



**Neuroandragogy**  
against exclusion

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

Materials for Educators Working with Adult Learners

Project: "Neuroandragogy Against Exclusion"

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**Erasmus+**

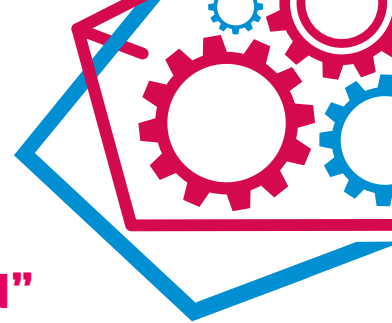
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# 1. “NEUROANDRAGOGY AGAINST EXCLUSION” – GENERAL ASSUMPTIONS AND OBJECTIVES OF THE PROJECT

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The training in which you participate is part of the “Neuroandragogy against exclusion” project. Its aim is to use the achievements of neuroscience in education of adults who are at risk of social exclusion. If you are a teacher, educator, trainer, profession instructor, social worker and if you work with adult learners, whose situation in society is slightly worse than others - our training is directed to you. We would like to convince you that knowledge about the functioning of the human brain and the neurobiological aspect of the learning process can help you to design an effective education and training activities for adult learners, build valuable relationships with adult students and support them in overcoming difficulties resulting from the risk of social exclusion.

What can you expect from participation in the training we propose? During the joint, active work, we intend to:

- develop your ability to build an educational environment for adult learners in accordance with neuroandragogy assumptions,
- design didactic process using knowledge about the cognitive processes of adult people,
- learn how to build adults’ motivation for education and their attitude of responsibility for their own personal and professional development,
- individualize the learning process by taking into account cognitive preferences of adult learners and their conditions resulting from the economic and social situation,
- make use of previous knowledge and experience (yours and your students) as a foundation of the didactic process,
- discuss how to make adult education more attractive, effective and consistent with the possibilities and limitations of human brains.

These Training Materials have been prepared as an element of the training on neuroandragogy in adult education. You can use them during workshops, as a kind of didactical tool that facilitates active learning. However, we hope that this Materials will be useful for you also after the end of the training, as a source of knowledge, ideas and inspiration for the preparation of attractive, effective, “brain-friendly” classes, educational and training activities for adult learners.

In subsequent modules of the Training Materials, there will be presented a theoretical information on specific issues related to the use of neuroandragogy in education and training. Each Module also includes scenarios of educational / training classes that you will be able to use in your everyday work, not only with people from groups at risk of social exclusion.

Remember that you can also develop your knowledge and interests related to neuroandragogy based on the project’s website: **[www.neuroandragogy.eu](http://www.neuroandragogy.eu)**.

**We wish you a fruitful work!**

## 2. NEUROANDRAGOGY AS AN EFFECTIVE STRATEGY IN ADULT EDUCATION - TEACHER'S PERSPECTIVE

„Never before people have known so much and they not been able to do as much as we do today. However, the more effectively we change the world with the help of all this knowledge and according to our own ideas, the more we are subject to the process of change. This process also applies to our development.“ (G. Huther).

Human capabilities to learn about the surrounding world are increasing with the development of advanced technology. We also know more and more about the most mysterious processes that determine the functioning of our own organisms. But what's the most important for you as teachers and educators, trainers and instructors - thanks to advanced brain imaging techniques we discover processes and phenomena that determine human knowledge, learning, feeling, mental and intellectual development. Thanks to this, a modern teacher or trainer can find benefit in his work not only from the centuries-old achievements of education philosophers, theoreticians and practitioners, but also from the latest data and research results concerning cognitive processes taking place in the brain, connected with receiving stimuli from the environment, processing them, coding, memorizing and storing in the brain, and then mining and using them to solve current problems. The more so because the results of these studies have overthrown many stereotypes and myths about adult education.



### Why neuroandragogy?

„The student's brain is the workplace of the teacher“ (M. Spitzer). Just as an office worker should be able to handle a photocopier or a scanner and know, for example, the procedure of sending formal correspondence in his company, the teacher or trainer must be aware of how the adult student's learning process takes place inside human brain in order to be able to stimulate this process appropriately.

### NEUROANDRAGOGY

*is an interdisciplinary field combining elements of neuropsychology, neurophysiology, neuroanatomy with current knowledge about adult*



So what is the knowledge of the “workplace” for you - teachers and educators of adults? First, get acquainted with a set of issues in the field of neuroeducation, that may support didactic actions of andragogist.

- Knowledge of issues related to the maturation and aging of the human brain and the impact of these processes on the intellectual performance of people is a key element in designing effective training processes for adults.
- Basic orientation in the process of brain reception of environmental stimuli allows to assess the potential effectiveness or ineffectiveness of methods and tools of didactic interactions used by the teacher / trainer.
- Knowledge about the course of information processing in the human brain facilitates the selection of teaching methods, techniques and tools for the individual cognitive conditioning of adult learners.
- Knowledge of the structure of data storage in the memory system enables proper selection the type of the student's activity to the type of memory with which the activity correlates.
- Knowledge about the reward system in the student's brain, allows to moderate it appropriately, controlling the motivation to learn and work.
- Awareness of the impact of stress on the learning process facilitates the building of a positive educational atmosphere conducive to learning and developing experiences.



## Neuroandragogics and adults from groups at risk of exclusion

Specialists - neurodidactics claim that every person carries within themselves several or even a dozen versions of a "potential self". It is only in about 50% of genes and in about 50% of environment in which man grows, the experiences accumulated and the activities carried out depends on what abilities, skills, attitudes towards life and people will be developed, and what will be muted. Neuroscience provides evidence that the level of intellectual skills, demonstrated talents and deficits are not a simple translation of the innate abilities of a given human being, but equally the result of his genetic potential and the conditions in which he grew up and developed.

**Have you ever wondered what kind of person you would be if you were born in another family, in another country, at another time? And if it was a difficult family, a less friendly country or society that does not fully accept people like you?**



„The conclusion that the human brain is an organ whose development depends on experience and own activity means empirically that the socio-cultural environment in which a person matures fundamentally shapes the neural architecture of his brain”  
(G. Huther)“

Recognizing the simultaneous impact of genetics and the environment on intellectual potential and human cognitive abilities is particularly important for people belonging to groups at risk of social exclusion. Their intellectual skills, the level of motivation to learn, educational habits, as well as the demonstrated didactic difficulties can be influenced by a number of different factors that occur together or separately, among which can be mentioned as an example:

- growing up in an environment poor with stimulus,
- lack of security and stability sense during childhood and adolescence;
- lack of possibility to diagnose and develop individual talents and interests;
- functioning in an environment providing negative feedback and negative reinforcements;
- growing up in an environment with disturbed family and interpersonal relations;
- frequent exposure to aggressive, discriminatory and manipulative behavior;
- school failures / early dropping out the education system resulting from the above-mentioned problems.

While negative experiences and unfavorable environment affect the formation of neuronal structures and hence - a specific range of intellectual skills, attitudes and educational habits of an adult, at the same time, knowledge of brain neuroplasticity allows us to conclude that the same skills, attitudes and habits can be modeled in the course of the whole life of a person. Also in adulthood, on the condition of providing appropriate educational experiences, undertaking stimulating intellectual activity, establishing positive and valuable social relationships, it is possible to develop the cognitive potential of an adult person, facilitate the acquisition of new knowledge and useful competences.



## NEUROPLASTICITY

*- it is an attribute of the human brain, thanks to which it is capable of adaptation, changeability, self-repair and learning. By providing new knowledge and experiences, the teacher stimulates the development and strengthening of neuronal networks in the student's brain, ie connections between groups of nerve cells that cooperate with each other in the course of performing specific tasks. It is a process that takes place throughout the whole life of a person.*



## Aging of the human brain and learning effectiveness

The adult teacher has to deal with mentally mature students. It is assumed that the process of maturation of the brain is determined by the end of myelination of the frontal lobes (which only then reach its full efficiency), which takes place between 18 and 30 years of age. Only then a person becomes acquainted with the skills typical of adulthood, such as controlling impulses, predicting consequences or critical self-esteem, achieving maximum intellectual efficiency.

„It is the age of productivity, when the pressure gradually passes from the knowledge of the surrounding world and learning to contribute to it and shaping it with your own, individual, professional and non-professional activities.“  
(E. Goldberg)

The brain, like the entire human body, is subject to changes due to aging. Hence, the brain functions also change with age:

- **the speed of brain operations is decreasing**, a mature person needs more time to perform a specific mental operation than a young person;
- **functions such as: inhibition, concentration, reflex reactions** (located in the frontal lobes, subject to degeneration in the first place) **are weakened**;
- **the working memory capacity is reduced** – man is able to simultaneously process less information provided by the senses;
- **mental flexibility is reduced** (the ability to quickly switch between one and another intellectual operation);
- **selective attention is subject to interference** (the ability to capture and focus on significant environmental events);
- **divergent attention is weakened** (the ability to focus attention to different actions happening simultaneously);
- **semantic memory** (responsible for rules and definitions) and **episodic memory** (recording events in time) **are weakened**.

This does not mean that neuroscientists do not have any good news for us as adults. It turns out that the abovementioned changes in cognitive functions of mature people really decide that they learn in a different way than young people. However, it does not mean that this process is less effective. So what is the strength of mature minds? It is experience and accumulated knowledge (in the form of educated patterns, cognitive schemes).

„While older people learn slower than young ones, they have already learned a lot in their lives and can use this knowledge to better integrate new data. The more we know, the better we can combine new contents with those we already have. Since learning to a large extent consists in creating such internal connections, the elderly have a certain advantage during learning.“ (M. Spitzer)

The evolutionary importance of maturity and experience must be very significant, if human life lasts a long time after man reaches the peak of his physical abilities, and in the case of women long after they lose the ability to reproduce. Awareness of the potential inherent in the mature mind, awareness of changes occurring in it and knowledge of its consequences for the cognitive functioning of a human being makes it easier for an adult teacher to design the teaching process. It can also help you in supporting own personal and professional development.



#### With age:

- the role of experience grows
- the number of patterns stored in the mind and the speed of recognizing them is growing
- the ability to integrate knowledge from various fields increases
- the effectiveness of intuitive and automatic reactions increases
- the effectiveness of procedural memory and learned, routine, and often repeated actions are increasing

#### With age:

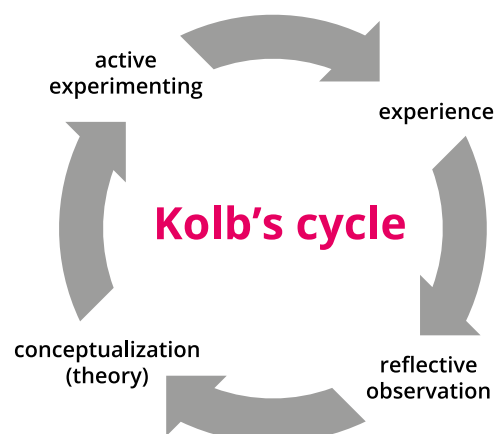
- the speed of brain operations is decreasing
- functions such as: inhibition, concentration, reflex reactions are weakened
- the working memory capacity is reduced
- mental flexibility is reduced
- selective attention is subject to interference
- divergent attention is weakened
- semantic memory and episodic memory are weakened

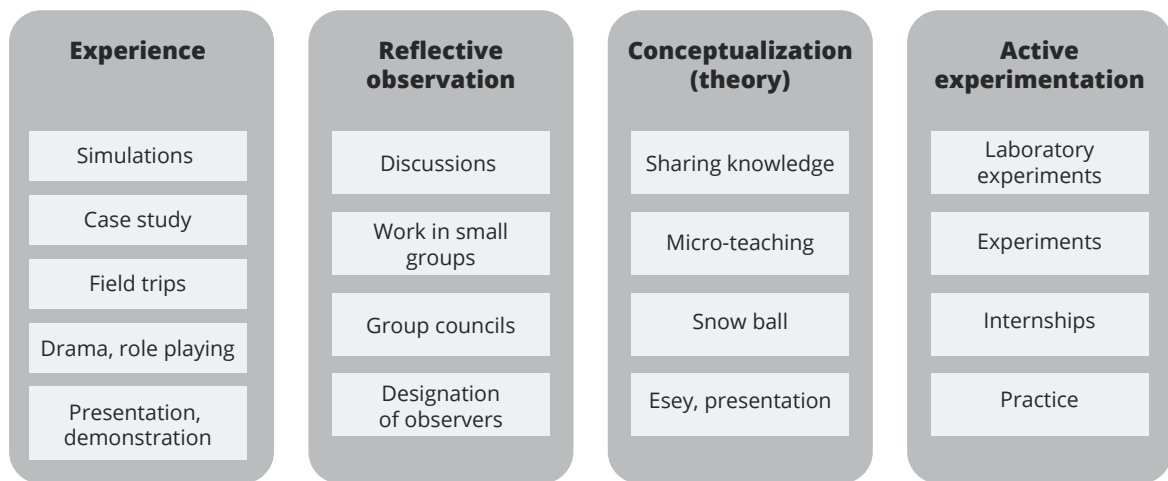
## Experience

Paradoxically, in the context of the importance of experience for the effectiveness of adult learning, neuroandragogy does not introduce any revolution. Research on brain activity confirmed only the fact that had been well known to andragogues at least from the late nineteenth century – an adult learns most effectively through direct experience or combining new information or skills with his previous experiences. This is due to the construction of neural networks and the specificity of the neuroplasticity mechanism. During childhood, intense development of neuronal structures occurs in human brain. During adolescence, the structures that are most commonly used stabilize and the remaining ones disappear. In the adult age, new neurons are still being produced, but most often within the existing neural networks, not as new structures. This confirms only the well-known thesis by David Kolb, in which the learning of adults is a process of constant modification of previous experience through the experience following it. Therefore, if both the traditional andragogical achievements and the latest knowledge about the functioning of the brain convinces us that the role of experience in learning and action of adults grows with age, how can this knowledge be used by a teacher / trainer in practice - in adult education?

**The training process of adult students should be based on the so-called Kolb cycle, situating learners' experience in the central point of the didactic process.**

Constructing a scenario of training or education classes in accordance with the assumptions of learning on the basis of experience is the first stage of organizing science in a way that is friendly to the brains of adult students. The didactic work based on experience supports equally the application of didactic methods and techniques activating cognitive functions of students, supporting deep information processing in the context of individual phases of the Kolb cycle. Probably most of these methods are well known to you. However, the key to teaching success is the right location of them in the sequence of the learning process based on experience.





## Activity and deep processing of information

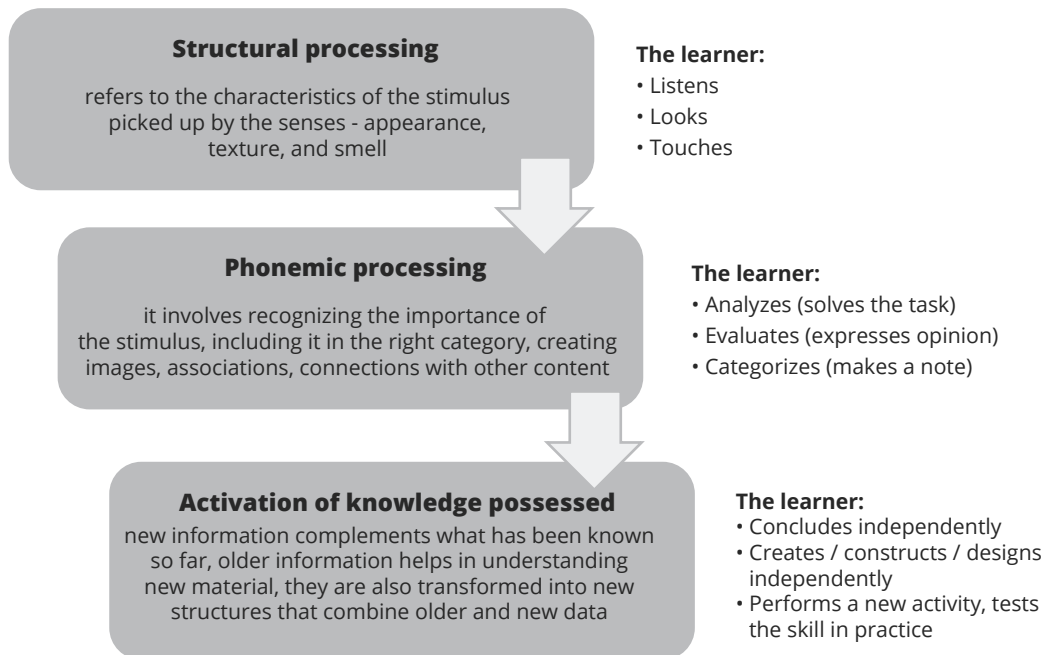
Learning is not passive - it is an active process during which changes occur in the learner's brain (M. Spitzer)

In the simplest words learning is acquiring (saving in the mind - memorizing) a certain amount of knowledge, acquiring (mastering) some skill. Therefore (also simplifying) the effectiveness of learning depends on the effectiveness of memorizing and then extracting from the memory of specific information.

