

MODULE 4 – SELF-MANAGEMENT

ONLINE HIGH-FLIERS OPERATIONAL MANUAL FOR UNIVERSITY SCIENCE STAFF

A handbook to implement High-Fliers module 4

Authors: Josip Burušić, Marija Šakić Velić
Institute of Social Sciences Ivo Pilar 2023

THE STRUCTURE OF THE MODULES OF THE HIGH-FLIERS PROGRAMME:



ERASMUS+ High-Fliers – Highly Interactive Guidance Helpful for Leadership in Educationally Relevant Skills

Contents

OBJECTIVES OF MODULE 4.....	4
STRUCTURE OF MODULE 4	5
INTRODUCTION	6
STRUCTURE OF ACTIVITIES	6
INITIAL SCENARIO	6
SESSION 1. STEM TEACHER PROFESSIONAL SELF-ANALYSIS.....	6
1.1. OBJECTIVES	6
1.2. STRUCTURE OF ACTIVITIES	7
1.3. MATERIALS.....	7
Introduction and definitions of key terms	7
Personal SWOT analysis in the professional domain	8
Johari window activity	8
Homework assignment.....	11
SESSION 2. STEM TEACHER CREATIVITY AND INNOVATION.....	12
2.1. OBJECTIVES	12
2.2. STRUCTURE OF ACTIVITIES	12
2.3. MATERIALS.....	12
Divergent and convergent thinking exercise	13
Brainstorming in creative thinking and problem solving.....	14
SESSION 3. PROFESSIONAL DECISION MAKING AND PLANNING SKILLS	17
3.1. OBJECTIVES	17
3.2. STRUCTURE OF ACTIVITIES	17
3.3. MATERIALS.....	17
Introduction to decision making and planning	17
Decision making and choice exercise	18
Planning exercise.....	19
Take-home activity.....	21
SESSION 4. BARRIERS IN PROFESSIONAL SELF-MANAGEMENT	23
4.1. OBJECTIVES	23
4.2. STRUCTURE OF ACTIVITIES	23
4.3. MATERIALS.....	23
Barriers in professional work, development and self-management.....	23
Overcoming barriers in professional work, development and self-management	24



END SESSION	26
STRUCTURE OF ACTIVITIES	26
MATERIALS.....	26
REFERENCES.....	27
APPENDICES.....	28
APPENDIX 1. Personal SWOT analysis in the professional domain	28
APPENDIX 2. Johari window activity	33
APPENDIX 3. Decision making matrix.....	35
APPENDIX 4. Planning exercise.....	36
APPENDIX 5. Time management: Eisenhower matrix	37
APPENDIX 6. Barriers in professional work, development and self-management.....	38
APPENDIX 7. Professional development plan.....	39
ACKNOWLEDGEMENTS.....	40



OBJECTIVES OF MODULE 4

After this module, students should be able to:

- apply skills important for analyzing and understanding oneself in the professional domain and its surrounding
- apply skills important for controlling own professional behaviour and development and taking care of oneself in a professional surrounding
- analyze one's own creativity and innovation skills, apply techniques for overcoming barriers in creativity and enhancing creative thinking and problem solving in professional work and development
- understand the process of decision making, analyze barriers in decision making and apply techniques for making decisions and choices in professional work and development
- understand the process of making plans, analyze barriers in planning and apply planning techniques in professional work and development
- understand the principles of time management, analyze barriers in time management and apply techniques for time management



STRUCTURE OF MODULE 4

Types of activities	Introduction (45 min)	Session 1. Professional self-analysis (90 min)	Session 2. Teacher creativity and innovation (90 min)	Session 3. Professional decision making and planning (90 min)	Session 4. Barriers in professional self-management (90 min)	Ending session (45 min)
Pre-Survey	+					
Introduction video	+					
Scenario setting	+		+	+		
Theoretical section		+	+	+	+	
Exercises and workshops with accompanying materials and handouts		+	+	+	+	
Take-home activities		+		+		
Sum-up, evaluation, conclusion						+
Post-survey						+

Scenario setting	Contextualization/ De-contextualization	Re-contextualization
Applying for a STEM teacher position in a STEM specialized and successful school.	As a newly employed teacher; (1) develop a plan to collect funds for a STEM teaching laboratory in the school; (2) select a student for mentorship, mentoring and support the student in the development of student project plan with timetable.	Develop skills and apply techniques of self-management which can be used in managing one's own work and career and can be transferred to students to improve their self-management.

INTRODUCTION

STRUCTURE OF ACTIVITIES

Activities	Time
Description of module structure, content and objectives	15 minutes
Pre-survey	15 minutes
Scenario setting	15 minutes

INITIAL SCENARIO

After participants are acquainted with the structure, content and objectives of Module 4, and after they have completed the pre-survey, the participants are presented with the initial scenario. This initial scenario is used in activities in Session 1, and is accompanied with corresponding follow-up scenarios in Sessions 2 and 3.

Initial scenario for Module 4:

A STEM teacher position has opened in a small private school, focused on STEM education. The school is very successful and well recognized for its students' outstanding achievements in STEM. The school strongly supports STEM teachers and STEM students. Students from this school do well in international examinations in STEM subjects and receive awards in national and international STEM school competitions. They also win prizes for innovative products and ideas in STEM and a large portion of students from this school choose to pursue study programs and careers in STEM.

You would like to become a STEM teacher in this school and you wish to apply for this position. As a part of your application for this job, you are required to write and submit a self-presentation letter, in which you must describe yourself, in detail, in both professional and personal terms, being as honest and critical as you can.

SESSION 1. STEM TEACHER PROFESSIONAL SELF-ANALYSIS

1.1. OBJECTIVES

After this lesson, students should be able to:

- apply techniques of self-analysis in identifying their own personal strengths and weaknesses in the professional domain
- identify opportunities and threats in their professional work and career
- describe, define and understand professional self-awareness
- recognize the importance of self-awareness in professional work and development



- exhibit self-awareness in professional settings

1.2. STRUCTURE OF ACTIVITIES

Activities		Time
Personal SWOT analysis in the professional domain	Introduction to the activity	5 minutes
	Conducting personal SWOT analysis in the professional domain	35 minutes
	Reflection on the activity	10 minutes
Johari window activity	Introduction to the activity	5 minutes
	Conducting Johari window activity	25 minutes
	Reflection on the activity	10 minutes
Homework assignment	Completing a self-presentation letter for STEM teacher position application (from initial scenario)	90 minutes

1.3. MATERIALS

Introduction and definitions of key terms

Self-analysis can be broadly defined as the exploration and examination of the self, in order to better understand one's own thoughts, emotions, and behaviour (APA Dictionary of Psychology, n.d.).

