MeTURA
Back to the Roots

Family education "MeTURA-Back to the Roots",
therapeutic family gardening and therapeutic family cooking
for independent life of adult family members with intellectual disabilities

Methodology

Family education MeTURA-Back to the Roots for families with adult family members with intellectual disabilities

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CONTENT

1 INTRODUCTION

Methodology **Family Education MeTURA – Back to the roots for families with adult family members with intellectual disabilities** is an innovative andragogical lifelong learning strategy for the implementation of Family Education "MeTURA - Back to the Roots". It is a set of methods, best practices that can be applied in the teaching process of adult persons with intellectual disabilities. It applies to the activities of therapeutic gardening and therapeutic cooking. These activities are suitable for gaining concrete survival skills that one need when living or trying to live independently as much as possible.

Nowadays many countries are facing a problem with the full occupancy of occupational day centers for persons with intellectual disabilities. There are waiting lists for accepting new service users. In these cases, lifelong learning activities that can be conducted in home environment are a great contribution to the lifelong learning process of persons with intellectual disabilities.

IO1 study, conducted witihn the MeTURA project activitities in the project partner countries (UK, Slovenia, Italy and Croatia) suggested that the majority of adults with intellectual disabilities live at home with their families and that they and their families would benefit from a personalized process of lifelong learning, adapted to their own individual needs. In addition, the results of the research have shown that the most frequent reason why persons with intellectual disabilities do not attend lifelong activities is the distance from home. In this case, education in home environment can offer a way to continue lifelong education.

2 METHODOLOGY FAMILY EDUCATION MeTURA

Objective of the methodology is to enable andragogy process for adult family members with intellectual disabilities (AFMID) and their family members in the accessible environment of the family garden and kitchen. This kind of andragogy process allows flexibility in adapting to individual needs, conditions and potentials of targeted learning families and AFMID and allows the possibility of implementing lifelong learning (LL) as a guided education or self-education in the home environment. The accessibility of the andragogy process in the home environment enables a more active, permanent inclusion of adult vulnerable groups in the LL.

Elements of the methodology include:
- methods, ways of motivation, integration of families and adult family members with intellectual disabilities (AFMID) in the activities of LL,
- competences of mentors and educators,
- how do we deliver therapeutic gardening and therapeutic cooking,
- ways of transferring knowledge and learning within the family.

Target groups:
- Educators,
- Adult family members with intellectual disabilities (AFMID)
- Parents and family members of AFMID that assume the role of an educator for AFMID in the home environment.

2.1 Composition of the methodology

Methodology consists of 2 parts:
- MeTURA methodology for educators

Includes way of motivation, integration of families and AFMID in thetapeutic gardening and cooking activities, competences of mentors, way of initial and final evaluation of knowledge, procedures for individualization and personalization of learning.

It is divided to modules:

- Module I: Key competences and basic skills
- Module II: Competences of mentors/educators
- Module III: Family education MeTURA within therapeutic gardening and therapeutic cooking

- MeTURA methodology for family self-education

This section is adapted to AFMID and their family members with an emphasized illustration strategy, so that family members or educators can motivate AFMID for learning while offering them professional support in the implementation of Family MeTURA education in the home environment. In this LL process, a family member acts as an educator.

2.2 Learning objectives

- Learning objectives for educators
  - to provide the educator with knowledge and skills how to offer and carry out experiential adult learning with an innovative combination of 3 learning environments: classroom – therapeutic family garden – therapeutic family kitchen and
  - to provide them with knowledge and ways how to pass the knowledge to the family (parents) of AFMID, who in the home environment assume the role of an educator,
  - to offer support tool for the families when they assume the task of implementing this education on their own,
  - to introduce the method and use of "learning by doing" and "family education" concept.
- Learning objectives for family (parents) of AFMID
  - to assume the role of an educator and help and guide their AFMID in the activities of therapeutic gardening and therapeutic cooking.
- Learning objectives for AFMID
  - to involve AFMID in gardening and cooking activities - activities in the garden and in the kitchen can provide an opportunity for learners to participate in hands-on learning that teaches not only the intended subject (to grow and prepare food) but also responsibility, teamwork, and respect for nature, others, and themselves,
  - to improve their basic knowledge and skills,
  - to encourage lifelong learning,
  - to strengthen the AFMID's responsibility, self-care for essential needs (to eat), communication skills, to learn for independent life, improve their senses (type, smell, vision, observation, taste) and stimulate their motor conditioning, etc.

2.3 Learning approaches

Individual learners are becoming more and more responsible for the direction of their own learning process in different learning environments that span in their lifetime. Ultimately lifelong learning shifts responsibility from the system to the individual whereby individuals are responsible for self-emancipation and self-creation(Passarelli, 2012).

The project MeTURA – Back to the roots includes garden and kitchen as a learning environment where the approach "learning by doing" can be a great method for learning and since persons with intellectual disabilities need more support in the learning process, even in their adult stages, the project as well includes the concept of family education in the methodology.

2.3.1 "Learning by doing"

There are a number of different approaches or terms that cover the wide variety of approaches to learning by doing such as experiential learning, co-operative learning, adventure learning and apprenticeship.

Learning by doing refers to a theory of education. It is a hands-on approach to learning, meaning learners must interact with their environment in order to adapt and learn. This way learning enables the learners with greater self-esteem, trust in their skills, capabilities, taking responsibility for their life, gaining working experiences, greater acceptance in social environments.

> "Learning is the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 38).

Learning by doing is based on three assumptions:
1. people learn best when they are personally involved in the learning experience;
2. knowledge has to be discovered by the individual if it is to have any significant meaning to them or make a difference in their behavior;
3. a person's commitment to learning is highest when they are free to set their own learning objectives and are able to actively pursue them within a given framework (Ord, 2012).

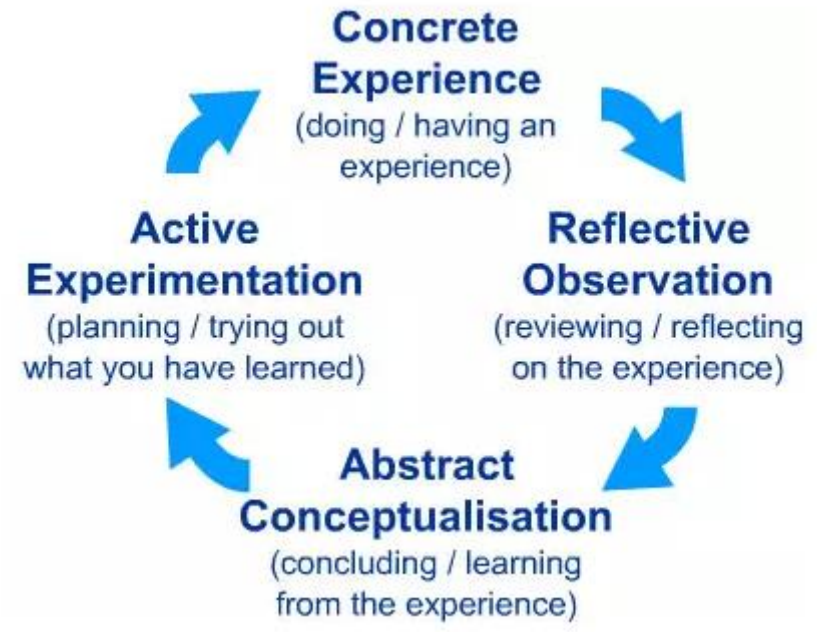


Figure 1: The Experiential Learning Cycle,
McLeod, 2017

According to Kolb's four-stage model of experiential learning, the effective learning is seen when a person progresses through a cycle of four stages: of (1) having a concrete experience followed by (2) observation of and reflection on that experience which leads to (3) the formation of abstract concepts (analysis) and generalizations (conclusions) which are then (4) used to test hypothesis in future situations, resulting in new experiences (McLeod, 2017).

To navigate on the journey of lifelong learning the most important thing for individuals to learn is how to learn. Experiential learning theory (ELT) helps learners to understand how learning occurs, to see themselves as learners and the nature of the spaces where learning occurs. With this awareness, learners can live each successive life experience fully – present and mindful in the moment. The learning way, according to the experiential learning, is about approaching life experiences with a learning attitude (Pasarelli & Kolb, 2011).

2.3.2 "Family education" concept

Parents and families are their children's most important educators, with many opportunities to build the foundation for a lifetime of learning. Families educate their children every day—both in formal and informal ways. Through positive interactions with their children, parents promote healthy development and prepare them for school, successful relationships, rewarding work, and better

health. The skills and attitudes parents encourage will teach their children to care for themselves and for others, so they will grow into adults who can do the same (National Center on Parent, Family, and Community Engagement, 2013).

"Family education" concept has been explained in several ways including:

- Family education refers to those educational concepts and experiences that power attitudes towards family living, personal relationship.
- One comprehensive and attractive approach perceives family life education as catering for individual needs leading to personal growth and enabling the individual to function as a responsible member of the family and society.
- It may be defined as education for human development which seeks to ensure that each individual approaching adulthood is equipped with the skills and personal reserves to cope with the challenges of every day life in society within acceptable societal structure and to adapt to change with experience and equilibrium.
- A variety of formal and informal efforts through which persons become ready for the roles and responsibilities of family life (NILM University, n.d.).

Within our project we will use the concept of "Family education" for describing an innovative learning methodology for families. Project partners discovered (within the O1 activity - A study of the opportunities for lifelong learning for families and their adult family members with intellectual disabilities in the concept of bringing the lifelong learning offer to their home), that there are activities available to persons with intellectual disabilities, from classes or workshops that provide information on life skills (such as healthy living, legal rights, using money, etc.), excursions (fun days out e.g. to the seaside, shopping etc.), educational visits (to museums, historical sites, etc.), sport activities, art classes, etc., but there are not a lot of activities of lifelong learning that would include the whole family. That is why we would like to introduce the concept of family education in the activities of therapeutic gardening and therapeutic cooking. These kind of activities have a great impact on the user that are described in the following chapters.

3 MeTURA METHODOLOGY FOR EDUCATORS

3.1 Modul I - Key competences and basic skills

As written in the European Commission report (2019), key competences and basic skills are a combination of knowledge, skills and attitudes:
• Knowledge is composed of the concepts, facts and figures, ideas and theories which are already established, and support the understanding of a certain area or subject.
• Skills are defined as the ability to carry out processes and use the existing knowledge to achieve results.
• Attitudes describe the disposition and mindset to act or react to ideas, persons or situations.

The key competences are developed throughout life, through formal, non-formal and informal learning in different environments, including family, school, workplace, neighborhood and other communities.

Eight key competences are defined:
- literacy competence,
- multilingual competence,
- mathematical competence and competence in science, technology and engineering,
- digital competence,
- personal, social and learning to learn competence,
- citizenship competence,
- entrepreneurship competence,
- cultural awareness and expression competence (European Commission, 2019).

As we are disovering in the project MeTURA, therapeutic gardening and therapeutic cooking activities can be greatly beneficial for gaining key competences and basic skills.

3.1.1 Gardening

Gardens can serve as living laboratories in which learners see and experience firsthand what they are learning and, in turn, apply that knowledge to real-

world situations. When learners engage in hands-on gardening lessons, they show an increase in positive attitudes towards content material and learning, in general.

Studies show that the education acquired in the garden can increase learners overall academic performance:

- Learners who engage in gardening show significant gains in overall grade point average, specifically in math and science.
- Educators believe that implementing new learning styles can help learn more effectively.
- Learners expand their ways of thinking or habits of mind to include curiosity, flexibility, open-mindedness, informed skepticism, creativity, and critical thinking (New Jersey Agricultural Experiment Station Rutgers, 2013).

Key competences and basic skills that can be improved with gardening activities:

- **Science and mathematical competence**

A garden offers an ideal area to teach and reinforce ideas and concepts about plant science, biology, chemistry, soil science, and math. Gardens can provide an opportunity to investigate and compare the basic physical characteristics of plants, what helps or hinders their growth, and their response to stimuli and environmental growing conditions throughout the season. Participants in the gardening activities have a chance to observe similarities and differences in the needs of various living things, and differences between living and nonliving things. They can maintain a science journal to record observations, collect data, and keep records and drawings of the garden. They can learn about the scientific method by conducting experiments in the garden.

Gardens give learners the opportunity to work with numbers while planting seeds; gain foundations for place value; and solve practical computation problems. For a practical, garden-based application of area and linear measurement calculation, learners could plan the area of a garden plot and then calculate the suggested distance between seeds or seedlings.

- **Literacy and reading**

A garden journal can be a book or any written or recorded diary in which participants of gardening activities can write their very own daily or weekly thoughts about the garden all year round. They can include pictures of plants, weather conditions, gardening tips, and lessons learned. It simply helps them

remember all the different things they learned while gardening and it demonstrates understanding of the organization and basic features of printed and spoken words, syllables and sounds (phonemes). Gardens can teach about agriculture, food systems, nutrition, environmental stewardship, and nature.

- **Personal, social and learning to learn competence**

Working in gardens has been shown to influence the social and emotional development. For example: when one participates in hands-on gardening activities they demonstrate more concern and willingness to care for living things; trying new things like gardening teaches learners to take risks, thereby extending their experiences and abilities; differences can be made in interpersonal relationships between learners that work together in the gardening activities. Participants develop an understanding of the natural world when they are actively engaged in scientific inquiry. (New Jersey Agricultural Experiment Station Rutgers, 2013).