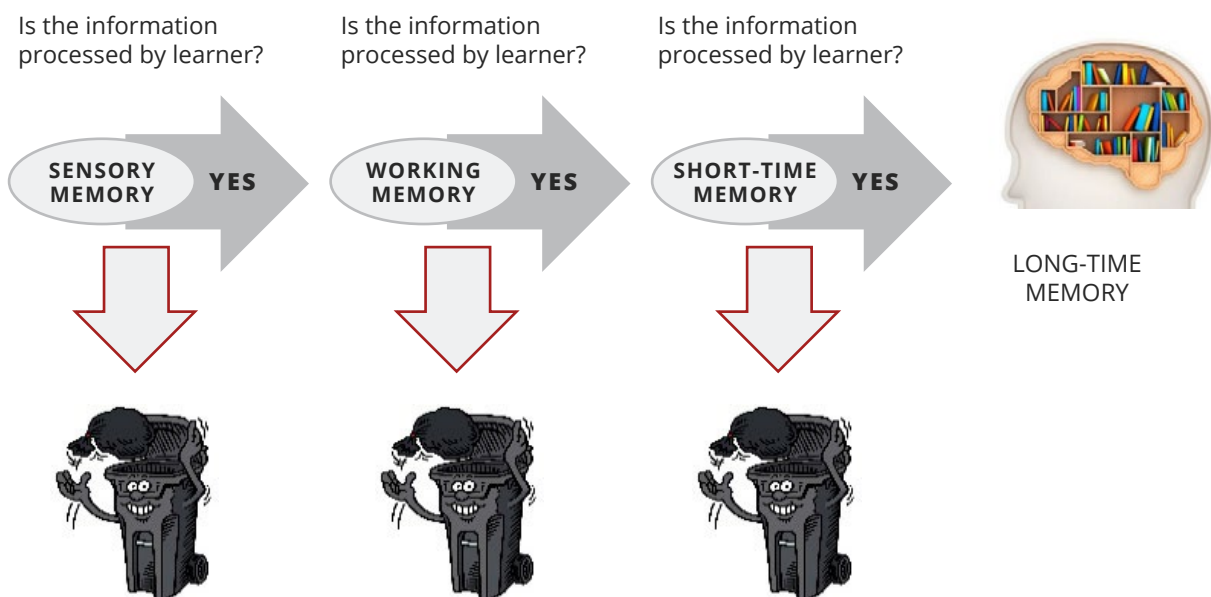
As "well learned" we recognize these information, skills, behaviors that the brain stores in long-term memory and which it then uses to solve current problems. As teachers or trainers, we are aware of the fact that no information presented to students goes into their long-term memory in an automatic way. Nor is it the discovery of a neuroscience that **we most effectively remember the information we are working on most intensively**. In the language of science, we would say - which we actively and deeply process.



The theory of deep information processing is not new, neither we owe it to neuroandragogy. Created in the 1970s, Craik and Lockhart's Levels of Processing Model presupposes the existence of 3 levels of information processing:



Whether the information will be saved in the appropriate type of memory depends on the level at which the student's brain operates during the course of study. Translating this into the language of neuroandragogy: we can conclude that when the stimulus begins to engage the right part of the brain, neural networks are forming - a memory trace is being created. Information, which is shallowly processed, only through sensory memory, creates an impermanent memory trace and is being forgotten. If the brain activity associated with working on a given information has a deeper character, it requires direct physical, mental or psychological involvement, engages more affective and cognitive processes, such a memory trace in the neural network is fixed, and information is stored in long-term memory.



During this training we want to prepare you to suggest adult students such tasks and activities that oblige them to deeply process the acquired information, to apply it in practice, to integrate it with already existing knowledge and skills. Proposals of such activities aimed at intensive brain training and building the “mental condition” of adult students are in the scenarios that constitute the most important element of this Materials.

## Emotions, motivation, stress

„Most people associate learning with school, memorizing, sweat and tears, bad grades, and exhausting classes. Let’s not lie to ourselves: learning does not have a good opinion. It is considered as something very unpleasant.” (M. Spitzer)

Learning is not just a cognitive process. Emotions are a key element that enhances the quality of this process, affect the motivation to learn and the effectiveness of memorizing. Therefore, an important element discussed during the training is the impact of emotions and stress on learning, including in particular the effectiveness of all educational processes directed at people from groups at risk of social exclusion.

From the neuroandragogy point of view, our actions as teachers / trainers in relation to the students’ motivation can be reduced to the issue of stimulating the release of dopamine, which hormone is responsible for the sense of satisfaction and motivation to act, and limiting the release of cortisol, which is largely responsible for the feeling of stress.

Knowledge about the brain ultimately overturned all the myths about the allegedly mobilizing effect of stress on the learning process. The beliefs and stereotypes about the positive impact of rigorous discipline and fear on the learning outcomes achieved by learners, can not be defended any more. From the brain point of view, maintaining a prolonged sense of stress among students is only destructive: it causes a number of psychosomatic disorders, reduces the efficiency of memory, causes the death of neurons in the hippocampus, completely blocks creative thinking.

This secretion of neurotransmitters, i.e. dopamine or oxytocin, improves the cognitive performance of the learners brains, but above all, learning is no longer a traumatic experience – it becomes a natural pleasure resulting from the joy of discovering and acquiring new skills.



*„Motivation, joy of life and readiness to make the effort arise in the brain thanks to neurotransmitters – dopamine, opioids and oxytocin. Each of them has a specific function, and all three together make people want to learn, develop and take up challenges. Their action also affects the ability to self-control, inhibition of aggression, making decisions.” (Ewa Borgosz)*



The information gained during the training will help you to effectively stimulate the reward system in the brains of adult learners and build their inner motivation and willingness to work. What kind of tools can a teacher / trainer use to release dopamine in students’ brains?



**Dopamine is released when a given stimulus is better than expected one – we are eager to learn what gives us a chance for success**



**Dopamine releases contact with the novelty, something interesting or surprising – we are happy to learn what is not boring**

**The stimulus for the release of dopamine is social relations – we are happy to learn in a group that gives us support and a sense of security**

**Dopamine is released by another person, not a presentation or lecture**

It will be our great success if participation in the training proves to be a stimulus releasing dopamine in your brains. Hoping that your hippocampus is ready for a large dose of new, interesting and very practical information, therefore definitely worth storing in long-term memory, we invite you to familiarize yourself with the next parts of this Materials.

# MODULE 1. NEUROANDRAGOGY AND BUILDING EDUCATIONAL ENVIRONMENT SUPPORTING THE MOTIVATION TO LEARN, INDIVIDUALISING TEACHING AND LEARNING IN THE CONTEXT OF ADULTS FROM DISADVANTAGED GROUPS

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## Theoretical information

Origins, definition and the most important assumptions of neuroandragogy

Knowing how the brain works best (brain's development, structure, and function), responds and through applying principles from the neuroscience research in the classrooms allows educators to create an environment that gives the adults a higher probability of success learning. Learning and aging cannot be separated from biogenetic, medical, psychological, social and pedagogic problems. Both nature and nurture affect the learning brain. Lifelong learning keeps the brain active and keeping the brain active makes lifelong learning possible. The process of learning involves changing the brain.

### **“The brain is plastic”**

Neuroscientists have well established that the brain has a highly robust and well-developed capacity to change in response to environmental demands, a process called plasticity. This involves creating and strengthening some neuronal connections and weakening or eliminating others. The adult brain can grow new cells. The brain changes constantly as a result of learning, and remains ‘plastic’ throughout life. Dynamic changes to brain connectivity continue in later life. ‘Use it or lose it’. In older adults fluency or experience with a task can reduce brain activity levels – in one sense this is greater processing efficiency. But the brain also declines the more we stop using it and with age.

### **“Sensitive periods”**

There are optimal or “sensitive periods” during which particular types of learning are most effective, despite this lifetime plasticity. For sensory stimuli such as speech sounds, and for certain emotional and cognitive experiences such as language exposure, there are relatively tight and early sensitive periods. Other skills, such as vocabulary acquisition, do not pass through tight sensitive periods and can be learned equally well at any time over the lifespan.

### **The brain responds to reward**

We use most areas of the brain. Cells that fire together wire together. The brain has mechanisms for self-regulation. There are individual differences in learning ability with a basis in the brain. Numeracy, like literacy, is created in the brain through the synergy of biology and experience.



## Myths about adult learning in the light of knowledge about the functioning of the human brain

**Neuromyths** are misconceptions about brain research and its application to education and learning. Some myths have actually been beneficial to education in that they provided 'justification' for it to diversity. But mostly they bring unfortunate consequences and must therefore be dispelled.

### The "classic" neuromyths are:

1. The brain is only plastic for certain kinds of information during specific "critical periods", with the first three years of a child being decisive for later development and success in life/ There are specific periods in childhood after which certain things cannot be learned.
2. "Enriched environments" enhance the brain's capacity for learning
3. We only use 10% of our brains
4. Some of us are 'left-brained' and some are 'right-brained,' and this helps explain differences in how we learn
5. Brain development has finished by the time children reach puberty
6. Learning is due to the addition of new cells to the brain
7. A common sign of dyslexia is seeing letters backward
8. Mental capacity is hereditary and cannot be changed by environment or experience
9. When we sleep, the brain shuts down
10. Listening to classical music increases children's reasoning ability. Learning problems associated with developmental differences can't be improved by education
11. Exercises that rehearse coordination of motor-perception skills can improve literacy skills
12. The impact of sugar on attention
13. It's best for children to learn their native language before learning a second language



## Characteristic cognitive conditions of an adult learner

Perhaps it would be more helpful in understanding who **the adult learner** is if we present the characteristics, which distinguishes adult learners from the typical learner. Generally we can assume that adult learners are **independent, self-directed, goal oriented, practical, intrinsically motivated** (i.e., interested in learning for learning's sake), **relevancy oriented**. Adult learners want to know the relevance of what they are learning to what they want to achieve. They have established clear goals prior to their entry in the educational process, have developed their own preferred learning style, have a tendency for active participation and expect to be actively involved in the learning process and have more life experiences. Bring with them a set of experiences and values. They are in a continuing process of growth, not at the beginning of the process. They come to education with intentions and needs. Develop defence and withdrawal mechanisms. Face barriers to learning. They have competing interests and they have developed their own patterns of learning. Adult learners become ready to learn when "they experience a need to learn it in order to cope more satisfyingly with real life tasks or problems" and like to be respected.



## Barriers to learning, typical for adult learners

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Barriers to learning refer to any difficulty or situation that may prevent an adult from learning. It is so important for all of adult educators to be aware of these barriers to learning so that they may not only work together to find ways to remove these barriers for adult learners, but also that they find ways to prevent them from occurring in the first place. The barriers to learning can be loosely divided into the following categories:

- Situational barriers
- Institutional barriers
- Dispositional barriers
- Academic barriers
- Employment training barriers
- Cultural barriers



**Try to give an example of individual barriers that you know from your own practice.**

## Belonging to a Vulnerable Social Group as a potential source of learning disabilities

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The term 'vulnerable group' is highly linked to the concepts of poverty and social exclusion. Individuals who belong to socially disadvantaged groups are ones who are at risk of poverty and social exclusion

### Main characteristics:

- Lack of self-confidence/ Negative self image, low self-esteem, feelings of obsolescence
- Lack of learning incentives (incentives are primarily external)
- Barriers to learning (multiple problems, multiple roles, lack of time)
- Biological/physical barriers (lack of memory, unable to concentrate, undiagnosed learning difficulties, burnout)
- Lack of a learning culture
- Trouble expressing themselves in writing and even speaking
- Fear of criticism by the rest of the group
- Anxiety and depression / Discouragement
- Alienation and marginalization
- Passive or even aggressive attitude that results from previous experiences with formal organisations (e.g. welfare services)

## Model of competences of the adult educator

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### The adult educator

*is required to assume apart from the teacher role, the roles of the counselor, the enabler, the facilitator, the mediator, the animator, the coordinator, the moderator, the arbiter of the learning process.*

It is important to create a collaborative learning environment and mechanisms of mutual design. Initially, It is crucial to understand the particular educational needs of each group, diagnose the needs and interests



of adults trainees, help them to achieve the objects and allow the definition of cognitive objectives in accordance with the identified needs and the interests of the participants.

The adult educator should promote cooperation, conciliation and cultural composition, invite trainees to think critically by helping them thus constantly discovering its circumstances their reality and not manipulate the trainees or even leave them to their luck. In addition the adult educator should design activities, choose the appropriate methods, materials and sources for the achievement of the objective, evaluate the quality of learning experience alongside need for further learning. Finally, the adult educator may also realize that the process of learning in socially vulnerable groups is more affected than in the other groups by personal beings, stereotypes and prejudices.

## Brain based learning definition

**Brain-based learning** refers to teaching methods, lesson designs, and school programs that are based on the latest scientific research about how the brain learns, including such factors as cognitive development — how adults learn differently as they age, grow, and mature socially, emotionally, and cognitively.

Brain-based learning starts with principles. A common step in many brain-based education efforts involves disseminating findings from brain science in the form of basic summary principles that are designed to be accessible to educators. For example, Caine and Caine (1994) claim to have deduced twelve principles from brain science that hold strong implications for education and that can be linked to specific educational practices.

### Core principles directing brain-based education

1. Environmental factors, social conditions and rewards or positive support play important roles in effective learning
2. The brain is a parallel processor, it can perform several activities at once
3. The brain perceives whole and parts simultaneously
4. Information is stored in multiple areas of the brain and is retrieved through multiple memory and neural pathways
5. The brain is a social brain, it develops better in concert with other brains
7. The search for meaning is innate and occurs through patterning
8. Emotions are critical/vital to patterning
9. Learning involves both focused attention and peripheral attention
10. Learning always involves conscious and unconscious processes
11. We have at least two ways of organizing memory
12. Learning is developmental. Complex learning is enhanced by challenge and inhibited by threat
13. Every brain is uniquely organized
14. All levels of learning involve the body and the mind
15. We understand best when facts are embedded in natural spatial memory
16. There are at least two approaches to memory: archiving isolated facts and skills, and making sense of experience
17. The brain is attentive to novelty

## Diagnosing the education needs of adult learners

The diagnosing of the educational needs of adult learners has importance for adult education as it defines the success of one training program. The factors that shape the needs of adult learners are multiple and are therefore difficult to measure.



1. The educator: **In the first phase**, before the start of the training program is better to set questions to explore the reasons for their involvement in the training curriculum and expectations they have.
2. **In the second phase**, diagnosis of educational needs takes place during the course and involves three parameters:
  - a) **the diagnosis of the expectations of adult learners**,
  - b) **the diagnosis of the intention of adult learners** to become active engaged and committed to the training program
  - c) **the diagnosis of the knowledge that adult learners** already have and the knowledge they would like to acquire.
3. Finally, in the third phase, in the middle of the year of the training program, the trainer can conduct a team interview. The trainer's goal during this group interview is to diagnose how adult learners evaluate the course and their personal path to it.

## Motivation in education for adults/ what motivates adults to learn

**Motivation is the force that drives people to fulfil a need.** The reason or reasons one has for acting or behaving in a particular way. The general desire or willingness of someone to do something. Motivation plays the significant role in learning, and particularly, adult education. It is evident that motivation is a key contributor to the success of adult education progress. Poor motivation or lack of motivation has always resulted in limited or no attainment of program objectives. Many theories concerning motivation and adult education maintain that individuals are innately motivated to learn, and conclude that motivation problems result from various dispositional, situational and structural impediments. If such barriers are removed, adults will be naturally motivated to educate themselves.

