, accumulated experience, activities performed during the lifetime, and type of work done, some structures in human brain develop while other are reduced. **This impacts on our efficiency in the scope of a particular type of competences and inefficiency related to other physical, intellectual, and emotional skills.**



In case of people from disadvantaged groups (usually struggling with a very specific type of educational problems, collecting a pool of very similar experiences), the awareness of such diversity and knowledge about its neurobiological rudiments may make it easier to choose relevant educational fields, didactic methods and tactics.

What should an adult teacher know about the cognitive processes taking place in the brain?

Neurosciences offer both teachers and adult students basic knowledge on brain functioning and the course of cognitive functions

In practice, it comes down to general information that is, however, key for learning, about the following topics (M. Spitzer, 2011, passim):

- The way in which the brain receives stimuli from the surroundings, then processes and stores them.
- The processes of memorizing (or forgetting) information, their storage, extracting and using them to solve problems.
- Factors facilitating and hindering the processing, memorizing, and using data collected in the brain.

Such knowledge and the ability to apply it in practice in situations related to learning, work, and coping with everyday life problems, is potentially valuable for every adult. However, in case of people from disadvantaged groups, who may have experienced school failures in the past, who did not find any satisfaction or success in life and school work when they were children and teenagers, or who do not see any possibilities for intellectual, professional, and personal development due to their age/disease/economic situation, the knowledge supplied by neuroandragogy can be the solution to many problems which make it difficult for them to start education and self-learning.

COGNITIVE PROCESSES

Processes of transforming information, taking place in nervous system and consisting in receiving information from the surrounding, strong them and reshape, and bring again to the surrounding in a form of a reaction – behaviour; these are also processes of learning and memorizing. (Polish language Wikipedia)

KNOWLEDGE ABOUT:

- Types of memory and ways of its functioning
- Mechanisms of attention and concentration
- Levels of information processing
- Roles of experience and existing knowledge in the processes of memorizing, storing and recovering memories
- Differentiating between the types of intelligence, cognitive styles, sensory preferences

FACILITATES:

- Organising one's own learning
- Independent development of work environment
- Selection of the most effective forms of learning, exercises, tasks, educational materials
- Understanding the possible educational failures in the past
- Development of learning strategies adjusted optimally to one's own cognitive abilities

How can the teacher use knowledge about motivation?

In case of people from disadvantaged groups, experiencing such problems as inadequate self-esteem, low sense of agency, stereotypical perception of the society based on prejudices, unjust appraisal and negative feedback, the key barrier when starting education and self-study can be motivation (or more precisely, the lack of it).

REWARD SYSTEM

a group of brain structures involved in motivation and behavior control (Polish language Wikipedia)



In this context, neuroandragogy can provide teachers of adults and adult students with knowledge about neurobiological rudiments of the functioning of the reward system in the brain and factors which in case of adults positively or negatively influence satisfaction from work and studying.

Understanding the phenomenon of internal motivation, also from the point of view of the processes that it activates in the brains of adults, is fundamental for adult education specialists who pay attention to such aspects of the teaching process as (M. Spitzer, 2011, p. 123-127):

- high level of adult students' involvement,
- readiness of adult students to develop on their own,
- giving the others and receiving constructive and motivating feedback.

For people threatened with social exclusion, getting to know brain mechanisms responsible for pleasure, satisfaction, and award can be an impulse and the first step to find in themselves the internal need for development, learning, professional and personal improvement. It can also be a cause for a more conscious analysis of the motives for their dealing with everyday problems, understanding the rules and relations influencing the choices they make, and taking over responsibility for their decisions.

Why should a teacher know how emotions influence learning?

The issue of **the influence of emotions on cognitive processes** is indirectly linked to the notion of motivation. Also in this field, neuroandragogy supplies teachers and learners with a lot of useful information. The study of brain activity during functions connected with absorbing information proves that learning is not, as was considered for a very long time, only a cognitive process. It is an affective-cognitive process very strongly affected by emotions, that increase its effectiveness, weaken it, or block it totally. Among the issues that andragogy helps to research and which can be important for adult education, the following ones can be listed: (P.G. Zimbardo, R.J. Johnson, V. McCann, 2017, p. 54-60):

- **The influence of processes of stimulation and suppression on the effectiveness of activities performed by people**
- **The influence of stress and fear on the functioning of hippocampus and memorizing information.**
- **The significance of developing emotional intelligence for the learning results (also in adult age) and the effectiveness of problem-solving.**



It is worth drawing attention to the fact that people from disadvantaged groups may potentially exhibit specific deficiencies in the field of their emotional functions (resulting from disturbed relations in the family, long-term discrimination by their environment, systematic negative feedback, inappropriate self-esteem, etc.). In their case getting to know neurobiological and biochemical mechanisms responsible for the formation of emotions and processes of making decisions, solving problems, and memorizing information will make it easier for them to understand many of their life experiences. It will also make it

AFFECTIVE REACTIONS

are a complex set of body and mental functions, including physiological excitement, feelings, cognitive processes and behavioral reactions provoked by a situation perceived as important for a given individual.



possible for them to more consciously analyse situations and decisions they will face in the future (including situations and decisions connected with education and development).

Together or individually – how do brains of adult people learn?

For adults from disadvantaged groups and teachers working with them, it is of utter importance to understand neurobiological processes responsible for human social learning. Getting to know the mechanisms of the model of learning can, on the one hand, explain specific habits, taught reactions of people with a given type of experience. On the other hand, such knowledge can condition effective levelling of deficiencies related to the abilities to learn through cooperation and team work – which are at present very important to achieving success on the job market.

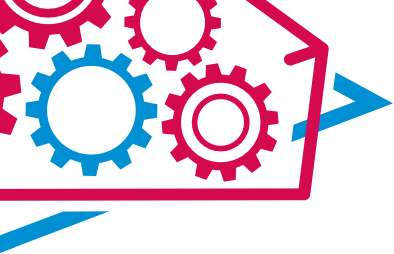
Thanks to neurosciences we know that human brains, equipped (among other complicated learning structures) also in mirror neurons, are biologically and evolutionally directed at transmitting knowledge within a group, learning through imitation, imitating other group members, relations with the surroundings (M. Spitzer 2011, p. 213-225).

What do we want to achieve?

The training for teachers and educators entitled: „Neuroandragogy in the Education of Adults Threatened with Exclusion” aims at the preparation of adult education specialists working in various fields related to continuing education for implementing didactic activities on the basis of principles of knowledge of adult brain’s functioning.

During the training, all the notions outlined above that can be applied at work with adults from disadvantaged groups will be presented. **The desired outcome of the training programme will be preparation of teachers and adult educators to implement active, involved, „brain friendly” education of adult learners.**

However, a long-term, indirect outcome of the training will be, first of all, **the development of competences of adult students in the scope of independent and responsible control of their learning and personal development.** This will allow them to model their abilities of using their own intellectual and personality potential for developing knowledge, passions and interests, but also their abilities to cope with obstacles resulting from cognitive limitations, their in-born or acquired deficits, and to build their internal motivation to take up educational and professional effort. We deeply believe that this way we will activate their most important weapons in their fight against exclusion and discrimination – the potential of their brains, minds and personalities.



3. THE OBJECTIVES OF THE TRAINING PROGRAMME AND THE PLANNED EDUCATIONAL OUTCOMES

3.1. Training programme objectives

The objective of the training programme is to equip the participants (teachers and educators of adults) in knowledge and skills that enable effective development and implementation of educational processes based on principles of neuroandragogy.

The Programme objectives in the scope of knowledge that should be transmitted to the participants include:

- Knowledge about the principles of teaching and learning based on information about brain functioning.
- Knowledge of theory of motivating adults to study and develop personally.
- Significance of the influence of individual cognitive and affective conditioning on the selection of methods and tools of learning, effective in case of adults.
- Knowledge of the sources of potential difficulties in learning resulting from membership in selected disadvantaged groups.

The Programme objectives in the scope of skills that should be improved by the participants include:

- Building educational environment for adult learners based on principles of neuroandragogy.
- Designing the didactic process aimed at adults with the use of neuroandragogy principles.
- Building motivation in adults to take up education.
- Developing in adults the responsibility for their own development.
- Individualization of the process adult learning by taking into account conditioning and cognitive preferences of adult learners.
- Use of experience and practice of learning adults in their didactic process.
- Independent preparation of educational materials for adult learners, based on principles of neuroandragogy.

3.2. Learning outcomes

As a result of the training, its participants will acquire the following knowledge, skills and attitudes.

In the context of **knowledge** gained during the training, the participants can:

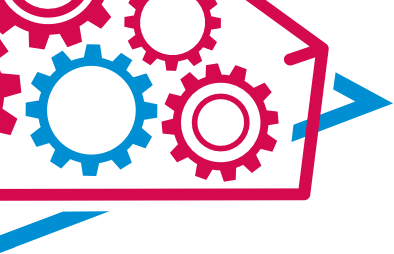
- Define such notions as: neuroandragogy, neurotransmitters, cognitive overload, deep information processing, cognitive styles, sensory channels, educational environment, internal and external motivation, feedback.
- Briefly characterize basic processes connected with the receipt of stimuli from the environment through the human brain as well as with processing and memorizing information in the context of adults.
- List basic types of memory and describe the type of information that is collected there.
- Characterize basic elements of cognitive processes typical for an adult (types of intelligence, cognitive control, learning styles, etc.).
- Discuss basic theories concerning the motivation to study that are applied in case of adults.
- Give examples of modern technologies applied in adult education that conform with neuroandragogy principles.
- Explain the significance and give examples of social learning.
- Characterize the specificity of learning processes in the workplace.
- Discuss factors influencing specific learning difficulties of adults from disadvantaged groups.