3.1.2 Cooking

Almost every aspect of learning can be incorporated in cooking activities from colors, textures, smelling, science, developing vocabulary, visual awareness, and measurements. Learners constantly learn literacy in cooking activities because they are picking up on new words for foods that they are being introduced to and are cooking with. They learn how to following directions and they can even learn about geography by introducing foods from different areas or discussing where certain ingredients come from. Besides introducing learners to healthy eating habits and introducing good nutrition, they can start learning all sorts of things from academic skills to fine and gross motor skills by using devices to cut foods. They learn how to follow directions and it's also great in incorporate things like pictographs or books into the cooking so that it takes the learning beyond the kitchen (Singer, 2007).

Key competences and basic skills that can be improved with cooking activities:

- **Mathematical competence**

Surprisingly, mathematics plays an important role in the culinary arts. There are helpful tools, such as measuring cups, measuring spoons and scales, to aid in food preparation. However, some background in measurement, fractions and geometry is necessary when cooking and baking. Chefs need to be able to measure and weigh ingredients, time recipes and adjust and measure cooking

temperatures. Furthermore, when creating recipes for special diets, it's important to have a background in the science and mathematics of nutrition.

- Measuring: Measurement is an important math skill that significantly impacts the ability to cook properly. Tools like a glass measuring cup with a spout for liquids and measuring cups for dry ingredients are needed in every kitchen. Measuring spoons for spices and a scale to measure the weights of different foods are also necessary. Even with the use of all measurement kitchen tools, it is required that cooks and bakers understand the metric system and standard system of measurement so that they can apply those skills to following a recipe. Measuring also helps to prepare the perfect portion - not too much of that and less of this.

- Temperature and Time: telling time and adjusting temperature are important math skills that factor into the culinary arts. Recipes require different amounts of time, so cooks need to set a timer and monitor food accordingly. Furthermore, temperature adjustment is also very important. When cooking meat in an oven, use a meat thermometer to determine whether your dish is completely cooked. For example, chicken should be cooked to 180 degrees to ensure that bacteria are killed. When cooking at different altitudes, temperatures may need to be increased or decreased in your oven to bake successfully.

- Fractions, Division and Geometry: an understanding of fractions is crucial to cooking. Aside from measuring in recipes, the use of fractions also impact serving size. For example, if a recipe claims to serve eight people, but you are only serving four, the cook must be able to divide the entire recipe in half. Typically the cook will be required to divide whole numbers as well as fractions. Geometry is used in the presentation of food and baking. If a cook is creating a layer cake, the use of rectangles, squares and circles may be necessary. When arranging food onto a plate, cooks should use different shapes to make foods aesthetically pleasing.

Examples off food related in geometry and angles:

- Straight: Exactly 180 degree – spaghetti,
- Acute: less then 90 degree, more than 0 degree – tortilla chips, piece of cake,
- Right: exactly 90 degrees – perfect square, pizza sliced ¼.

- Nutritional Data: many cooks must take into consideration health and a balanced diet when cooking. As a result, knowledge of calories, fat, sugar and sodium are important for the everyday cook. Using the nutritional information on fresh and packaged foods will enable a cook to provide guests or family members with balanced meals that use a variety of food groups. In addition, calorie, sodium and fat needs vary greatly from person to person. Knowing the dietary requirements of those you are cooking for allows you to create an appropriate menu using nutritional calculations.

- Cooking is also related to budgeting: for example you make 200 € per week and you need to buy food and pay other bills. You need to organize how much you are going to spend on food, transportation, electricity bill, etc. (Chester, 2017).

- **Science**

All cooking involves chemistry too. The use of heat, cold, and cutting changes the composition of foods. Even simply slicing an apple sets off chemical reactions that change the color of the apple's flesh. If you heat up sugar to turn it into syrup, you're using a chemical reaction. If you add corn syrup to sugar because the corn syrup provides molecules that help form the final product of caramel, you're using a chemical reaction. Once you start learning how these specific processes work, you can use them to your advantage, creating effects in food that make plain dishes look fantastic. If you know that sugar browns in heat, you know that adding a sprinkle of sugar to the top of a product will give the final cooked product a nice caramelized look. If you change a cooking method, you will be able to tell if the final product is fine because you'll know which reactions no longer happened.

For example, cookies baked in an oven turn golden or brown as the sugar in the dough caramelizes. But if you're expecting that, you'll know that the looks are not a problem as long as the cookies show other signs of being done. You won't keep trying to brown the cookies because you're aware that the

chemical reactions will be different. Knowing chemistry in food is also helpful when creating copycat dishes for people with special dietary requirements. If you're cooking for someone who can't have eggs, you'll know that you need to find a substitute binder for the recipe, for example.

Chemistry and food also comes into play when you're trying to verify old cooking legends and advice. For example, if you know how pasta absorbs water, you'll know that you don't have to use tons of water to cook a little pasta. That's a very simple example, but it shows you how you can cut cooking time if you already know the basic chemical reactions behind what's happening when food cooks (ECPI university, 2020).

- **Personal, social and learning to learn competence**

Cooking can be a great group or a family activity. Cooking is a fantastic way for you to spend the afternoon with the family, teaching each other a life lesson or two at the same time. Teaching family members the basics of cooking is important because remember, they'll become more independent and be able to cook their own dinner. Cooking also gets you out of the house since you need to buy ingredients – going to the supermarket, visiting the farmers market.

Cooking doesn't have to be a "follow step-by-step" activity. In fact, you don't even have to cook something straight out of a recipe book (or from a recipe website). After preparing and cooking food for some time, one gets used of it and learn a range of different cooking methods. It's at this point that one can start to explore cooking on their own and come up with own recipes and dishes. The sense of accomplishment you feel afterward can be a boost for your self-esteem (Wasmer Andrews, 2015; Like to cook, 2020).

- **Literacy competence**

During cooking activities learners can apply their reading, writing, speaking, and listening skills by:

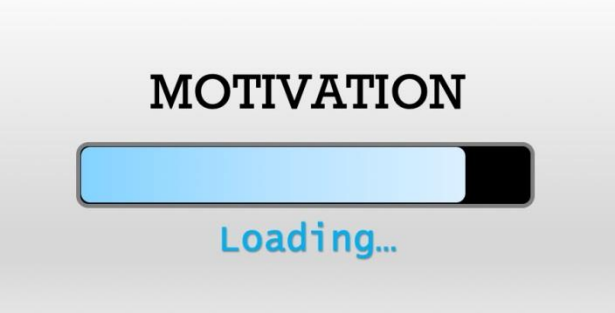
- making a shopping list,
- reading the recipe,
- taste ingredients,
- grow vocabulary,
- read a story related to food or the dish you are cooking,

- writing down recepies.

3.2 Modul II – Competences of mentors/educators

3.2.1 Methods of motivating and including AFMID and families in activities

Rapid and frequent changes in the world require the lifelong development of the personal, social and professional competences of individuals, and thus are contemporary societies facing the necessary changes in the field of education. It must be modified in accordance with the requirements of society and individuals (education for life and work) in terms of the value system and the real needs of the labour market. Adult education is not exempt from the processes that happen around us.



Motivation is a key factor in a successful lifelong learning process and should therefore be viewed through the links between educational goals, expected outcomes, methods of evaluating knowledge, skills and abilities. It is also the role of the educator to stimulate the natural motivation of families and their adult members with intellectual disabilities, taking into account their needs, interests and emotions, using appropriate motivational techniques.

Motivational techniques should be present in all parts of the adult education process:

- getting to know the learner and introducing them to the curriculum (different ways of getting to know the learner, "breaking the ice");
- adopting, identifying and repeating teaching content (interactive teaching methods, collaborative learning strategies);
- Monitoring and evaluation (competitions, quizzes).

According to educators from the questionnaires of METURA project - **IO3: "Study of motivational support methods of educators for more effective social activation of families and their adult family members with intellectual disorders"**, lack of interest, closed nature of the family and lack of time and social media as well as the denial about their child's condition represented the main obstacles to reach families with AFMID.

So it is important for educators to find methods and strategies suitable for engaging the target groups in education activities. According to the METURA project research, methods and tools that are mostly used by educators to motivate AFMID and their families in training activities are:

- Communication skills (custom communication);
- Active listening;

- Following good practice;
- Personal approach;
- Educational brochures;
- Team work;
- Role playing;
- Tutoring.

Most educators believe it is important for families with adult members with intellectual disabilities to continue lifelong learning in their home environment. This could be encouraged by **engaging in trainings and workshops, good practice, motivation, roundtables and sharing experiences**. The most important features in effective communication with families with AFMID are **patience**, **active listening, open mindness** and **respect**. Most of the educators think that positive response and motivation are very important when involving families with AFMID in lifelong learning activities. The key for successful implementation of LL for families with AFMID in their home environment are **small groups** and **implementing activities which help families to integrate in unfamiliar environment**.

Families say that from a personal point of view, AFMID needs encouragement and sense of achievement during a learning activity. **Socializing with other families** and **exchange of experiences** is the kind of support that would help families with AFMID improve the educational activities.

The vast majority of respondents communicate with parents over the phone or personally. Most used methods by educators are **adapted communications** and **peer support**.

3.2.2 Competences mentors and educators should have to engage AFMID and their families in learning activities

There are some skills that according to most of the mentoring literature are important for playing the role of mentor well, let's see them together:

1) Professional knowledge

The first of the skills that a mentor must have is certainly the professional knowledge, necessary to support the need for growth of the mentee. In order to help the mentee find the right answers, he /she will need to be equipped with acumen and insight into the business in order to guide him/her in the right direction. The sense of experience will serve even if the mentor has not had direct experience of the same problems. Through the example of the strategies he/she uses in similar

cases, even negative ones, he/she will help the mentee to face mistakes, to take risks and become resilient.

2) Self-awareness

Self-awareness must be second among the skills. A mentor must know how to objectively observe his/her behaviour, wondering why such behaviour, analyse the consequences for yourself on others and for your goals and know how to change if necessary. Awareness is essential and is the basis of learning. And the mentor must be able to teach it to the mentee. So he/she will teach him to learn.

3) Understanding of others

It has been in fashion for some time, but empathy is one of the necessary skills if you want to be a good mentor. Understanding the emotions of the other, grasping body language, helping him manage his anxiety and fears. Be positive and encouraging. Knowing how to predict the consequences of a certain behaviour. Knowing how to give honest and constructive feedback. And to know how to receive them with humility.

4) Effective communication

Knowing how to listen carefully to what the other has to say. Without interrupting. Listening to the end and without anticipating the conclusions using pre-concepts (i.e. formulated before). Knowing how to manage silence and take advantage of it to grasp the non-verbal communication. And above all, knowing how to ask questions, so to push the mentee to find his solution.

5) Knowing how to build an engaging relationship based on trust

For the mentoring relationship to be successful, the mentor must have a positive influence on the mentee. And to be able to do so, he/she must have a sense of measure and be humble in reporting his/her successes or failures. He/she must have a sense of humour so that meetings are always pleasant. The mentor must respect the confidentiality and the most personal information he/she will collect during meetings and make good use of them. And he/she must confront without judging.

6) Interest in making others better and improving themselves

This predisposition in the mentor is necessary because he/she will have to be available and dedicate a lot of time to the mentee. Often only in exchange

for some recognition, certainly not for money. And this interest must demonstrate this by supporting and accepting the objectives of the mentee without overwhelming him/her. Accompanying him/her through learning opportunities and participating in the continuous exchange in a never ending learning process. Demonstrating openness to change him/herself.

7) Focus oriented

The mentor must be skilled in helping the mentee to identify and pursue his/her goals. Maintaining focus on the purposes of the relationship will make meetings more productive. Remember that a mentoring relationship flows parallel to real life. While supporting the mentee in unexpected or occasional problems, the mentor must help him/her not to lose sight of the true goal. Rather, it will help him/her reformulate it if necessary.

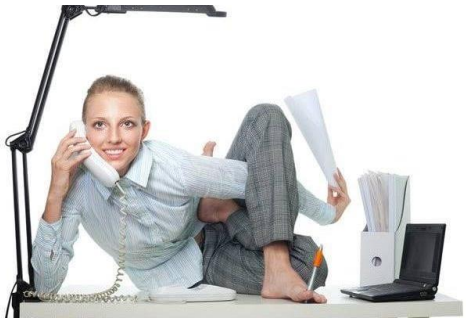
8) Orientation to networking

The ability to build a network of relationships and help others to do so is essential. For the mentor him/herself, having a reference network will be useful when he/she will have to face unexplored problems and will be of support for the mentee and his contacts.

9) Good character

Needless to say, but we emphasize it. Patience, availability, positivity, humility are indispensable characteristics for a mentor. Remember that your main purpose is to support the mentee in its growth. Do not show off for your success!

10) Flexibility



The mentor is a helmsman who must adapt to the situation he/she faces. Depending on the mentee and circumstances, he/she must be a coach, counsellor, trainer, networker, guide, be challenging or welcoming, be proactive or indulge. And the mentor must be able to help the mentee deal with change.

The most important element in a mentoring programme is to identify mentors with a predisposition to these characteristics. Training mentors and mentees will increase the success of your program by over 90%. According to the results of IO2 - Activity 02 "A study of the necessary competencies for educators and andragogical tools for the implementation of the lifelong learning of families and adult family members with intellectual disabilities", the concept of bringing the educational offer closer to their home is a good idea in educators' opinion. Most of them would like to gain more knowledge and competencies via good practice exchange. Educators think that the most important

competencies are the so called soft skills: **empathy**, **patience**, **communication skills, active listening**, **open-mindedness** and **professional knowledge**. **Stress management**, **good communication**, **knowing the group dynamics** and **work experience** are the competencies that some of the educators are missing in order to improve their work.