## Motivation strategies

Share something of value with your adult learners

Use collaborative and cooperative learning

Provide an opportunity for multidimensional sharing

Clearly identify the learning objectives and instruction goals

Use assisted learning to scaffold complex learning

Promote learners' personal control of learning

Explicitly introduce important norms and participation guidelines

Eliminate or minimize any negative conditions that surround the subject

Concretely indicate your cooperative intentions to help adult learners



**Acknowledge different ways of knowing, different languages, and different levels of knowledge or skill among learners**

**Positively confront the erroneous beliefs, expectations, and assumptions that may underlie a negative learner attitude**

**Use differentiated instruction to enhance successful learning of new content**

**When issuing mandatory assignments or training requirements, give your rationale for them**

**Assess learners' current expectations, needs, goals, and previous experience as it related to your course or training**

**Emphasize the human purpose of what is being learned and its relationship to the learners' personal lives and current situation**

**Help learners understand that reasonable effort and knowledge can help them avoid failure at learning tasks that suit their capability**

**Help learners effectively attribute their success to their capability, effort, and knowledge**

## Basic theories concerning motivation for adult to learn and develop

From the very beginning, when the human organisations were established, various researchers have tried to find out the answer to what motivates people to work. Motivation is a complex phenomenon. Several theories attempt to explain how motivation works. Different approaches applied by them have resulted in a number of theories concerning motivation,

**Some of the most important theories of motivation are as follows:**

- Maslow's Hierarchy of needs
- Aldefer's ERG Theory
- Mcgregory's Theory X and Theory Y
- Herzberg's Two-Factor Theory
- McClelland's Achievement, Power and Affiliation Needs

**Which one do you know and which one you need to read about?**



## "Brain-friendly" teaching methods - criteria for evaluation and selection of methods and techniques in adult education and training

Adults have special needs as learners and these needs should be taken into consideration when planning training for adults. By using combinations of adult learner techniques and strategies, adult educators can create training experiences that will enhance the learning of participants. When adults participate in a positive learning they are more likely to retain what they have learned and apply it in their work environment. The major key for successful learning is the activation of individual cognitive processes in a context of self-motivated inner procedure. The teaching process must have direct relation with learners' experiences and needs.

To be effective in teaching adults, it's important to know your audience and have a general understanding of how adults learn, collaborate on the diagnosis of learning needs and on developing learning objectives and

in instructional planning. Create a safe, trust, welcoming learning environment with a culture of empathy, respect, approachability, authenticity. Facilitate learners' movement toward more self-directed and responsible, Show interest in learners' thoughts and opinions, Actively and carefully listen to any questions asked, lead learners toward inquiry before supplying them with too many facts, ask questions that motivate reflection, inquiry and further research.

Thus, promote active participation by allowing learners to try things rather than observe, encourage expression of ideas, reasoning and feedback at every opportunity, ensure the practicality of all learning activities, Model a positive attitude, and provide constructive and supportive feedback.

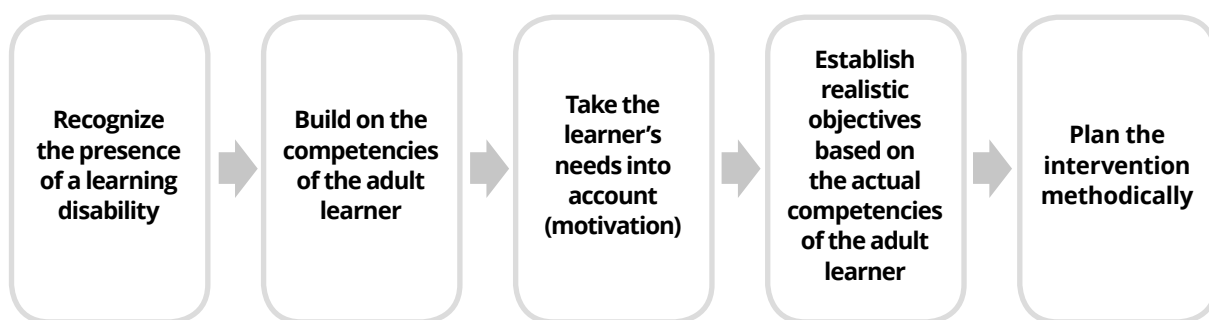
Ensure the entire course content is covered. It is important to stick to a schedule and do what you say you will do. If participants deviate from the topic, create a "parking lot" for additional topics that come up. Arrange for a separate time to take those up (at a break, or designated review period). Model effective facilitation skills by asking open-ended questions and rephrasing participants' comments accurately for clarity, when needed.

Respect every person's feelings, perspectives, and contributions Encourage positive group dynamics, reform and move students into groups as needed. Learning is directly proportionate to the amount of fun you have. Change the pace, listening with retention only lasts about 20 minutes at a time. Design your class so participants leave impressed with themselves and what they learned. Don't offer material only one way, recognize your participants will learn differently. Teach the things you have a passion for. Starting pleasantly surprising students in a way that attracts their attention. Observe and actively analyze non verbal communication of learners (if they are interested, if they are watching etc.). Maintaining eye contact with the group of trainees.

## Principles of individualized teaching in the context of adult students belonging to disadvantaged group

### Principles that should guide intervention

Before selecting and applying particular strategies with respect to problems that have been defined, it is essential to specify the principles that will guide intervention. The most important are the following:



### Learning disabilities in context of adult learners

*Learning disabilities* is an umbrella term that encompasses several types of developmental disorders evident as difficulties in learning specific academic or language skills, typically reading, mathematics, oral language communication, writing, and motor performance of literacy instruction.



## Categories of learning disabilities

Learning disabilities are manifested in problems of:

1. Sensory memory
2. Motoricity (coordination)
3. Organization
4. Orientation
5. Interpersonal relationships (interpretation of verbal and nonverbal language)

**Try to give an example of this kind of disabilities that you know from your own teaching practice.**

## Strategies to reduce cognitive overload

There are three types of cognitive load. Together they make up the total cognitive load. Your goal is to keep the total load within the grasp of the working memory.

### Extraneous Load (how material is presented)

Reduce by:

- Being mindful of it
- Using diagrams
- Using worked-out examples

### Intrinsic Load (complexity of materials)

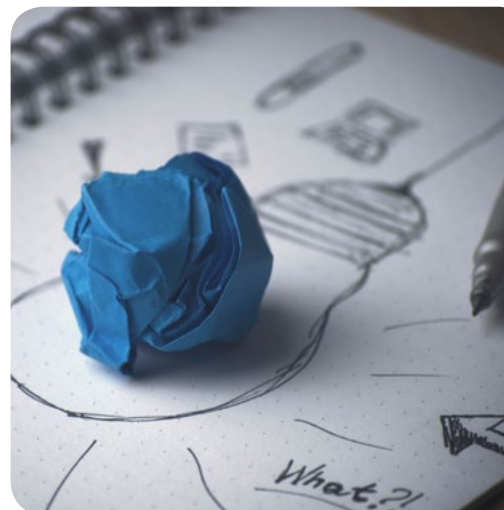
Reduce by:

- Splitting the task
- Using informal previous knowledge

### Germane Load (build new schemas / automate new schemas)

Reduce by:

- Less extraneous cognitive load
- Less intrinsic cognitive load
- More germane cognitive load



5 ways to help **reduce cognitive load** that will help learners process information more effectively.

1. Present some information via the visual channel and some via the verbal channel
2. Break content into smaller segments and allow the learner to control the pace
3. Remove non-essential content
4. Words should be placed close as possible to the corresponding graphics
5. Don't narrate on-screen text word-for-word

## Memorization techniques for adult learners

Memory includes the following capacities: **Encoding** declarative knowledge (knowledge: what, who); Procedural knowledge (skills: how) and Conditional knowledge (attitudes: when, why), as well as **Retention** and **recall** of this knowledge.

As for memory, there are some basic principles of teaching and learning:

### Repeating

Repeating the learning matter leads to repeated electrochemical processes in the nerve circuits and strengthens them. The contents must be the same or very similar in order to reactivate them precisely.

### Giving Feedback

It is always more difficult to correct what has been learnt than to learn it right from the beginning. In order to produce right chemical memory traces, it is necessary to give feedback as soon as possible. In case of positive feedback with reward, the strength of synapses is increased by chemical processes. Even the prognosis of a reward can have a positive effect.

### Linking ideas and topics to structures

Memory consolidation can be fostered very strongly if an associative scheme is provided into which new information can be incorporated. So, teachers must underpin these processes by establishing schemas, patterns, framework, and structures.

### Taking breaks

Taking breaks is necessary to give these chemical processes time to work.

## Rules based on knowledge of the brain that ensure any training designed scenario keeps learners engaged and helps them fulfil their goals

All the mentioned methods and principles are included in the “overall principle”:  
**The brain needs sense.**

### Before the Training

1. Carry out a thorough training needs analysis
2. Identify the purpose (the what’s in-it-for-me information) of training
3. Align learning outcomes with business goals and on-job tasks
4. Plan to provide just-in-time learning using the most appropriate delivery method
5. Meet the learners.



### During the Training

1. State the “what’s-in-it-for-me” information at the beginning
2. Chunk content to prioritize and eliminate clutter
3. Draw upon the learner’s prior knowledge to create associations
4. Use instructional strategies that establish relevance
5. Align content with real-life job roles and responsibilities
6. Keep an eye on the learning objectives while you design the course
7. Divide the program into modules
8. Provide action plans to retain and improve motivation



## After the Training

1. Supplement the training with “social learning”
2. Provide refresher courses
3. Arrange post-training follow-up sessions
4. Create opportunities for practice

## Scenarios of workshops for adult participants



### MIND MAP

<b>Learning outcomes</b>	<ul style="list-style-type: none"><li>• To improve critical thinking</li><li>• To improve memory and recall (less notes, retain more facts, fewer revisions)</li><li>• To understand and absorb information</li><li>• To monitor and assess students understanding</li><li>• To encourage students debate and discussions about relationships between ideas</li><li>• To promote free flow of ideas (key words, images, short phrases)</li></ul>
<b>Duration</b>	1-2 didactic hours
<b>Materials</b>	Computer (if they want to create mind multimedia mind maps) otherwise paper, writing materials (markers), Attachments no. 1 & 2, different mind maps worksheet, lesson material.
<b>Methods and forms of work</b>	<p>A mind map is essentially a diagram that connects information around a central topic. You can use it at all subjects.</p> <p>Mind mapping is a highly effective way of getting information in and out of your brain. All Mind Maps have some things in common. They have a natural organizational structure that radiates from the centre and use lines, symbols, words, colour and images according to simple, brain-friendly concepts. Mind mapping converts a long list of monotonous information into a colourful, memorable and highly organized diagram that works in line with your brain's natural way of doing things. The great thing about mind mapping is that you can put your ideas down in any order, as soon as they pop up into your head. A Mind Map is a visual thinking tool that can be applied to all cognitive functions, especially memory, learning, creativity and analysis. The technique maps out your thoughts using keywords that trigger associations in the brain to spark further ideas.</p>
<b>Implementation (workflow)</b>	<ol style="list-style-type: none"><li>1. The teacher / trainer explains to the students the principles of preparing a mind map and presents an example of such a map (Attachment no. 1). He / she can also use for this purpose an examples of multimedia maps available on the Internet.</li><li>2. Each participant works alone and creates his own mind map.</li><li>3. If students work on computers, the teacher explains the rules for using the selected application (eg. iMindMap, Xmind, Freemind or other). If they work on paper, he gives them cartons and colored markers.</li><li>4. The topic of the mind map: What kind of learning does my brain like? (In the task students should refer to their own preferences and conditions for effective learning).</li><li>5. The teacher / trainer explains the next steps of working on the mind map, monitoring students' work on a regular basis, providing hints and tips.</li></ol>

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**Implementation  
(workflow)****Step 1 - Create a Central Idea**

The central idea is the starting point of a Mind Map and represents the topic you are going to explore. Your central idea should be in the centre of the page and should include an image that represents the Mind Maps' topic. This draws attention and triggers associations, as our brains respond better to visual stimuli. Taking the time to personalize your central idea, whether it's hand drawn or on the computer, will strengthen the connection you have with the content in your Mind Map.

**Step 2 - Add branches to your map**

The next step to get your creative juices flowing is to add branches. The main branches which flow from the central image are the key themes. You can explore each theme or main branch in greater depth by adding child branches. The beauty of the Mind Map is that you can continually add new branches and you're not restricted to just a few options. Remember, the structure of your Mind Map will come naturally as you add more ideas and your brain freely draws new associations from the different concepts.

**Step 3 - Add keywords**

When you add a branch to your Mind Map, you will need to include a key idea. An important principle of Mind Mapping is using one word per branch. Keeping to one word sparks off a greater number of associations compared to using multiple words or phrases. One word per branch also works well for chunking information into core topics and themes. The use of keywords triggers connections in your brain and allows you to remember a larger quantity of information.

**Step 4 - Colour code your branches**

Mind Mapping encourages whole brain thinking as it brings together a wide range of cortical skills from logical and numerical to creative and special. The overlap of such skills makes your brain more synergetic and maintains your brain's optimal working level.

Keeping these cortical skills isolated from one another does not help brain development which the Mind Map seeks to do. One example of whole brain thinking is colour coding your Mind Maps. Colour coding links the visual with the logical and helps your brain to create mental shortcuts. The code allows you to categorise, highlight, analyse information and identify more connections which would not have previously been discovered. Colours also make images more appealing and engaging compared to plain, monochromatic images.

**Step 5 - Include images**

Images have the power to convey much more information than a word, sentence or even an essay. They are processed instantly by the brain and act as visual stimuli to recall information. Better yet, images are universal languages which can overcome any language barrier. We are intrinsically taught to process images from a young age. Mind Maps maximize the powerful potential of imagery.

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**Evaluation**

After the work the participants present their maps on the forum (using a video projector if they worked at a computers, or hanging their maps in a visible place if they worked on paper).

The group can provide feedback on prepared mind maps.

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**Source**

Own elaboration

Mind map: <https://imindmap.com/how-to-mind-map/>

Mind map software and cloud: <https://cmapcloud.ihmc.us/>

On line mindmapping: <https://www.mindmeister.com/>





## JIGSAW

### Learning outcomes

- To promote effective learning
- To improve students' motivation to learn
- To increase enjoyment of the learning experience
- To improve test performance
- To reduce absenteeism, and greater liking for school
- To learn by peer teaching, instead of having material presented by a teacher
- The technique fosters depth of understanding
- To practice peer teaching, which requires understanding the material on a deep level
- To become more fluent in use of the specific terminology related to the topic of learning
- To contribute meaningfully to a small group discussion, something that is difficult to achieve in large group discussion
- To develop students' expertise and contribution

### Duration

2 didactic hours

### Materials

- Lesson material (prepared by the teacher or available on the internet)
- Paper
- Writing materials

### Methods and forms of work

Group work - jigsaw technique (Attachment no. 3). It consists in dividing the group into four-person teams. Each team receives a material / thematic area to work on. Teams are given time to read and think about the information contained there. Then the group is divided into teams once more so that the new teams will include representatives of each of the issues analyzed. The essence of the method is the sharing of knowledge acquired by the students in the teams. From the neuroscience point of view, teaching others is the most effective form of learning, because knowledge is deeply processed and effectively remembered.

### Implementation (workflow)

1. Teacher / trainer divides students into 5 jigsaw groups.
2. Teacher / trainer informs students that one trainee from each group must function as the representative of the team.
3. Teacher / trainer divides the lesson into 5 segments / thematic areas.  
For example,  
if it is a geography lesson, and teacher want students to learn about a European country, some pieces for the jigsaw might include some or all of the following:
  - Demographics (which, of course, could be further divided into separate pieces)
  - Natural Resources
  - Land and Water Forms
  - Imports and Exports
  - Political Climate
4. Assign each jigsaw group to take on one segment. Each group receives materials regarding their thematic area. It can be a material prepared by a trainer or an indicated article, text on the Internet (if participants have access to appropriate devices). Make sure trainees have direct access only to their own segment.
5. Give trainees time to read over thematic material at least twice and become familiar with it. There is no need for them to memorize it.
6. Form temporary "expert groups" by having one trainee from each jigsaw group join other trainees assigned to the same thematic segment. Give trainees in these expert groups time to discuss the main points of their segment and to rehearse the presentations they will make to their jigsaw group.
7. Bring the trainees back into their jigsaw groups.
8. Ask each trainee to present her or his thematic segment to the group. Encourage others in the group to ask questions for clarification.