In the context of **skills** developed during the training, its participants can:

- Apply the rules of neuroandragogy to designing the process of education for adults.
- Analyse individual cognitive conditioning of an adult student.
- Analyse the chosen strategies and didactic methods from the point of view of implementation of principles of neuroandragogy.
- Construct an educational environment supporting individualized learning of adults from disadvantaged groups.
- Independently prepare educational materials for adult students, facilitating deep processing of information and memorizing.
- Take up activities increasing the motivation of adult students to study and develop personally.
- Give valuable and motivating feedback to adult students.
- Use ICT tools in developing educational activities for an adult student.
- Analyse the work environment from the point of view of the potential for the learning process as well as for professional and personal development.

In the context of **attitudes** shaped during the training, its participants can:

- Appreciate the importance of knowledge of neurobiological aspects of learning in the work of adult education specialists.
- Effectively build a positive, involving learning atmosphere.
- Start and develop interpersonal relationships in the learning environment.
- Communicate in an effective way in a group.
- Demonstrate empathy and understanding for the problems of education of adult students from disadvantaged groups.
- Demonstrate the attitude of openness and tolerance for individuality of an adult student from disadvantaged groups.



4. METHODOLOGICAL TIPS FOR COACHES RUNNING TRAININGS

Training participants (teachers and educators) meet the definition of neuroandragogy target group, being adults who take part in a learning process. Therefore, the rules of the implementation of the training should take into consideration all the rules of developing and implementing “brain friendly” didactic processes directed to adults.

The task of the coach running the training is to take into consideration the following issues when working with teachers and educators:

- Building the **internal motivation** of the participants to actively get involved in the training.
- **Basing the course of training on methods and ways of working that activate** the participants at the most, creating as many opportunities as possible for them to work directly and get involvement.
- Using in the activities the **personal and professional experience and existing knowledge** of the training participants.
- Establishing an **educational atmosphere** (including certain rules of cooperation between the coach and participants, rules of communication, work organization during training meetings, etc.) supporting cooperation among the participants, providing as many various stimuli as possible, taking into account the conditions allowing for focusing attention and concentrating, and lessening stress during studies.
- Planning and using such forms and tools for work evaluation during the training, as to provide **valuable, constructive and motivating feedback**, without causing mental discomfort or fear of being assessed in the participants.

3.2. Building motivation

As a result of the training, its participants will acquire the following knowledge, skills and attitudes.

Participation in the training itself is to a certain degree an expression of motivation of the participants to develop knowledge and skills connected with the use of neuroandragogy in work with adult people. The coach's task is to use their best efforts so that the participants' internal motivation stayed at a high level throughout the whole period of cooperation.

The strong internal motivation of the participants can be maintained by means of the following:

- Defining and transferring to the participants specific, measurable, real training objectives and encouraging them to refer/ modify their goals in the context of their own professional work.
- Taking into consideration different needs of the participants during the whole course of the training (ensuring breaks to regain strength, monitoring the level of attention and concentration of the participants, reacting quickly in case of decreasing group energy level);
- Ensuring in the course of the training a vast range of activities for the participants, to enable people of different skills and preferences to match the methods of work and learning with their individual abilities, thus keeping their interests and cognitive curiosity on a high level.

Participants' activation

Neuroandragogy proves that an effective learning process requires participants' active work, their direct involvement and application of work forms based on methods and didactic strategies which guarantee deep information processing.

We should remember, however, that the neuroandragogical potential of each method lies not in its definition, but in the way it is applied. It depends on the coach alone if the way of implementation of a method activates proper brain regions of the participants or leaves them passive.

An example here can be the application of an expository method like a mini lecture or talk. These are not activating methods by their definition. However, in practice it is possible to apply expository methods in such a way as to activate listeners to deep information processing, which supports their didactic effectiveness.

WAYS OF ACTIVATION

- *Referring to personal experience*
- *Applying practical examples*
- *Applying problem tasks*
- *Using multisensory materials*
- *Involving emotions*
- *Encouraging the exchange of opinions*
- *Using various work forms*
- *Applying context familiar to the recipients*
- *Applying practical exercises directed at deep information processing*



Example:

For the mini-lecture to involve the participants, it is worth enriching it with questions to consider, a group discussion, a short case analysis, but first of all, a big number of practical examples, including ones given by the listeners themselves. At the same time, encouraging participants to take individual notes gives them the opportunity for deep information processing, through the selection, prioritizing, and decoding of the information in the form of personal notes. In such a form a mini-lecture is no longer a way of presenting information but becomes an excuse for active intellectual involvement of the participants.

Taking into consideration participants diversity

Aiming at the stimulation as many brain regions as possible during work, it is worth to recommend methods that require not only starting specific thinking processes (analysis, synthesis, deduction, induction), but also operating various types of messages: verbal, graphic, physical, literal, conventional, symbolic. The following methods and techniques can easily be used during the training:

- **mind map,**
- **metaplan,**
- **infographics,**
- **posters,**
- **diagrams (such as: fish bone),**
- **portfolio.**

Applying such methods, the coach running workshops should take ensure access for participants to materials such as: paper, colour markers, colour post-it note pads, etc. The coach can also use computers and the Internet to apply the above methods in the electronic and multimedia form (which can have the additional benefit of the possibility to work with audio-visual materials, activating different sensory channels).

Triggering emotions

Aiming at the intellectual, but also emotional involvement of participants, the coach can use the following didactic methods:

- **simulations,**
- **drama,**
- **storytelling,**
- **techniques based on gamification.**

„We are driven not by acts, but by stories, they make us listen, they touch us and do not leave our minds“ (M. Spitzer)

They may be applied especially in the context of gaining practical skills of working with adult students and developing soft competences and attitudes connected with building positive interpersonal relations. Similar effects of triggering emotions in learning and high level of agitation, the coach can obtain by skilfully using varied methods of discussion ("for and against", Oxford-style debate, etc.), if only it makes all the training participants take active part in it.

Social learning during the training

Majority of the above methods can be implemented by the coach in a group work formula. It is significant in the context of making the training participants aware of the importance and benefits of learning together, developing cooperation competences, using mirror neurons in teaching. On the other hand, considering the application of group work methods, the coach must remember that the work formula itself does not guarantee the involvement of all the participants, and what follows – the desired intellectual activation of the whole group.



When organizing group work, the coach should take into consideration activities lowering the risk of social loafing, such as:

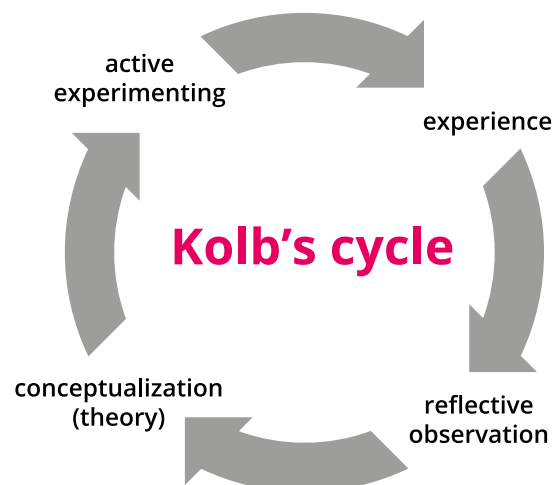
- **Clear task division**, assigning each participant with a certain area of responsibility.
- **Taking into consideration different types of tasks to be done** by the group and by its individual members, to enable the participants to work in a way that is most satisfying to their individual predispositions;
- **Mixing the members of different groups together** in subsequent tasks;
- **Evaluating group work** not only for their outcomes, but also on the meta-level, including analysis and evaluation of the quality of group cooperation and the effectiveness of applied work methods.

The postulate of neuroandragogy is also to base the process of teaching adults on their personal and professional experience as well as on use of their existing knowledge. Therefore, it is so important that the coach running the training should:

- Encourage participants to share their professional experience connected with topics discussed during classes.
- Encourage participants to share their own associations connected with knowledge transferred during the training.
- Make extensive use of practical examples, familiar to the training participants, illustrating the more abstract and theoretical problems within the programme.

Also the coach should, when possible, use the Kolb's cycle in the construction of each course stage, as the most effective model of organizing learning for adults, focusing on constructing knowledge in the process of analysis and transforming the experience.

Taking into consideration the following four stages of participants' work: experience, reflective observation, conceptualization and experimenting, in the course of training or in any of its four stages does not only activate varied cognitive processes of the participants, allowing for deep information processing, but also takes into consideration varied preferences of adult students in the context of learning styles (focusing around particular Kolb's cycle stages).



Atmosphere facilitating learning

An important factor here is the atmosphere of relationships between the person running the training and the participants as well as the atmosphere in the training group. When constructing the educational environment for the training, the coach should right from the start define the rules and have them accepted by all the participants. They should be related to the following:

- **The model of communication** during the training that excludes groundless criticism and unjustified evaluation.
- Exchanging **constructive feedback** among the training participants as well as between the coach and group, focusing on the strengths of the performed work (and not on the mistakes);
- The right to **co-decide about the course of training by the participants** (informing about individual and group needs, asking questions, giving the coach some suggestions on issues and topics worth developing, deciding about one's own participation or resignation taking part in some activities).

The objective of taking into consideration the abovementioned tips by the coach is not only to ensure effective course of the training. Applying some methodological rules based on principles of neuroandragogy in the training will help teachers and educators get to know in a more practical and demonstrative way the rules of implementing "brain friendly" adult education.