As reported by educators in all partner countries, the main channels of communication used with families with AMFID are **over the phone** or **personally**; most adopted methods by respondents are **adapted communication**, **peer** and **volunteer support**.

Moreover, questionnaire's results revealed that families are often not responsive and this constitutes an obstacle for educators when implementing lifelong learning activities. Furthermore, educators had difficulties getting in touch with families. When confronted with a problem in lifelong learning activities, educators that participated in the questionnaire include the whole family in problem solving. According to respondents, **training on new methodologies**, **more resources** and **more support staff** would help them to improve their activities.

Educators were also asked to identify the elements for an effective communication strategy when involving families with AFMID in lifelong learning activities. In this regard, most common answers were **empathy** and **predisposition to communication**. In addition to this, to communicate successfully with such families, the educator should be **clear**, **simple**, **empathetic** and **cordial**.

Concerning the development of an effective guided implementation of activities for family in their home environment, respondents identified different factors. According to Slovenian educators, for example, small groups are key when implementing lifelong learning activities for families with AFMID in their home environment. Such activities should also help families to integrate in unfamiliar environment. In Italy, the family play an active role and they should be guided and accompanied, at least during the first period. In Croatia respondents thought that they may be more engaged in activities if they could be carried out in the home environment. According to British educators, activities need to be simple and relevant to daily life.

In METURA project result "IO4", the consortium found out that most of the families say their AFMID would need a **suitable space** and the **professional**

support of educators to prepare food more independently, so as **emotional and psychological support**, **individual support plans** and the **physical assistance of another person**.

The educators should inform parents about **their rights and duties**, those who apply to them, as well as those who relate to their family members. It is also the duty of the educator to detect the parents' willingness to participate in various forms of collaboration (individual, group work), and to be aware that some topics are more appropriate for one form of work rather than another. An educator must be able to listen to family, understand their needs and take into account their values, attitudes and different sources of power. Only in this way the educator can establish a reciprocal relationship with the family and work with them in partnership. Educators give the following reasons for disagreement with parents while working with families:

- parents neglect, ignore or inappropriately respond to educators' suggestions;
- parents overprotect their adult children;
- parents, especially educated, are often overly demanding;
- parents limit their son or daughter to independence;
- they question the educator' assessment of their AFMID abilities;
- they do not perceive that their children are adults and their needs are appropriate;
- fathers do not cooperate well;
- they want to make their own decisions about the future of their child.

Parents usually expect educators to:

- consult with them regularly and listen to their views;
- be more open to the views of others;
- acknowledge if they do not know something;
- treat all children with respect;
- take into account individual differences between family members and all participants.

There is a need for educators who have developed adequate competencies to provide support. In this context and synthesizing all the results of the desk and on-field research carried out by METURA consortium, quality lifelong education of support educators has been found necessary, and the desirable traits of those educators are **open approach**, **outstanding adaptability**, **flexibility**, **creativity**, **patience**, **consistency**, **good communication skills** and a **high level of responsibility**, which are crucial.

Summing up the results of the METURA preliminary research, educators working with families and their adult members with intellectual disabilities should have basic competencies that include:

- identify and define the needs of persons with intellectual disabilities and their families;
- carry out an assessment of ability, create and develop an individual work plan and programme for persons with intellectual disabilities and their families;
- select, apply and adapt different methodological approaches in dealing with people with intellectual disabilities;
- identify the needs of parents and advise them adequately;
- adequate response to unforeseen situations when dealing with people with intellectual disabilities, knowledge of assistive technology;
- understanding of legal frameworks and protection of human rights.

3.3 Modul III - Family education MeTURA within therapeutic gardening

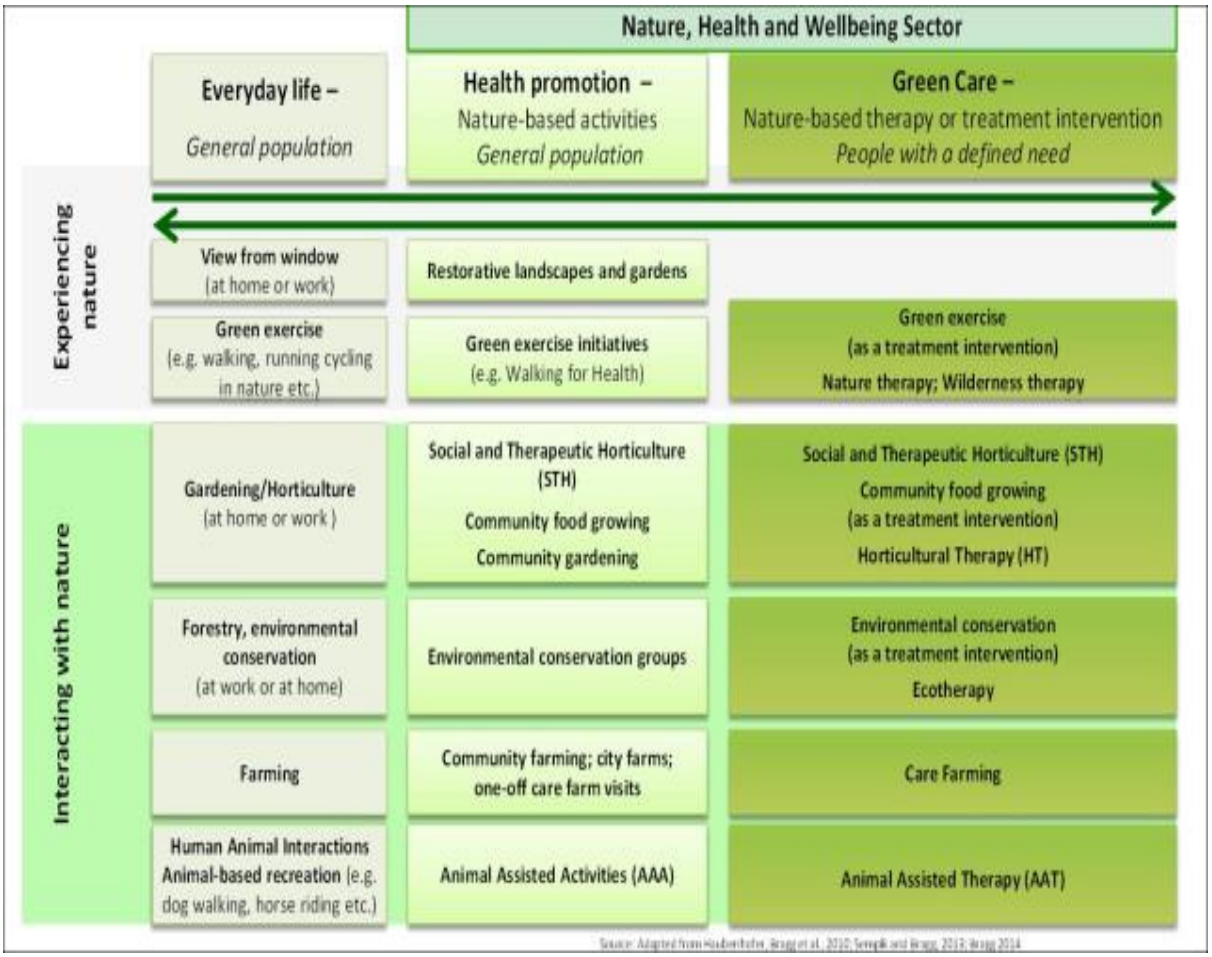
3.3.1 What is therapeutic gardening?

Therapeutic gardening or therapeutic horticulture[1] (also known as Social and Therapeutic Horticulture or STH) is the process of using plants and gardens to improve physical and mental wellbeing, promote learning and skill development and improve social inclusion and community engagement. Therapeutic gardening forms part of the nature, health and wellbeing sector which covers all activities that use nature and engagement with nature as a way of promoting health and wellbeing.

It has long been understood that engagement with nature is beneficial to human health (Sempik, Hine & Wilcox, 2010) and in recent years there has been increasing interest in these activities as a cost effective and easily accessible route to increased health and wellbeing Activities in natural settings which have been shown to have therapeutic properties are often collectively termed "Nature based interventions" These can be divided into 3 categories based on the level of need and the degree of facilitation involved:

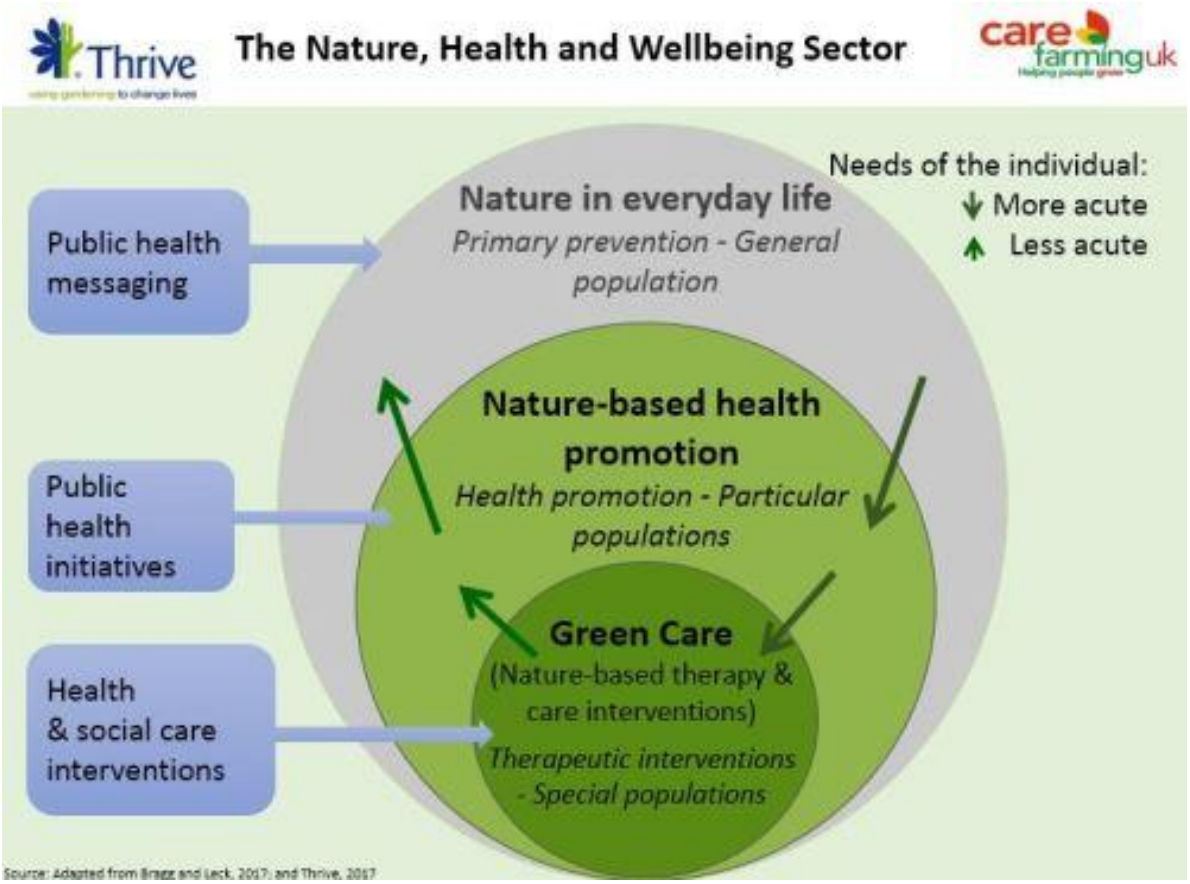
- Nature in everyday life: relates to activities that involve promoting and encouraging individuals to take part in gardening in their everyday life through activities such as advice and guidance, formal horticultural qualifications, local community gardening groups, etc. An example of this is Thrives' Carry on Gardening website" which provides advice to the general public about continuing gardening with disabilities. This requires minimal intervention and is for individuals capable of manging their own health and wellbeing
- Health promotion: activities aimed at particular populations who are "at risk". Used as a way to prevent chronic ill health or improve wellbeing. These are often community-based, for individuals who require some support or facilitated sessions to engage with nature but are usually informal
- Green care: targeted (i.e. specifically designed, structured and facilitated) interventions for individuals with a defined need (Bragg, R. and Atkins, G., 2016). These are targeted therapeutic or treatment interventions and are delivered by trained/qualified practitioners who have experience in using gardening tasks to produce specific therapeutic outcomes (rather than purely facilitating gardening).

[1] Another common term Ecotherapy involves the notion of "*mutual healing and growth*" where the reciprocity between human and nature enhances an individual's wellbeing, which then promotes positive action towards the environment, (and collective responsibility for the planet) (Bragg & Atkins 2016)



In general, STH or therapeutic gardening is considered to relate to the latter two of these categories: Health Promotion and Green Care, both of which require the intervention of a "facilitator" to support the individual to benefit from engaging with Nature through gardening. Both require a good knowledge of gardening from the facilitator but for Green Care the facilitator also requires a good therapeutic understanding of the needs of the individual and of how gardening tasks can be used as therapy.

For MeTura, gardening at home with the family is likely to fall into the category of health promotion (facilitated by a family member or carer) while formal workshops or courses may be more structured and delivered by a trained professional so may be more in the category of "Green Care.



Individuals may move between these categories as their health and well-being needs dictate. For example, an individual recovering from a stroke may be referred to a structured gardening programme (Green Care) to work on self-confidence, general mobility and key muscle strengthening; to further their rehabilitation they may move on to a community gardening group (health promotion) providing more social interaction and local support and this may lead to them integrating gardening into their personal (everyday) life.(Green Care Coalition, 2020).