Self-analysis contributes to **self-awareness**, i.e. our understanding of our own emotions, needs, drives, values and goals, strengths and weaknesses, as well as the impact on ourselves and on other people (Goleman, 2019). Self-awareness is a twofold concept – it refers to *internal self-awareness*, which represents how we see ourselves, and to *external self-awareness*, which represents an understanding of how other people see us (Eurich, 2019). Thus, the development of self-awareness requires an understanding of ourselves, as well as an insight into how we come across to others. Self-awareness is considered important not only in personal, but also in professional life, and it is related with individual's behaviour, performance and satisfaction in professional settings – for example, it has positive effects on decision making, creativity, job performance and satisfaction, and leadership effectiveness (e.g., Eurich, 2109, Goleman, 2000; London et al., 2023).

In order to improve our self-awareness, it is useful to engage in self-analysis, i.e. in efforts to analyze ourselves in the professional domain, as well as to analyze our professional surrounding. Self-analysis is an important first step in managing our own education, career and work.

In this session, two useful techniques for professional self-analysis are put forward –

(a) **personal SWOT analysis in the professional domain.** (The personal SWOT analysis in the professional domain contributes to better understanding of personal strengths and weaknesses, and external opportunities and threats in one's professional work and career).

(b) **the Johari window activity.** (The Johari window activity contributes to better understanding of both how we see ourselves and how other people see us).

Personal SWOT analysis in the professional domain

Introduction to the activity

SWOT (acronym for Strengths, Weaknesses, Opportunities, and Threats) analysis is a tool that many businesses and organizations use in their strategic planning. However, the framework of SWOT analysis can also be used on a personal level, in order to gain a better understanding of oneself in the professional domain. In personal SWOT analysis, we can analyze our personal or internal strengths and weaknesses, and external opportunities and threats we face in our environment. This method can help an individual to realize both positive and negative aspects of him/herself, along with chances and constraints in his/her surroundings.

Conducting personal SWOT analysis in the professional domain

Participants are required to conduct a personal SWOT analysis in the professional domain of STEM teaching. *Appendix 1* provides a template containing questions that can help to recall and identify items in each of the categories – strengths, weaknesses, opportunities and threats. Using this template, participants can develop lists of their internal strengths and weaknesses, and external opportunities and threats, related to their professional work and development in the professional domain of STEM teaching.

Reflection on the activity

After participants complete the task, they are able to share, with others, as much as they feel comfortable, the strengths, weaknesses, opportunities and threats they identified, and discuss the process and outputs of personal SWOT analysis in the professional domain.

Questions for discussion:

1. How easy or difficult was it to identify your strengths versus your weaknesses?
2. How easy or difficult was it to identify the opportunities and threats you face?
3. Did you overlook some strengths, weaknesses, opportunities or threats other participants identified in their personal SWOT analyses in the professional domain?
4. Which category of items do you find the most useful for planning your work, career and professional development in general and/or in the field of STEM teaching?

Johari window activity (Psychologists Joseph Luft and Harry Ingham created this technique in 1955, and named it combining their first names).



Introduction to the activity

Johari window is a technique useful for improving both

- internal self-awareness (who we are) and
- external self-awareness (how we are seen)

The Johari window is a useful technique to acquire feedback from others about ourselves, but this needs to be approached carefully, since people can have different reactions to various information they acquire.

The Johari window is presented in four quadrants, in which information about oneself are categorized, based on whether they are known to oneself and whether they are known to other people (Luft & Ingham, 1961):

- (1) The first quadrant (open area) refers to information about oneself that is known by oneself and also known to others. *This information is public and made available to others through communication and exchanges between the individual and others.*
- (2) The second quadrant (blind area) refers to information about oneself that is **known** to others, but **not known** to self. These are the things about us that other people see, but of which we are unaware. The information in the blind area can be positive or negative, and include hidden strengths or areas for improvement.
- (3) The third quadrant (avoided or hidden area) refers to information about oneself that is **known to oneself**, but not known to others. These are the aspects we know, but do not reveal to others. This hidden area consists of private information that an individual chooses to keep for himself/herself, like secrets, dreams, and certain opinions.
- (4) The fourth quadrant (unknown) refers to information about oneself that is **not known to self nor to others**. None are aware of certain needs, motives, emotions, behaviours, or capabilities.

The size of each quadrant and the balance between them can change (Lowes, 2020). For example, the open area can be increased through acquiring feedback from others (i.e., learning information about ourselves, of which we were previously unaware, **decreases the blindness** and **increases the open area**) and through sharing information about ourselves with others (i.e., sharing with others some information about ourselves that we previously did not want to reveal) decreases the **hidden** and increases the **open area**.

Conducting a Johari window activity

Johari window is applied in this activity using only neutral adjectives or adjectives describing strengths. In that way, since participants may not know each other well, they can realize whether there is a difference in how others see them at first and how they intended to be seen, without risking gaining unrealistic negative feedback.

Two options for conducting this activity are offered, and the choice depends on how well the participants within the group know each other:



1. *Option 1:* If the participants know each other relatively well, the entire activity can be conducted in class.
2. *Option 2:* If the participants have not met before, or do not know each other well, the activity can be modified and be introduced in class and finished as a take-home activity.

Option 1.

Participants are divided into small groups of 3-5 members. Their task consists of three parts, or activities:

- (1) Each participant is given a list of adjectives (Appendix 2) and few pieces of paper. Using the list of adjectives, the participant selects and writes down on the provided papers 10 adjectives that describe themselves and 10 adjectives that describe each member of their group. Thus, at the end of this part, each person has a list of 10 adjectives they wrote describing themselves and lists of 10 adjectives they wrote for each group member.
- (2) Each participant exchange lists, so that each participant has only the lists describing him/herself. Thus, each person now has a list of 10 adjectives they wrote on themselves and the lists all the other members of the group wrote on him/her.
- (3) Every participant needs to divide the adjectives referring to him/herself, from all the lists, in the Johari window (Appendix 2). The participants divide the adjectives as follows:
 - a. In the first quadrant (known to self and others), participants include adjectives that are the same in their self-made list and the lists from others. (For this step, participants can be advised to circle adjectives on their self-made lists that match the adjectives others wrote and then these in the first quadrant).
 - b. In the second quadrant (not known to self but known to others), participants write down the adjectives that others wrote, but not used to describe themselves).
 - c. In the third quadrant (known to self and not known to others), participants list the adjectives that they wrote about themselves, but others did not mention.
 - d. The fourth quadrant remains empty, since it represents our hidden motives, desires, opinions, dreams, etc.