**Implementation (workflow)**

9. Teacher / trainer floats from group to group, observing the process. If any group is having trouble (e.g., a member is dominating or disruptive), he / she makes an appropriate intervention. Eventually, it's best for the group representative to handle this task. Representatives can be trained by whispering an instruction on how to intervene, until the representative gets the hang of it.
10. At the end of the session, teacher / trainer gives a quiz on the material. Students quickly come to realize that these sessions are not just fun and games but really count.

**Evaluation**

Quiz on the material. Discussion about the quality of work in jigsaw groups.

**Source**

Own elaboration  
 Info: <https://www.jigsaw.org/>  
[http://nhadulter.org/grants/AC7\\_101\\_Learning\\_Strategies.pdf](http://nhadulter.org/grants/AC7_101_Learning_Strategies.pdf)

**TELLING STORIES****Learning outcomes**

- To be able to comprehend what is happening in the cartoons or comic
- To be able to come up with a logical next
- To engage the adult students
- To step in the series
- To deal in reality, in what is happening here and now
- To provide the motivation for reading and discussion
- To make it extremely flexible and adaptable to all curriculum areas and grade levels
- To adopt it in the learning process as it can be cut, marked, clipped, pasted, filed and recycled
- To produce education in a low cost and effective way

**Duration**

1 didactic hours

**Materials**

- Pre-cut cartoons or comics with one sequence
- Storyboard: Attachment no. 4

**Methods and forms of work**

Group work, storytelling

Storytelling (as the name suggests) is one of the oldest arts in the history of mankind - telling stories. As a teaching and learning method it is based on creating and telling or sharing narrations using words, symbols, pictures, photos but also modern IT tools and multimedia materials like: graphics, video, audio, animation.

Storytelling can be considered in two main aspects:

- as a "product" - the story used to transfer knowledge, values, emotion, attitudes to receiver;
- as a process in which the author, in a way of reflection or self-reflection and creative work builds and provides to recipients a specific tale.

**Implementation (workflow)**

1. The teacher can accomplish this task in three ways, depending on the needs and capabilities of the group of students.
  - a) The teacher pre-cuts the cartoons from a newspaper. The cartoon story pieces must be at least 6 and they must be mixed up. The trainees are divided into groups of 3 and get a cartoon package. Each team must put the pieces into the correct order and tell the story. Groups have 10 minutes for teamwork. Then the representative of each group tells the story on the forum. By the end of the story telling time it should be obvious that each team came up with a different story not entirely but at some point.



<b>Implementation (workflow)</b>	<p>b) The cartoon pieces must be without any text in the bubbles. The trainee must determine what is going on in the comic strip and write it in the bubble. Photocopies could be made of the one that you want the class to work on, so that all the ideas are based on the same cartoon. It is always interesting to see that they do not see the cartoon in the same way and write very different things.</p> <p>c) Students prepare their own comic about the subject proposed by the teacher, using a printed storyboard (Attachment no. 4)</p> <p>The next step is a discussion about different way of thinking, diversity, perception, the importance of fun and work pleasure for learning.</p>
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<b>Evaluation</b>	Talk with the group: How can you use story telling for better memorization and learning?
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<b>Source</b>	<p>Own elaboration</p> <p>Adapted version from:</p> <p>Info: <a href="http://nhadulterd.org/grants/AC1NewspaperActivities.pdf">http://nhadulterd.org/grants/AC1NewspaperActivities.pdf</a></p>
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## VOTE WITH YOUR FEET AND NOT YOUR HANDS

<b>Learning outcomes</b>	<ul style="list-style-type: none"> <li>• To help adult learners relate the topic by relating it to something they already know</li> <li>• To express their thoughts and feelings</li> <li>• To encourage students to develop passionate stances on issues such as cold fusion or stem cell research so that they will retain information more efficiently.</li> <li>• To understand that information associated with values and feelings will be more readily learned</li> <li>• To retain and reinforce their attention</li> <li>• To activate them</li> </ul>
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<b>Duration</b>	1 didactic hours
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<b>Materials</b>	<ul style="list-style-type: none"> <li>• 3 A4 hard paper sheets (one for “agree”, one for “disagree”, one for “unsure”)</li> <li>• Colour markers</li> <li>• Tape or glue</li> </ul>
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<b>Methods and forms of work</b>	During the task, students are involved not only cognitively, but also emotionally (if the subject is controversial) and physically (due to the need to “vote with their feet”). Thanks to this, many areas of the brain are stimulated in parallel, and information processing takes place at a deeper level.
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<b>Implementation (workflow)</b>	<p>Build on students' past experience and coursework to help connect new knowledge to old. Help them relate the material by relating it to something they already know.</p> <p>This activity is best used when you are trying to clarify values and stimulate thinking among the group. In this activity, learners will not be “voting” by raising their hands, but by physically going to the different areas in the room that correspond to their decisions.</p> <p>To begin this process, a statement needs to be made, such as, “Do you think that animals should be killed for clothing?” or “Individuals over the age of 18 should be required to serve in the military” or “The legal drinking age should be lowered”.....</p>
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<b>Implementation (workflow)</b>	<p>STEPS</p> <ol style="list-style-type: none"> <li>1. Present the position statements (I agree, I disagree, I don't know).</li> <li>2. Present the statement.</li> <li>3. Give the students time to read the statement (written on a blackboard or flipchart).</li> <li>4. Verbally repeat the statement.</li> <li>5. The corners of the room should be labeled prior to doing this activity.</li> <li>6. Ask the students to move to the corner that best describes their feelings on the statement. (Tell learners that they should go to either the corner of the room that says, "Agree", "disagree", or "unsure").</li> <li>7. Tell the students they may change corners at any time.</li> <li>8. Justification, once all the students have selected their corners, randomly call on students one at a time to give simple, one sentence statements supporting their opinions on the position statement.</li> <li>9. Repeat or follow up, after an appropriate number of students have given their statements, such that a diversity of opinions have been expressed, the instructor may present a new position statement and begin the process again, or the instructor may follow up with a critical thinking activity.</li> <li>10. A critical-thinking activity involves breaking the class into 3 groups (corresponding to the 3 positions) and asking each group to prepare a short summary of the issue and their opinions; the summaries may be written or presented orally to the rest of the class.</li> </ol>
<b>Evaluation</b>	Feedback from students about the work in the exercise
<b>Source</b>	<p>Own elaboration</p> <p>Adapted version from:</p> <p>Info: <a href="http://nhadulred.org/grants/AC7_101_Learning_Strategies.pdf">http://nhadulred.org/grants/AC7_101_Learning_Strategies.pdf</a></p>



## SOCRATIC THINKING

<b>Learning outcomes</b>	<ul style="list-style-type: none"> <li>• To encourage and reward higher-order thinking skills like evaluating, analyzing, and applying.</li> <li>• To use text-based evidence to support students' ideas</li> <li>• To identify and evaluate claims and counterclaims</li> <li>• To summarize points of agreement</li> <li>• To initiate and participate effectively in a discussion</li> <li>• To pose and respond to questions that relate to the discussion</li> <li>• To gain understanding of other perspectives</li> <li>• To help adult learners to connect new material to already know</li> <li>• To challenge the adult learners with questions on complex issues or hypothetical problems</li> <li>• To reduce the need of rote memorization since there are no lectures</li> </ul>
<b>Duration</b>	1 didactic hours
<b>Materials</b>	•Paper with questions
<b>Methods and forms of work</b>	<p>Discussion, brainstorming</p> <p>The teacher, or leader of the dialogue, asks probing questions in an effort to expose the values and beliefs which frame and support the thoughts and statements of the participants in the inquiry. The students ask questions as well, both of the teacher and each other.</p>



## Implementation (workflow)

1. Arrange students in two comfortable circles, the inner circle for talking and the outer for listening. These should be set up so students can see each other and interact easily. If the group is small, you may have just one circle.
2. Set down conversation guidelines like:
  - refer to each other by name,
  - participate by building on conversations,
  - participate often with comments and reactions to ideas of others,
  - don't dominate the stage,
  - disagree, but don't be disagreeable,
  - wait your turn.
3. Remind students there are no right or wrong answers.
4. Remind students to focus on concepts and principles not first-person narratives, personal experiences are fine, but they must be woven into the context of the conversation.
5. As the teacher, you won't be either the "Sage on the stage" or "Guide on the side." You are part of a learning group. You pose well-structured, open-ended questions and then expect students to lead the discussion. Ideally, questions are not a stopping point but a beginning to further analysis and research.
6. Keep the conversation on track - don't let it veer in an entirely new direction without finding how that connects to earlier comments.
7. Be comfortable with the silence, students need time to think.
8. Be comfortable learning from students, it's not always clear where questions will end up.

The questions below can help you:

- Why do you think so?
- Why do you think what you say is right?
- Are there examples that support your point of view?
- Is what you say always the case?
- How do you prove that?
- What's the counter-argument to what you think?
- How would you defend your point of view?
- What made you form this opinion?
- Are your opinions subject to change?
- What can make them change?
- Why do you think I asked you these questions?
- Which of them were the most useful?

## Evaluation

Feedback

## Source

Own elaboration  
Adapted version from:  
Info: [http://nhadulterd.org/grants/AC7\\_101\\_Learning\\_Strategies.pdf](http://nhadulterd.org/grants/AC7_101_Learning_Strategies.pdf)



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- Nouri (2016), The basic principles of research in Neuroeducation studies, *International Journal of Cognitive Research in Science, Engineering and Education* Vol. 4, No.1, 2016: <http://scindeks-clanci.ceon.rs/data/pdf/2334-847X/2016/2334-847X1601059N.pdf>
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### Thematic websites

- The Dana Foundation: [www.dana.org](http://www.dana.org)
- Frontiers in Neuroscience: [www.frontiersin.org](http://www.frontiersin.org)
- Neuroeducation by Open Door Education: [www.scoop.it/t/neuroeducation-by-open-door-education](http://www.scoop.it/t/neuroeducation-by-open-door-education)
- Neuroscience news: [www.neurosciencenews.com](http://www.neurosciencenews.com)



# MODULE 2. THE DEVELOPMENT OF LEARNING COMPETENCES IN THE PROFESSIONAL ENVIRONMENT BASED ON PRINCIPLES OF NEUROANDRAGOGY

## Theoretical information

The module is oriented on the European Reference Framework of Key Competences for Lifelong Learning defined by The Proposal for a Council Recommendation of 17.1.2018. 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 this Materials with regard on adult oriented life skills the main emphasis will lay on three of the eight key competencies:

Communication

Learning to learn

Cultural awareness  
and expression

In the following these three competences as “key competences for lifelong learning” will be reviewed considering how they can interpreted for adult learners in the sense of neuroandragogy.



Communication in mother tongue and foreign languages (literacy and language) is generally based on the ability to understand, verbalize and interpret facts, concepts, thoughts, feelings and opinions in societal and cultural contexts according to the needs of the learners.

Regarding the essential knowledge, skills and attitudes concerning communication following aspects are to be considered:

- The fundamental linguistic competence is to get knowledge about basic characteristics of a language. In this context **lexicon, syntax, phonology and functional grammar** are required.
- To improve communication it is also important to enhance the **knowledge of socio-cultural conditions and conventions, the sociolinguistic competence**.
- Skills for this competence are the **ability to understand spoken conversation, to initiate a communicative situation, and also to read**, according to the individual's needs in different languages.

Neuroandragogy  
against exclusion

Due to the target group of the project who are adults from groups at risk of exclusion in six European countries, the curriculum refers to the competences of linguistic and socio linguistic knowledge in their mother tongue. The pragmatic use of language, namely skills to cover the functional use of language in a given social event or situation, is another focus of the module.

**The scenario of communication** is underlined through the methods of role games and simulations and learning by self-experienced situations. The so demanded personnel engagement of the learners will increase their learning motivation. In the follow up of “Greeting and Meeting” it is foreseen to visualize the self-learning contents for the participants in order to have visual material as a basis for discussion.

**Learning to learn** is a central key competence in terms of the project as it supports the approach to all competencies. Adult learners are in an informal or formal lifelong learning process and therefore this competence is a precondition for the improvement of their qualification.

The learning competences require basic knowledge concerning brain functions including impacts of healthy food and lifestyle as well as training on the development of learning success and brain plasticity.



An important focus of the module is set on the ability to learn collaboratively and autonomously. These two learning-forms will ease to practise critical reflection on issues, to make decisions and to evaluate progress together and autonomously. In order to be able to learn also under stress the learners will develop suitable learning methods for their own needs.

An explicit aim of the learning to learn unit is to enhance the personal self-esteem of the participants, based on a sustainable self-motivation and consequently on the ability to identify and set goals for their learning career.

**The scenario of learning to learn** will convey brain awareness knowledge to the learners, in order to offer the possibility to choose a brain friendly lifestyle. The auditory and visual memory will be experienced by listening to a simple story and trying to remember the content. In the exercise “memory and the peg system” the participants have the choice to work on their own learning methods, trying to use the peg system and to check out their personnel abilities in memorizing.

Cultural awareness and expression in its original sense is the use of cultural forms and meanings that were shaped by the art, language, history and religion of diverse cultural groups. Cultural awareness is the respect for how ideas and meaning are conveyed in different cultures.



In the sense of the intercultural approach it involves also the dialogue, interactions and relations between groups.

Cultural awareness in this intercultural context is best suited to create new ways of dialogue and interaction between diverse groups. Due to the major challenge of the project to foster inclusion of groups at risk of exclusion, skills will be fostered, that support the interpretation of culture phenomena and develop practicable forms of cultural interaction.

The icebreaker of the scenario is a kinaesthetic “group demonstration” which shows the influence of the amygdala on the sense of personal space. The exercise involves body - space work of the learners and will make them experience also the kinaesthetic sense for learning.

## The scenario of cultural awareness

Experimental learning provides the basis of the scenario cultural awareness. To overcome prejudices and stereotypes experimental learning is an effective intervention in the sense of neuroscience as stereotyping and prejudice involve both cognitive processes and emotional reactions.

### Required competences to gain for adult learners are:

- Linguistic competence to identify vocabulary and language features used in community situations
- Sociolinguistic ability to realize cultural terms in language use and interaction
- Capacity to transfer these experiences and the knowledge into real settings of communication
- Enhancement of knowledge concerning the relevant functions of human brain and learning capacity
- Ability to develop suitable learning methods for one's own learning processes
- Capacity to transfer brain friendly learning methods in daily life
- Sensitivity to the connection of self-esteem and learning success
- Ability to appreciate cultural identities as a contribution to diversity
- Capacity to isolate common stereotypes and to react on prejudices
- Further Development of critical thinking as a self-determined engagement in active participation

## Scenarios of workshops for adult participants

### COMMUNICATION SOCIOLINGUISTIC AND PRAGMATIC COMPETENCE



<b>Learning outcomes</b>	<ul style="list-style-type: none"><li>• To identify various vocabulary and language features used in community situations</li><li>• To choose possibilities in way to communicate in a starting situation</li><li>• To extend possibilities in starting a communication</li><li>• To perform situations of meeting and greeting</li></ul>
<b>Duration</b>	60 minutes
<b>Materials</b>	<ul style="list-style-type: none"><li>• Flip chart</li><li>• Markers, pens</li><li>• Mobile phone's cameras or digital cameras</li></ul>