The existence of associated programmes can (where appropriate) help an individual move on from needing the services of a green care intervention, to maintaining their improved wellbeing state by attending a health promotion initiative, and then to progress further by choosing to incorporate nature-based activities and healthier behaviors into their everyday lives, thus creating a habit for life.

In the case of MeTura, it may be that AFMID require a Green Care approach initially which will enable them to move into gardening at home supported by family members (Health Promotion) and eventually to them being able to garden more independently (everyday life).

3.3.2 Benefits of therapeutic gardening

There is now a large evidence base supporting the use of gardening and horticultural activities to bring about positive change in the lives of disadvantaged people of all ages. Sempik et al (2003) produced a comprehensive survey of STH literature provided evidence for the effectiveness of horticulture and gardening in a number of different therapeutic settings, although this was mainly descriptive. Experimental evidence from environmental psychology also supports a theoretical framework for therapeutic horticulture (Sempik et al, 2005). In 2016 Bragg and Atkins presented a systematic review of the evidence in relation to mental health care, concluding that the studies all showed considerable promise for STH and other nature-based interventions, particularly for those with depression and Alzheimer's. Buck (2016) also presented a wide-ranging literature review on gardens and wellbeing, demonstrating how gardens and gardening are related to health across the life-course, from schools to family life and into older age. These studies showed that gardens offer the peace and tranquillity needed for rehabilitation and recovery and that gardening provides a flexible, adaptable and inclusive intervention for promoting holistic health and wellbeing. The opportunity to develop an interest in gardening will give benefits that can last a lifetime.

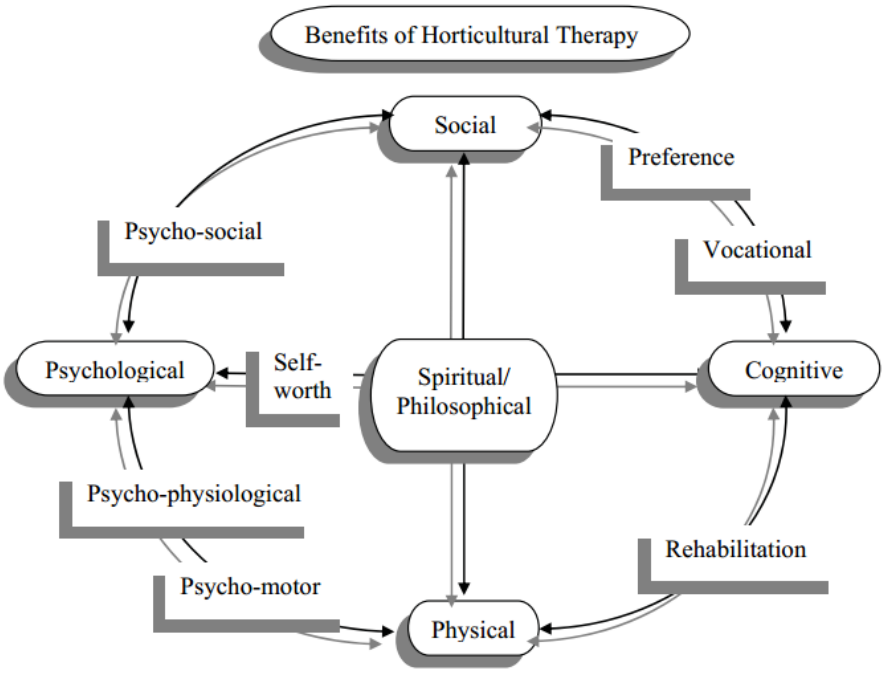
Benefits of a sustained and active interest in gardening include:

- better physical health for example through increased purposeful exercise or learning how to use or strengthen muscles to improve mobility, dexterity etc.
- improved mental health, for example gaining a sense of purpose and achievement
- the opportunity to connect with others – reducing feelings of isolation or exclusion, finding a new topic of conversation etc.
- having an opportunity and reason for getting outdoors and relating to nature in a positive, nurturing role. just feeling better for being outdoors, in touch with nature and seeing things grow - all things that are known to be important to us as human beings
- developing new skills, learning about food growing and what is good to eat, boosting confidence with new-found knowledge and using this to gain work related or functional skills leading to increase employment opportunities.

Using specific gardening tasks and the garden environment, STH practitioners build a set of activities for each gardener aimed at improving their health and wellbeing and achieving particular goals identified by the gardener themselves or by their family, support workers or carers.

Relf (2006) presented a model of these benefits showing how they are interrelated so that therapeutic gardening can be considered to be a holistic

intervention in that engaging with gardening will lead to multiple benefits in multiple different areas as the result of a single activity.



Sempik, Hine & Wilcox, 2010) in their Green Care conceptual framework highlighted the following benefits of green care:

- Psychological restoration and increased general mental wellbeing
- Reduction in depression, anxiety and stress related symptoms
- Improvement in dementia-related symptoms
- Improved self-esteem, confidence and mood
- Increased attentional capacity and cognition
- Improved happiness, satisfaction and quality of life
- Sense of peace, calm or relaxation
- Feelings of safety and security
- Increased social contact, inclusion and sense of belonging
- Increase in work skills, meaningful activity and personal achievement.

3.3.3 Theories underpinning therapeutic gardening

Clatworthy et al (2013) reviewed the main theories that have been suggested to link gardening (and contact with natural environments more generally) with health. These include:

- Attention restoration (Kaplan and Kaplan, 1989). Proposes that mental fatigue arises as a result of the effort involved in inhibiting competing influences when attention is directed towards a specific task. Gardens can provide 'fascination' (non-goal-orientated and effortless attention) in order to provide relief to directed attention (problem-solving, which is a limited resource, and

overloading). Gardens can therefore provide restorative effects to mental functioning by providing non-directed attention.

• Stress recovery. Ulrich (1984, 1993) argues that since the process of evolution took place in a natural environment it favoured those individuals who positively responded to that environment, hence rapid recovery in the natural (restorative) setting from the effects of stressful stimuli would be an evolutionary advantage[2]. There is considerable evidence that physiological functioning (eg, heart rate, skin conductance) returns to normal faster following a stressful event when exposed to natural stimuli.

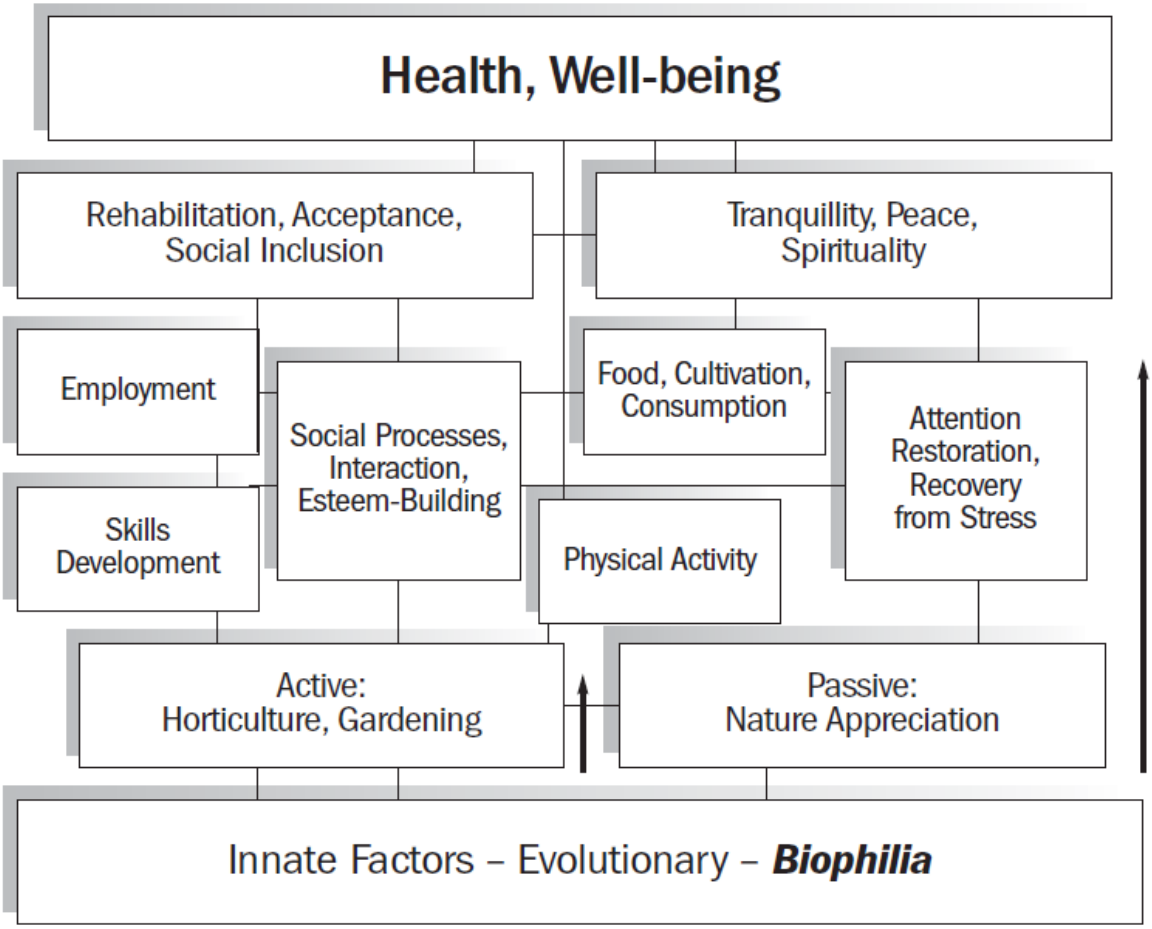
• Social connections and exercise. Sempik et al (2005) argue that STH enables social inclusion through providing meaningful activities for participants (production) in an environment that is deliberately structured to promote social interaction and maximise social opportunities. Gardening interventions are usually social; engaging with others in a meaningful activity and developing knowledge and skills and a common interest that can be discussed and shared with others, are linked to improvements in mental health. Research has shown that people with poor mental or physical health are often at greatest risk of social exclusion (Social Exclusion Unit, 2004)

• The other common theory underpinning therapeutic gardening is the concept of Biophilia (Wilson, 1984) which suggests that our desire for connectedness to nature is innate and a primal biological need of our species that is as powerful as other instincts. A disconnection from nature is likely to have negative effects both on the psychological health of individuals and on the way populations value and conserve our natural environment (Sempik, Hine and Wilcox, eds., 2010).

3.3.4 Elements of therapeutic gardening

Sempik, J., Aldridge, J., & Becker, S. (2003) developed a simple model based on the current literature on STH and environmental psychology which attempts to show the interrelatedness of goals and approaches.

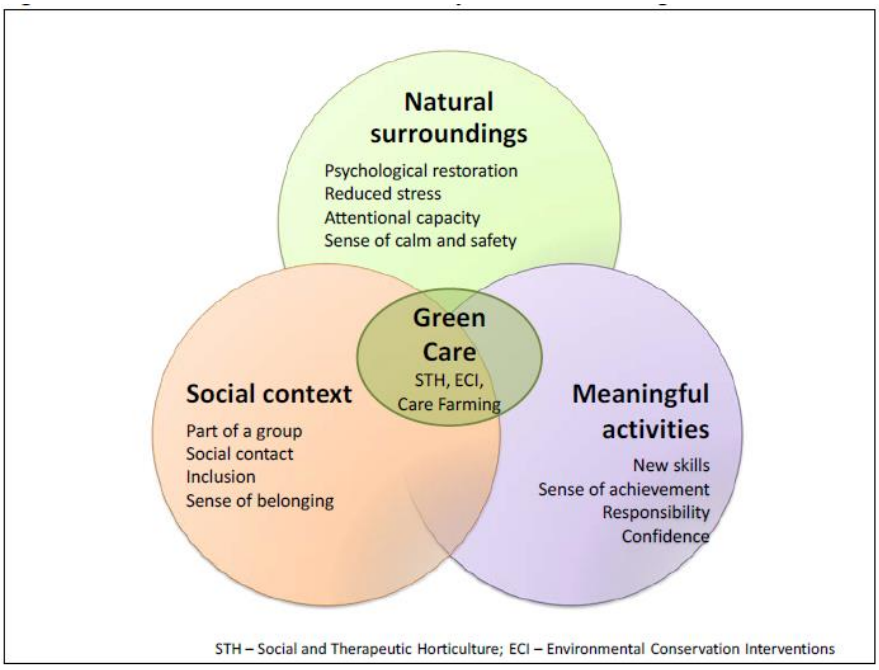
[2] Kaplan(1995) proposed a model which integrated attention fatigue within the stress mechanism. Whereby attention fatigue can lead to the stress response.