Option 2.

Participants can complete this activity as a take-home activity:

- (1) Participants should be provided with materials for the activity (Appendix 2. The list of adjectives and the Johari window) and given detailed instructions on how the activity is conducted, as described in Option 1.
- (2) They can complete the first task in class, and using the list of adjectives, select and write down on a piece of paper 10 adjectives that describe them.
- (3) They can be instructed to find 2 to 3 persons who know them well, such as their family members, friends, colleagues from school, university or workplace, and ask them to write the list for them. After they have all the lists, they can finish the activity.

Reflection on the activity

In the same groups in which the activity was performed (in class or at home), participants should reflect on their experience in the activity:



1. Are there many differences between your own lists and lists others made for you?
2. Is there information about yourself that you thought and/or wished others knew, but they do not know? How can you make such information known to others?
3. Did you learn some information about yourself from others of which you were previously unaware? How can you benefit from such information?

Homework assignment

Based on the information and self-knowledge acquired and developed in the personal SWOT analysis in the professional domain and Johari window activity, participants are required to complete a self-presentation letter for their application for the STEM teacher position from the initial scenario.

In the self-presentation letter, they should describe themselves as objectively as possible, stating their professional strengths, weaknesses, as well as opportunities and threats they are facing. The self-presentation letter should be between 2-3 pages and should contain a concluding paragraph that clearly summarizes why the participant should be selected for the STEM teacher position.



SESSION 2. STEM TEACHER CREATIVITY AND INNOVATION

2.1. OBJECTIVES

After this lesson, students should be able to:

- define and describe creativity and innovation
- understand the role of divergent and convergent thinking in creativity
- apply techniques for enhancing creative thinking and problem solving
- recognize the importance of creative thinking in teaching and in professional development

2.2. STRUCTURE OF ACTIVITIES

Activities		Time
Analyzing own creativity	Is creativity present in my self-presentation letter (from initial scenario)?	10 minutes
Divergent and convergent thinking exercise	Introduction to the exercise	5 minutes
	Divergent and convergent thinking exercise	5 minutes
	Discussion on the exercise	10 minutes
Brainstorming in creative thinking and problem solving	Introduction to the activity (Follow-up scenario for Session 3)	10 minutes
	Conducting brainstorming activity	35 minutes
	Discussion on the activity	15 minutes

2.3. MATERIALS

Introduction and definitions of key terms

Creativity is difficult to define, but it broadly refers to the ability to generate or produce thoughts, ideas, solutions or products that are both original and useful (APA Dictionary of Psychology, n.d.; Runco & Jaeger, 2012). Hence, creativity requires both originality/novelty and effectiveness/usefulness or appropriateness (Runco & Jaeger, 2012).

Creativity is a characteristic of **people** (who we are), **processes** (how we do things) and **products** (what we do) (Fisher, 2004). At the level of the individual, creativity is a function of three components:

- (1) expertise, which refers to everything an individual knows and can do in his domain of work;
- (2) creative thinking skills, which refer to an individual's capacity to combine the existing ideas in new combinations; and
- (3) motivation, which refers to an individual's need to be creative, and a person can be driven to be creative either extrinsically (e.g., through rewards and punishments) or intrinsically (e.g., through personal interest)



(Certo & Certo, 2016).

Creativity is important for success in education, work and life, and is an essential characteristic of good teachers. Hence, it is useful to know how it can be enhanced in oneself and in others and how to overcome barriers to creativity. In this session, techniques for encouraging creative thinking and problem solving are described and exercised.

Analyzing own creativity

Participants read the self-presentation letter they completed as their homework assignment and analyze whether creativity is present in it. They should analyze the following points:

1. Did they imply that they are or explicitly described themselves as creative?
2. Did they provide description or evidence of their creativity?
3. Did they show creativity in structuring and writing their self-presentation letter?

Divergent and convergent thinking exercise

Introduction to the activity

Two types of thinking important for creativity are divergent and convergent thinking.

Divergent thinking refers to generating numerous and varied ideas and responses, while *convergent thinking* refers to finding or remembering one conventional or correct response (Runco, 2014).

Examples of divergent thinking are tasks in which multiple creative solutions are produced for a given problem, while examples of convergent thinking are multiple choice tasks in which a single correct solution or answer needs to be found or identified. Both divergent and convergent thinking are important for creativity – divergent thinking is used to generate new and original ideas, and convergent thinking is used to evaluate those ideas in terms of their usefulness or appropriateness.

Conducting divergent and convergent thinking exercise

To practice their *divergent thinking*, participants undertake the following exercise:

In 5 minutes of time write down ideas and answers to the following:

“Make a list of different uses of a transparent plastic 0.5l bottle.”

(Participants should be instructed not to evaluate or discard their ideas, but simply to write down all ideas).

To practice their *convergent thinking*, participants complete the following exercise:

- (1) Select three, most creative ideas, you produced in your divergent thinking exercise.
- (2) Evaluate the selected three ideas in terms of their usefulness, or appropriateness.
- (3) Select one best idea that you think is both highly creative and highly useful.



Reflection on the activity

Participants should share their best ideas with the group and discuss the process and outputs of divergent thinking:

1. How many different ideas did they come up with? How many of those ideas do they consider unusual and original? How many of those ideas they consider useful?
2. What difficulties did they encounter in trying to come up with new and original uses of the object?

Brainstorming in creative thinking and problem solving

Introduction to the activity

Brainstorming is a method often used to encourage creative thinking and problem solving, through generating various ideas and solutions for a given problem. Brainstorming is a good method for encouraging creative thinking in many professional situations STEM teachers face, since it inspires new approaches to a problem and breaking out of established ways of thinking. It can be used individually, but it is commonly used in group problem solving.

1. The session typically begins with an introduction to brainstorming process and rules. (In this phase, the problem regarding which the participants need to brainstorm is introduced and shortly discussed).
2. The second phase is focusing on generating ideas and solutions for the given problem.
3. In the final phase, the generated ideas are discussed and evaluated, and the best ones selected.

In order for this technique to be successful and provide creative ideas and problem solutions, attention needs to be paid to the phase in which ideas are generated. As it is usually hard for participants to dismiss their critical thinking and express various ideas (people are trained to think critically), it is important to carefully present and explain to participants some common rules of brainstorming (e.g., Jossey-Bass & Pfeiffer, 1998): i.e.

