UNCERTAIN TIMES AHEAD

INTO ACTION

COPING WITH AMBIGUITY, UNCERTAINTY & RISK

LEARNING GOALS

- MANAGE RISK
- COPE WITH UNCERTAINTY & AMBIGUITY
- CALCULATE RISK

OTHER RELEVANT COMPETENCES

- TAKING THE INITIATIVE
- LEARING THROUGH EXPERIENCE
- SPOTTING OPPORTUNITIES
- VALUING IDEAS
- SELF AWARENESS & SELF EFFICACY
- FINANCIAL & ECONOMIC LITERACY

Uncertain Times Ahead

1. Overview

This module supports students in dealing with ambiguity, uncertainty and risk. Young people often face new challenges, not least to the fact that the information available in some cases is partial or ambiguous and therefore making decisions, calculating and managing risks could create big challenges for students. Since entrepreneurship education includes – among other topics – dealing with ambiguity, uncertainty and risk, the students should be encouraged to make decisions, not to be afraid of making mistakes and to explore their own ways to achieve their goals. By providing tools, methods and concrete examples, the students will find out how to overcome uncertainty, ambiguity and risk. Students get the chance to become more confident in themselves as well as to implement their new ideas, even if it involves a certain risk. The acquisition of these skills is important not only for this module, but also for the personal development of the students.

2. EntreComp Competence – Coping with Ambiguity, Uncertainty and Risk

According to EntreComp the competence *'Coping with Ambiguity, Uncertainty and Risk'* is about making decisions when the result of that decision is uncertain, when the information available is partial or ambiguous, or when there is a risk of unintended outcomes. The overall learning goals are defined as follows:

- Within the value-creating process, there should be included structured ways of testing ideas and prototypes from early stages to reduce risks of failing
- Students should be able to handle fast-moving situations promptly and flexibly

Other relevant competences include *'Taking the initiative', 'Learning through experience', 'Spotting opportunities', 'Self-awareness and self-efficacy', 'Valuing ideas',* and *'Financial and economic literacy'*.

3. Learning Goals

1. **Cope with uncertainty and ambiguity:** Students should not be afraid of making mistakes while trying new things and explore their own ways to achieve things. Furthermore, students should be able to discuss the role that information plays in reducing uncertainty, ambiguity and risks, and should actively look for, compare and contrast sources of information that help them reduce ambiguity, uncertainty and risks in making decisions. In addition to that, students should be capable to find ways of making decisions when the information is incomplete as well as to pull together different viewpoints to take informed decisions when the degree of uncertainty is high. This includes the ability to make decisions evaluation the different elements in a situation that is uncertain and ambiguous, and to set up appropriate strategies for collecting and monitoring data, which help them to take decisions based on sound evidence.

2. **Calculate risk:** Students should be able to identify examples of risks in their surroundings as well as describe risks related to a simple value-creating activity in which they take part. Additionally, the students should can tell the difference between acceptable and unacceptable risks as well as weigh up the risks and benefits of self-employment with alternative career options, and make choices that reflect their preferences. Furthermore, the students should be able to apply the concept of affordable losses to make decisions when creating value, and to compare value-creating activities based on a risk assessment. Finally, they should assess the risks their ventures are exposed to as conditions change, and are able to evaluate high-risk long-term investments using a structured approach.

3. **Manage risk:** Students should critically evaluate the risks associated with an idea that creates value, taking into account a variety of factors. The students are able to critically evaluate the risks related to the formal set-up of value-creating venture in the area in which the students work. To add, they should demonstrate that they can make decisions weighing up both the risks and the expected benefits of a value-creating activity, as well as to outline a risk management plan for guiding their (or their team's) choices while developing their value-creating activity. Furthermore, the students should be capable to use strategies to reduce the risks that may arise during the value-creating process, and should come up with strategies to reduce the risk of their value-creating initiative becoming obsolete.

4. Teaching / Learning Methods

This module foresees the following teaching and learning methods:

- SWOT analysis:

    The definition of the SWOT analysis by the Business Dictionary (2020) states that it is a tool for a "situation analysis in which internal strengths and weaknesses of an organization, and external opportunities and threats faced by it are closely examined to chart a strategy. SWOT stands for stands for strengths, weaknesses, opportunities, and threats."