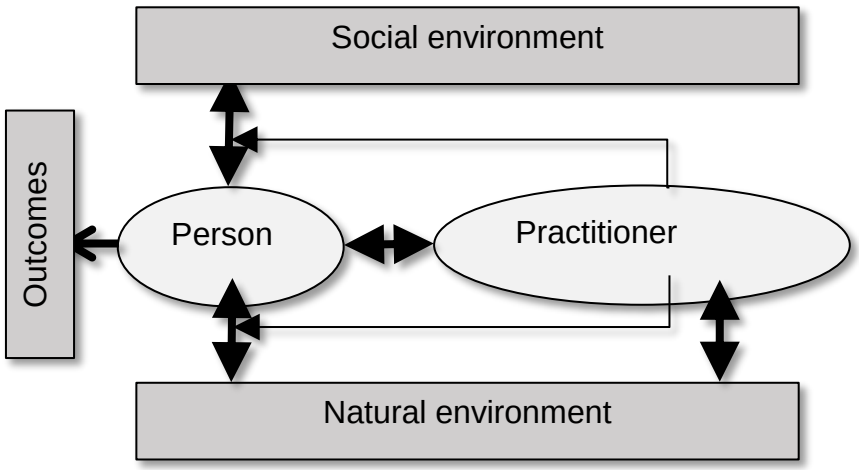
Activities in the garden are often separated into passive and active engagement. In this model, is the inherent appeal and benefits of the natural environment forms a base to all of the activities. These base supports both passive engagement (such as appreciation of nature) and active participation in activities such as gardening. Whilst the benefits and activities of these two kinds of engagement are shown as separate groups, rehabilitation, acceptance and inclusion on one side and tranquillity, peace and spirituality on the other, these are interconnected. They are represented as two distinct groups since rehabilitation, acceptance and inclusion are frequently the goals of active programmes whilst passive appreciation of nature is often associated with tranquillity, peace and spirituality but this division is not a 'hard and fast' rule and focus on one goal will frequently lead to wider benefits. These activities are aimed at achieving health and wellbeing at the summit of the model

The mental health and wellbeing benefits from gardening result from the combination of the three key elements; i) the natural environment; ii) the meaningful activities; and iii) the social context, which characterise these approaches (Sempik, Hine & Wilcox, 2010). In order for gardening to benefit AFMID, MeTura needs to provide guidance on how family supporters and

carers can facilitate meaningful activities and structure activities so that social context and interaction are part of the provision.



It is also important to bear in mind that the person facilitating the activity (the "practitioner") exists within the same natural environment as the individual engaging in the gardening and will have their own interaction with and beliefs about the natural environment which will influence the way in which they support the individual.



3.3.4 Approaches and methods for therapeutic gardening

Therapeutic gardening programmes vary in scope, setting, purpose and treatment approaches and range from a few plants grown on a windowsill to

year-round, full time growing facilities (Haller & Capra, 2016). Programmes can be categorised into three types based on their goals.

- Vocational gaols seek to engage attendees with gardening as an occupation and thereby to develop vocational related skills (such as time management, responsibility, initiative, task sequencing, working with others, etc) and to provide opportunities for learning new skills and knowledge. The purpose of these may be to improve employability or to develop the skills needed to engage with personally meaningful hobbies or andragogical learning. In common with occupational therapy, underlying these programmes is the assumption that a pleasant and an appropriate occupation can promote health and well-being as well as enabling integration into mainstream society.
- Therapeutic goals focus on recovery from, or reduction of impact of, mental or physical injury or illness including social disadvantage or isolation. These are typically based on a medical model and personalised goals and seek to optimise physical and mental health and social integration.
- Social or wellness goals look at improving the general health and overall quality of life of the participants particularly in supporting social integration and community involvement through opportunities for social inclusion and development of social skills and connections.

Therapeutic gardening is a holistic intervention, so these goals are not mutually exclusive. Personally meaningful activities motivate and promote the development of physical and social skills which in turn leads to feelings of capability and competence which support the recovery from mental or physical issues. In all cases the approach is person centred and aimed at meeting the particular needs of the individual.

3.3.6 Knowledge and skills required

Unlike other behavioural interventions such as occupational therapy or speech and language therapy, there is, in general, no central organisation or professional register for therapeutic gardening (STH) practitioners in Europe and hence no formal requirements for skills or qualifications. The American Horticultural Therapy Association promotes professional standards and a credentialing process for horticultural therapy practitioners[3] in the US. This means that people find many different routes to a career in STH and, because of the diversity of STH provision, there is no one course or combination of skills that will cover everyone's needs. Each job or project will place a different emphasis on a combination of different skills. In general, Thrive recommends that practitioners have a qualification or experience in horticulture, experience

[3] https://www.ahta.org/ see note on p3 for details of the difference between therapeutic gardening and horticultural therapy

of working with/practical understanding of the relevant client group and ideally experience or training (such as Thrive's extended learning opportunity Award in STH Programme Development) in using gardening as therapy

3.3.7 How to deliver therapeutic gardening

Involvement in a therapeutic gardening programme usually involves the following phases

- An initial assessment of the individual's needs, desires and abilities. This information may be gathered from a mixture of sources including application forms, discussions with the individual and family/carers and formal assessment tools. It also often involves a period of observation and assessment of the individuals abilities and behaviour to create an initial baseline (baseline period).
- Once the individual's needs, desires and abilities have been identified and prioritised, a personalised action plan (individual development plan) is created which states the long- and short-term goals (which should be SMART[4]) along with the criteria for measuring the achievement of these.
- The next step in one of more periods of intervention which involves the interaction of the practitioner/facilitator, the individual and plants/garden. Programmes and activities are planned based on the personalised goals along with recording and documenting of outcomes (monitoring of progress)
- The final phase of the treatment programme is the discharge or transition on to other activity or independent activity. This involves the practitioner preparing and supporting the individual as they make this transition and reviewing the efficacy of the intervention.

3.3.8 Task analysis and activity planning

As well as the individual's goals, there are a variety of factors that need to be taken into account when planning therapeutic gardening tasks:

- Likes, dislikes and motivations. As with andragogical learning, therapeutic horticulture is most effective when it considers the individuals interests and motivations. In the case of MeTura, the intention is that the primary motivation for engaging with gardening is to grow plants which can be used in cooking. It will be important to take into account the individual's preferences for particular food/interest in cooking. Other motivation may include learning new skills, increased independence, achievement and recognition by peers and others

[4] Specific, Measurable, Achievable, Relevant and Time bound

- Situational assessment. The availability of space, aspect and local environmental conditions and equipment for gardening. This will inform the kinds of plants that can be successfully grown.
- Capability & support needs. It is also be necessary to consider the capability/ responsibility of the individual and the level of local support available. Although gardening is innately "floppable" (failing to take adequate care of a plant does not lead to drastic or long-term consequences) some individuals may need more support or reminders to successfully germinate, nurture and grow a plant.
- Continuity of care. Although some gardening tasks can be stand-alone/short term, gardening is generally an ongoing process requiring ongoing care and intervention. Plants need watering, weeding, potting on etc. regularly in order to grow and flourish.
- Risk management. Garden can involve physical activity, garden tools are often sharp, some plants are toxic (and this can be an issue when focusing on edible plants as some individuals may have difficulty understanding e.g. that not all berries are safe to eat), garden chemicals and fertilizers are often toxic, etc
- Seasonality. Most gardening tasks are seasonal in nature (apart from some indoor gardening where environment factors are artificially controlled).
- Resources. Availability or financial resources to purchase gardening materials and tools (seeds, plants, compost, pots, gloves, etc).
- Cognitive and physical aspects of the task. Activity analysis is needed to identify what steps, skills and behaviours are needed for the individual to successfully complete the task. What are the steps required? Are these achievable? What tools are required? How does the environment in which the task is performed support or hinder this task?

Seasonal and session/activity plans must take into account the factors outlined above as well as maintaining the focus on the intended outcomes/goals

3.3.9 Recommendations for methodology for implementing therapeutic gardening as part of MeTURA: guidance from I05 study

Which model of therapeutic gardening is most appropriate for MeTura?

Most respondents to IO5 believe that gardening would be a useful occupation for adults with ID. They believed there would be benefits in terms of improved physical and mental wellbeing as a result of spending more time outside in the fresh air, being physically active and engaged with nature.

This focus on the generic benefits of therapeutic gardening (rather than targeted or individualised goals), along with the primary focus of MeTura on engaging AFMID with andragogical learning, suggests that a focus on therapeutic gardening as "health promotion" (facilitated intervention to improve general health and wellbeing) rather than Green Care (targeted interventions to address a specific defined need delivered by a skilled/trained practitioner) will be most appropriate.

Both Health promotion and Green Care models of therapeutic gardening rely on some level of facilitation and support (the level of facilitation increases as needs increase from Health promotion into Green Care). This was also reflected by the survey results which suggest that adults with ID will generally need emotional and practical support to engage in gardening.

The majority of families reported that there was a single individual with ID in the family, suggesting that parents and carers, in general do not have ID themselves and hence may have the capability (if not the knowledge or experience) to provide support/facilitate gardening activities.

Therefore, family members and carers maybe able to provide the level of support required for health promotion models, but it is unlikely that they would have the knowledge or skills (or time) to engage in Green Care. Since therapeutic gardening models form a spectrum based on the level of need, it may be that an initial Green Care intervention by trained practitioners (educators with a specific skill set) could lead to AFMID being able to move into a Health promotion approach facilitated by family members/carers and then on to independent gardening (everyday life) as their abilities and capabilities increase.

This raises two potential issues:

- Educators may not have the required skills to provide Green Care
- Families often have restricted time/opportunity to provide facilitation.

In terms of the type of programme – most respondents to the questionnaire thought the main benefits would relate to therapeutic goals – opportunities for improving physical and mental wellbeing. Only respondents from Italy explicitly considered "learning or achieving qualifications" to be an important gaol but respondents general thought the opportunity to engage with a new recreational activity or hobby was an important benefit, as was having a sense of purpose and achievement and the related improvements in confidence. This suggests that the vocational goals such as the andragogical learning proposed by MeTura are important to AFMID but that these should be informal goals relating to recreational rather than relating to formal qualifications or a focus on employability/work skills.

National differences

The national reports and results from questionnaires show a generally similar situation in all of the participating countries There may be some national differences in the availability of space for gardens and the primary motivations, barriers and support approaches which should be borne in mind in the design of future methodologies and resources.

Key factors to take into account may be:

- Fewer families surveyed in Italy reported that they had gardens
- Gardening in UK and Italy may be seen as more of a hobby/recreational activity whilst it may be seen as more of a practical life skill in Croatia and Slovenia.
- There may be regional specialties/focuses which may influence plant choice e.g. gardening for honey production in Slovenia or regional specialties for growing particular fruits or vegetables.
- May also need to take into account climate/environmental differences e.g. herbs that will grow well/easily in Italy may do less well in the cold/wet of the UK.

Situational analysis – what kinds of garden space are available to AFMID?

Many of the families with AFMID have medium to small gardens or no garden, only a minority have big gardens and many of the families mentioned that maintaining these large gardens is becoming a challenge as parents/carers grow older. The change in the rural landscape and intensive farming has led to a migration of populations to a more urban environment with multi occupancy buildings and small or no gardens. In general, the younger the owner, the smaller the garden (related to income and also tendency to live in urban areas for work reasons). Methodologies & resources should take this into account and include information on gardening in small spaces or on

windowsills, balconies or indoor/tabletop gardening options and, when considering outside gardens, think in terms of small, easily manageable plots or low maintenance planting.

An alternative may be to consider options for shared gardens or community gardening groups either specifically for AFMID (and potentially their families) or to include resources for educators to develop shared gardens or ways of including AFMID in existing community gardens/shared gardens

Motivational engagement

Respondents to IO5 believed that growing food to eat would be a good motivation to encourage engagement with gardening. Health and environmental concerns may be another motivator since:

- There is a concern among younger generations with environmental issues and move away from meat eating and looking for a more sustainable way of life.
- Another factor is the increasing understanding of the health benefits of food growing & a desire to know the provenance of food. The change in rural landscape to large scale industrial production with intensive farming has resulted in a mistrust of mass-produced food grown with the use of fertilizers and insecticides

The majority of the AFMID surveyed were in their 20s-30s suggesting that environmental issues and sustainability may be motivational approaches to engage AFMID with gardening but this may not be such a driver since their approach to gardening may be more influenced by parents/carers who are in the 50-60s and who have different motivations. Therefore, the interest in the health benefits of food and its provenance may be a more appropriate motivator. This again supports a focus on the link to growing fruit and vegetables and other plants which can be used in cooking meals that interest the AFMID.

Knowledge and Skills

In order to deliver therapeutic gardening, either as Health promotion or as Green Care the facilitator needs a good understanding of horticulture, particularly to be able to adapt the plants and methods to the capability, needs and preferences of the AFMID.

This is particularly important for educators seeking to use a Green Care model with targeted interventions for specific individuals.

Lack of knowledge and experience about how to garden and what to grow was also seen as a barrier to AFMID and their families engaging with gardening especially where the parent/carer has limited time to spend helping.

There may be benefits in involving volunteers or educators with experience in horticulture, or in working with/through community gardening groups to support them to include AFMID and their families.

Although gardening books are generally available and will give advice on seasonally appropriate activities, it would be useful to have a book of gardening activities – preferably in an easy read format – which families/carers could use to guide gardening activities and which explain what resources and time is required and the level of difficulty (A sort of "gardening recipe" book written in a similar way to easy read cookery books).

Plant choice

The majority of respondents were already growing vegetables and fruit themselves, as well as aromatic plants & herbs.

Urban gardening usually involves gardening in small spaces. Often urban dwellers will not have a garden but may garden on a balcony, windowsill or terrace. This has led to a variety of imaginative solutions to enable people to garden. It also means that people have to be selective about what they grow and may tend to focus on growing herbs or specialized fruit and veg which may are expensive to buy or difficult to obtain, rather than commonly available fruit and veg.

Time commitment

Another factor that may affect plant and activity choice is the time commitment required from families and their AFMID. They report having limited leisure time and are looking for a hobby/activity that requires minimal time investment and is enjoyable rather than a chore or demand, so gardening activities should be simple and require minimal ongoing commitment e.g. it may be preferable to have simple, one off activities rather than things that will demand a lot of care and attention.