- (1) *Focus on quantity.* In producing ideas, the focus should be on producing as many ideas as possible, because the greater the quantity of ideas, the more likely it is that there will be original and useful ideas among them.
- (2) *No criticism.* There should be no criticism, judgment and evaluation of ideas during their production. Participants should feel free to express all their ideas, and judgments and evaluations are not welcomed, since they stunt ideation.
- (3) *Wild ideas are welcomed.* Participants are encouraged to share any ideas they come up with, no matter how bad, stupid or impractical they may seem. Sometimes the best ideas come from exploring and building on the wildest ideas.
- (4) *Build on other participants' ideas.* Combining ideas is a part of the creative process, so participants are encouraged to suggest improvements or combinations of ideas produced by other participants.



Conducting brainstorming activity

Participants are required to brainstorm a problem from the follow-up scenario for Session 3.

Follow-up scenario for Session 3:

You got the job you applied for and you are admitted as a STEM teacher in the school. Soon after you started your new job, the principal invited all STEM teachers in the school to formulate a plan on how to collect the funds necessary for equipping a new STEM teaching laboratory in the school. All STEM teachers should form a group whose task is to generate ideas for collecting funds necessary for equipping the STEM teaching laboratory.

Participants are asked to produce ideas and solutions for the following problem:

“How can funds, necessary for equipping the STEM teaching laboratory, be collected?”

It needs to be highlighted that participants have the freedom to think of any sources, means and activities useful for collecting the funds. There are no limits to the ideas produced during the brainstorming.

The brainstorming session consists of several steps:

- (1) Participants are given 10 minutes to individually brainstorm ideas and write these down on a piece of paper.
- (2) After 10 minutes, participants share their ideas with the rest of the group, one by one. (It is important that each group member gets an opportunity to share his/her ideas and that other members listen). In this group phase of brainstorming, participants are encouraged to build upon each other's ideas using “yes and...” statements when referring to others' ideas. In this way, the ideas of each participant can be further elaborated and developed.
- (3) During the group brainstorming phase, all suggestions and ideas need to be written down by the facilitator who is managing the brainstorming session.
- (4) After all the ideas have been shared and written down by the facilitator, they should be discussed and evaluated within the group.

Re- the facilitator. This person, responsible for managing the brainstorming process, needs to ensure, a non-critical and relaxed atmosphere, in which participants feel free to produce and share different ideas. During the phase in which ideas are produced and shared, facilitator should prohibit using words like “no” or “but”, and encourage participants to comment on ideas in positive tone, using phrases such as “That is a great idea!” Participants should also be encouraged to build on each other's ideas, using statements like “yes, and...” or “right, and...”

In situations when a number of ideas during brainstorming starts to decrease, the facilitator may encourage a new way of looking at the problem, for example by asking the question “why” (e.g. “Why do we need the funds?”) or by changing the perspective (e.g., “How would students collect the funds for equipping the laboratory?”).



Reflection on the activity

Following the brainstorming, the facilitator should ask participants to discuss and evaluate their ideas. This is the phase in which participants need to engage their critical thinking and reflect on their ideas. The evaluation of the ideas need be conducted with the help of the following criteria:

- (1) Is it possible to implement this idea?
- (2) How difficult is it to implement the idea?
- (3) Do we have resources (e.g., time, people, knowledge) to implement this idea?

After considering the proposed questions, participants are encouraged to adjust their ideas or discard ideas that are not possible to implement, and decide on the best ideas to follow through.



SESSION 3. PROFESSIONAL DECISION MAKING AND PLANNING SKILLS

3.1. OBJECTIVES

After this lesson, students should be able to:

- define and describe the process of decision making in the professional and personal domain
- define and describe the process of making plans in the professional and personal domain
- apply techniques for making decisions and choices
- apply planning techniques
- understand the principles of time management

3.2. STRUCTURE OF ACTIVITIES

Activities		Time
Introduction to decision making and planning	Follow-up scenario for Session 4	5 minutes
Decision and choice making exercise	Introduction to the exercise	10 minutes
	Decision and choice making exercise	20 minutes
	Discussion on the exercise	5 minutes
Planning exercise	Introduction to the exercise	10 minutes
	Planning exercise	25 minutes
	Discussion on the exercise	15 minutes
Take-home activity	What is time management and how to improve it?	90 minutes

3.3. MATERIALS

Introduction to decision making and planning

In this session, participants complete activities aimed at learning and practicing decision making and planning techniques and methods, based on the described follow-up scenario for Session 4.

Follow-up scenario for Session 4:

Thanks to the joint efforts of all the STEM teachers in the school, the school now has a newly equipped STEM teaching laboratory. Students are encouraged to use it for the realization of their ideas and projects. Students are required to do so under STEM teacher mentorship. At the beginning of the school year, two students have applied for you mentorship of their projects, but you are only allowed to accept one student per school year.

The first student wants to develop a mobile application with simple activities and tasks for STEM learning for preschool children. This student has very good grades in STEM school subjects, but in terms of his results on STEM exams, he is not at the top of his class.



However, he won the first place on the national STEM competition and fourth place on the international STEM competition, where he competed with another mobile application he had previously developed. As a student, he is persistent and hard-working, but only in subjects and areas he is interested in, but he does not put additional effort into tasks he is not interested in.

The second student wants to build a small self-sustaining garden in which vegetables for a school kitchen can be grown all year long. This student has excellent grades in STEM school subjects and she is at the top of her class in terms of her results on STEM exams. She has never entered STEM competitions before. She is very persistent and hard-working, and she frequently helps her classmates with school materials and learning.

Both projects are interesting and appealing to you. You need to decide which student you will mentor, after systematic consideration of each student's advantages and shortcomings. Once you decide which student you will mentor, your second obligation is helping the chosen student to develop a working plan for both your and the student's tasks, along with precise hours and timetable for the project so that it can be completed in one school year.

Decision making and choice of exercise

Introduction to the activity

Decision can be defined as a choice between two or more available alternatives, and decision making is the process of choosing the best alternative for achieving our goals (Certo & Certo, 2016; Howard & Abbas, 2016). We all make different types of decisions in our life – some of them are small and frequent everyday decisions which we make in a moment, or in little time (e.g., what shirt to wear or what to eat for lunch); others are more complicated and require more thought (e.g., which car to buy or where to spend our vacation); and some are difficult, important, and may have far-reaching consequences, thus requiring more time and effort to make (e.g., choosing a career) (Howard & Abbas, 2016).