<b>Methods and forms of work</b>	<p>“Greetings and meetings” is based on several methodologies, case studies, brain storming and self-study. The role play in pairs enables the participants to make experience in the social interaction of different forms or situations. The participants share their experiences of using greetings, introductions and farewells in familiar situations.</p> <p>The brain storming, at the beginning of the situation, promotes on the one hand the involvement of the learners into the topic and supports the personnel contribution of all participants. In this part of the scenario they also get the possibility to find situations that are near to their own life experience.</p> <p>The self-study at the end of the scenario is to build up own knowledge, skills and interest through observation in the daily life. This will have the impact of sensitizing the participants for socio cultural conditions in communication.</p>
<b>Implementation (workflow)</b>	<p><b>Greeting and Meeting</b></p> <p>When you see the learners in the morning or at the start of the session use diverse of greetings forms like more formally ones and casual greetings typically for the country and region you live.</p> <ol style="list-style-type: none"> <li>1. Explain to the group, why you chose these greeting-forms and about the purpose of the activity. Initiate a kind of brain storming in the group, to share different forms of greetings and to widen the choices that are given in this situation. Talk about different ways and expressions, places and situations, kinds of people and ways of greeting people.</li> <li>2. Let the participants build pairs and they should now try out different greeting forms, which they have never used before. After that they give feedback.</li> <li>3. In the next step the learners will introduce someone new to the group. The new person can be a new boss, an elder person, a young new colleague. In each new situation the group decides a new role-play.</li> <li>4. The experiences and impressions will be discussed and understandings of suitable ways to start a communication are shared.</li> </ol> <p>The activity can be repeated by saying good bye in different ways. Again the role play options should be discussed first, and then it will be done in pairs.</p> <ol style="list-style-type: none"> <li>5. At the end of the activity the participants review together what they have experienced, an important focus lays on the clarifying of misunderstandings and commonalities in case of different mother languages.</li> <li>6. At the end of the exercise the facilitator suggests to the participants to listen and to observe in their day to day live greetings, introductions and farewells and to pay attention to differences, also in body gesture and moving.</li> </ol> <p>A follow up of the exercise is the possibility to make a movie of the role plays in order to provide visual material during the scenario and to have a more detailed material for discussion.</p>
<b>Evaluation</b>	Formative peer evaluation and feed back
<b>Source</b>	<p>Adapted from / Tertiary Education Commission Teaching Adults to Listen and Speak to Communicate: Using the Learning Progressions</p> <p>Retrieved from: <a href="http://www.literacyandnumeracyforadults.com/resources/354524">www.literacyandnumeracyforadults.com/resources/354524</a></p>





## EARNING TO LEARN: MEMORY AND THE PEG SYSTEM

### Learning outcomes

- To describe the brain, its functions and structure
- To analyze impacts of healthy food and lifestyle on cognitive abilities
- To categorize different brain friendly learning methods
- To compare associative thinking and memorization
- To experience emotional intensifiers in the learning process
- To create associations between items and assigning images
- To feel an increased self-esteem concerning learning efforts

### Duration

120 minutes

### Materials

- Attachment no. 5: Two legs set upon three legs
- Attachment no. 6: PEG number shapes
- Pens, paper, markers
- Flipchart

### Methods and forms of work

- Strategies, methods, techniques used in the scenario
- The learners will get theoretical background information about structure of brain, how the brain basically works and will realize that in the consequence there is not "one right way to learn".
  - In the first part of the exercise "Remembering a story" the experience of "picturing a story" can be made by the participants themselves. In this exercise the participants are trained in their listening competence and can put their creativity in to practice to develop emotional intensifiers in telling a story.
  - In the second part of the exercise the peg system is introduced. It is ideal for remembering information that should be recalled in a particular order. The peg system is an image-based memory technique that can be used to create visual labels in memory for abstracts, names, formulas, definitions, foreign languages.

The Peg method offers the possibility to memorize information in sequence. There are several types of pegs systems, including number-rhyme, number-shape, alphabet sound, and concrete alphabet pegs. In the exercise the participants will get to know the number shape peg.

### Implementation (workflow)

#### Exercise 1:

1. The facilitator tells the story about the two legs and three legs to the participants without showing them the Attachment no. 5.
2. Discuss about associations and the intensity of such a story. Remind your students that the brain needs material that is engaging, active, living, colourful and vivid.
3. After this exercise the facilitator distributes Attachment no. 5 and the group discusses whether pictures arise from their youth or even other memories or associations in the context with fairy tales.
4. In the next step the participants are asked to close their eyes and to listen to short stories while creating own pictures in their minds. The facilitator suggests elements or associations (kinaesthetic, olfactory and visual) to the voluntary story tellers, for their story. By this exercise it will be experienced by answering questions, that much more can be remembered due to emotional intensifiers and associations.

#### Exercise 2:

1. Introduction to the number-shape system (Peg system).  
Numbers 1-10 are connected to shapes through visual associations.
2. The list enables the participants to memorize up to 10 items or terms in a short time. Items are connected to shapes and numbers. To associate an item of information with a number-shape, associate the shape with the information. For example, to associate a word such as "language" to position number two in the list, associate swan with language.

**Implementation (workflow)**

First step: Memorize the shape list in a short time check by rewriting the list.  
 Second step: Associate items with the number-shape list and memorize them, e.g. 1=pencil=memory, 2=swan=language, 3=ear=work

3. The facilitator shows 10 items (words) to the participants on the flip chart. After some minutes of concentration he hides the items in order to memorize them.

Third step: Discuss about the complexity of the information that can be associated with a number and a shape can be much greater than simply a word of other physical object. Using substitute words, for instance, even abstract concepts can be associated with the items in a list.

**Evaluation**

Group structured interview:

- Did you enjoy the learning to learn training?
- Which brain friendly learning methods can you recommend to your friends, children, colleagues...
- What did you learn about your own learning methods?
- Can this program and the methods of brain friendly learning ease a learning process?

**Source**

Adapted from. <https://www.memory-improvement-tips.com/remembering-lists.html>  
<https://oneclass.com/blog/york-university/4671-part-1-learn-how-to-memorize-top-6-memorization-techniques-2.en.html>

**CULTURAL AWARENESS****Learning outcomes**

- To realize the importance of intercultural learning
- To analyze diversity as a concept in communities and a self-concept
- To identify strategies used by majorities and minorities
- To differentiate own multiple identities
- To isolate common stereotypes concerning culture from own perceptions
- To explore social experiences with prejudices and stereotypes
- To form ways of critical thinking in a self-determined and self-correcting way
- To formulate strategies to react on stereotypes

**Duration**

180 minutes

**Materials**

- Attachment no. 7
- Pens

**Methods and forms of work**

In the first part the participants get an insight into core concepts of culture ethnicity and diversity and the historical and legal background of these concepts. As an icebreaker of the scenario a kinesthetic learning method will express strategies that are used by groups in order to share common sense or to participate. During the activity it is important to appoint an observer who will report after the activity. After the activity a set of debriefing questions is to be asked and discussed in the group in order to bring the session to a conclusion concerning minorities and majorities, the inequities in power and the consequences.

The second activity deals with the multiple dimensions of our own identities. "Circles of my multicultural self" addresses the necessarily to define one self-regarding to diverse parts of an identity - in order to realize and deal with stereotypes. The methodical approach of this activity is experimental learning and storytelling. As the participants have to share very personal information about their own identity it is recommended for the facilitator to participate. In the final part the participants are asked to share stereotype. This is the very important part of the activity as it provides the opportunity to think more deeply about stereotypes and probably to eliminate them.



## Implementation (workflow)

### Ice-Breaker

1. Build up subgroups of 6 to 8 people. Ask each group to choose one person to be the observer and a second one to representing a minority (so called outsider). If the group has 8 participants it is also possible to have two minority members.
2. Tell the other members of the group to stand shoulder to shoulder to form as tight a circle as possible so as not to leave any space between them.
3. Explain that the outsider should try to get into the circle.
4. Tell the observer to make notes on the strategies used by the outsider and those in the circle and to act as time keeper.
5. After two or three minutes another member gets the possibility to be the outsider. This change has to be made regardless of whether they managed to enter the circle or not.
6. Practise this change two or three times.

Debriefing:

After having finished the circle play sit together in a chair circle with good atmosphere and discuss what happened and how the participants felt.

- Post following questions to the persons who played:

*How did it feel like to be part of the circle?*

*How did it feel like to be alone out of the circle?*

*How did it feel, when the outsiders came close to you?*

*Why did you resist the entrance into the circle? You were never instructed to keep the outsiders from going in.*

- Post following questions to the persons who observed:

*Which strategies did the outsiders use?*

*Which strategies did those in the circle use to keep the outsiders from getting in?*

*Was there a consensus between those in the circle or not?*

- Stimulate a debate in the group by asking following questions:

*Are there situations in your life, when you feel like an outsider and when you would appreciate being part of the majority?*

*In your society, who are the stronger groups? And who are weaker ones?*

In community or society, the circle may represent privileges such as money, power, work, housing, education.

*Which strategies do those on the outside use to gain access to these resources?*

*How do the privileged preserve their status?*

### Circles of multicultural self

1. Each participant gets a copy of Circles (Attachment no. 7).
2. Invite the participants to build up pairs with a person they do not know very well. The participants should introduce themselves to their partner.
3. Remind students there are no right or wrong answers.
4. Remind students to focus on concepts and principles not first-person narratives, personal experiences are fine, but they must be woven into the context of the conversation.

**Implementation  
(workflow)**

5. As the teacher, you won't be either the "Sage on the stage" or "Guide on the side." You are part of a learning group. You pose well-structured, open-ended questions and then expect students to lead the discussion. Ideally, questions are not a stopping point but a beginning to further analysis and research.
6. Keep the conversation on track - don't let it veer in an entirely new direction without finding how that connects to earlier comments.
7. Be comfortable with the silence, students need time to think.
8. Ask the participants how to react upon a stereotype concerning one dimension of their identity.

One example is given on the worksheet.

9. If there are participants in the group who are willing to share a story with the group invite them to tell it in the plenum. It is not allowed to tell a story of a partner without his or her permission. Ensure that the group is listening actively and with respect to the ones who tell something, as individuals are vulnerable in this part of the exercise.

10. Questions to discuss with the entire group:

*Are there dimensions that are important for you, describing your identity but not all for other people around you?*

*Did anybody hear a stereotype that her or she once believed in or even used?*

*How did it feel to react actively on a stereotype?*

*Where to stereotypes come from?*

*What can we do against stereotypes?*

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**Evaluation**

Formative peer evaluation and feed back

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**Source**

Adapted from: Diversity Activities, University of Houston

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[www.uh.edu/cdi/diversity\\_education/resources/activities/pdf/diversity%20activities-resource-guide.pdf](http://www.uh.edu/cdi/diversity_education/resources/activities/pdf/diversity%20activities-resource-guide.pdf)





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## MODULE 3. SUPPORTING ADULTS IN TAKING UP INDEPENDENT STUDIES AND CONTINUING EDUCATION WITH THE SUPPORT OF INFORMATION AND COMMUNICATION TECHNOLOGY

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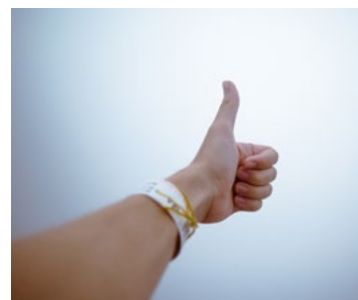
### Theoretical information

The focus of our Module 3 is to support adult learners in their independent studies that therefore reinforce the knowledge compiled in previous sessions.

Specific characteristics are prioritised within this Module in conjunction with their earlier sessions. A wide range of characteristics will be focused upon but the key mental attributes that are targeted within our activities are self-motivation, multi-level responsibilities (prioritization and organizational skills), evaluation of prior experiences and complex problem solving.

**Self-motivation** is a key characteristic in furthering knowledge levels during, but mainly away from set work. It provides the driving force behind the desire to work and better yourself as an adult learner.

Neurologically though, self-motivation acts in an alternative way. Neuro-stimulants and hormones such as dopamine are released after the completion of certain tasks. A study by Munro (2013) found that men excrete a higher amount of dopamine than women once the chemical has been released by the ventral striatum. Dopamine also has a cyclical effect on the adult learner. The adult learner should be enthused to achieve the targets they have been set and once completed, the dopamine becomes a positive neurological reinforcement for the adult learner and there will be a larger desire to complete tasks the next time they are set. Within our Module, the independent study aspect removes the variable of external pressure and highlights the internal drive of the adult learner.



**Multi-level responsibilities** encompasses a vast amount of principles within the subject of neuroandragogy; amongst these principles are prioritization and organizational skills.

This characteristic contextualises the learning that occurs in independent and face-to-face sessions as it places the emphasis on the real-world application of what has been taught/learned. Adult learners must learn with maximum efficiency in order to become effective adult learners and adhere to the core principles of neuroandragogy. The activities devised for this Module will use hypothetical scenarios in order to establish learning patterns that will be easily transferrable into the adult learner's professional and personal life. This is achievable because of the neuroplasticity of adult learners. The study conducted by Maguire (2006) found that adults still possess the ability to alter the pattern and neurobiology of certain areas of the brain. Intensive and continual focus on these neurological functions can foster neuroplasticity even in older adult learners.



**Evaluating past experiences** is an integral yet lesser known technique in improving the learning capability of an adult learner.

Self-evaluation and self-criticisms are key to evolving as an adult learner due to mental rigidity being a hindrance to progression and acceptance of newly learnt skills. However, this does not apply to the biological rigidity of an adult's brain. The aforementioned neuroplasticity of adults allows them to develop areas of the brain well beyond childhood. This is a general comment on the stubbornness of thought and the lack of self-criticism applied to former experiences by the average adult. Self-evaluation allows adult learners to be more receptive to new



information whilst providing a window to re-experience former landmark moments in their own lives. The self-evaluation acts as a mechanism to readjust certain, well established cognitive patterns that may well be a hindrance to improving the overall ability to learn as an adult. A single self-evaluation will not alter all of the adult learner's future behaviour though, understanding the principles and the ability to perform self-evaluation will be the main objective of this activity. The focus will be heavily placed on the bettering of analytical skills such as role delegation, project management etc. These analytical skills exercises the left hemisphere of the cerebrum, as it is about dissecting information and thinking logically.



**Complex problem solving** is a basic requirement for many employers. It is an important attribute to develop because digesting information and solving problems are so commonplace, yet vital in pressurised working environments.

Building on pre-existing knowledge should be focused upon in face-to-face sessions whereas independent study is the ideal atmosphere to practice the theory taught in those face-to-face sessions. The temporal lobe will be worked whilst solving complex problems as it requires the interpretation of information in both social and professional environments. Once again, the neuroplasticity of the adult learner's brain will allow for development of the temporal lobe. However, this requires intense training to physically alter and therefore drastically improve the capability of the temporal lobe.



## Scenarios of workshops for adult participants

### ATTENTION AND FOCUS IN INDEPENDENT STUDY



<b>Learning outcomes</b>	<ul style="list-style-type: none"> <li>• To develop honest self-reflection, particularly about your working habits</li> <li>• To identify self-motivating factors</li> <li>• To learn to identify and control distractions</li> <li>• To improve productivity when working on your own</li> </ul>
<b>Duration</b>	45 minutes
<b>Materials</b>	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Markers, pens</li> <li>• Computer to show video</li> </ul>
<b>Methods and forms of work</b>	<p>"Work and Play" is a methodology developed by Prof. Mark Williams of Oxford University used to identify activities that improve your productivity. The methodology is very simple to apply. Participants are first asked to list the activities they usually complete in a particular situation. They then have to categorise them as 'Nourishing' or 'Distracting'. Nourishing activities are those that the participant deems productive to their overall tasks. On the other hand, Distracting activities are those that pull you away from your work, delay the tasks you are meant to complete and eventually exhaust you.</p> <p>Work and Play enables participants to reduce or alter the distracting activities so that they are then able to work independently with more focus and effectively. Ultimately, this will motivate them to study independently.</p> <p>In groups, they will find solutions of reducing these distracting activities. This will enable participants to learn and share experiences.</p>

## Implementation (workflow)

### Introduction

Introduce the topic by showing the following video to your participants: <https://www.youtube.com/watch?v=tf9ZhU7zF8s>. This video shows two things. Firstly the power of IT to distract us and ultimately exhaust us. After spending a lot of time online, we often end with the feelings of regret, frustration and exhaustion. Ask participants if they can name a time when they have felt like this. The video also shows the power of IT as an enabling tool. It enables us to gather more information, learn about new things and build relationships. Ask participants if they have experiences of using IT to enable them. This workshop is about ensuring that when we use IT, it is an enabling tool, and recognising the times when it distracts us.

#### ACTIVITY: WORK AND PLAY

1. Ask the participants to work individually. Each with a pen and paper, they have to create a list of activities they complete using their phone or computer during the day. The table should look as such:

Online Activity	Nourishing/Distracting	Correction
1.		
2.		
3.		

This list should be as detailed as possible and when it takes place. It should include for example, 'checking Facebook when I wake up'. Participants should aim to have at least 15 items.

2. Ask participants to categorise these activities as Nourishing or Distracting in the 2nd column. Nourishing activities are those that the participant deems productive to their overall tasks. On the other hand, Distracting activities are those that pull you away from your work, delay the tasks you are meant to complete and eventually exhaust you.

3. Again individually, ask participants to reflect on the activities that distract them. How often do they happen? How do they feel after? What 'triggers' the activity? With the distracting activities, ask participants to find ways to 'correct' them, i.e. how to remove them or to turn them into nourishing activities. These should be brief sentences in the 3rd column.