Some families may be willing to invest in technology to support their gardening or make it easier (e.g. watering systems etc.), but financial restrictions may make this impossible for other families.

Social engagement

Therapeutic gardening is usually structured to promote social benefits through engaging in gardening in a social setting. Although engaging with the family is a form of social engagement, it may be worth considering how social engagement and skills can be supported on a larger scale.

Another opportunity would be to support or promote shared gardening in the wider local community rather than just the immediate family unit. Some governmental institutions are recognizing the benefit of urban green space and shared gardens. Shared gardens are seen to help build communities and are a good expenditure of public money for the public good and are being included in many new buildings in the suburbs.

Social recognition was not seen as a major motivator for engaging with gardening in the IO5 survey but the cost of gardening and availability of space were mentioned as potential barriers as was the need for guidance of an experienced gardener and issues around the time required to maintain and take care of a garden. Shared gardening also makes gardening less expensive (sharing resources), requires less space for storage and takes less time.

3.3.10 Methodology – flow and approaches

The factors given above suggest that it is most appropriate for MeTura to take a mainly health promotion led approach to therapeutic gardening (focused on general health and wellbeing) with the main focus on vocational goals and skills supporting AFMID to engage with gardening as a recreational hobby facilitated by family members or carers.

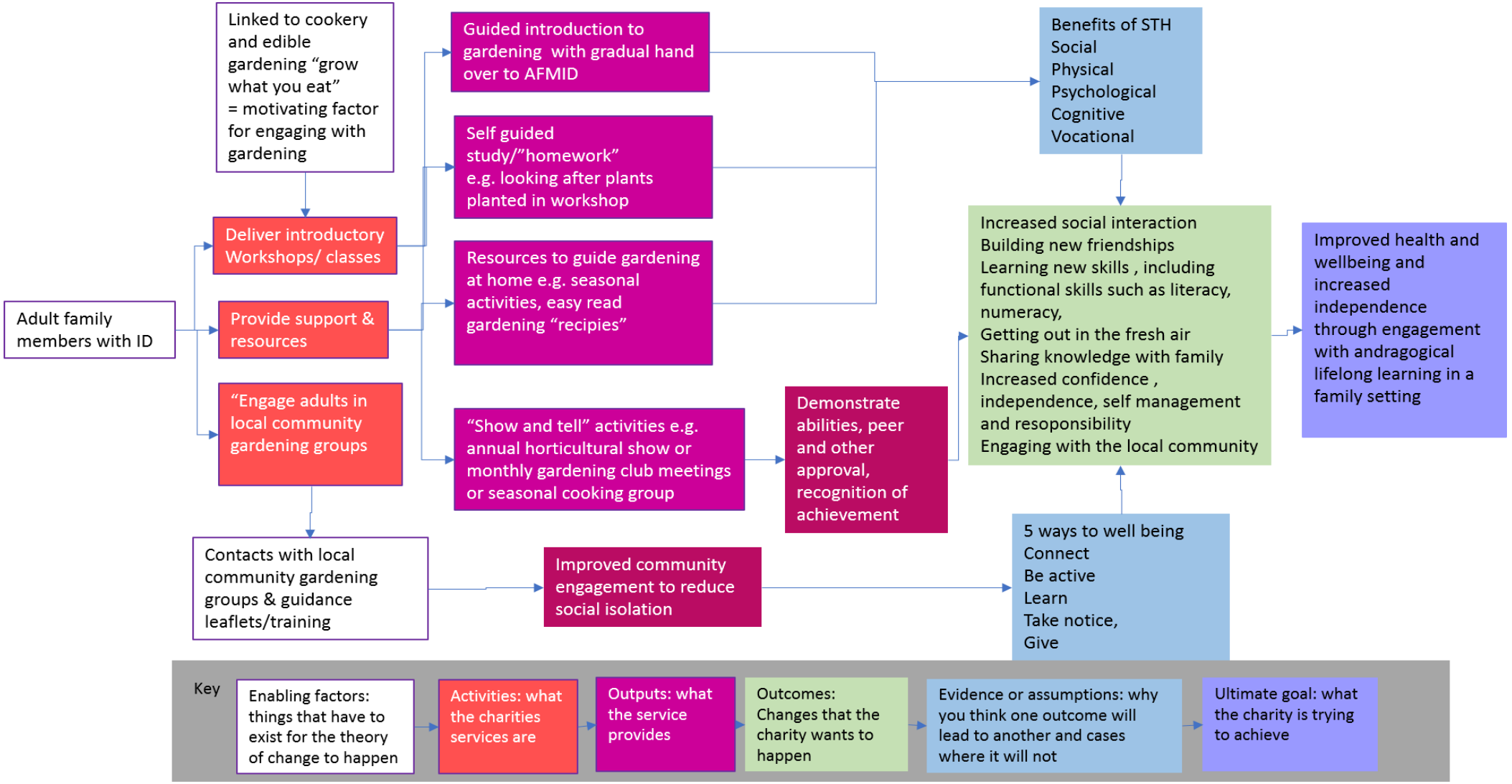
- Drive motivation and engagement through promoting healthy eating by growing fruit, vegetables and herbs which can be easily incorporated into meals cooked by AFMID.
- Initial introductory workshops/course introducing gardening and taking a more "Green Care" approach defining personal goals and gardening activities to meet the individual needs and capabilities and available resources (including practical and emotional support)
    - Requires
        - Training and guidance for educators on STH
        - Example session, planning guides and other resources
        - Advice on possible gardening activities – ideally linked to cooking as a motivator
        - Opportunities to take plants home and care for them at home

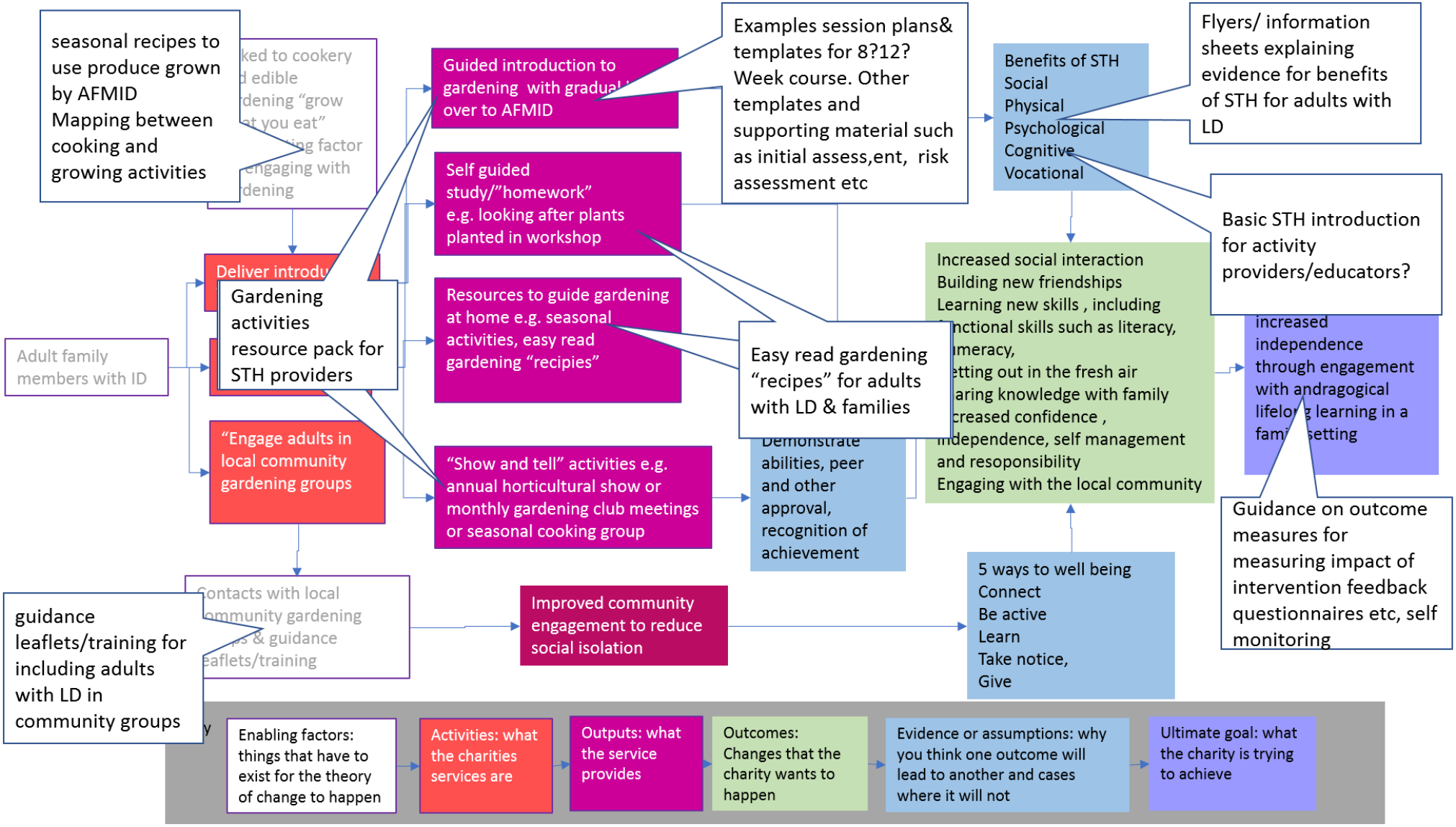
- Handover to self-guided gardening at home supported and facilitated by family members, carers or community groups
    - Requires
        - Advice and guidance for family members on how to support and engage AFMID in gardening

  - Gardening "recipe" book (in easy read format?) ideally linked to cooking as a motivator
  - Links to community gardening groups
    - (guidance for community gardening groups on how to include adults with ID)
  - Other opportunities for social engagement e.g. a supported gardening group for AFMID and their families?
  - Process for review/assessment/ongoing support?
- Where appropriate – support to move on to independent gardening including choosing and planning own tasks & taking responsibility for garden

The two diagrams below give some suggestions for the possible flow of activities and resources required

Flow diagram of possible methodology for therapeutic gardening in the context of Metur




seasonal recipes to use produce grown by AFMID
Mapping between cooking and growing activities
Guided introduction to gardening with gradual over to AFMID
Examples session plans& templates for 8?12? Week course. Other templates and supporting material such as initial assess,ent, risk assessment etc
Benefits of STH
Social
Physical
Psychological
Cognitive
Vocational
Flyers/ information sheets explaining evidence for benefits of STH for adults with LD
Self guided study/"homework" e.g. looking after plants planted in workshop
Basic STH introduction for activity providers/educators?
Deliver introdu
Gardening activities resource pack for STH providers
Resources to guide gardening at home e.g. seasonal activities, easy read gardening "recipies"
Easy read gardening "recipes" for adults with LD & families
Increased social interaction
Building new friendships
Learning new skills , including
nctional skills such as literacy,
meracy,
tting out in the fresh air
aring knowledge with family
creased confidence ,
ndependence, self management and resoponsibility
Engaging with the local community
Adult family members with ID
"Engage adults in local community gardening groups
"Show and tell" activities e.g. annual horticultural show or monthly gardening club meetings or seasonal cooking group
Demonstrate abilities, peer and other approval, recognition of achievement
increased independence through engagement with andragogical lifelo g learning in a fami setting
Guidance on outcome measures for measuring impact of intervention feedback questionnaires etc, self monitoring
guidance leaflets/training for including adults with LD in community groups
ontacts with local ommunity gardening ps & guidance eaflets/training
Improved community engagement to reduce social isolation
5 ways to well being
Connect
Be active
Learn
Take notice,
Give
Enabling factors: things that have to exist for the theory of change to happen
Activities: what the charities services are
Outputs: what the service provides
Outcomes: Changes that the charity wants to happen
Evidence or assumptions: why you think one outcome will lead to another and cases where it will not
Ultimate goal: what the charity is trying to achieve

3.4 Modul III - Family education MeTURA within therapeutic cooking

Given the lack of literature on therapeutic cooking, there is a need for its development and systematic insight into the field. In Module III: Family Education MeTURA within Therapeutic Gardening and Therapeutic Cooking, we will develop the therapeutic cooking process, that is, its aspects of intervention. This part of Module III discusses the importance of therapeutic cooking and what to consider when providing therapeutic cooking, and summarizes key findings from the IO4 Study (A study of both the potentials and barriers of a family inclusive further education model of learning, using therapy-based family cooking as an andragogical method of teaching to benefit families of adults with intellectual disabilities) and what they mean for design and access to therapeutic cooking as part of the project MeTURA - Back to the Roots.

3.4.1 Cooking as therapy

For some, cooking is a daily chore, social experience or an entertaining leisure activity. For others, cooking is therapeutic.

Therapeutic cooking is the process of cooking and preparing food to improve physical and mental well-being, promote learning and skills development, and improve social inclusion and community engagement. That is, the process of engaging individuals in cooking and meal preparation with the support of educators to achieve specific therapeutic goals, over a period of time with expected learning outcomes (what knowledge and skills are acquired by the learners) with elements of monitoring and evaluation.

Therapeutic cooking encompasses the act of cooking and a variety of cooking-related activities, which can be to harvest fruits from your own cultivated garden, to buy groceries, to use utensils and kitchen appliances, and to plan and prepare meals.

Therapeutic cooking uses the kitchen as a safe place to develop one's ability to socialize, make friends, and learn practical skills that will help them become more independent. Using culinary tasks, educators evaluate and design a range of individual activities for each individual to improve their competencies and work toward the specific goals they want to achieve.