A number of decision-making techniques has been developed in order to help in making quality decisions. In everyday life and work, we are frequently faced with situations in which we have to decide between certain numbers of alternatives, while taking into consideration various factors. Probably the best way to arrive at a decision in such situations is to carefully go through the available alternatives, evaluating each one on a number of factors that need to be taken into consideration. This style of decision making is represented in the decision matrix analysis, as one of the techniques for decision making (e.g., MindTools, n.d.).

Decision matrix analysis consists of several steps:

- (1) First, a list of available options is formed between which we need to decide. For example, if you are deciding on buying a new car, a list of all the potential cars can be created.



- (2) Second, a list is made of various factors that are important for arriving at a decision. In the example of deciding on a new car, these may be - price, speed, number of seats, size of the cargo space, etc.
- (3) Third, a scale is used to rate each option on the selected factors. A scale that best fits the purpose is needed e.g. 1-3 or 1-5, with higher numbers usually indicating more favourable ratings. In the example of deciding on a new car, the score of 1 could indicate that the factor or criterion is rated as unsatisfactory, while the score of 5 could indicate that it is rated as excellent.
- (4) It is also possible to assign a weight to each of the selected factors, representing its importance (e.g., 1 – low, 2 – medium, 3 – high). For example, if you do not consider the size of the cargo space particularly important, you can assign it a weight of 1, and if you consider the price of the car highly important, you can assign it as 3.
- (5) After a list of options and factors, rating scale and weights are formed, a matrix can be developed in the form of a table, where available options can be placed in columns, and selected factors in rows (or vice versa).
- (6) Once a matrix is formed, the available options are scored on all the selected factors, by placing one of the numbers from the scale you decided to use in each cell of the table. The score in each cell needs to be multiplied with the weight you assigned to the factor.
- (7) After multiplying the scores in the cells with weights, the scores in the columns are added, and the column with the highest score is the winning option.

Conducting a decision and choice making exercise

Using the template in Appendix 3, participants develop a decision matrix, based on which they are asked to arrive at a decision on mentorship of students from follow-up scenario for Session 4. They need to complete several steps:

- (1) Develop a list of factors or criteria related to the candidates that may influence their decision (e.g., grades, creativity, motivation, persistence, previous achievements).
- (2) Develop a scale for rating the factors or criteria (e.g., 1 – poor to 5 – excellent).
- (3) Formulate the weights representing the importance of the factors or criteria (e.g., from 1 – low to 3 – high).
- (4) Complete the matrix and decide on the candidate.

Reflection on the activity

After completing the exercise, the students discuss the process and outcomes of decision-making activity:

1. How easy or difficult it was to think of factors that may affect the decision and weight them?
2. Did the decision made based on the decision-making matrix match the one you would make intuitively?
3. In what way could you use the decision-making matrix in making decisions in your private and professional life?

A Planning exercise



Introduction to the activity

Planning is a management function that involves setting objectives and designing, in detail, a course of action for achieving the set objectives. Planning contributes to higher productivity, motivation, and more quality outcomes (Wilson & Dobson, 2008).

Planning is another important skill for teachers, who are often responsible for leading the planning for different small, or large-scale projects, structuring and overseeing the work of others. In such situations, an ability to prepare a clear plan by setting objectives and determining the most efficient strategies to meet these objectives is essential. The following exercise is designed to improve the planning skills of STEM teachers, specifically project planning skills.

Planning consists of two main steps.

1. Defining clear and comprehensive objectives for the project.

(A useful method for defining a project objective is through SMART objectives statements. *SMART* is an acronym that stands for specific, measurable, achievable, realistic, and time-bound (e.g., CDC, 2018).

Each SMART objective features implies defining the following details:

- **Specific** – What will be accomplished? Who needs to participate? Why is this objective important?
- **Measurable** – How will it be determined that the objective has been met? How can the progress be measured?
- **Achievable** – Does the person responsible have the skills required to achieve the objective? Is it realistic to achieve the objective in a given setting and requirements?
- **Relevant** – Is the project in line with my professional objectives? Is it in line with the objectives of my organization?
- **Time bound** – Is there a deadline for the objective? Is the deadline realistic?

Besides determining the main objective of the project, it is necessary to develop a detailed plan on how to achieve this objective. One approach is by developing a *work plan*.

The work plan is a visual representation of all the activities required to complete the project. It separates the whole project into its elements to track all the levels of the project requirements (Burghate, 2018).

A work plan consists of several categories: work packages, specific tasks needed to complete each work package, milestones or deliverables of each task, timeline of the project, and people responsible for each project activity and task.

A detailed description of each work plan determinant is provided below.

- *Work packages* are building blocks of work plans. They consist of series of related tasks. When all the work packages are combined together, they form the complete project. An example of a work package can be administrative activities on the project.
- *Specific activities* are actions that form a work package. For example, organizing a meeting with project participants can be a part of the administrative work package structure.



- *Deliverable* is a physical output related to a specific task or activity of the project, such as a report, a tool, or a website.
- *Milestone* is a moment in the project that signifies a change or a breaking point in the project development, such as the end or the beginning of the project.
- *Timeline* of the project refers to the duration of each specific activity. Duration can be specified in days, weeks, months or hours.
- *Person responsible* for each activity in the project should also be outlined.

Conducting a planning exercise

Participants develop a working plan for the student project which they need to mentor.

By working in groups of 4- 5 members, select the same project to mentor. The task of each group is twofold:

- (1) Firstly, to describe the objective of the project in the framework of SMART objectives (Appendix 4).
- (2) After formulating the objective of the project, participants the groups think about the work packages of the project, specific tasks needed to complete each work package, milestones or deliverables of each task, the person responsible for each task completion, and the specific time when the individual tasks should be completed so that the project is finished in one school year. This is achieved using the Project work plan in Appendix 4. In which all specific activities are implemented in the work plan in chronological order.

Thus, participants primarily focus on the specific activities needed to complete the project, and their chronological timeline. For example, the first activity of the project can be making a project proposal for the school board (as a part of administrative work as a work package), (the first week of the project).

The second and third week of the project can be reserved for gathering materials for the project and so on. Therefore, because the specific activities are in chronological order, some work packages need to be repeated in the first column of Project work plan (Appendix 4). Participants can add rows in the work plan template if necessary.

Reflection on the activity

After completion of their work plans, representative of each group can present their work plan. Presentations can be grouped according to the selected student project, and differences between project plans for the same student project can be discussed in terms of coverage of activities, timelines and responsibilities.