4. In groups, participants should now share 3 distracting activities (those they found hardest to correct), other participants should offer solutions. Each participant has 5 minutes to discuss their distracting solutions and to find solutions.

#### Conclusion

Bring all the groups together, and open up for general discussion.

Explain a personal experience and correction that you have taken.

For example, when working online, you have decided to work for 25 minutes and take 5 minute breaks in between, because you found that distractions would come every 30 minutes. Open up the discussion with the following questions:

- What are your most nourishing activities?
- What are your most distracting activities?
- What corrections will you take up today?

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## Evaluation

Formative peer evaluation and feed back

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## Source

Adapted from: „Mindfulness: a practical guide to finding peace in a frantic world“.





## PRIORITISING AND ADAPTABILITY FOR INDEPENDENT STUDY

<b>Learning outcomes</b>	<ul style="list-style-type: none"><li>• To develop organisational skills when using IT tools</li><li>• To communicate effectively using IT</li><li>• To manage time efficiently when working online</li><li>• To be adaptable using IT tools</li><li>• To work in teams through an IT tool</li></ul>
<b>Duration</b>	60 minutes
<b>Materials</b>	<ul style="list-style-type: none"><li>• Paper</li><li>• Markers, pens</li><li>• Computers</li></ul>
<b>Methods and forms of work</b>	<p>“Trick Presentation” is an active learning workshop. Participants will be asked to work together, under pressure, to complete a presentation. This develops an array of organizational skills that are used, such as: prioritizing, delegation, goal setting and achieving.</p> <p>Secondly, it teaches participants not to rely fully on IT tools. In the case of presentations, many people read off screens. Often, because IT tools are so powerful and convenient, they may render us more ‘lazy’. The ‘trick’ at the end of the activity ensures that they cannot rely on their PowerPoint presentation.</p> <p>This activity may be deemed stressful, due to time constraints, public speaking and the ‘trick’ at the end. It is important that the topic that participants need to present has to be ‘silly’. This removes any notion of embarrassment and increases the fun.</p>
<b>Implementation (workflow)</b>	<p><b>INTRODUCTION</b></p> <p>Introduce the session by asking participants if they have ever used powerpoint presentation. You can show participants the following video: <a href="https://www.youtube.com/watch?v=AniBkkAQoTo">https://www.youtube.com/watch?v=AniBkkAQoTo</a>.</p> <p>Ask participants what is wrong with this video. Discussions should be around little preparation, over dependence on IT (which disengages viewers) and having to improvise.</p> <p><b>ACTIVITY: Trick Presentation</b></p> <ol style="list-style-type: none"><li>1. Participants are put in groups of 3-4. They will have 20 minutes to prepare a presentation. The presentation topic is: A sales pitch to an Event organizer who wants to buy 3000 spoons from you. The presentation should not last more than 5 minutes. The presentation must include a PowerPoint presentation.</li><li>2. Participants will then be asked to present their sales pitch. However, there will be no computer and projector. This means that participants will not be able to use their powerpoint presentations. This will force them to improvise.</li></ol> <p><b>CONCLUSION</b></p> <p>Facilitate a group discussion with all participants. Ask them the following questions:</p> <ul style="list-style-type: none"><li>• What had you planned to present with powerpoint?</li><li>• In what way did the trick change your plan?</li></ul> <p>You should ask them to be as honest as possible. For example, some may admit that they wanted to put a lot of information on the powerpoint presentation. This may be so that they would speak less or read off the screen.</p>
<b>Evaluation</b>	Formative peer evaluation and feed back
<b>Source</b>	Adapted from: KEFW Community Masterclasses



## IT AND PROBLEM-SOLVING FOR INDEPENDENT STUDY

<b>Learning outcomes</b>	<ul style="list-style-type: none"><li>• To use both IT and independent effort to solve a problem</li><li>• To use simple methods to complete complex problems</li><li>• To develop resilience in problem solving</li></ul>
<b>Duration</b>	60 minutes
<b>Materials</b>	<ul style="list-style-type: none"><li>• Computers</li><li>• Eggs</li><li>• Plastic bags</li><li>• Cello-tape</li><li>• Strings</li><li>• Newspapers</li></ul>
<b>Methods and forms of work</b>	<p>In independent study, we often rely on ourselves to solve complex problems. To solve problems effectively, you need to be able to use the resources around you effectively. In fact, IT tools can enable you to solve problems effectively.</p> <p>The following workshop is designed to develop problem solving skills and using IT tools to support this development. It is designed so that we learn not too dependent overly on IT tools and ensure that we use our own problem solving resources as well.</p>
<b>Implementation (workflow)</b>	<p><b>ACTIVITY: Egg parachute</b></p> <ol style="list-style-type: none"><li>1. In groups, participants have 30 minutes to develop an idea, design and create an invention that protects an egg if thrown outside a window, without breaking the egg. Groups may only use the resources and materials given to them. They are able to use a computer to search for solutions. However, they are not allowed to search key words: "Egg" and "Parachute".</li><li>2. Each group will then test their invention, by throwing it outside a window.</li></ol> <p><b>CONCLUSION</b></p> <p>Facilitate a group discussion on the inventions they have created. Ask key questions, such as:</p> <ul style="list-style-type: none"><li>• What did you use each resource for?</li><li>• What did you use the computer for?</li></ul> <p>The conversation should be driven towards a discussion on simplicity. The most effective way of protecting the egg is to wrap it in newspaper. Simplicity is often the most efficient strategy to problem solving. Explain that IT tools can often 'over complicate' solutions. It is therefore important to maintain a simple solution.</p>
<b>Evaluation</b>	Formative peer evaluation and feed back
<b>Source</b>	Adapted from: KEFW Community Masterclasses





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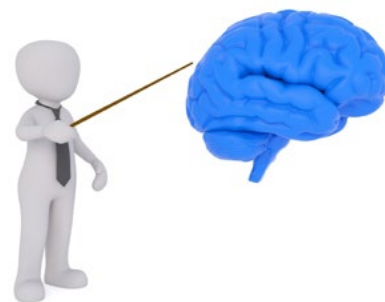
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## MODULE 4. THE DEVELOPMENT OF LEARNING COMPETENCES IN THE PROFESSIONAL ENVIRONMENT BASED ON PRINCIPLES OF NEUROANDRAGOGY

### Theoretical information

The brain is the most complex portion of the human body, and there is so much that scientists do not yet know about brain functioning. However, the 90s have been called the Decade of the Brain because of the knowledge explosion on how humans learn and grow and how the brain functions in order to manage everyday activities. Each person learns similarly, yet in different ways, based on their unique brain. Through studies and the use of technology, scientists were literally able to non-invasively peer into the brain as it received and analyzed stimuli. In doing so, they were able to view and photograph different areas of the brain as it addressed the information that was being received. The result was a virtual mapping of the brain to identify where many specialized functions occurred. Because of this information, we now better understand how and where learning occurs and can develop strategies to strengthen learning activities.



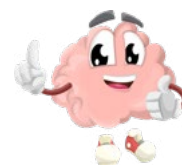
This applies not only in formal education or trainings, but also in the context of learning in the workplace and professional development.

### Implications of Brain-Based Learning at the workplace

For years, teachers and trainers have used games, music and other stimulating strategies to teach basic life and professional skills. So what changes later in their learning environments, and especially in workplace learning environments? Why do adults often expect a learning environment that is staid and rigid, where someone lectures to them and where they have to simply take notes and then figure out the answers to the questions they are asked? Very often it is a matter of school habits. Meanwhile, the learning of an adult person, the more when it takes place in the workplace, is very different from teaching children and young people. Assuming that the professional environment is to be a source of development for all people and systematic improvement of competences, it should be adapted to the adult cognitive conditions, like any other learning environment.

By applying some basic concepts of brain-based learning, you can help stimulate learners while making your work training / workshops more fun to present. A professional learning environment does not have to mean boredom and clichés.

Just imagine being able to play with toys, do magic, show popular video segments, listen to a variety of music, enjoy a smorgasbord of colour, draw caricatures and be paid for it!

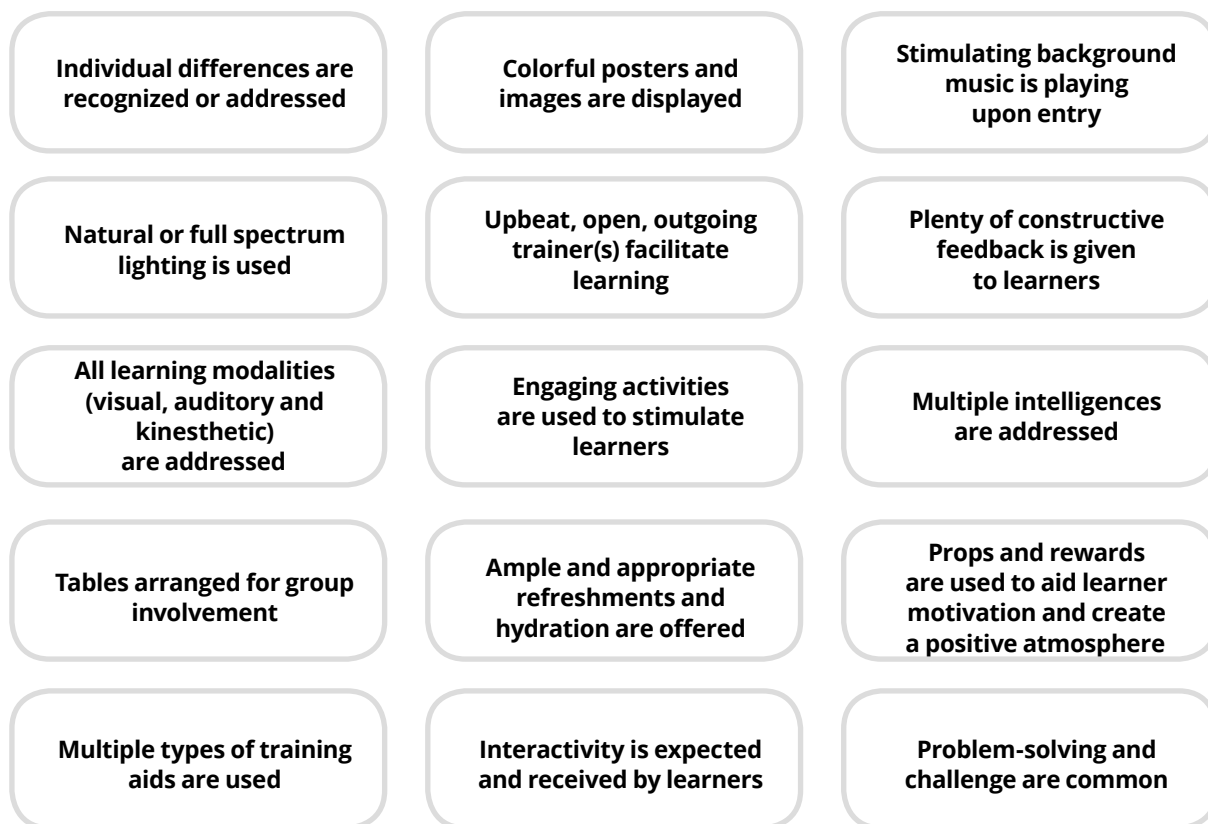


More importantly, through use of such tools and techniques, you can better engage and interest your learners and increase the opportunity for a more powerful learning outcome. It is up to you to shake up this paradigm and shock learners into a new state of consciousness by creating an environment that is brain-friendly and learner-centric—an environment that will cause learners to sit up, pay attention and become actively involved in their own learning, while taking ownership and responsibility for their learning outcomes.



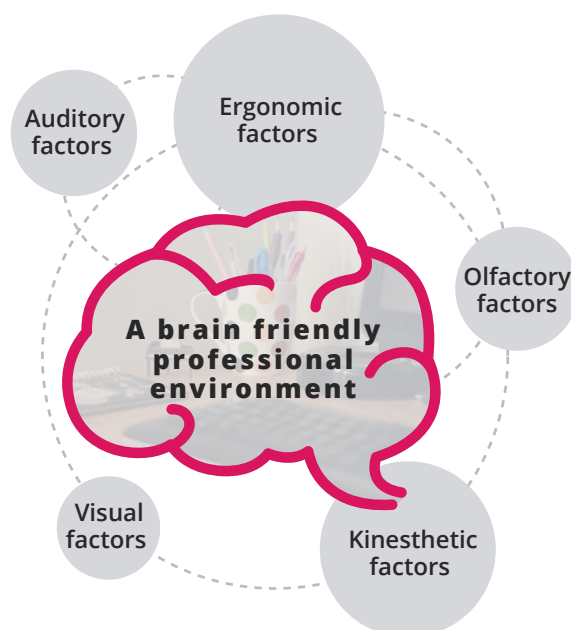
## Creating a Brain-Based Environment at the workplace

The first thing you need to do is teach adults how to create a friendly work and professional development environment around them. In this context a brain-based learning environment differs from the standard rooms in many ways. Every element of work environment will affect working and learning outcomes. In a brain-based learning environment, the following elements are present:



Source: Bob Lucas is managing partner for Global Performance Strategies in Orlando, Fla.  
<https://www.bobpikegroup.com/blog/289>. 2018.04.10.

- **Visual factors** influencing your mental well-being: appropriate colour should be chosen to ensure the mood of the employees is good in order to encourage productivity. The character of space affects human emotions and behaviour.
- **Auditory factors** influencing your well-being: Sound or noise problem in an office is something that could not be avoided. Studies have shown that when sound is turned off, errors in work are reduced and productivity increases. Noise as an ambient stressor relating to job satisfaction in the work environment.
- **Olfactory factors** influencing your well-being: In terms of cognition, mood has been shown to influence creativity with the typical finding that people in a positive mood exhibit higher levels of creativity than individuals in a bad mood. Odours can also produce the same effects. When people were exposed to an odour they liked creative problem solving was better than it was when they were exposed to an unpleasant odour condition.



**Neuroandragogy**  
 against exclusion

- **Kinesthetic factors** influencing your well-being: "Let's come to grips with the situation." The kinaesthetic employee or co-worker that likes to jump in and do! They do well with things that require hand-eye coordination. These are the people who won't be able to sit still in meetings. They are also very empathetic towards others. Tips for presenting to a kinaesthetic workers: avoid static situations where they have to just sit and listen
- **Ergonomic factors** influencing your well-being: Poor posture at work is a major cause of head, back or neck pain, strain injury, musculoskeletal disorders (MSDs), and work stress, resulting in not only poor employee health but also lost time and productivity. Many studies on correlation between posture and workplace productivity showed that 75 percent of participants extensively trained to improve on posture habits decreased back pain and felt more productive at work.

## Create a more brain friendly professional environment

A fundamental aspect of the workplace environment that contributes to such employee behaviour is the layout of office space. Numerous studies have shown that indoor climate impacts both health and performance, which in turn affect productivity. A few studies done by researchers indicates that office workers are reported to be less tired when they have access to plants or window views, and prefer work environments with living plants and window views. Furthermore, they also reported that natural environments can have a restorative effect on attention.

### Assessing your work environment, check if it is:

- Inspirational and encouraging to creativity
- Open for communication
- Balancing your professional and private life
- Open for social learning
- Individualized and taking into account your cognitive preferences
- Allowing for autonomy and control
- Free from stress and fear
- Developing
- Open for sharing knowledge and experiences



## Scenarios of workshops for adult participants

### MOTIVATION TO WORK AND EMPLOYMENT

#### Learning outcomes

- To describe the significance of motivation in the context of the knowledge on human brain's functioning
- To self-reflect the material being studied
- To get to know the techniques of staying motivated when you are unemployed
- To learn how brain-compatible professional environments should be created

#### Duration

35 minutes

#### Materials

- Paper
- Writing materials (markers)
- Lesson material



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**Methods and forms of work****Student-Centered Approach to Learning**

While teachers are still an authority figure in a student-centered teaching model, teachers and students play an equally active role in the learning process. We focus on this method in the lesson, because this form of learning creates a better motivational environment.

The teacher's primary role is to coach and facilitate student learning and overall comprehension of material, and to measure student learning through both formal and informal forms of assessment, like group projects, student portfolios, and class participation. In the student-centered classroom, teaching and assessment are connected because student learning is continuously measured during teacher instruction.