Training programme – user's manual

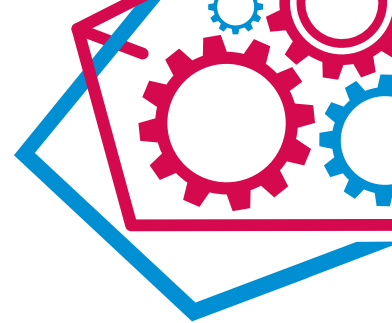
The program contains a set of suggestions and ideas on the implementation of the training for teachers. We should remember that these are only suggestions and tips that each coach running the training should adjust and modify according to the needs of a specific group of participants that s/he will work with, the technical resources and his/her own style of running classes.

Tips and scenarios related to the implementation of each module of the "Neuroandragogy in the Education of Adults from Groups at Risk of Exclusion" training included in the following chapters of this Programme.

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5. NEUROANDRAGOGY IN THE EDUCATION OF ADULTS FROM GROUPS AT RISK OF EXCLUSION

Module 1. Building an educational environment that supports the motivation to learn, individualises teaching and the learning context of adults from disadvantaged groups

Overcoming barriers and building motivation to learn

Most adult learners are anxious about being able to adapt to and perform in a learning environment. They also harbour negative attitudes about learning (due to bad courses they've taken in the past). I'm too old to be doing that." "Technology is for those young college kids." "I'm not in school anymore, so why do I need to take that online course?".....

Adult learners can be reluctant to get started with a new course, but that doesn't mean we, as adult trainers, can't engage them. We just need a few tricks up your sleeve!

We have to understand adult learning psychology to create courses that appeal to them and make them want to learn what we want to teach. But there is a challenge. We have to overcome these obstacles by giving the learner compelling reasons to take our courses. We have to get inside their minds and break the code: What motivates them to learn and what holds them back?

Practice!

Suggest the participants of the training some exercise, in which they will refer in practice to selected methods of overcoming educational barriers and building their own motivation to expand knowledge and self-development. Use the ideas of activities proposed in this module:

- ***"Situational Barriers in Adult Learning"***
- ***"Motivation"***

How to use neuroandragogy in building a brain-friendly educational environment?

Somebody once said: "If the brain were so simple that we could understand it, we would be so simple that we couldn't!" Thanks to new technologies of brain imaging and major breakthroughs in cognitive research, neuroscientists now know more about the functioning of the human brain than ever. Recent brain research using imaging technologies suggests how both children and adults learn. These findings merit attention because they have implications for how we teach. They can also help us to update our knowledge about adult learning so that we can design brain-compatible professional development.

However, the neuroandragogy principles have provided a good start toward understanding how to provide a brain-friendly environment for our students and ourselves.

Practice!

Motivate the training participants to reflect: how can they incorporate elements of brain functioning knowledge into everyday work with adult learners? What constitutes an effective learning environment? What kind of teacher's actions can be described as "brain-friendly"? What actions make it difficult for students to learn and memorize information? Use the ideas of activities proposed in this module:

- **"Effective teaching and classroom management strategies"**
- **"Neuroandragogy Knowledge in Practice"**
- **"Memory overload"**

Substantive content of module 1

- Origins, definition and the most important assumptions of neuroandragogy
- Myths about adult learning in the light of knowledge about the functioning of the human brain
- Characteristic cognitive conditions of an adult learner
- Barriers to learning, typical for adult learners
- Belonging to a Vulnerable Social Group as a potential source of learning disabilities
- Model of competences of the adult educator
- Brain based learning definition
- Core principles directing brain-based education
- Diagnosing the education needs of adult learners
- Motivation in education for adults / what motivates adults to learn?
- Basic theories concerning motivation for adult to learn and develop
- "Brain-friendly" teaching methods - criteria for evaluation and selection of methods and techniques in adult education and training
- Principles of individualized teaching in the context of adult students belonging to disadvantaged group
- Strategies to reduce cognitive overload
- Memorization techniques for adult learners
- Rules based on knowledge of the brain that ensure any training designed scenario keeps learners engaged and helps them fulfil their goals

Learning outcomes for module 1

In the context of knowledge gained during the training, the participants can:

- List and describe the principles of neuroandragogy
- Select teaching methods and tools adequately to the cognitive preferences and individual conditions of a specific group of adult learners
- Lists and describes basic strategies for adults' learning motivation

In the context of skills developed during the training, its participants can:

- Diagnose / Identify the learning needs of adult learners
- Formulate education / training goals for adult learners, adequately to the needs diagnosed
- Plan their own teaching process based on the pattern of neuroandragogy principles



- Design teaching material efficient in the context of adult learners in terms of neuroandragogy
- Design independently tasks and exercises for adult learners based on neuroandragogy

In the context of attitudes shaped during the training, its participants can:

- Improve and develop own teaching competences
- Adapt motivation strategies in relation to one's own professional development
- Encourage all adults to participate in learning experiences while remains sensitive to individual choices



Situational Barriers in Adult Learning

Educational goals

- To understand better the adult learning process
- To think ways to address the learners' barriers
- To exchange opinions with colleagues
- To cooperate with each other
- To adopt knowledge through cooperation

Duration

35 – 40 minutes

Materials

- Pens
- Sticky notes (yellow and pink)
- Noticeboard

Workflow

1. The trainer explains to the participants the procedure of work in the task and distributes the necessary materials (pens and sticky notes).
2. Participants work in a task in pairs.
3. Instruction for participants :
Think of possible situational barriers that could negatively affect adult learners' participation. Try to refer to your own experiences related to adult learning. Record these ideas in the yellow sticky notes. Then think of ways to address these barriers and record them in the pink sticky notes.
4. Participants have 10 minutes to think about the given subject and write the ideas on sticky notes.
5. The trainer asks representatives of the teams to put sticky notes on the board in two columns. In the case of repeated ideas, the notes should be placed on top of each other.

| Barriers | Ways to address |
|----------|-----------------|
| | |

6. Team representatives place cards on the board. Each pair explain what they wrote and why.
7. The trainer summarizes the task, indicating the elements most often appearing among the participants' statements.
8. Group participants can take a discussion in which they refer to their own experiences in the discussed topic.

Evaluation

- In the group discussion the trainer summarizes and evaluates the task:
- Can the solution for the situational barrier developed in the task be useful for an adult teacher?
 - What did you find most useful to this activity?
 - What did you find least useful to this activity?
 - Do you have any suggestions for this activity to become better?

Source

Own elaboration



Motivation



| | |
|--------------------------|--|
| Educational goals | <ul style="list-style-type: none"> • To understand better the theoretical basis of motivation • To reflect on their own school memories and experiences • To exchange opinions with colleagues • To cooperate with each other • To adopt knowledge through cooperation |
| Duration | 30 – 40 minutes |
| Materials | <ul style="list-style-type: none"> • Pens • Sticky notes |
| Workflow | <p>1. The trainer explains to participants the work procedure.</p> <p>2. The group is divided into 3-4 working teams.</p> <p>3. Instructions for working teams:</p> <p>In the first stage, working in teams, everyone works independently. Consider individually over the six features of a motivating adult teacher / trainer / mentor. Refer to your own educational and professional experiences. Write each feature on a separate sticky note.</p> <p>Then, working in a teams, select together the 6 motivating teacher features and rank them in a pyramid, placing the most important feature at the top of the list, according to the pattern:</p> <div style="text-align: center;"> <p>Feature 1</p> <p>Feature 2 Feature 3</p> <p>Feature 4 Feature 5 Feature 6</p> </div> <p>4. Work in teams takes 15 minutes.</p> <p>5. The representative of each team presents to the class a set of hierarchized features of motivating teacher.</p> <p>6. The group may discuss the elements of the motivating adult teacher model.</p> <p>7. The trainer can summarize the task by initiating a discussion about the differences between motivating children and adolescents and motivating adults in the light of knowledge about the functioning of the human brain.</p> |
| Evaluation | In a group discussion, the trainer summarizes with the participants the applied method of work (What competences have been developed? How did this method influence their engagement to work?) |
| Source | Own elaboration |



Effective teaching and classroom management strategies

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none">• To adopt the most effective teaching and classroom management strategies• To exchange opinions with colleagues• To cooperate with each other• To adopt knowledge through cooperation |
| Duration | 60 minutes |
| Materials | <ul style="list-style-type: none">• Large paper cartons• Writing utensils |
| Workflow | <ol style="list-style-type: none">1. The trainer divides the participants into 4 groups.2. Each group gets a paper carton divided into 4 parts and pens/paper.3. The trainer explains the rules of work:4. The topic of work will be the activities of an adult teacher in 4 areas related to building a positive educational atmosphere. The work will run in rotation. After each stage, teams will exchange cartons to each other in the direction of the clock's movement and continue to work on the poster received from the neighbouring group.5. The trainer asks each team to reflect on the teacher's actions that foster and block the EFFECTIVE COMMUNICATION in the group of adult learners. Teams write conclusions on paper, in two columns. The teams have 10 minutes to work.6. Teams exchange cartons, they also receive 3 minutes to get acquainted with the conclusions developed on the poster by the previous group.7. The trainer asks each team to reflect on the teacher's actions that reduce or increase STRESS LEVEL in the group of adult learners. Teams write conclusions on paper, in two columns. The teams have 10 minutes to work.8. Teams exchange cartons, they also receive 5 minutes to get acquainted with the conclusions developed on the poster by the previous group.9. The trainer asks each team to reflect on the teacher's actions that facilitate or hinder the FOCUS AND ATTENTION in the group of adult learners. Teams write conclusions on paper, in two columns. The teams have 10 minutes to work.10. Teams exchange cartons, they also receive 7 minutes to get acquainted with the conclusions developed on the poster by the previous group.11. The trainer asks each team to reflect on the teacher's activities that facilitate or hinder the INDIVIDUALIZATION OF LEARNING in a group of adult learners. Teams write conclusions on paper, in two columns. The teams have 10 minutes to work.12. Teams exchange cartons, they also receive 7 minutes to get acquainted with the conclusions developed on the poster by the previous group.13. The task does not require the presentation of posters, because the teams read their content during work. |
| Evaluation | The trainer summarizes the work focusing on those elements of the learning atmosphere that seemed most important to the participants. |
| Source | Own elaboration |