Homework activity

Introduction to the activity: What is time management and how to improve it?

Time management can be defined as “behaviours that aim at achieving an effective use of time while performing certain goal-directed activities” (Claessens et al., 2007, p. 262).



Sometimes our creativity, decision making, planning and completion of activities in personal and professional life suffer from a lack of time, or poor management of time.

One simple and efficient time management technique is the time management matrix, also known as *Eisenhower's matrix*, after the former U.S. president. It is a system in which the tasks people have on their to-do lists are divided and prioritized in terms of their urgency and importance, and the time devoted to their execution is decided (Bast, 2016).

The tasks are divided into four quadrants:

- (1) The first quadrant refers to tasks that are both *urgent and important*. These are the tasks which are highly important in our personal or professional life, and at the same time have a strict and tight time limit and consequences if they are not completed (e.g., preparing for an important exam which takes place in a week, writing a project report which is due in a week).
- (2) The second quadrant refers to tasks that are *important, but not urgent*. These are the tasks that can bring long-term benefits, but they do not need to be completed on a tight schedule (e.g., enrolling in a CPD training for teachers, acquiring driver's license). It is important to schedule a specific time when these tasks are undertaken to ensure they do not become urgent as well. (This is the main objective of time management – to spend time on the important things and do them before they become urgent)
- (3) The third quadrant refers to tasks that are *urgent, but not important* (e.g., managing phone calls, emails, or text messages). It is also advisory to schedule these tasks so that they do not become frequent interruptions. It is also an option to delegate these tasks to someone else, if there is a possibility to do so. (As little time as possible should be spent on these activities).
- (4) The fourth quadrant refers to tasks that are *not urgent nor important* (i.e., so-called “time wasters”, e.g., such as watching TV), and these should be eliminated from a to-do list.

Take-home activity: Complete your Eisenhower matrix

After getting familiar with this time management tool, try to apply it to enhance your time management skills, using the template provided in Appendix 5:

- (1) Create a list of all the tasks in the professional domain you need to complete in the following month. The list may contain all your professional tasks and goals.
- (2) Once your to-do list is created, try to organize the items in the list according to their importance and urgency in the quadrants.
- (3) Once you have created your Eisenhower matrix, make a schedule of your tasks, according to quadrants in the matrix, allocating time at which you will complete them.



SESSION 4. BARRIERS IN PROFESSIONAL SELF-MANAGEMENT

4.1. OBJECTIVES

After this lesson, students should be able to:

- identify subjective and objective barriers in professional work and development
- identify barriers in creative thinking, decision making and planning
- plan actions to overcome barriers in professional work, development and self-management

4.2. STRUCTURE OF ACTIVITIES

Activities		Time
Barriers in professional work, development and self-management	Identifying barriers in professional work and development	15 minutes
	Identifying barriers in creativity, decision making and planning	15 minutes
Overcoming barriers in professional work, development and self-management	Choosing priorities in professional development	20 minutes
	Developing a professional development plan	40 minutes

4.3. MATERIALS

Barriers in professional work, development and self-management

In this activity, knowledge and skills acquired in the module are integrated, using the template provided in Appendix 6:

- (1) Participants return to their personal SWOT analysis in the professional domain completed in Session 1. They analyze the outcomes in the categories of weaknesses and threats, and identify those that may present barriers in their professional work and development in the domain of:
 - education, certification, training
 - knowledge and skills
 - emotions, drives, needs
 - traits, qualities, characteristics
 - interests and motivation
 - environment they study or work
- (2) Recollect the creativity, decision making and planning activities from Sessions 2 and 3, and try to identify the problems and barriers they faced while trying to generate and evaluate ideas, formulate a decision and develop a work plan. They should also try to identify any problems



and barriers that prevent them to be more creative, make better decisions, set goals and plan actions to achieve those goals in their professional work and development.

- (3) Once they made lists of the barriers they identified in each of the categories, they should evaluate those barriers and mark the barriers they believe can be overcome (i.e., changed, altered, mastered, or removed).

Overcoming barriers in professional work, development and self-management

After the participants identified the barriers in their professional work, development and self-management, and selected the ones they believe can be overcome, in this activity they will use the knowledge and skills acquired in the module in planning how to overcome those barriers.

The participants are required to complete the following tasks, using the template provided in Appendix 7:

- (1) Among the barriers they identified as those they can overcome, they should select at least three that they consider present the most important barriers in their professional work and development.

For example, a teacher identified several barriers and selected the following three as the most important barriers in his professional work: challenges in teaching STEM gifted students, difficulties with teaching certain topics to his students, lack of specific equipment in STEM teaching laboratory.

- (2) For the selected barriers, they should take time to brainstorm ideas on how to best overcome them. Once they have brainstormed ideas, they should evaluate the ideas they produced in terms of their usefulness or appropriateness, and select the best ones. If they cannot decide between several options, they can develop a decision-making matrix and choose between these ideas.

For example, the teacher may produce the following ideas for the barrier of challenges in teaching STEM gifted students: read professional literature about STEM gifted students, attend additional seminars or training on teaching gifted students, consult with colleagues, talk to gifted students. The teacher evaluates the ideas and selects the following as the best ones: attend additional seminars or training on teaching gifted students and talk to gifted students.

- (3) Once they have selected solutions for each of the barriers, they should state the selected solutions as objectives they plan to attain, using SMART statements.

For example, the teacher states the selected solutions as SMART objective statements: I will attend one professional seminar or conference on the topic of gifted students by the end of this school year; I will conduct interviews regarding their interest, motivation, satisfaction and problems with two of my STEM gifted students by the end of the next month.

- (4) Finally, they should develop a plan how they will attain these objectives, with activities, evidence of completion of these activities and timeline.

For example, the teacher develops a list of activities he should complete to attain the objective "I will conduct interviews regarding their interest, motivation, satisfaction and problems with two of my STEM gifted students by the end of the next month": develop questions for the interviews (timeline:



end of next week; evidence of completion: a questionnaire for students developed); contact students and ensure their participation (timeline: end of second week; evidence of completion: students contacted and time and place of interviews scheduled); conduct interviews with students (timeline: end of third week; evidence of completion: notes from the interviews).



END SESSION

STRUCTURE OF ACTIVITIES

Activities	Time
Sum-up, evaluation and conclusion: Re-contextualization activities	30 minutes
Post-survey	15 minutes

MATERIALS

Sum-up, evaluation and conclusion: Re-contextualization activities

Participants should discuss:

- (1) how the techniques learned in the module may be generally applied in professional life and career development,
- (2) how the techniques learned in the module may be transferred to students to improve their self-management.