Some tips to make your lectures more dynamic

- Organization is everything: spending time thinking about the contents of the lecture provides you with the opportunity to evaluate the information that needs to be included.
- Be animated: Try to vary the intonation (pitch and tone) of your voice, it doesn't matter how interesting the contents, a monotone voice is guaranteed to send a lecture room full of learners to sleep.
- Make the lecture interactive: An interactive lecture is one that includes and encourages learners' participation. Using techniques that encourage all learners to contribute, helps to promote learner retention and learning of the content presented during lecture.

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**Implementation (workflow)**

The teacher presents the participants basic information that introduces them to the task:

1. The teacher explains to the learners the principles of significance of social learning in the context of the human brain's knowledge but also in the context of learning at the workplace. Some picture would be useful to be shown to illustrate the theory. Keywords: social cognition, social neuroscience, theory of mind, simulation, empathy, amygdala, prefrontal cortex, modularity, brain-friendly work environment.

Both employed and unemployed people may have problems with motivation to act. 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 stay motivated when you are unemployed:

- STAY POSITIVE AND KEEP MOVING

The first thing to keep in mind is that your ENTHUSIASM for your chosen field or industry will catch the attention of potential employers and help you persevere against obstacles you may face along the way. So be sure to pick an industry or position that you are passionate about. Otherwise, your false enthusiasm may subtly turn off potential employers or even derail your momentum when challenges appear.

The next thing to remember is that FORWARD MOTION is necessary to sustain your optimism. If you start to drag your feet or do less than your best during your job hunt, your intuition will sense it. And when you know deep down that you aren't giving your very best, self-doubt, procrastination, and low self-esteem can surface. r than persevere towards what we really want.

## Implementation (workflow)

### • INVEST IN YOURSELF

With that said, you might not be completely aware of what it REALLY takes to get the job you want. In that case, take time to discover what you need to do or understand to get you to where you want to be.

If possible, reach out to people within your field for informational interviews. School alumni and “friends of friends” can be great networks to explore for these sorts of connections.

Or, maybe there is a book, blog, or training program out there that might be able to advise you on your career search. Don't hesitate to invest – WITHIN YOUR MEANS – in the education and information that will help you get to where you want to go.

### • GET SCRAPPY

Don't be afraid to get scrappy when it comes to your job search.

It might be disheartening if you don't find the job you want by following the traditional job search methods. BUT OTHER OPTIONS ARE AVAILABLE. Do what you can to connect with people within the company, be sincere, and (appropriately) persistent.

### • IGNORE THE NAYSAYERS

Staying motivated involves learning to ignore the people who say “it can't be done.” Whether you are starting your own company or searching for your ideal job, there will be people in your life who may not believe your dream is possible – particularly if you have been looking for a job for an extended period of time. In this case, it is best to understand that most of the time these friends or family members mean well and want the best for you. On the other hand, there are always going to be people who prefer that we choose a safer or easier route rather than persevere towards what we really want.

The best thing to do in these situations is recognize that the person who doubts your potential has their own point of view based on their own life paradigms and conditioning. It does not have to affect your mood, decisions, and actions. Be sure to surround yourself with people who have succeeded in your care.

2. The group works in teams of 3-4 people. Each team should discuss 2 issues:

- How can these techniques be used in the daily routine of an adult?
- Which techniques can be used by adults from disadvantaged groups?

Discussion in teams should take 10-15 minutes. Then the representative of each team presents the conclusions on the forum.

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## Evaluation

The teacher encourages the learners to make debate and discussions about relationship between strong motivation and professional development.

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## Source

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## MOTIVATION FACTORS IN A WORK ENVIRONMENT

<b>Learning outcomes</b>	<ul style="list-style-type: none"><li>• To analyze the conditions of the adult person work environment</li><li>• To self-reflect the material being studied</li><li>• Finding new motivational goals in their own work / life</li></ul>
<b>Duration</b>	30 minutes
<b>Materials</b>	<ul style="list-style-type: none"><li>• Paper</li><li>• Writing materials (markers)</li><li>• Lesson material</li></ul>
<b>Methods and forms of work</b>	<p>Group work: Numerous studies have shown that the thoughtful use of group work brings about the following benefits to learners:</p> <ul style="list-style-type: none"><li>• higher academic achievement</li><li>• long term retention</li><li>• higher level of reasoning</li><li>• critical thinking</li><li>• teamwork skills.</li></ul> <p>Group work can be an effective method to motivate students, encourage active learning, and develop key critical-thinking, communication, and decision-making skills. But without careful planning and facilitation, group work can frustrate students and instructors and feel like a waste of time.</p> <p>You should draw attention to key motivating factors and triggers associations, as our brains respond better to visual stimuli. Taking the time to personalize the key notions, it can be hand drawn or on the computer as well, will strengthen the connection you have with the content in your brain.</p>
<b>Implementation (workflow)</b>	<p>1. The teacher explains the course of the task. The group is divided into 3 working teams.</p> <p>Practical addition: Establish a shared identity with other group members. Find effective peers to emulate. Develop their own voice and perspectives in relation to peers. While the potential learning benefits of group work are significant, simply assigning group work is no guarantee that these goals will be achieved.</p> <p>2. The task of each team is to analyze the working environment of the adult learners in terms of motivating and demotivating factors.</p> <ul style="list-style-type: none"><li>• What motivating and demotivating factors are present in your work or learning environment?</li><li>• Which demotivating factors could you change?</li><li>• Which motivating factors are missing from your daily routine?</li></ul> <p>Team No. 1 analyzes factors related to the group's work system (working conditions, working time, salary, benefits).</p> <p>Team No. 2 analyzes factors related to interpersonal relationships (relations with colleagues, social position of your profession).</p> <p>Team No. 3 analyzes factors related to personal development (opportunity to expand knowledge, develop interests, participate in trainings).</p> <p>Work in teams takes 10-15 minutes. Then the representative of each team presents the conclusions on the forum.</p>

<b>Evaluation</b>	The teacher provokes participants to create a wish list of “a happy worker”. Participants can submit any ideas that would make their work more interesting and more attractive to them. Learners may be asked to indicate how much the course increased their knowledge and skills in the area of motivation factors
<b>Source</b>	<ul style="list-style-type: none"> <li>• <a href="https://www.gvsu.edu/cms4/asset/C24BBCB5-0764-8C9D-91A4F27171E91560/creating_a_motivating_work_environment_-_urta_2017.pdf">https://www.gvsu.edu/cms4/asset/C24BBCB5-0764-8C9D-91A4F27171E91560/creating_a_motivating_work_environment_-_urta_2017.pdf</a></li> <li>• <a href="http://amj.aom.org/content/39/5/1154.short">http://amj.aom.org/content/39/5/1154.short</a></li> </ul>



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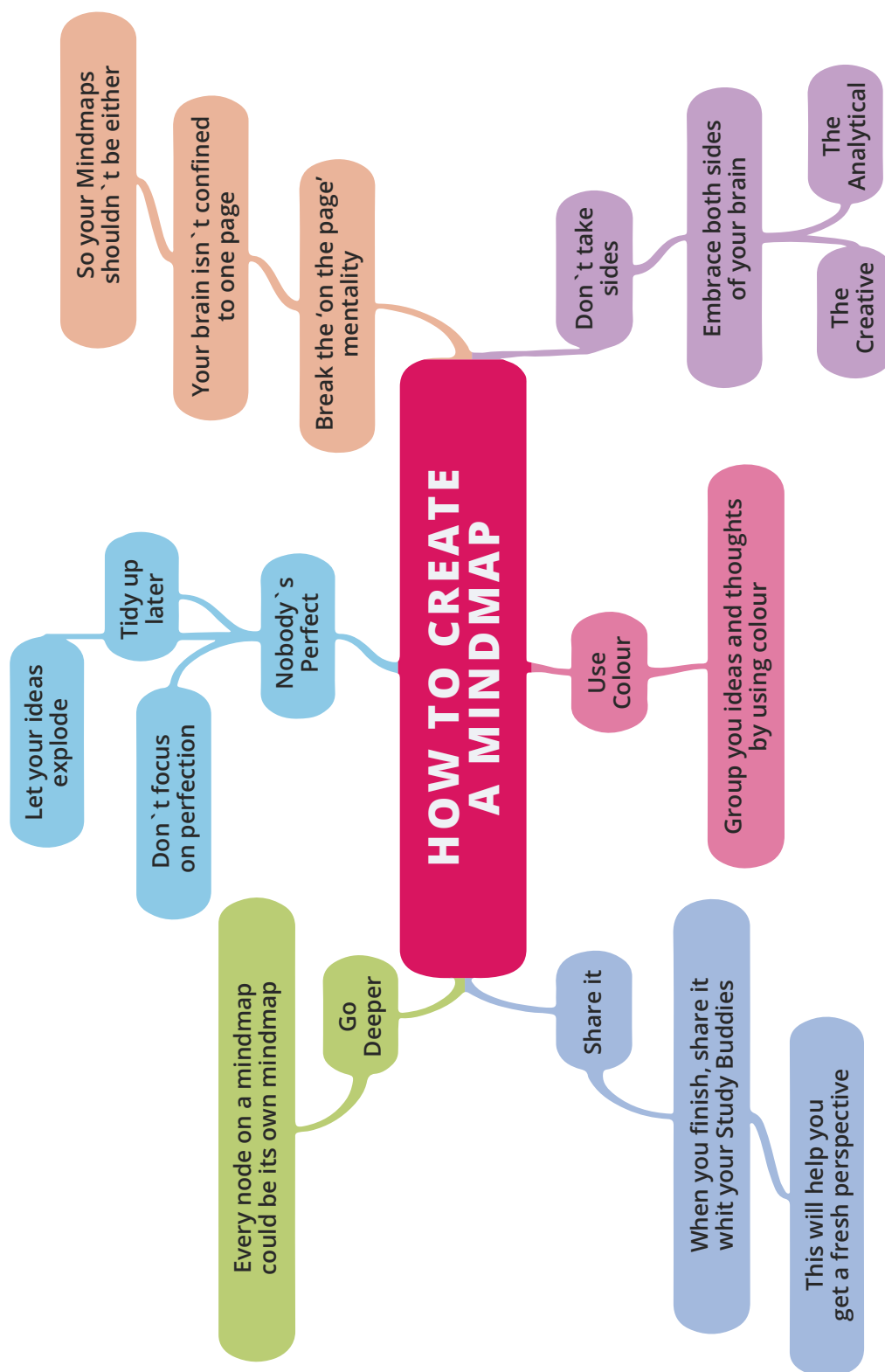
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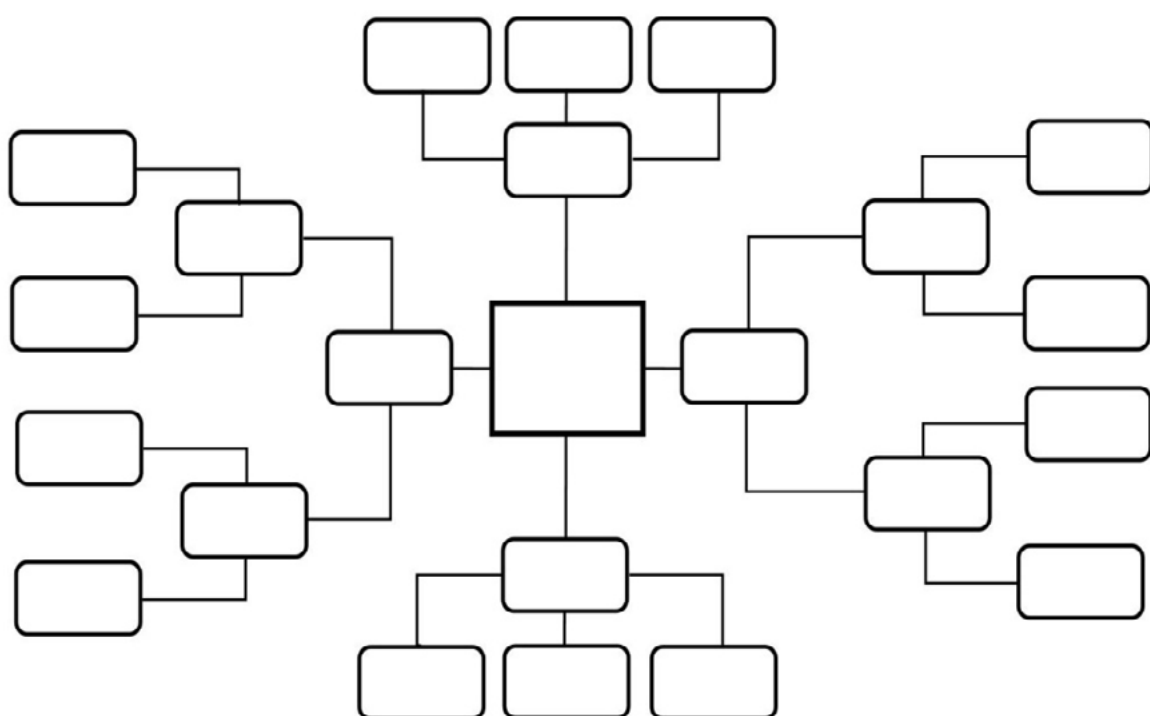
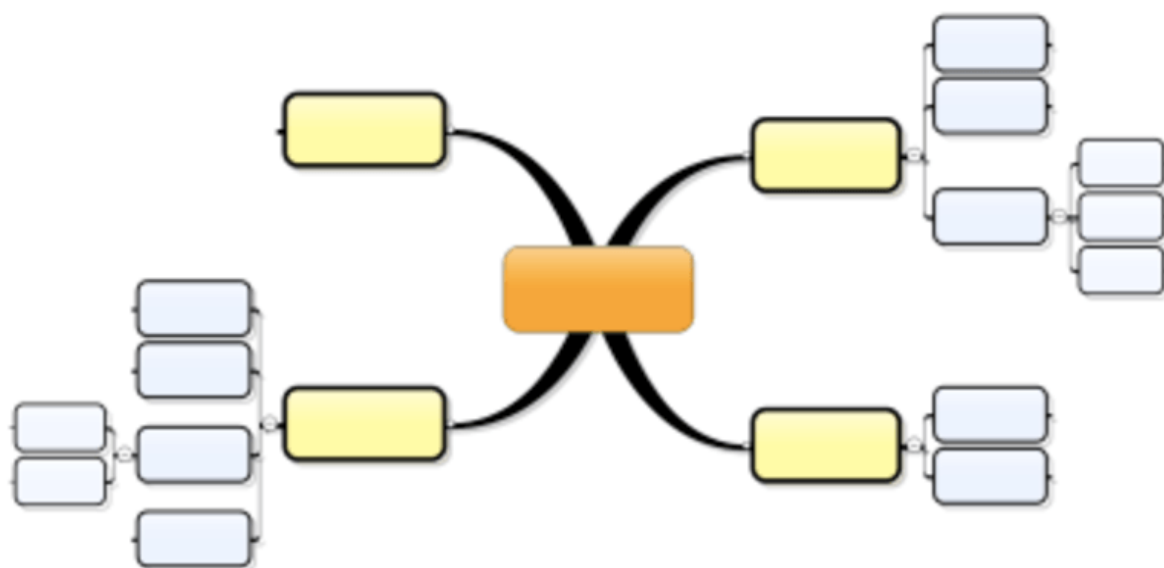
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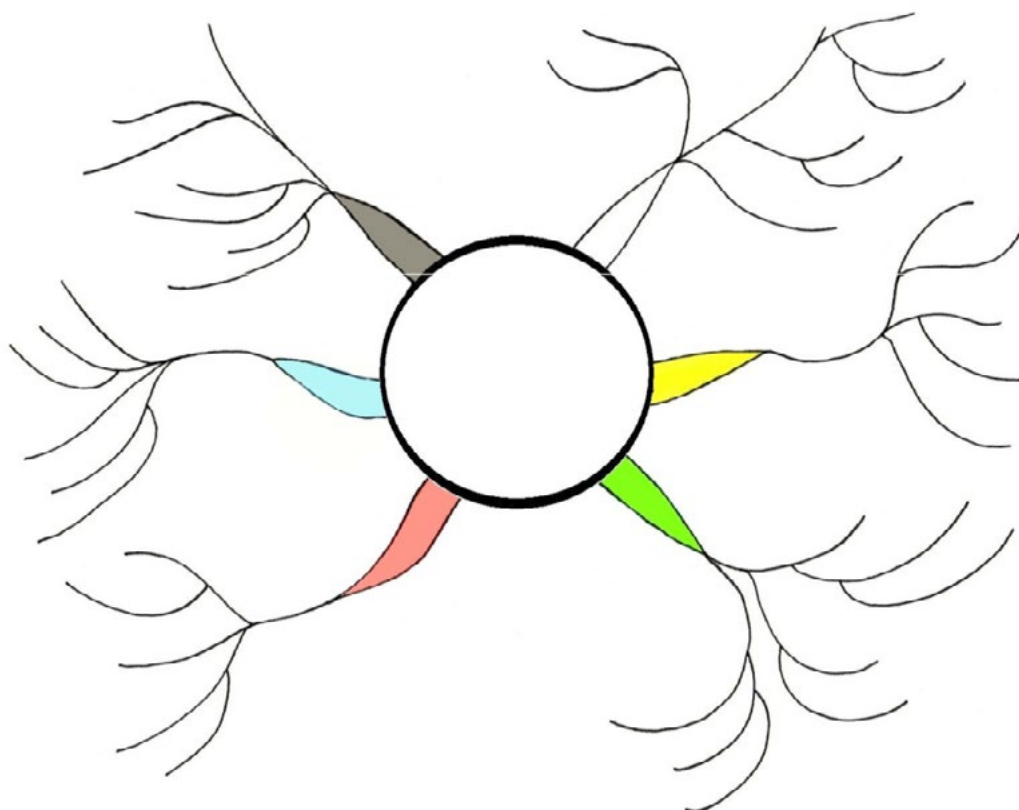
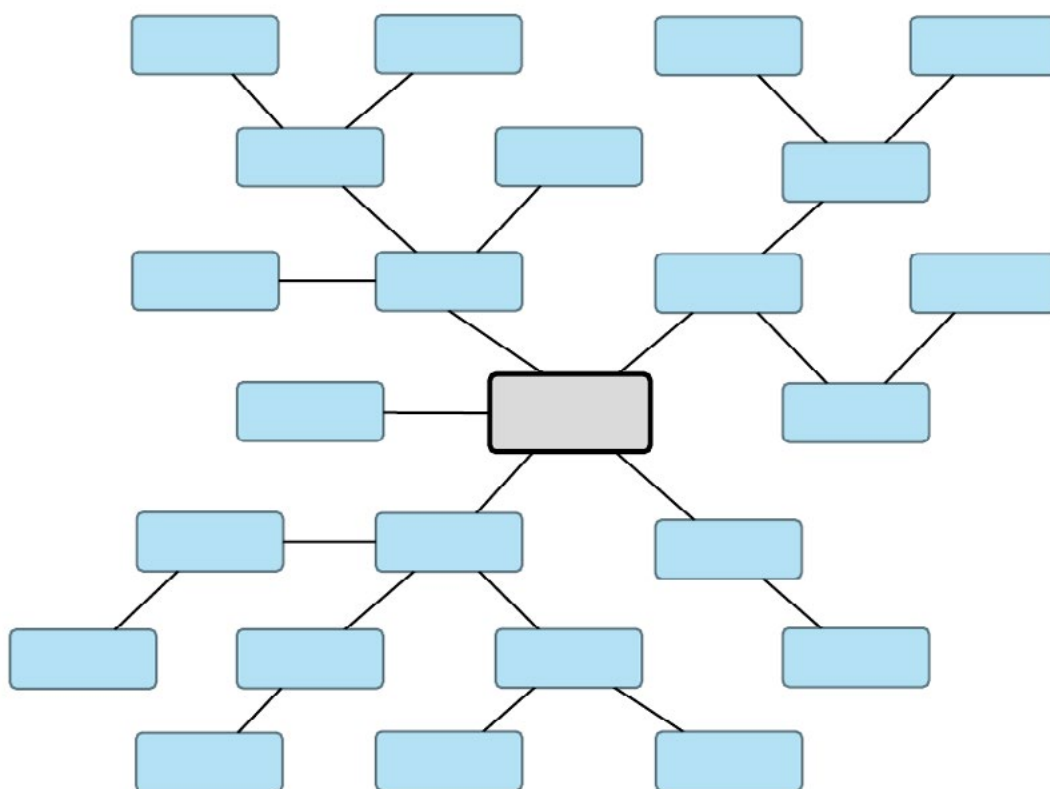