People whose cooking has therapeutic implications learn about food and food preparation and develop a healthy relationship with food. Cooking can be part of therapy for: eating disorders, intellectual disabilities, mental health problems, intellectual disabilities and ADHD, depression, anxiety, and other disorders.

3.4.2 Benefits of therapeutic cooking

In addition to learning a valuable life skill, therapeutic cooking also offers the following benefits: stress relief, enhances social skills, balance and coordination, sensory awareness, ability to plan and organize, attention and focus, develops self-esteem and a sense of self-realization. Cooking is an incredibly flexible medium that can transform lives and help everyone, regardless of age or disability.

Cooking as an activity requires movement in the shoulders, fingers, wrists, elbows, neck, as well as good balance. In the upper limbs, adequate muscular strength is required for lifting, mixing, cutting and chopping. Furthermore, sensory awareness is important in considering safety while dealing with hot and sharp objects.

Therapeutic cooking has many benefits as learners receive something tangible for their efforts. The advantage of the cooking process is also the fact that it results in delicious food, a good "reward" for the task, and a demonstration that your actions have resulted in something real. Preparing a meal also helps to provide a sense of power and action, something that you would not naturally be able to experience your own in everyday life outside the kitchen. This sense of achievement has been noted by psychologists, who claim that cooking acts therapeutically because it corresponds to a type of therapy known as "behavioural activation" which means finding meaning in the things you do, not just going through them.

It's actually about practicing targeted behaviour and avoiding procrastination at all costs, which is why cooking is an effective strategy: you can't wait several hours or days to finish a meal you started making. That is, cooking functions as a method by which people can focus on a task and feel satisfied while completing a task.

Along with a sense of satisfaction because something is well done, cooking can also be therapeutic for the creative senses. Cooking as therapy is effective because it encourages creativity. Studies have shown that people who spend time on creative goals live happier than those who don't, and cooking something new or out of your comfort zone counts as an act of creativity. Moreover, when a creative effort is put into a meal, it meets the creative urges and does something that is technically a necessary part of the day.

Cooking and preparing a meal are two different aspects of mental health: activity and result. And both have benefits.

Simple recipes seem to carry powerful mental health benefits, because the procedure does not create anxiety but stimulates focus and also increases creativity and happiness. Many mental health organizations emphasize that proper nutrition is a fundamental part of maintaining brain health. And cooking for yourself allows you to be more aware of what you put in your body and how it responds to different foods. Cooking for yourself, experts say, is one of the best ways to take care of your own mental health.

Cooking in a couple or in a company, such joint activity can be good fun and a way to bond. If one family member cooks the most, sometimes others can help him prepare a meal involving adults with intellectual disabilities. Cooking helps us to feel connected.

3.4.3 Knowledge and skills that adults with intellectual disabilities gain with therapeutic cooking

According to Kocijan Hercigonja (2000), intellectual disability means a limitation in the overall functioning of an individual that occurs before the age of 18. Intellectual disabilities are characterized by significant below-average intellectual functioning that is associated with limitations in two or more adaptive skills. Areas of adaptive skills are communication, self-care, domestic life, social interactions, community use, self-direction, health and safety, functional academic skills, leisure and work. Intellectual disabilities are a condition that results from three key elements for each person, namely: a person's abilities, expectations of his or her environment, and functioning.

As for each individual, the quality of life is essential for people with intellectual disabilities. Due to the multitude of components that include the notion of quality of life, it is difficult to simply define it and the basic questions of the criteria need to be asked: what constitutes a quality life, what are the standards and indicators of a quality life and who sets them?
The authors Schmandt and Bloomerg (1969) stated that: "The term quality of life in this context refers to the whole functional activity of a person, including his or her development and behaviour, sources of satisfaction and dissatisfaction, and generally the way of existence. They define the term quality as the level of well-being that one possesses and regard it as the total sum of the characteristics of an entity. "

On the other hand, in 1993 (according to Hughes et al., 1995), the World Health Organization defined quality of life as: "individual perception of one's position in life, in the context of the cultural and value systems in which one lives and in

relation to one's own goals, expectations, standards and preoccupations. It is a complex concept that includes physical health, psychological state of a person, degree of independence, social relations, personal beliefs and relationship to the essential features of the environment. "Many authors define this term similarly and agree that it is always about the individual's sense of satisfaction or dissatisfaction with life. Therefore, we can conclude that the quality of life is achieved when the basic needs of the person are met and when the person is able to achieve his goals and opportunities in important areas of life.

Given that persons with intellectual disabilities cannot fully function independently in the activities of daily living, they need the support of professional persons as well as the support of the environment. The main feature of all support categories is that support in all walks of life is tailored to the individual needs of the person. Adequate support system results in increased productivity and personal independence, greater participation and integration in the community, and improved quality of life.

One of the most important issues is the successful adaptation of people with intellectual disabilities in the family and the wider community, which on the one hand depends on the severity of the impairment itself and timely coverage with professional treatment, while on the other hand, it depends on the willingness of the environment to accept them as they are and to enable them better living and working conditions. Engaging in meaningful and valued life activities as well as activities of daily living play a very important role in the lives of people with intellectual disabilities, and they imply (O'Brien, 1987; Felce, 2000; Bilic et al. , 2005, according to Zlatarić, 2014): presence and participation in the community, the possibility of developing competences, the realization of a valued social role and social position, the possibility of choice and the exercise of rights.

It is extremely useful for people with intellectual disabilities to participate in various rehabilitation and therapy workshops that give them the opportunity to develop basic social skills as well as more complex skills to live independently and to deal with everyday situations with the help of a professional associations, work centres and community service centres, opening up a large space for the development of support in the home environment of people with intellectual disabilities.

When it comes to social skills in adults with intellectual disabilities, it can be said that those skills are underdeveloped. This is evident in communication, conflict resolution, emotion recognition, coping with new situations, etc. There are various programs and methods used to harness social skills in people with intellectual disabilities. Participation in therapeutic cooking can promote socialization, which is of paramount importance when it comes to adults with intellectual disabilities

and their families, as well as bringing expert-led therapeutic cooking into a home environment.

However, there is still a lot of research to be done in this area in order to gain a more comprehensive insight into all the benefits of therapeutic cooking. What is associated with successful social development involves emotional inclusion and understanding in relationships with other people. It is very important to foster social skills in adults with intellectual disabilities so that these individuals can participate equally in social life, self-advocate, make independent decisions, exercise social interactions, as they will ultimately lead to a better quality of life. Social skills include communication, which is an extremely important skill for adults with intellectual disabilities, and is developed by therapeutic cooking with all other skills.

By participating in therapeutic cooking, adults with intellectual disabilities can acquire and develop the following knowledge and skills:

- communication skills,
- conducting choices,
- take responsibility,
- awareness of oneself and one's body,
- creativity,
- emotional expression and adjustment,
- interactions with others,
- teamwork and togetherness,
- accepting support,
- time management.

People who have learned how to plan and prepare their own meal appropriately are one step closer to an independent lifestyle, increased personal competence, autonomy and control over their own lives.

3.4.4 Guidelines from io4 study for therapeutic cooking as a part of the project MeTURA - back to the roots

Results of IO4 Study on obstacles and potentials of family lifelong learning using therapeutic family cooking as an andragogical method for an effective learning opportunity for families with adult members with intellectual disabilities conducted in partner countries (UK, Slovenia, Italy and Croatia) on the project "MeTURA - Back to the Roots" showed that the majority of respondents felt that the most positive effect of a home cooking course was the greater independence of AFMID. Respondents also find that therapeutic cooking helps to make better connections between family members and improves an

individual's competencies. Most families with AFMID believe that cooking is important because it affects the quality of life in the following areas: social inclusion, independence, family relationships, social and emotional relationships with others, as well as psychophysical health.

In addition to the already mentioned IO4 Study respondents highlighted some obstacles that prevent AFMID and their families from participating in these cooking courses, such as fear of injury when preparing food (cuts, burns, etc.), lack of adequate space, lack of motivation and professional support at home environment.

In the said Study we also found that therapeutic cooking in the countries participating in the project Family Education MeTURA - Back to the Roots does not have the features of formal rehabilitation and learning, however it is recognized and applied as learning the life skills of people with intellectual disabilities most commonly through day care programs run by associations and community centres.
As part of Family Education MeTURA – Back to the Roots, therapeutic cooking for adult family members with intellectual disabilities (AFMID) is an active guided process of "learning by doing" with the appropriate support of educators and family members in a home environment that aims to increase the independence and self-realization of AFMID and creating better connections between family members and enhancing an individual's competencies.

3.4.5 Implementation of therapeutic cooking for AFMID and their families

While conducting therapeutic cooking in an institution or as a guided process in a family setting, work and learning methods are adapted to the selected activities and capabilities of the individuals involved, based on experiential learning through work.

Conducting therapeutic cooking for AFMID and their families includes the following elements:

- Initial assessment of the individual's condition
  - needs, wishes and abilities
- Motivation
  - highlighting the benefits of cooking (adopting and developing cooking skills, developing social skills, gaining independence, developing self-esteem, self-fulfilment, healthy eating, etc.)
- Situation assessment
  - availability of cooking space,
  - options and needs for space adjustment
- Activities

  - getting acquainted with cooking methods (cooking, baking, stewing, etc.)
  - getting acquainted with cooking utensils and appliances and how to use them properly,
  - choice of dishes and recipes,
  - getting to know the groceries
  - realization of tasks (practical performance of preparing meals according to the selected recipe)
- Methods
  - verbal instructions,
  - demonstration,
  - physical guidance,
  - tasking and learning by stages,
  - guidance, suggestions
  - showing, pointing out
  - observation,
  - picture and video demonstration
- Risk management
  - safe use of cooking utensils and appliances,
- Opportunities and needs for support
  - an analysis of an individual's cognitive and physical abilities and the levels of support available
  - developing an individual support plan that defines the steps to be taken for the individual to successfully complete the tasks
- Evaluation
  - orogress monitoring, process evaluation
  - evaluation and documentation of results, final evaluation

Initial, process, and final evaluation data are obtained through an interview with AFMID and family / caregivers, adapted to fit the individual's interests and communication and intellectual abilities.

Following the initial assessment, a personalized action plan (individual development plan) is created that sets out long-term and short-term goals, along with criteria for measuring achievement. Programs and activities are planned on the basis of personalized goals, with the recording and documentation of results (monitoring progress).

Personal goals and cooking activities are defined to meet individual needs and opportunities and available resources (including practical and emotional support).

In conducting therapeutic cooking based on the above elements, initial cooking workshops for AFMID and their families are designed in the premises of the institution or in a home environment. Potential participants are motivated by highlighting the benefits of therapeutic cooking and a healthy diet using their own grown fruits, vegetables and herbs that can be easily incorporated into meals cooked by AFMID . To move on to cooking on one's own at home with the support of family members/caregivers, tips and guidance are provided for family members on how to support and involve AFMID in cooking activities.

As the IO4 Study highlights, among other things, the barriers to therapeutic cooking in the form of lack of professional support, lack of motivation and fear of injury, to enable therapeutic cooking educators should have experience working with adults with intellectual disabilities in the field of therapeutic cooking so that the methods can be adapted to the capabilities, needs and preferences of the AFMID.

Although cookbooks are generally available and provide a variety of recipes, it would be useful to have cookbooks in an easy-to-read format that families/caregivers could use to guide culinary activities, and of course video technology, or the use of the internet, such as Youtube and similar platforms, could help.

A factor that can influence therapeutic cooking is the lack of time that some families have highlighted as an obstacle, so focus should be on simpler, time-consuming recipes.

An example of how therapeutic cooking workshops could be structured: - Introductory talk about the meal you want to prepare. Afterwards, participants are introduced to the utensils and ingredients needed to prepare the desired meal. When familiarizing themselves with the food, each participant could say what would be needed to make his or her ideal version of a given meal. Participants are then assigned a pictorial recipe read to them and demonstrated (or possibly a video display). After demonstrating and discussing the recipe, participants would prepare a default meal using a pictorial recipe and additional instructions as needed. During the workshop, participants are provided with active support in meal preparation, which includes: suggestions, verbal instructions, directing, pointing out, and guiding. After the preparation of

the meal, a discussion is held about the workshop with the consumption of the prepared meal.

4 MeTURA METHODOLOGY FOR FAMILIES

This section is adapted to adult family members with intellectual disabilities and their family members with an emphasized illustration strategy. This section is a simplified summary of other sections of the study. Sources of literature can be found in previous sections.

The family members or educators can motivate adult family members with intellectual disabilities for learning while offering them professional support in the implementation of Family MeTURA education in the home environment.

In this lifelong learning process, a family member acts as an educator to help and guide their adult family members with intellectual disabilities in the activities of therapeutic gardening and therapeutic cooking.

4.1 Family education

The project MeTURA – Back to the roots includes garden and kitchen as a learning environment where the approach "learning by doing" can be a great method for learning. Since persons with intellectual disabilities need more support in the learning process, even in their adult stages, the project includes the concept of family education in the methodology.

Learning by doing refers to a theory of education. It is a hands-on approach to learning, meaning students must interact with their environment in order to adapt and learn. This way learning enables the learners with greater self-

esteem, trust in their skills, capabilities, taking responsibility for their life, gaining working experiences, greater acceptance in social environments.