REFERENCES

- American Psychology Association. (n.d.). Creativity. In *APA Dictionary of Psychology*. Retrieved January 2, 2022, from <https://dictionary.apa.org/creativity>
- American Psychology Association. (n.d.). Self-analysis. In *APA Dictionary of Psychology*. Retrieved January 2, 2022, from <https://dictionary.apa.org/self-analysis>
- Burghate, M. (2018). Work Breakdown Structure: Simplifying Project Management. *International Journal of Commerce and Management*, 3(2), 453-461.
- Bast, F. (2016). Crux of Time Management for Students. *Resonance*, 21(1), 71-88.
- Centers for Disease Control and Prevention (CDC). (2018). *Evaluation Briefs No. 3b – Writing SMART Objectives*. Retrieved from <https://www.cdc.gov/healthyyouth/evaluation/pdf/brief3b.pdf>
- Certo, S. C., & Certo, S. T. (2016). *Modern Management – Concepts and Skills*. Pearson.
- Claessens, B. J. C., van Eerde, W., Rutte, C. G., & Roe, R.A. (2007). A Review of the Time Management Literature. *Personnel Review*, 36(2), 255-276. <https://doi.org/10.1108/00483480710726136>
- Eurich, T. (2019). What Self Awareness Really Is (And How to Cultivate It). In D. Goleman, R. S. Kaplan, S. David, & T. Eurich (Eds.), *Self-Awareness (HBR Emotional Intelligence Series)* (pp. 11- 37). Harvard Business Press.
- Fisher, R. (2004). What is Creativity? In R. Fisher & M. Williams (Eds.), *Unlocking Creativity Teaching Across the Curriculum* (pp. 6-20). David Fultom Publishers.
- Goleman, D. (2019). The First Component of Emotional Intelligence. In D. Goleman, R. S. Kaplan, S. David, & T. Eurich (Eds.), *Self-Awareness (HBR Emotional Intelligence Series)* (pp. 1- 11). Harvard Business Press.
- Goleman, D. (2000). An EI-Based Theory of Performance. In D. Goleman, & C. Cherniss (Eds.), *The Emotionally Intelligent Workplace: How to Select for, Measure, and Improve Emotional Intelligence in Individuals, Groups, and Organizations*. Jossey-Bass.
- Howard, R. A., & Abbas, A. E. (2016). *Foundation of Decision Analysis*. Pearson.
- Jossey-Bass & Pfeiffer (1998). Brainstorming. *The Pfeiffer Library*, 26, 1-9. Retrieved from <http://home.snu.edu/~jsmith/library/body/v26.pdf>
- London, M., Sessa, V. I., & Shelley, L. A. (2023). Developing Self-Awareness: Learning Processes for Self- and Interpersonal Growth. *Annual Review of Organizational Psychology and Organizational Behavior*, 10(1), 261-288.
- Lowes, R. (2020). Knowing You: Personal Tutoring, Learning Analytics and the Johari Window. *Frontiers in Education*, 5(101). doi: 10.3389/educ.2020.00101
- Luft, J., & Ingham, H. (1961). The Johari Window: A Graphic Model of Awareness in Interpersonal Relations. *Human Relations Training News*, 5(9), 6-7.
- MindTools. (n.d.). *Decision Matrix Analysis*. <https://www.mindtools.com/aksic2i/decision-matrix-analysis>
- Runco, M. A. (2014). *Creativity Theories and Themes: Research, Development, and Practice*. Amsterdam: Elsevier.
- Runco, M. A., & Jaeger, G. J. (2012). The Standard Definition of Creativity. *Creativity Research Journal*, 24(1), 92–96.
- Wilson, S. B., & Dobson, M. S. (2008). *Goal Setting: How to Create an Action Plan and Achieve Your Goals*. American Management Association.



APPENDICES

APPENDIX 1. Personal SWOT analysis in the professional domain

STRENGTHS
<p><i>In what, related to your (future) career in STEM teaching, are you particularly good at – either by natural ability or through learning and experience?</i></p> <p>For example, ask yourself some of the following questions:</p> <ul style="list-style-type: none">- What tangible qualifications do you have (e.g., degree, certificate, training, internship) related to the field of STEM, teaching, or both?- Do you have certain experience in working and/or volunteering, possibly related to STEM or teaching? Could such experience boost your (future) career in STEM teaching?- Do you have experience working in different environments and/or with different populations that could be helpful for your professional development as a STEM teacher?- What specific knowledge do you possess, that could be useful and helpful in STEM teaching?- What specific skills do you possess, that could be useful and helpful in STEM teaching?- What useful traits, qualities or values do you have that give you an advantage when compared to others? Could they be useful and helpful in STEM teaching (career)?- What are your other personal strengths (e.g., interests, hobbies) that could be useful and helpful in STEM teaching (career)?- Which of your achievements in professional development or career are you most proud of, in general?- What do you do better than others? Can this be of use in a profession related to STEM, teaching, or both?- What would other people (e.g., your friends, co-workers) say are your strengths? Can these strengths be useful and helpful in STEM teaching (career)?
STRENGTHS:





WEAKNESSES

What things that are related to your (future) career in STEM teaching you are not so good at – either naturally or you just did not acquire the knowledge or skills?

For example, ask yourself some of the following questions:

- What tangible qualifications do you lack but would like to gain (e.g., degree, certificate, training, internship) related to the field of STEM, teaching, or both?
- Do you lack experience in working and/or volunteering that could boost your (future) career in STEM teaching?
- Do you lack experience working in certain environments and/or with certain populations that could be helpful for your professional development as a STEM teacher?
- What specific knowledge do you think you lack, that could be useful and helpful in STEM teaching?
- What specific skills do you think you lack, that could be useful and helpful in STEM teaching?
- Do you have certain traits, qualities or values that could hold you back in your professional life and development, particularly in STEM teaching (career)?
- What professional situations or tasks do you usually avoid and why?
- What bad habits do you have in your professional work? Could these habits hold you back in STEM teaching (career)?
- What would people around you (e.g., friends, co-workers) see as your weaknesses? Can these weaknesses be an obstacle in your STEM teaching (career)?

WEAKNESSES:



OPPORTUNITIES

Considering your strengths and weaknesses, think about how you could improve and benefit professionally as a (future) STEM teacher? What external opportunities are there to boost your professional development?