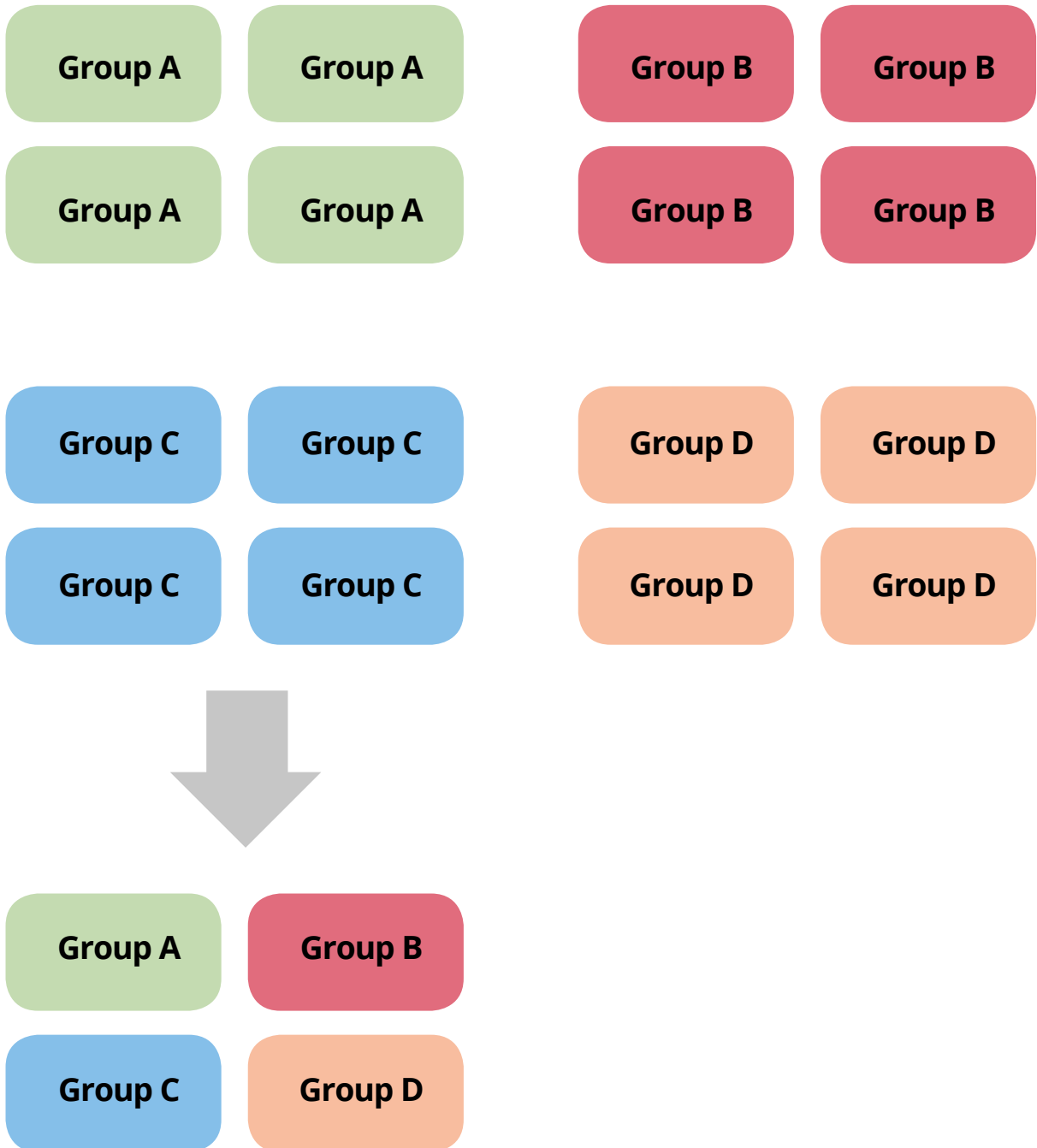
# ATTACHMENTS

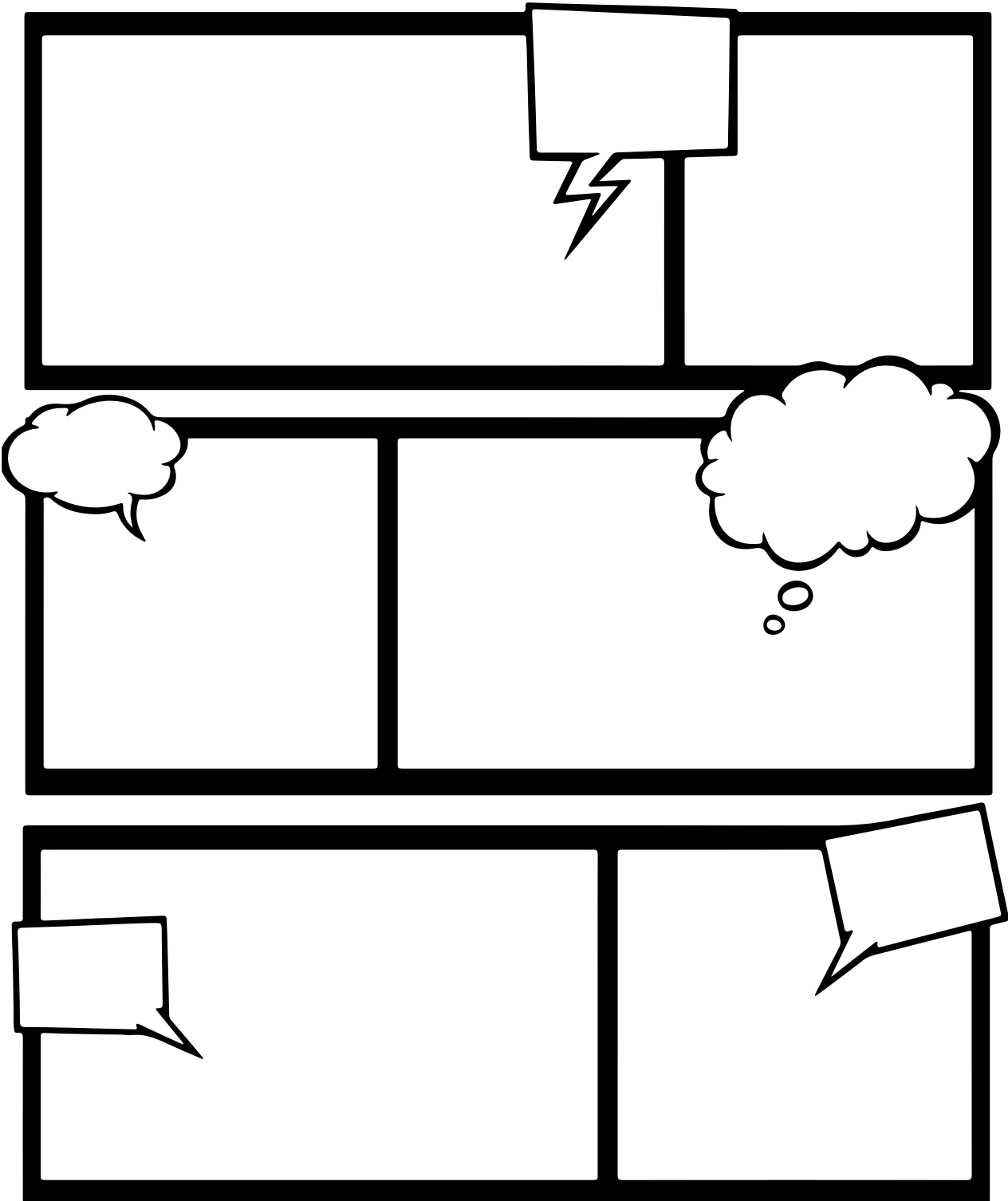
## Attachment no. 1













**Two Legs Sat Upon Three Legs,  
A short story and a riddle by Mother Goose**

**Riddle**

Two legs sat upon three legs,  
With one leg in his lap;  
In comes four legs,  
And runs away with one leg.  
Up jumps two legs,  
Catches up three legs,  
Throws it after four legs,  
And makes him bring back one leg.

*Answer: One leg is a leg of mutton; two legs, a man; three legs, a stool; four legs, a dog.*





1 =

**Pencil**

2 =

**Swan's Neck**

3 =

**Ear**

4 =

**Boat Sail**

5 =

**Hook**

6 =

**Golf Club**

7 =

**Cliff's Edge**

8 =

**Hourglass**

9 =

**Balloon**

10 =

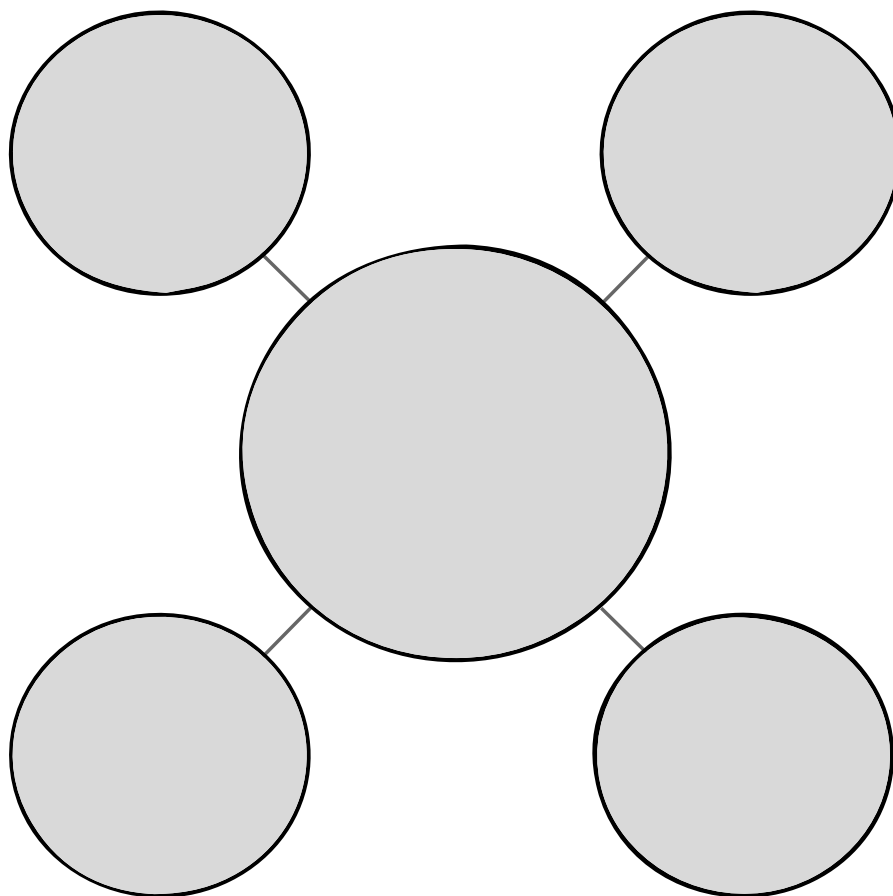
**Fork and Plate**



## Circles of My Multicultural Self

This activity shows the divers dimensions of our identities. It addresses the importance for individuals to define their identities and to overcome stereotypes.

Place your name in the centre circle of the structure below. Write an important aspect of your identity in each of the satellite circles – an identifier or descriptor that you feel is important in defining you. This can include anything: Country of origin, female, mother, athlete, student, brother, Taoist, scientist, or any description with which you identify.

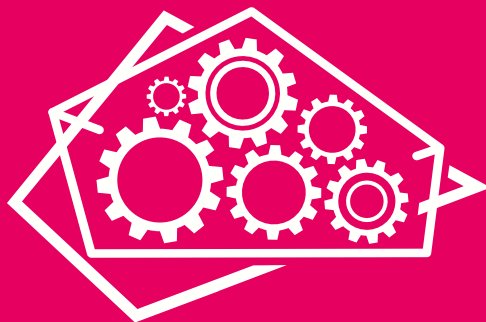


1. Share a story, with a situation where you felt proud to be connected with one of the dimensions.
2. Share a story which should contains a painful or embarrassing association with one dimension from above.
3. Share stereotypes you have been confronted with or you have heard about one dimension of your identity.

Reaction: "I maybe religious, but I am not fanatic"







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against exclusion

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