Neuroandragogy Knowledge in Practice

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none">• To reflect on own teaching experiences• To exchange teaching experiences and good practices with colleagues• To create a teaching scenario on one of the listed strategies• To discuss new teaching strategies including neuroandragogy knowledge |
| Duration | 30 – 40 minutes |
| Materials | • Worksheet with list of strategies (Attachment no. 1) |
| Workflow | <ol style="list-style-type: none">1. The trainer explains to participants the work procedure and gives each participant a list of teaching strategies that adult teacher can use (Attachment no. 1)Reflecting on your own teaching experiences, have you used an approach which (according to the knowledge you have acquired) was in accordance with the assumptions of neuroandragogy? Choose one example from the list below and explain: If you use that strategy? What were you hoping to gain and why? You can also provide your own example, not included on a list.2. Participants have 3 minutes to think about and then present their ideas on the group forum.3. The group may discuss in the context of the subsequent strategies. |
| Evaluation | The trainer sums up the task in a talk: "Is neuroandragogy a revolution or an evolution in adult education?" |
| Source | Own elaboration |



Memory overload

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none">• To understand what is memory overload and memory offload• To learn memory support tools• To exchange memory support tools with colleagues• To cooperate with each other• To adopt knowledge through cooperation |
| Duration | 30-40 minutes |
| Materials | • Worksheet with list of strategies (Attachment no. 2) |
| Workflow | <ol style="list-style-type: none">1. The trainer explains to participants the work procedure and gives each participant a worksheet (Attachment no. 2).2. Participants mark on the worksheet whether they agree with the statements in the table.3. Participants have 5-7 minutes for independent work.4. The trainer discusses statements from the table on the forum, asking participants whether they agree with the given techniques of counteracting the memory overload.5. The group may give their own examples of actions in the adult teacher's work that counteract cognitive overload. |
| Evaluation | The trainer asks participants to analyse the course of the workshop in terms of preventing overloading memory. Can any element of training be modified in this respect? |
| Source | Own elaboration |

Module 2. The development of basic skills of adults from the disadvantaged groups based on neuroandragogy principles

Substantive content module 02

During Module 2 a neuroandragogy set of issues is addressed to trainers and teachers. Considering the basic competences and the development of IO1 "Didactic Materials for Educators Working with Adult Learners" the module is oriented on the European Reference Framework of Key Competences for Lifelong Learning. The Proposal for a Council Recommendation of 17.1.2018 recommended 8 key competences, "that all individuals need for personal development, employment, social inclusion and active citizenship". The key competences in the European sense are:

1. Communication in the mother tongue;
2. Communication in foreign languages;
3. Mathematical competence and basic competences in science and technology;
4. Digital competence;
5. Learning to learn;
6. Social and civic competences;
7. Sense of initiative and entrepreneurship;
8. Cultural awareness and expression.

In the coming sections and with regard on adult oriented life skills the main emphasis will lay on **learning to learn**. Throughout all sections the authors are considering how these competence can be interpreted in relation to neuroandragogy principles and to competencies for teachers and trainers in adult education.

Learning to learn (personal, social and learning competence) is essential to support the development of interpersonal, communicative and cognitive skills. The ability to motivate others to engage in new learning processes or to experience various learning methods is essential for adult education.

Practice!

Suggest to the participants of the training exercises that will help them understand the significance of cognitive differences and learning styles of adults students. Use ideas for activities:

- „Cognitive abilities“
- „Diversification of learning methods, styles and learning biographies“

Motivate participants to verify in practice their own level of self-directed learning skills, using individual methods and tools, based on their own learning style. Use idea for activity:

- „Skill development and Neuroandragogy. Self-directed learning“

Encourage participants to diagnose their own knowledge about “brain-friendly” didactic methods and techniques. It will allow them to focus their own activities related to the development of teaching competence. Use ideas for activities:

- „Background Knowledge Questionnaire: Methods“
- „Types of interactive methods used in trainings supporting the development of basic skills“



Key contents of Module 2:

- Concepts and ideas of cognitive abilities;
- Strategies to recognize cognitive abilities in teachers work with learners;
- Experiences and impact of brain-friendly exercises;
- Different approaches of learning styles and their impact on teaching styles;
- Ideas and approaches how to support the learning to learn competence of the target groups;
- Specific neuropsychological concepts of cognitive control;
- Ideas and reflection about working with various types of didactical materials;
- Insight in neuro scientific effects of materials;
- Creative methods and practices for developing didactical methods according to basic skills in adult education.

Learning outcomes for module 2

Required competences to gain for teachers and trainers in Module 2:

- Capacity and sensitivity to the challenges of conducting training in a manner understandable for participating learners, who may have difficulties in language or communication;
- Ability to teach contents in a brain friendly and accessible manner, using a variety of methods, including appropriate audio-and visual aids. These methods take into account various levels of language competence;
- Ability to develop a self-motivated and self-directed attitude to learning among learners;
- Creation of knowledge with current approaches for learning styles to improve learning practices;
- Capacity to transfer experiences concerning brain functions that hinder or motivate individuals to learn into creative learning settings;
- Sensitivity to use social experiences in learning processes;
- Awareness of working with diverse learners and using diversity and cultural awareness as qualitative impacts on didactic situation.

In the context of knowledge gained during the training, the participants can:

- Identify various concepts of cognitive abilities;
- Compare the concepts of cognitive abilities in with regard to the diversity of learners;
- Describe at least two models of learning styles;
- Differentiate areas of application for models of learning styles;
- Distinguish myths about learning styles from new outcomes about learning styles;
- Describe location and function of cognitive control in the human brain;
- Identify various types of interactive methods used in trainings supporting the development of basic skills;
- Discuss general guidelines for using appropriate methods and materials.

In the context of skills developed during the training, its participants can:

- Use strategies to recognize cognitive abilities in their work with learners;
- Provide suitable brainteasers for their education units;
- Adopt models of learning styles for their own teaching style;

- Transfer experiences concerning cognitive control on different learning situations;
- Develop didactical methods according to the topic basic skills of adults.

In the context of attitudes shaped during the training, its participants can:

- Observe and Reflect on the neuro scientific effects of methods;
- Realize own cognitive control functions;
- Experience the impact of brain teasers by themselves.





Cognitive abilities

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none">• Recognizing cognitive abilities and experience the impact of various cognitive abilities |
| Duration | 30 minutes |
| Materials | <ul style="list-style-type: none">• Attachments no. 3-5• Paper for taking notes• Pens |
| Workflow | <ol style="list-style-type: none">1. The trainer explains to the participants the course of the task:2. Each participant gets worksheet no. 3 and no. 4. Participants work individually in the exercise.3. The participants have 10-15 minutes to complete tasks from both worksheets (depending on the needs of a given group).4. The participants make notes about how long it took to do the exercises and where problems occurred.5. After having done attachment no. 4, they receive the answers in attachment no. 5. The trainer answers questions about tasks and explains the doubts of the participants. |
| Evaluation | <ul style="list-style-type: none">• After doing the exercise the participants discuss about cognitive abilities in daily life and how to train cognitive abilities.• Feedback of participants. |
| Source | https://sharpbrains.com/blog/2015/12/01/brain-teasers-for-adults-to-flex-two-key-mental-muscles-attention-and-working-memory/ |



Diversification of learning methods, styles and learning biographies

| | |
|--------------------------|--|
| Educational goals | <ul style="list-style-type: none">• Analysis of the role of memories and educational experiences in building an attitude towards lifelong learning• Experience of an emotional approach to the contents |
| Duration | 30 minutes |
| Materials | <ul style="list-style-type: none">• Papers• Flipchart• Markers pens• Masking tape |
| Workflow | <ol style="list-style-type: none">1. The group is divided into teams (of two or three people). The trainer explains that the task of each team is to re-construct their personal educational history.2. The discussion among the teams participant should aim to identify what of the educational experience of adults remains in the present time.3. The trainer can propose to the participants an example scheme of such an analysis, recording sample questions on the flipchart:<ul style="list-style-type: none">• What are the positive aspects you remember about your education?• Why did you learn?• What did you learn?• Tell about a special teacher that you met.• Why was he or she a special teacher?• Which teaching methods did he or she use?• At which point of your life did you realize what you want to learn?• Which persons were important for your learning process?• When did you learn the most important things for your career?• Other....4. Discussion with the assistance of teachers and finding common ideas about education, the role of the facilitator or teacher, teaching styles and methods (15 minutes).5. Teams can write the developed conclusions on large sheets of paper, which are then presented and discussed by team representatives in the group forum. |
| Evaluation | Process evaluation during activity. In the process of discussion the group finds common grounds of successful educational experience in their lives. |
| Source | Adapted from: MONTESSORI method for orienting and motivating adults a model for the application of the method in adult education http://www.ch-e.eu/files/content/downloads/Presse/MOMA%20MANUAL.pdf |