For example, ask yourself some of the following questions:

- Are there any academic opportunities you can tackle (e.g., scholarships opportunities, projects you can participate in), that could boost your (future) STEM teaching (career)?
- Can you obtain further or better education (e.g., engage in courses, training, education that can further develop your knowledge and/or skills), that could boost your (future) STEM teaching (career)?
- Do you know people who have attended schools, training, courses, programs and/or internships related to STEM and/or teaching you are interested in who can share their experience with you?
- Do you have access to other available sources of support for your professional development (e.g., advisors, education centres) in STEM teaching (career)?
- Is there a need in your academic program or place of work related to STEM and/or teaching that no one is filling, but you could fulfil?
- What can you do to draw attention to yourself professionally?

OPPORTUNITIES:



THREATS

Given your strengths and weaknesses, what external impact could negatively affect you in the professional domain as a (future) STEM teacher?

For example, ask yourself some of the following questions:

- Are you currently facing any obstacles in your education or place of work?
- Are any of your colleagues competing with you for projects, functions or roles?
- Are there any new trends, technologies, or processes that you cannot or have not gotten involved in that are keeping you from advancing? Could this be a threat to your STEM teaching (career)?
- Could any of your weaknesses lead to threats?

THREATS:



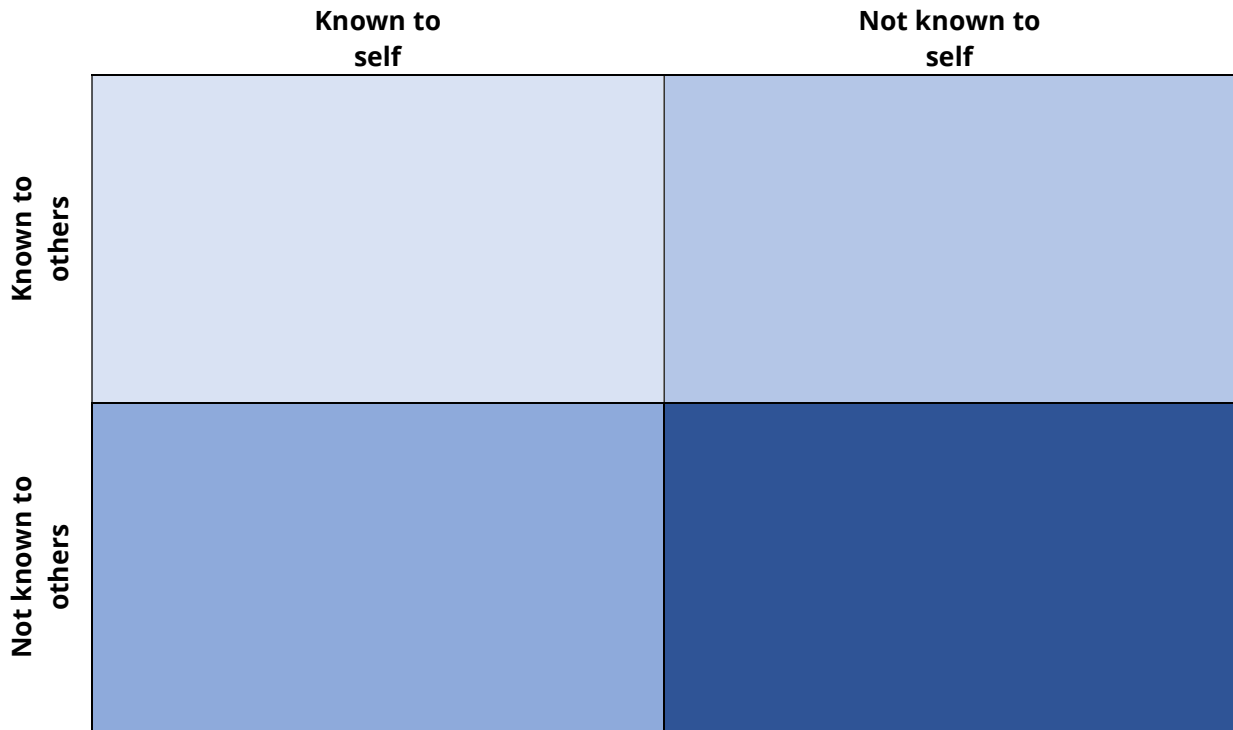
APPENDIX 2. Johari window activity

List of adjectives

Able	Giving	Organized
Accepting	Happy	Patient
Adaptable	Helpful	Powerful
Bold	Idealistic	Proud
Brave	Independent	Quiet
Calm	Ingenious	Reflective
Caring	Intelligent	Relaxed
Cheerful	Introverted	Religious
Clever	Kind	Responsive
Complex	Knowledgeable	Searching
Confident	Logical	Self-assertive
Dependable	Loving	Self-Conscious
Dignified	Mature	Sensible
Energetic	Modest	Sentimental
Extroverted	Nervous	Shy
Friendly	Observant	



Johari window



APPENDIX 4. Planning exercise Objective of the project

SPECIFIC	
MEASURABLE	
ATTAINABLE	
RELEVANT	
TIME BOUND	



APPENDIX 5. Time management: Eisenhower matrix

	Urgent	Not urgent
Important	<i>DO FIRST!</i>	<i>SCHEDULE!</i>
Not important	<i>DELEGATE!</i>	<i>AVOID!</i>

Project work plan

Work package	Specific activities	Milestones or Deliverables (ex. <i>written project proposal</i>)	Timeline (activity duration) (ex. <i>first week of the project</i>)	Person responsible (ex. <i>teacher, student</i>)



APPENDIX 6. Barriers in professional work, development and self-management

Barriers in professional work and development	Can I overcome it?
Barriers in creativity:	Can I overcome it?
Barriers in decision making:	Can I overcome it?
Barriers in planning:	Can I overcome it?

APPENDIX 7. Professional development plan

Goals	Activities to achieve goals	Evidence of completion	Timeline
1.			
2.			
3.			
4.			
5.			
...			

ACKNOWLEDGEMENTS

This operational manual was produced as a part of the High-Fliers project, and funded from the Erasmus+ Programme Key Action 2: Strategic Partnerships under grant agreement number 2020-KA203-12.

We thank the teachers, students and university/research staff who participated in the piloting of the module, especially to schools and excellence centres of Varaždin County. We also thank our collaborator Janja Sušić for her contribution to the module, materials and piloting.

We want to express our deep appreciation to other partner countries and their participants, who have piloted this module and given valuable feedback to improve the content of this module, as well as the national evaluation board members and international advisory board members for their professional comments and development ideas related to the module content.