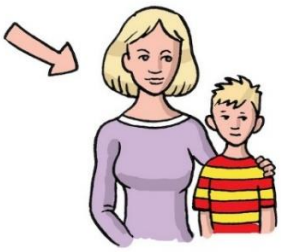
Learning by doing is based on three assumptions:

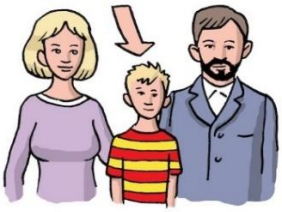
1. people learn best when they are personally involved in the learning experience;
2. knowledge has to be discovered by the individual if it is to have any significant meaning to them or make a difference in their behaviour;
3. a person's commitment to learning is highest when they are free to set their own learning objectives and are able to actively pursue them within a given framework.

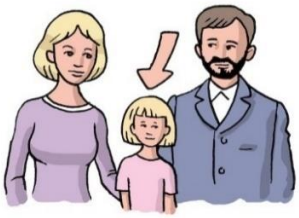
"Family education" concept has been explained in several ways including:

- Family education refers to those educational concepts and experiences that power attitudes towards family living, personal relationship.
- One comprehensive and attractive approach perceives family life education as catering for individual needs leading to personal growth and enabling the individual to function as a responsible member of the family and society.
- It may be defined as education for human development which seeks to ensure that each individual approaching adulthood is equipped with the skills and personal reserves to cope with the challenges of everyday life in society within acceptable societal structure and to adapt to change with experience and equilibrium.
- A variety of formal and informal efforts through which persons become ready for the roles and responsibilities of family life.

Parents and families are their children's most important educators, with many opportunities to build the foundation for a lifetime of learning. Families educate their children every day—both in formal and informal ways.







Through positive interactions with their children, parents promote healthy development and prepare them for school, successful relationships, rewarding work, and better health. The skills and attitudes parents encourage will teach their children to care for themselves and for others, so they will grow into adults who can do the same.

Therapeutic gardening and therapeutic cooking activities are greatly beneficial for gaining key competences and basic skills.

Key competences are:

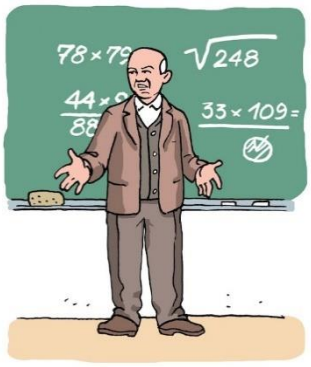
- literacy competence,
- multilingual competence,
- mathematical competence and competence in science, technology and engineering,
- digital competence,
- personal, social and learning to learn competence,
- citizenship competence,
- entrepreneurship competence,
- cultural awareness and expression competence.

4.2 Cooking

Almost every aspect of learning can be incorporated in cooking activities. For example: colours, textures, smells, pre-science, developing vocabulary, visual awareness, and measurements.

Learners constantly learn literacy in cooking activities because they are picking up on new words for foods that they are being introduced to and are cooking with.

They learn how to follow directions and you can even teach geography by introducing foods from different areas or discussing where certain ingredients come from. Besides introducing learners to healthy eating habits and good nutrition early on, they can start learning all sorts of things from academic skills to fine and gross motor skills (by using plastic serrated knives to cut foods). It is also great to incorporate things like pictographs or books into the cooking so that it takes the learning also outside the kitchen.



Key competences and basic skills that can be improved with cooking activities:

- Mathematics
- Literacy
- Science
- Personal, social and learning to learn competence:
    - communication skills,
    - conducting choices,
    - take responsibility,

- awareness of oneself and one's body,
- creativity,
- emotional expression and adjustment,
- interactions with others,
- teamwork and togetherness,
- accepting support,
- time management.

In addition to learning a valuable life skill, therapeutic cooking also offers the following benefits:

- stress relief
- enhances social skills
- balance and coordination
- sensory awareness
- ability to plan and organize
- attention and focus
- develops self-esteem and a sense of self-realization

Cooking is an incredibly flexible medium that can transform lives and help everyone, regardless of age or disability.

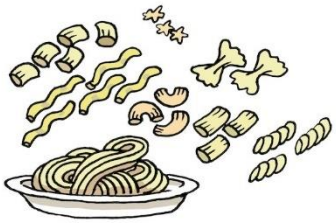
People who have learned how to plan and prepare their own meal appropriately are one step closer to an independent lifestyle, increased personal competence, autonomy and control over their own lives. Along with a sense of satisfaction because something is well done, cooking can also be therapeutic for the creative senses.

Cooking as therapy is effective because it encourages creativity. Studies have shown that people who spend time on creative goals live happier than those who don't, and cooking something new or out of your comfort zone counts as an act of creativity. Moreover, when a creative effort is put into a meal, it meets the creative urges and does something that is technically a necessary part of the day.

Cooking and preparing a meal are two different aspects of mental health: activity and result. And both have benefits.

Simple recipes seem to carry powerful mental health benefits, because the procedure does not create anxiety but stimulates focus and also increases creativity and happiness.

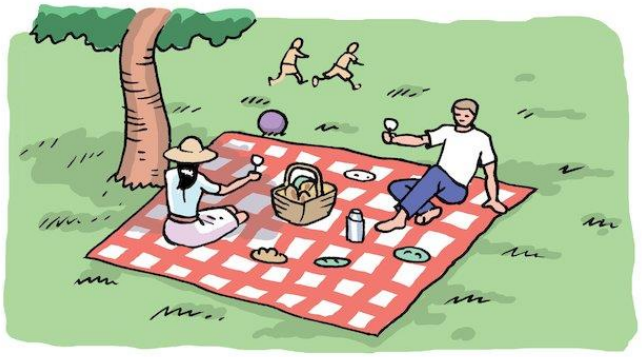
Many mental health organizations emphasize that proper nutrition is a fundamental part of maintaining brain health.
And cooking for yourself allows you to be more aware of what you put in your body and how it responds to different foods. Cooking for yourself is one of the best ways to take care of your own mental health.



Cooking in a couple or in a company, such joint activity can be good fun and a way to bond. If one family member cooks the most, sometimes others can

help him prepare a meal involving adults with intellectual disabilities. Cooking helps us to feel connected.

Cooking can be a great group or a family activity. Cooking is a fantastic way for you to spend the afternoon with the family, teaching each other a life lesson or two at the same time.



Teaching family members the basics of cooking is important because remember, they'll become more independent and be able to cook their own dinner. Cooking also gets you out of the house since you need to buy ingredients – going to the supermarket, visiting the farmers market.

Conducting therapeutic cooking for adult family members with intellectual disabilities and their families includes the following elements:

- Initial assessment of the individual's condition
    - needs, wishes and abilities

- Motivation
  - highlighting the benefits of cooking (adopting and developing cooking skills, developing social skills, gaining independence, developing self-esteem, self-fulfilment, healthy eating, etc.)
- Situation assessment
  - availability of cooking space,
  - options and needs for space adjustment
- Activities
  - getting acquainted with cooking methods (cooking, baking, stewing, etc.)
  - getting acquainted with cooking utensils and appliances and how to use them properly,
  - choice of dishes and recipes,
  - getting to know the groceries
  - realization of tasks (practical performance of preparing meals according to the selected recipe)
- Methods
  - verbal instructions,
  - demonstration,
  - physical guidance,
  - tasking and learning by stages,
  - guidance, suggestions
  - showing, pointing out
  - observation,
  - picture and video demonstration
- Risk management
  - safe use of cooking utensils and appliances,
- Opportunities and needs for support
  - an analysis of an individual's cognitive and physical abilities and the levels of support available
  - developing an individual support plan that defines the steps to be taken for the individual to successfully complete the tasks
- Evaluation

- progress monitoring, process evaluation
- evaluation and documentation of results, final evaluation.

4.3 Gardening

There is now a large evidence base supporting the use of gardening and horticultural activities to bring a positive change in the lives of disadvantaged people of all ages.

Therapeutic gardening or therapeutic horticulture (also known as Social and Therapeutic Horticulture or STH) is the process of using plants and gardens to improve physical and mental wellbeing, promote learning and skill development and improve social inclusion and community engagement. Therapeutic gardening forms part of the nature, health and wellbeing sector which covers all activities that use nature and engagement with nature as a way of promoting health and wellbeing.

The mental health and wellbeing benefits from gardening result from the combination of the three key elements:

- the natural environment
- the meaningful activities
- the social context, which characterise these approaches.

In order for gardening to benefit adult family members with intellectual disabilities, MeTura needs to provide guidance on how family supporters and carers can facilitate meaningful activities and structure activities so that social context and interaction are part of the provision.

<u>Benefits of gardening:</u>

• better physical health for example through increased purposeful exercise or learning how to use or strengthen muscles to improve mobility, dexterity etc.

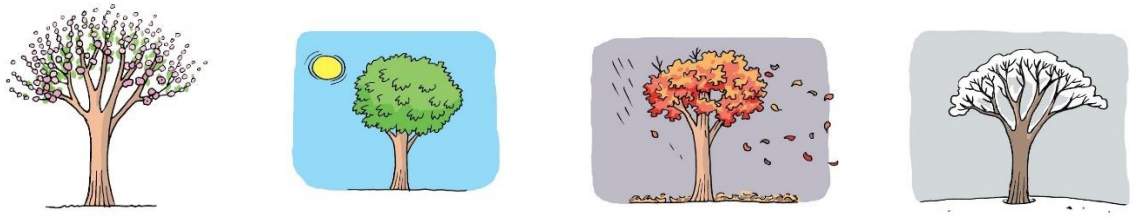
• improved mental health, for example gaining a sense of purpose and achievement

• the opportunity to connect with others – reducing feelings of isolation or exclusion, finding a new topic of conversation etc.

• having an opportunity and reason for getting outdoors and relating to nature in a positive, nurturing role. Just feeling better for being outdoors, in touch with nature and seeing things grow - all things that are known to be important to us as human beings.

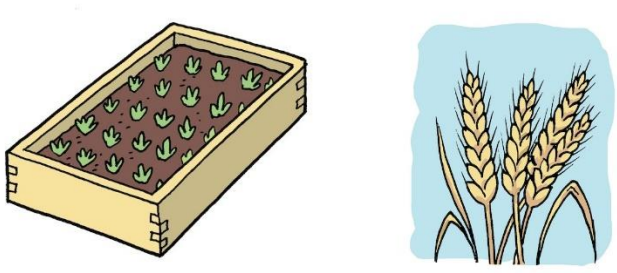
• developing new skills, learning about food growing and what is good to eat, boosting confidence with new-found knowledge and using this to gain work related or functional skills leading to increase employment opportunities.

A garden offers an ideal area to teach and reinforce ideas and concepts about plant science, biology, chemistry, soil science, and math.
Gardens can provide an opportunity to investigate and compare the basic physical characteristics of plants, what helps or hinders their growth, and their response to stimuli and environmental growing conditions throughout the season.



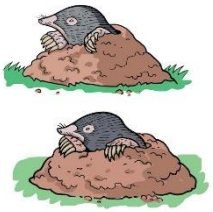
Participants in the gardening activities have a chance to observe similarities and differences in the needs of various living things, and differences between living and non-living things. They can maintain a science journal to record observations, collect data, and keep records and drawings of the garden.

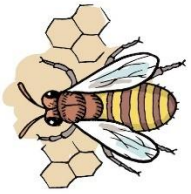
Gardens give learners the opportunity to work with numbers while planting seeds; gain foundations for place value; and solve practical computation problems. For a practical, garden-based application of area and linear measurement calculation, students could plan the area of a garden plot and then calculate the suggested distance between seeds or seedlings.



A garden journal can be a book or any written or recorded diary in which participants of gardening activities can write their very own daily or weekly thoughts about the garden all year round.

They can include pictures of plants, weather conditions, gardening tips, and lessons learned. It simply helps them remember all the different things they learned while gardening and it demonstrates understanding of the organization and basic features of printed and spoken words, syllables and sounds (phonemes). Gardens can teach students about agriculture, food systems, nutrition, environmental stewardship, and nature.





Working in gardens has been shown to influence the social and emotional development.

For example: when one participates in hands-on gardening activities, they demonstrate more concern and willingness to care for living things. Trying new

things like gardening teaches learners to take risks, thereby extending their experiences and abilities.

4.4 Conclusion

Many of the families with adult family members with intellectual disabilities have medium to small gardens or no garden, only a minority have big gardens. In general, the younger the owner, the smaller the garden (related to income and also tendency to live in urban areas for work reasons). Methodologies & resources should take this into account and include information on gardening in small spaces or on windowsills, balconies or indoor/tabletop gardening options. When considering outside gardens, think in terms of small, easily manageable plots or low maintenance planting.

An alternative may be to consider options for shared gardens or community gardening groups either specifically for adult family members with intellectual disabilities (and potentially their families) or to include resources for educators to develop shared gardens or ways of including adult family members with intellectual disabilities in existing community gardens/shared gardens.

An example of how therapeutic cooking workshops could be structured: Introductory talk about the meal you want to prepare. Afterwards, participants are introduced to the utensils and ingredients needed to prepare the desired meal. Participants are then assigned a pictorial recipe read to them and demonstrated (or possibly a video display). After demonstrating and discussing the recipe, participants would prepare a default meal using a pictorial recipe and additional instructions as needed. During the workshop, participants are provided with active support in meal preparation, which includes: suggestions, verbal instructions, directing, pointing out, and guiding. After the preparation of the meal, a discussion is held about the workshop with the consumption of the prepared meal.

Drive motivation and engagement through promoting healthy eating by growing fruit, vegetables and herbs which can be easily incorporated into meals cooked by adult family members with intellectual disabilities.

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