Skill development and Neuroandragogy. Self-directed learning

| | |
|--------------------------|--|
| Educational goals | <ul style="list-style-type: none">• Presentation of additional gained knowledge concerning neuroscience and adult education in relation to the teaching experience of the participants• The participants will present key findings that are relevant for their work as learners and teachers• The participants will identify scientific resources for themselves |
| Duration | 20 minutes: preparation for the assignment - the exercise has to be described and how to find suitable resources has to be explained. 5 minutes per participant: presentation. |
| Materials | <ul style="list-style-type: none">• Tablet / notebook for further research concerning learning styles• Flipchart• Markers |
| Workflow | <ol style="list-style-type: none">1. This exercise is a possibility for the participants to deepen and reflect their knowledge and present their interests and knowledge in front of an expert audience.2. The trainer explains that neuroandragogy offers some special issues that can be considered, when preparing a workshop for diverse target groups. In this exercise the participants can figure out some issues that could not be completely covered in the modules by the trainers and are relevant or interesting for the participants.3. Each participant should choose a topic related to the use of neuroandragogy in his work. Then, using the internet the teacher should gather information on this subject and prepare a 5-minute speech. Possible topics:<ul style="list-style-type: none">• Neuroplasticity of the brain• Sports and Education - Train the brain• Impulsive or inappropriate behaviour - Brain and control• Neuroscientific impacts of a trainer as facilitator (audio, visual...)4. After 20 minutes the participants will hold a presentation. |
| Evaluation | Peer evaluation. The group can give a short feedback after each presentation |
| Source | Adapted version from: Birkett, M. (2015). Teaching Neuroscience: Practical activities for an engaged classroom Retrieved from the Society for the Teaching of Psychology web site: http://teachpsych.org/ebooks/teachingneuroscience |



Background Knowledge Questionnaire: Methods

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none"> • Analysis of the role of memories and educational experiences in building an attitude towards lifelong learning • Experience of an emotional approach to the contents |
| Duration | 15 minutes |
| Materials | <ul style="list-style-type: none"> • Attachment no. 6-7 • Pens |
| Workflow | <ol style="list-style-type: none"> 1. The trainer explains to the participants the work procedure in the task and distributes the worksheet (Attachment no. 6). 2. Instruction: Match the training methods with the advantages of the methods by connecting corresponding elements in the left and right columns. 3. The participants have 5 minutes for individual work. 4. The trainer presents correct answers; the participants check the correctness of their work (Attachment no. 7). |
| Evaluation | Discussion - How does the knowledge about neuroandragogy gained during the training justify the benefits of applying particular methods? |
| Source | Adapted version from: Training methodologies and principles of adult learning for trainers of Prevention of mother-to-child TRANSMISSION (PMTCT) OF HIV, 2004 |



Types of interactive methods used in trainings supporting the development of basic skills

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none"> • Develop didactical method according to basic skills |
| Duration | 5 minutes for instructions 15 minutes to develop the learning experience 10 minutes to present outcomes |
| Materials | <ul style="list-style-type: none"> • Paper for notes • Pens |
| Workflow | <ol style="list-style-type: none"> 1. Participants work in this task in a group of three to four people. 2. The trainer explains to the participants the work procedure: The task of each team is to prepare exercise / educational activity for adult students, focused on developing basic skills. For this purpose: <ul style="list-style-type: none"> • identify and create one clearly stated learning outcome of basic skills in adult education; • determine what kind of domain of learning the outcome represents (attitude, cognitive, skill); • develop instruction for one interactive learning experience to support the learners in achieving it. 3. Teams have 15 minutes to work on a task. 4. Each team present the learning outcome and the method in front of the plenary. |
| Evaluation | The group gives feedback to every presentation in the context of the acquired knowledge about neuroandragogy (Building a training program). |
| Source | https://www.go2itech.org/HTML/TT06/toolkit/curricula |

Module 3. The support of adults in taking up independent studies and continuing education with the support of information and communication technology

Substantive content module 03

This module is all about supporting the adult learners in their independent studies, away from the face-to-face sessions, focusing on the use of information and communication technology. As a result, in order to maximize the effectiveness of the training module we are looking to build on certain characteristics that will aid their skills which they have been working on in the face-to-face sessions. These primary mental attributes / focuses include:

- **Self-motivation**
- **Evaluating prior experiences**
- **Complex Problem Solving**

Self-motivation is a key principle in aiding adult learning. Not only is it the driving force behind the actual process of the learning itself but it also rewards the adult learner after they have completed the tasks they set as it stimulates the release of dopamine. Once the dopamine is released it creates a cycle whereas the adult learner is invigorated to try to achieve the next array of targets they set themselves. As independent study, this is the optimum time to access this mental attribute as the participant will be acting individually without the motivation of others.

Practice!

Suggest to the participants of the training a task in which, using computers and the Internet, they will train not only the use of technologies, but also build their own motivation to learn. Use the idea for the exercise:

- „Self-motivation”

One of the major hindrances in the progression of learning as we age is the rigidity of the mind. Past experiences and the perceived understanding of the world makes the acknowledgement of new ideas and skills more difficult for adults. By **evaluating past experiences** honestly, the participants will become more open-minded and self-critical as a means to enhance their performance rather than become negative about their own or other's shortcomings, and allowing them to be more receptive to new information.

Complex problem solving is a skill often tested in professional environments, and these environments are also areas in which adults can, and usually need to learn new skills or digest information. If participants are to become effective learners they should develop these skills as much as possible. Independent study provides an ideal atmosphere to focus on tackling complex problem solving and finding solutions to such issues. Complex problem solving in the private study activity will work the temporal lobe which is the primary area of the brain that is used when interpreting information in a social or professional environment.

Practice!

Suggest to the participants of the training activities in which they use their complex problem solving skills in practice and understand the meaning and functions of the experience-based-learning in adult education. Use ideas for exercises that are also available on the educational platform:

- „Evaluating prior experiences”
- „Complex problem solving”

Learning outcomes for module 3

In the context of knowledge gained during the training, the participants can:

- Characterize the types of cognitive skills, cognitive control, and learning styles typical of adults;
- Understand how independent study activities compliment the development of cognition skills required for adults to learn effectively;
- Define the concept of cognitive overload;
- Recognize which neurological activities are stimulated by what and the reasons why this is effective in adult learning theory.

In the context of skills developed during the training, its participants can:

- Choose the teaching method depending on the individual aptitudes of the adult learner, based upon the individual's independent study performances;
- Prepare polysensory and multimedia educational materials for their own classes, based on the knowledge of the principles of processing visual, auditory and tactile stimuli by adults;
- Organize sessions that will aid the continuation of skills developed in the participant's independent studies.
- In the context of attitudes shaped during the training, its participants can:
 - Understand the power of self-motivation and the best practices to enhance the personal development of their adult learners.
 - Use the class evaluation sections in order to refine teaching methods in developing key teaching and learning skills.





Self-motivation

| | |
|--------------------------|--|
| Educational goals | <ul style="list-style-type: none"> To develop the self-motivational skills of the adult learner in a session, self-evaluation whilst learning how to establish an effective reward strategy |
| Duration | 45 minutes development of poster 5 minutes each participant to present 10 minute class evaluation of their personal performance and future target setting |
| Materials | <ul style="list-style-type: none"> Computers with an assess do the printer Paper, pens, post it notes Prior basic knowledge of word formatting program |
| Workflow | <p>The essence of this activity is to instil a sense of self-motivation in the participant whilst also boosting their self-confidence as a secondary motive.</p> <ol style="list-style-type: none"> At the beginning of the face-to-face lesson prior to this task being set, the session leader will ask the adult learners about their favourite snack of theirs. They will write their snack (can be a chocolate bar, favourite fruit etc. but cannot be anything large, expensive or extravagant) on the post it note with their name and pass it to the session leader. The session leader will then set the task. The task will be to create a poster that advertises themselves. They will be asked to use a word processing program (e.g. Microsoft word) and to print it before the end of the session. They will be given no further incentive, or instruction as to how long or detailed it should be. The completed posters/advertisements will be presented in front of the group and once they have been presented the session leader will strongly encourage them to have their favourite snack as a reward if they feel deserving of it. If there are those who don't feel they earnt the snack discuss as a class why they don't so there is communal support of the participant whilst. |
| Evaluation | <p>This task will certainly benefit from a substantial prior knowledge of the reward system for adult learners. Understanding these principles will help improve the experience for the adult learner especially in the group evaluation. As they are also promoting themselves they search and evaluate themselves for potential positives, boosting their self-confidence also. The notion behind the snack reward is for the release of dopamine that food will give them, alongside the release associated to their self-satisfaction. If they decide they did not earn the snack, then they begin to further reflect on their performance and future changes in order to reach their goal, in appositive class environment. In the class discussion it is important to evaluate their performances:</p> <ul style="list-style-type: none"> Why did/didn't I deserve the reward? What can I change to continue/improve this? What really motivates me as an adult learner? |
| Source | Own elaboration |





Evaluating prior experiences

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none">• To evaluate past experiences that the adult learner has had in a professional or educational capacity, as a means to become more open-minded and self-critical. |
| Duration | 20 minutes evaluating the experience online |
| Materials | <ul style="list-style-type: none">• Computer, login for online platform• Access to the online questionnaire/experience log |
| Workflow | <p>This activity's success hinges on the honesty of the participant.</p> <ol style="list-style-type: none">1. As part of independent study, the learner will describe and evaluate a past experience on the shared online platform using his/her user profile. The experience they describe must have happened at least a year ago as they are challenging their assumptions and perceived lessons of the experience, so these must be formed in advance of them participating in the project.2. The adult learners use experiences such as previous job interviews, driving tests or defining moments in previous or current relationships as focal points when filling in the questionnaire/experience log. It is important for them to only use an experience they are comfortable divulging in the questionnaire as the session leader will read it once it has been submitted.3. They will answer the questionnaire thoroughly and then submit what they have written online once they have answered all the questions.4. After the next session, they will evaluate the experience again to see if their perspective has shifted once they have deliberated that experience over time. |
| Evaluation | <p>If the adult learner is honest in their description and evaluation of the experience and are willing to challenge and investigate what they have or have not learnt from that moment in their life, then they can distance themselves from the mental rigidity and stubbornness often found in adults. It will also stand them in good stead when they evaluate future experiences.</p> <p>Being analytical is a key skill when learning effectively as an adult. As we age we tend to limit what we think about, and the scope of what we research and learn is shortened after being in full time education, however we delve deeper in to what we have learnt or think we have learnt. By staying proactive mentally and ensuring they are taking the accurate and positive lessons from certain experiences, the adult learners will adopt a more positive and analytical mindset.</p> |
| Source | Questionnaire content to be created by BTF |



Complex problem solving



| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none">• To develop the adult learner's competencies when challenged with complex problems and forming troubleshooting strategies to overcome these challenges |
| Duration | 15 minutes to complete the scenario-based online activity 15 minutes to view the theory section of the activity 15 minutes to repeat the scenario-based online activity 5 minutes evaluation |
| Materials | <ul style="list-style-type: none">• Computer, login for online platform• Access to the scenario-based online activity |
| Workflow | <p>This scenario-based activity is a test for the adult-learner's quick thinking and initiative, which will improve after they have read through the theory aspect of the course, which will be presented online as part of the activity.</p> <ol style="list-style-type: none">1. The adult learners will, under a time constraint, complete a multiple choice questionnaire. This questionnaire will relate to an overall fictional situation in a professional setting and the adult learners will try to appease and troubleshoot any particular issues that arise as they go through the questionnaire. (NOTE: the participants will only see one question at a time, formatted almost like a slide show with one question per slide).2. After they complete the first section, they will read a couple of pages of troubleshooting theory. This will mean the adult learners must put into practice what they have learnt from the theory into the next part of the activity, the second half of the questionnaire.3. Once they have completed the entire activity they will fill in a short evaluation questionnaire that will be submitted to the session leader. |
| Evaluation | <p>This activity is self-explanatory in that it tests firstly, the natural instinct of the adult learner and then secondly their ability to absorb information on the theory section before completing the second half of the questionnaire.</p> <p>The idea is that the participant's will transfer theoretical information into practical application in a short space of time, whilst also troubleshooting complex problems, a skill that is especially difficult when completing it independently.</p> <p>There is little quantitative data with this activity, but the qualitative data given by the evaluation will help the session leader gauge how effective the activity was in improving the ability of the adult learners in engaging in complex problem solving.</p> |
| Source | Activity and questionnaire content to be created by BTF |

Module 4. The development of learning competences in the professional environment based on principles of neuroandragogy

Substantive content module 04

The specificity of adult education and lifelong learning is that it prepares adults to learn in the context of very different situations, including professional situations. Adult life is very often concentrated around work. This is why it is so important for adults to know how to develop their interests and talents not only in the course of education, but also through the daily duties and professional relations established in the workplace. This training module deals with elements of the work environment that are conducive to learning and self-development. Thanks to the knowledge and skills acquired as part of this module, teachers and adult educators will be able to prepare their students for development and learning also outside the school or training framework, thus also in their place of employment or running their own company.

Practice!

Suggest to the participants of the training exercises that will encourage them to reflect on their professional career, their professional goals and their resource of competence. This will be a good introduction to further work on developing knowledge about effective learning in the workplace. Use ideas for activities:

- ***“Analysis of professional biographies”***
- ***“SWOT analysis of own professional potential”***

Brain-friendly factors of an effective work environment:

- **Decorate own workplace or office.** A personalized space is more fun to be in.
- **Provide yourself visual goals to display.** You actually do get the picture more than you “get” words. Most studies show that adding a visual to information increases retention from a mere 10 percent to 65 percent. The brain is set up for visual representations, and the eyes can be trained to see what is important.
- **Use productive colour combinations in the room.** Many studies suggest that colour affects the brain and behaviour, mood and emotions. Some suggest that painting waiting rooms blue to provide the feeling of reliability is a great idea. And some businesses are carefully choosing uniforms according to what customers might perceive from colours.
- **Provide music for motivation.** Background sounds help most people feel less alone and less stressed. Different genres or beats can encourage relaxation, upbeat energy, or productivity. Music also helps you remember information, in large part because it affects your emotions.
- **Provide bright lighting and appropriate lighting for close work.** Dim lighting increases the production of melatonin, the chemical that makes you sleepy. It also increases the likelihood of accidents, eyestrain, and stress. You may want to avoid fluorescent lighting, even though it's cheaper. Fluorescents increase levels of stress hormones, such as cortisol. Natural sunlight is best for mood, energy, and generally feeling good. If you have offices without windows, try full-spectrum lighting, which mimics sunlight.
- **Take frequent breaks, to leave the workplace and see daylight and speak with fellow people.** Such breaks (social and motor) help the brain rest and increase the efficiency of cognitive processes.
- **Offer yourself time and opportunity for play, exercise, and interaction.** Movement and interaction release chemicals that help with focus, concentration, and feeling bonded with others.
- **Try to work in small groups; don't be isolated most of the day.** Isolation can lead to depression. Groups provide conversation, interaction, and an opportunity to ask questions and solve problems.

Components of creating brain-compatible environments:

Brain-friendly workplaces are organizations where people are able to do their best thinking and produce great work in vibrant, healthy work environments. Brain-friendliness incorporates:



- Good management principles and practices;
- Effective leadership;
- Organization health and well-being;
- Drive toward mission;
- Humanity and respect.

Organizing a work environment that takes into account the neurobiological conditions of employees, it should be remembered that 8 habits can improve cognitive functions and prevent burnout:

1. Physical Activity;
2. Openness to Experience;
3. Curiosity and Creativity;
4. Social Connections;
5. Mindfulness Meditation;
6. Brain-Training Games;
7. Get Enough Sleep;
8. Reduce Chronic Stress.

Social learning in a workplace

Social learning theory proposes that new behaviors can be acquired by observing and imitating others. It states that learning is a cognitive process that takes place in a social context and can occur purely through observation or direct instruction, even in the absence of motor reproduction or direct reinforcement. In addition to the observation of behavior, learning also occurs through the observation of rewards and punishments, a process known as vicarious reinforcement. It is worth noting that this type of learning is very typical not only for children and young people, but also for adults acting in the work environment.

Practice!

Suggest the participants of the training exercises that will enable them to better understand the principles of building a brain-friendly work environment. Use ideas for activities:- “Analysis of professional biographies”

- ***“Brain-friendly work environment and preventing burnout”***
- ***“Brain-friendly learning in the workplace”***

Motivation in a workplace

The employer has a certain amount of responsibility for the motivation and wellbeing of the workforce. For a team to function to the best of its ability, all members must be fully engaged and fully committed. It's important to recognize that true engagement will mean different things to different people and to understand what really drives an individual's motivation.

Important factors of motivating and demotivating adults to professional development:

| Demotivators | Motivators |
|---------------------------------|---|
| 1. Lack of career vision | 1. Challenging and exciting work |
| 2. Job insecurity | 2. Control over the job |
| 3. Feeling under-valued | 3. Recognition and reward for performance |
| 4. No development opportunities | 4. Opportunities for growth |
| 5. Poor leadership | 5. Effective, positive management |
| 6. Conflict | 6. Communication |
| 7. Unrealistic workload | 7. Business impact |

Practice!

Suggest the participants of the training an exercise in which they will analyze motivating and demotivating factors in their own workplace. Use idea for activity:

- "Motivation factors in a work environment"

Learning outcomes for module 4

In the context of **knowledge** gained during the training, the participants can:

- Identify factors of several physiological mechanisms to help keep your brain healthy, sharp and agile,
- Distinguish different habits they can prevent professional burnout from a neurobiological perspective,
- Describe the significance of social learning in the context of the human brain's knowledge of the functioning.

In the context of **skills** developed during the training, its participants can:

- Analyze factors related to the work environment that affect the efficiency of cognitive processes,
- Give examples of brain training techniques that improve the productivity of cognitive activities of adults, and put them in use in the context of the professional environment,
- Understand what really drives an individual's motivation to work.

In the context of **attitudes** shaped during the training, its participants can:

- Be aware of how brain-compatible professional environments should be created,
- Specify the most decisive learning processes existing in the workplace,
- Acquired how to analyze the work environment in terms of motivating and demotivating factors with regard to professional progress from the perspective of brain functions.





Brain-friendly work environment and preventing burnout

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none"> • Self-reflection based on the material being studied • Getting to know the techniques of preventing burnout |
| Duration | 20-30 minutes |
| Materials | <ul style="list-style-type: none"> • Paper • Pens |
| Workflow | <p>1. The trainer presents the participants basic information that introduces them to the task: When feelings of burnout start to occur, many people focus on short-term solutions such as taking a vacation. While this can certainly help, the relief is often only temporary. You also need to focus on strategies that will have a deeper impact, and create lasting change. Let's look at specific strategies that you can use to avoid burnout:</p> <p>Work With Purpose Look at the deeper impact of what you do every day; how does your work make life better for other people? How could you add more meaning to what you do every day? Develop a career strategy!</p> <p>Perform a Job Analysis Perform a job analysis! Make a list! Specify what is expected of you and what you expect from your work. This tool will help you identify what's truly important in your role, so that you can cut out or delegate tasks that aren't as essential.</p> <p>Take Control Find ways to create more autonomy in your role! Define for yourself how you could have more control over your tasks, projects, or deadlines!</p> <p>Learn to Manage Stress When not managed well, short-term stress can contribute to burnout. Manage the way you think by monitoring your thoughts and practicing positive thinking! Make a list about inspiring good things they happened to you at your workplace! (At least 10).</p> <p>2. The group works in teams of 3-4 people. Each team should discuss 2 issues:</p> <ul style="list-style-type: none"> • How can these techniques be used in the work of an adult teacher / educator? • Which techniques can be used by adults from disadvantaged groups? <p>3. In the discussion participants should refer to their own professional experience and experience in working with adult learners at risk of exclusion. Discussion in teams should take 10-15 minutes. Then the representative of each team presents the conclusions on the forum.</p> |
| Evaluation | The trainer initiates a conversation about the importance of sensitivity to the social and professional situation of the adult learner. |
| Source | Own elaboration |



Motivation factors in a work environment

| | |
|--------------------------|--|
| Educational goals | • Analysis of the conditions of the adult teacher's work environment |
| Duration | 30 min. |
| Materials | • Paper • Markers |
| Workflow | <ol style="list-style-type: none"> 1. The trainer explains the course of the task. The group is divided into 3 working teams. 2. The task of each team is to analyze the working environment of the adult teacher in terms of motivating and demotivating factors. <ul style="list-style-type: none"> • What motivating and demotivating factors are present in your work environment? • Which demotivating factors could you change? • Which motivating factors are missing from your daily routine? <p>Team No. 1 analyzes factors related to the teacher's work system (working conditions, working time, salary, benefits). Team No. 2 analyzes factors related to interpersonal relationships (relations with students and colleagues, social position of the teaching profession). Team No. 3 analyzes factors related to personal development (opportunity to expand knowledge, develop interests, participate in trainings).</p> <ol style="list-style-type: none"> 3. Work in teams takes 10-15 minutes. Then the representative of each team presents the conclusions to the group. Evaluation □ The trainer provokes teachers to create a wish |
| Evaluation | The trainer provokes teachers to create a wish list for Santa of adult teachers. Participants can submit any ideas that would make their work more interesting and more attractive to them. Willing participants can discuss their lists with the group. |
| Source | Own elaboration |



Brain-friendly learning in the workplace

| | |
|--------------------------|--|
| Educational goals | • Analysis of various forms of learning in the workplace |
| Duration | 30 min. |
| Materials | • Paper • Markers |
| Workflow | <ol style="list-style-type: none"> 1. Participants work in pairs. The trainer gives instructions. 2. Referring to your own professional experience, give to a partner one example of brain-friendly learning in the workplace: <ul style="list-style-type: none"> • Learning by doing • Learning by solving problems • Learning by exchanging experiences • Learning by cooperation • Learning from mistakes • Learning through self-reflection 3. Participants in pairs compare their ideas and experiences. Work in pairs takes 10-15 minutes. |
| Evaluation | The trainer summarizes the task by asking group about examples for particular issues. |
| Source | Own elaboration |





Analysis of professional biographies

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none">• Analysis of participants' professional experiences• Learning by analyzing mistakes and successes |
| Duration | 45 minutes |
| Materials | <ul style="list-style-type: none">• Paper• Markers• Computer with access to an application for creating multimedia stories, ex.: Pixton, Storybird, Comic Master or printed storyboards (Attachment No. 8) |
| Workflow | <ol style="list-style-type: none">1. Participants work in the task individually.2. The trainer explains that the participants' task will be to create a story about their professional path. Such a short story should refer to the greatest success or important problem that they have struggled with at work.3. Depending on the equipment of the workshop room, they can work on computers, preparing comics or multimedia stories using a selected computer program. They can also work manually using the storyboard (Attachment No. 8) and markers.4. Participants have 20 minutes for independent work.5. After completing the work, willing people can present their stories in the group forum. |
| Evaluation | <p>The trainer summarizes the task by initiating a conversation about:</p> <ul style="list-style-type: none">• How do participants assess the effectiveness of the storytelling method in the context of the neuroandragogy assumptions?• In what other aspects of working with adult participants we can apply the storytelling method?• How can the analysis of own professional experience influence the learning of adults from groups at risk of exclusion? |
| Source | Own elaboration |



SWOT analysis of own professional potential

| | |
|--------------------------|---|
| Educational goals | <ul style="list-style-type: none">• Analysis of own strengths and weaknesses in the context of labor market• Presentation of the importance of self-analysis as part of the adult learning process |
| Duration | 20 minutes |
| Materials | <ul style="list-style-type: none">• SWOT analysis sheet (attachment No. 9)• Pens |
| Workflow | <ol style="list-style-type: none">1. Participants work on the task individually.2. The trainer explains the principles of the SWOT analysis and distributes the work sheets to participants (Attachment no. 9).3. Participants analyze their potential on the labor market. They indicate their strengths and weaknesses, opportunities and threats related to their professional career. They have 10-15 minutes for independent work. |
| Evaluation | <p>The trainer summarizes the task by initiating a conversation about:</p> <ul style="list-style-type: none">• What is the meaning of proper assessment of own potential for professional development?• How can an adult person use the results of a SWOT analysis in the design of activities related to learning and professional development? |
| Source | Own elaboration |



Attachments

Attachment No. 1 – Worksheet 1



Reflecting on your own teaching experiences, have you used an approach which (according to the knowledge you have acquired) was in accordance with the assumptions of neuroandragogy?

Choose one example from the list below and explain: Did you use that strategy? What were you hoping to gain and why?

You can also provide your own example, not included on a list.

- Give explanations or present new information in small, distinct steps. When giving directions to the class, leave a pause between each step so student can carry out the process in his mind.
- Provide scaffolds when teaching something difficult.
- Provide visual procedure, written instructions, as well as oral directions.
- Use differentiated instruction to enhance successful learning of new content.
- Shorten the amount of required reading.
- State the objective and relating it to previous experiences.
- Hang words from the ceiling during study time or posting them on the board or wall as constant visual cues.
- Ask for a feedback from trainees.
- Others _____



Attachment No. 2 – Worksheet 2

To reduce cognitive load while an adult is in the process of learning, you can provide external memory supports. Below you can find some sentences, check with (✓) if you agree or not.

| | true | false |
|--|------|-------|
| Symbols (red traffic lights, pointing fingers, road signs, etc.) can code quite complex messages quickly and effectively | | |
| Creating checklists facilitates the execution of complex instructional tasks | | |
| Provide practice using: <ul style="list-style-type: none">• Story starters• Open-ended stories• Oral responses | | |
| Have the student take notes and use coloured markers to highlight | | |
| Use negative, unpleasant images. Your brain often blocks out pleasant ones. | | |
| Use all your senses to code information or dress up an image. | | |
| Remember that your mnemonic can contain sounds, smells, tastes, touch, movements and feelings as well as pictures. | | |
| Don't exaggerate the size of important parts of the image. | | |
| Don't use humour! Funny or peculiar things are not easy to remember than normal ones. | | |





Attachment No. 3 – Worksheet 3

In this worksheet you find brain teasers to exercise your attention, short term memory and the ability to keep information in your mind while working on integrating, processing it. Try the exercises and evaluate for yourself or in the group, whether it was hard to do the exercises and how long it took you.

It is not allowed to make notes during the exercises.

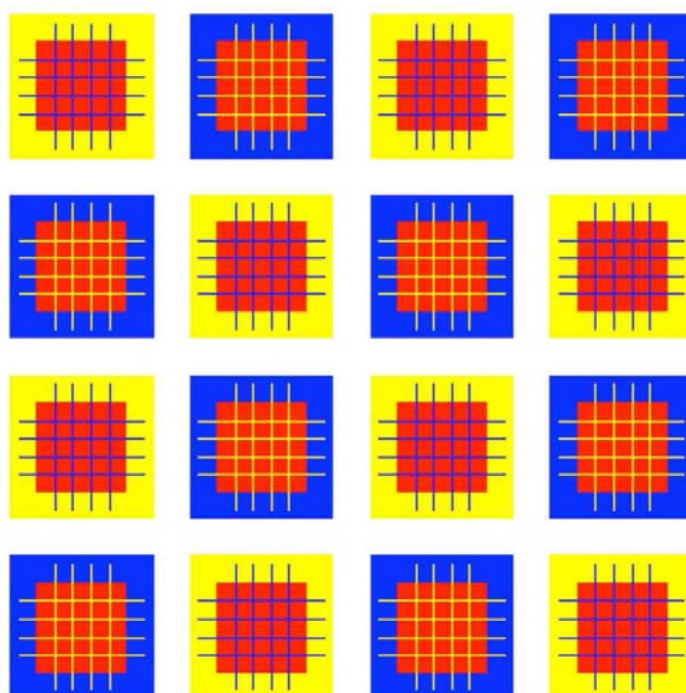
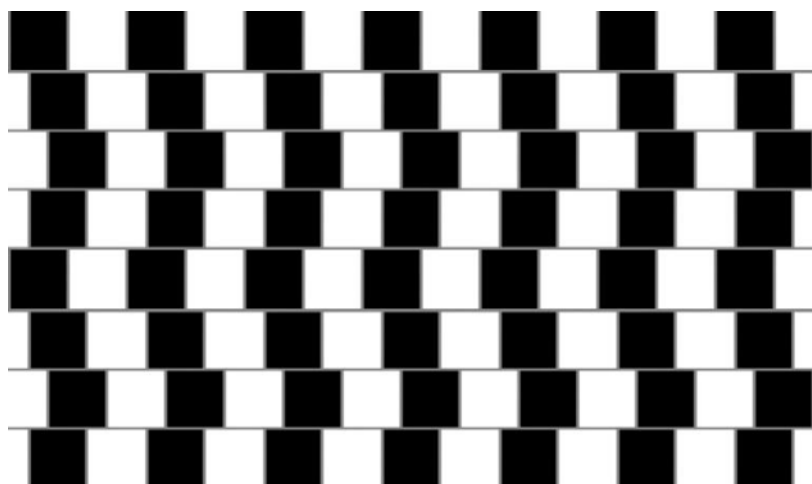
1. List the days of the week backward, after that list the days in alphabetical order. (When you know the days in other languages? Try to do the same in another language...). Do not make notes!
2. List the months of the year in alphabetical order.
3. Try also to say the months backwards, in reverse alphabetical order.
4. Find the sum of your date of birth, mm/dd/yyyy.
5. Do the same with your colleague's' or best friend's date of birth.
6. Find two objects for every letter in your first name. Expand the exercise to five objects, trying to use different items each time.
7. Have a look in your in the immediate vicinity and try to find 5 red things that will fit in your pockets, and 5 green objects that are too big to fit in your pockets.



Attachment No. 4 – Worksheet 4

1. Are the horizontal lines straight or crooked?

1. 2. Are the squares inside the blue and yellow squares all the same colour?





Café Wall Illusion

The horizontal lines are straight, even though they do not look straight. In this illusion, the vertical zigzag patterns disrupt our horizontal perception.

Bezold effect

The smaller squares inside the blue and yellow squares are all the same colour. They look different (magenta and orange) because a colour is perceived differently depending on its relation to adjacent colours (here blue or yellow depending on the outer square).

Perception is being able to interpret the information that your different senses receive from your surroundings. This ability to interpret information depends on particular cognitive processes and prior knowledge. Visual perception is defined as the ability to interpret the information that our eyes receive. The result of this information being interpreted and received by the brain is what is called 'visual perception', 'vision', or 'sight'. Visual perception is a process that starts in our eyes:

- **Photo-reception:** The light rays reach our pupils and activate the receptor cells in the retina.
- **Transmission and basic processing:** The signals made by these cells are transmitted through the optic nerve toward the brain. . It first goes through the optic chiasma, and is then relayed to the nucleus of the thalamus.
- Finally, the visual information that our eyes receive is sent to the visual cortex in the occipital lobe.



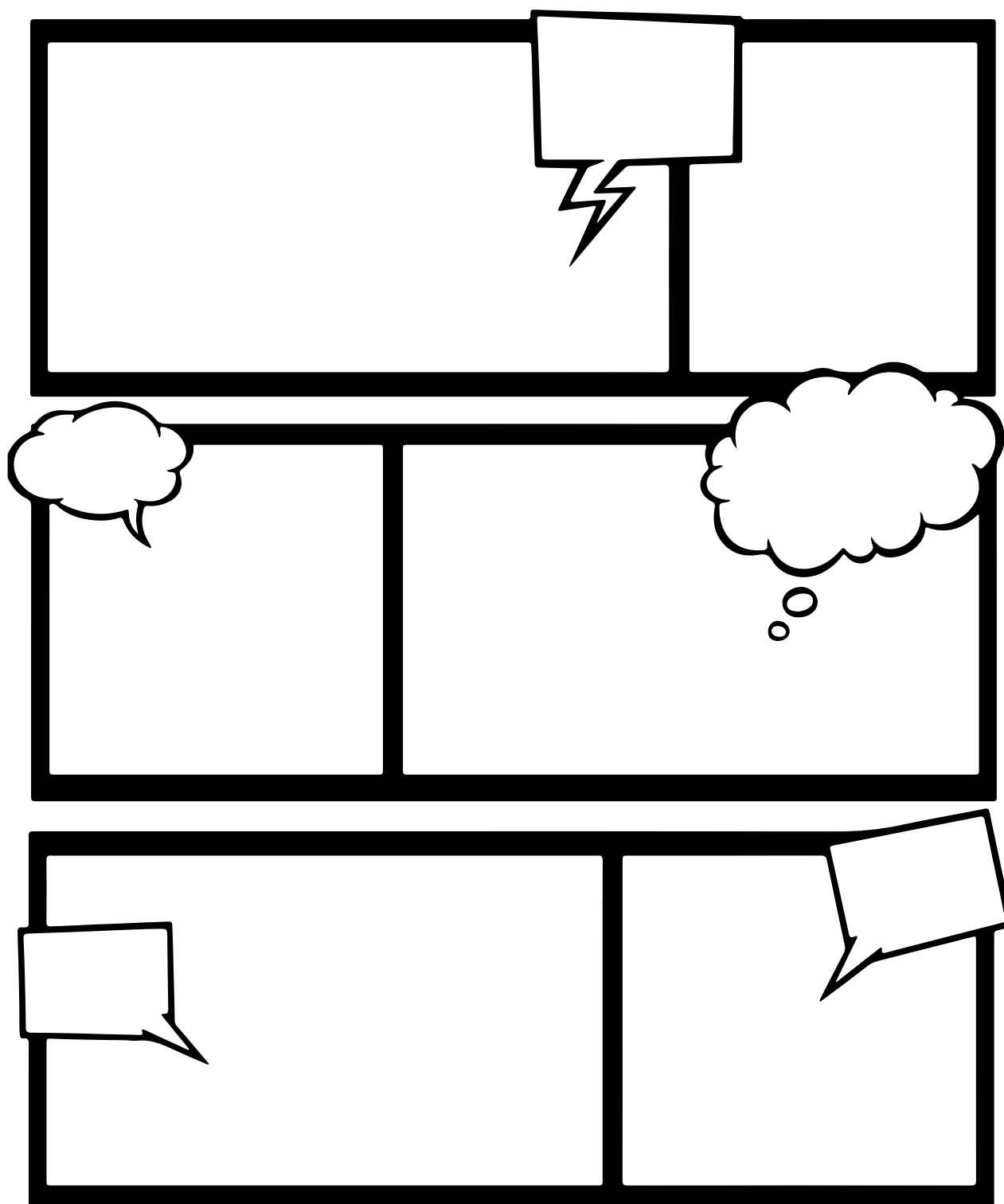
Attachment No. 6 – Worksheet 6

| | | | |
|----|--------------------------------------|---|---|
| 1 | Case studies | A | Memorizing in a creative method like interpreting the facts in a song. |
| 2 | Experimental learning | B | By moving in the room learners transport visible information about what they think or feel about inputs. |
| 3 | Role plays | C | Supporting individuals and groups to think globally and creatively, mind maps help to analyse, classify, evaluate, generate, list, structure and visualize important ideas. |
| 4 | Project and writing tasks | D | Participatory technique, promoting the involvement of learners in the learning process, supporting the development of cooperation, and contribution of learners by collecting all ideas. |
| 5 | Self-study | E | Knowledge gained by an instructor in a formal setting. |
| 6 | Lectures | F | Acquiring of own knowledge, skills and interest through own investigation. |
| 7 | Auditory methods | G | Problem based learning, experience in dealing with social interactions; develop critical thinking and decision-making skills |
| 8 | Socio metrics group work | H | Encourages Open-mindedness of learners allows to reflect on own experiences. |
| 9 | Fishbowl | I | Expressing main points of learning achievements or wishes in a creative way by a moving act of an individual or the group. |
| 10 | Mind Maps | J | Creating versions of situations in which learners can practice new behaviours and try on new forms of communication. They can make and correct mistakes in a safe environment while preparing them to be more effective in real world situations. |
| 11 | Open Space | K | Transfer of experience from interviewed specialists to learners, collecting information according to trainees' needs. Covers directly individual or group training needs, self-directed learning skills grow, analytical and critical thinking active listening and observation skills. |
| 12 | Brainstorming | L | Reflecting on understanding of concepts, summarizing of content by writing. |
| 13 | Interviewing specialists | M | Problem solving tool or peer engagement process |
| 14 | Kinaesthetic learning methods | N | Exchanging working group results represent partial interests within the large group and for presenting observations by experts (Forming a circle within a circle). |



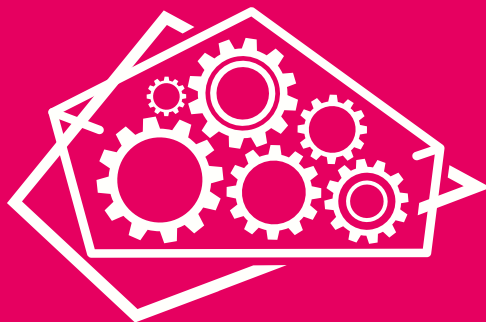


| | |
|--|---|
| Case studies | Problem based learning, experience in dealing with social interactions; develop critical thinking and decision-making skills. |
| Experimental learning | Encourages Open-mindedness of learners allows to reflect on own experiences. |
| Role plays | Creating versions of situations in which they can practice new behaviours and try on new forms of communication. Participants can make and correct mistakes in a safe environment while preparing them to be more effective in real world situations. |
| Project and writing tasks | Reflecting on understanding of concepts, summarizing of content. |
| Self-study | Acquiring of own knowledge, skills and interest through own investigation. |
| Lectures | Knowledge gained by an instructor in a formal setting. |
| Auditory methods | Memorizing in a creative method like interpreting the facts in a song. |
| Socio metrics group work. | By moving in the room learners transport visible information about what they think or feel about inputs. |
| Fishbowl (forming a circle within a circle) | Exchanging working group results, represent partial interests within the large group and for presenting observations by experts. |
| Mind Maps | Supporting individuals and groups to think globally and creatively, mind maps help to analyse, classify, evaluate, generate, list, structure and visualize important ideas. |
| Open Space | Problem solving tool or peer engagement process. |
| Brainstorming | Participatory technique, promoting the involvement of learners in the learning process, supporting the development of cooperation, and contribution of learners. |
| Interviewing specialists | Transfer of experience from specialists to trainees, collecting information according to trainees' needs. Covers directly individual or group training needs, self-directed learning skills grow, analytical and critical thinking active listening and observation skills. |
| Kinaesthetic learning methods | Expressing main points of learning achievements or wishes in a creative way by a moving act of an individual or the group. |





| MY STRENGTHS IN THE LABOUR MARKET | MY WEAKNESSES IN THE LABOUR MARKET |
|------------------------------------|------------------------------------|
| | |
| OPPORTUNITIES (WHAT I CAN ACHIEVE) | THREATS (OBSTACLES) |
| | |



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