    In other words, a SWOT analysis is a strategic planning method to find out what objectives are realistic and achievable, minimizing risk and maximizing efficiency.
- For helpful information on SWOT analysis, including definitions and examples, see [here](#).

<table>
<tr><td>

Strengths

• What do you do well?
• What resources do you have?
• What are the strengths/benefits?

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Weaknesses

• What could you improve?
• Where do you have fewer resources than others?
• Where are your knowledge gaps?

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Opportunities

• What opportunities are open to you?
• What trends can you take advantage of?
• How can you turn your strengths into opportunities?

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Threats

• What threats could harm/impact you?
• What is your competition doing?
• What threats do your weaknesses expose you to?

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Figure 1: SWOT Analysis Source: own illustration. Based on several sources e.g. Project Risk Coach. Retrieved August 28, 2020, from https://projectriskcoach.com/how-to-perform-a-swot-analysis/.

- Practice project, including the following topics:
    o Identifying opportunities and threats in the environment
    o How to deal with limited amount of information or insecure source(s) of information
    o Identifying challenges and overcome them

- Learning through experience:

After a theoretical introduction to the subject, educators should implement practical elements such as a student-developed project that enables students to learn about ambiguity, uncertainty and risk and to learn for themselves how to deal with them.

5. Activity

Within this module students should develop a practice-oriented project themselves to learn how to deal with ambiguity, uncertainty and risk. After a theoretical introduction to the subject by the lecturer with references to the module on 'Planning and Management', the students form groups of three to five people (depending on the number of students) in order to plan, elaborate and implement a practical-oriented project. Over the period of one semester, marked by self-paced learning, feedback loops with the lecturer and for example involved organizations, companies (if the developed project is done for or in cooperation with organizations, companies etc.), group discussions and a final presentation, the students will work on

their project and acquire practical knowledge and experiences of dealing with ambiguity, uncertainty and risk.

During this one-semester module, the students should be encouraged to be not afraid of making mistakes by exploring their own ways to achieve things and should be animated to pull together different viewpoints to take informed decisions when the degree of uncertainty is high, as well as to find ways of making decisions when the information is incomplete. Furthermore, while working on their practice-oriented project, students should be supported in making decisions evaluating the different elements in a situation that is uncertain and ambiguous.

This extensive module needs a good support of the students by the lecturer, including interactive and practical-oriented teaching and learning methods. The module also requires students' engagement and active participation to be able to successfully carry out the projects they have developed.

At the end of the semester, students organize a so-called project fair, where they present their projects and their experiences with ambiguity, uncertainty and risk to their fellow students and if the developed projects have been conducted for or in cooperation with organizations, companies etc. in front of their representatives. The way of presentation is left to the students (e.g. PowerPoint presentation, flip charts, short video etc.) and encourages and supports their creativity, with references to the module 'Become Creative'. The lecturer and – when present – the representatives of organizations, companies etc. will ask some questions and give feedback on the presentations.

6. Role of the Educator

The role of the educator in this module is crucial for successfully completing this module. The educator will have the role of a mentor and supporter. Educators conducting this module should strengthen students' self-confidence and encourage them not be afraid of mistakes, ambiguity, uncertainty and risk. After introducing the content of the module, explaining what the module is about and what the learning goals are, the educator starts with the theoretical part. Then, the students begin to develop and elaborate their projects. The educator should more and more stay in the background and let the students work on their projects, but be available for questions and support when needed.

Educators conducting this module should have already used similar teaching and learning methods. Junior educators with little teaching experience should likely work in tandems with senior educators during the lecture.

7. Contents

'Coping with ambiguity, uncertainty and risk' is one of the 15 competences that everyone can develop to become entrepreneurial, according to the EntreComp Framework (McCallum

et al 2018). Some people associate the terms 'ambiguity', 'uncertainty' and 'risk' with an uncomfortable feeling. Through this module, students should get a more positive relationship to these terms and gain more confidence in their abilities. Andy Penaluna, Professor Emeritus at University of Wales Trinity Saint David and former Director of the International Institute of Creative Entrepreneurial Development (IICEED) at the University of Wales Trinity Saint David, has been involved in the development of the Entrepreneurship Competence Framework (EntreComp). In the video, Andy Penaluna explains that students often are exposed to uncertain und ambiguous activities where things are changing, deadlines shifting and that there are no clear instructions on what shall be done next. Such situations can have the advantage that students develop strategies to cope and learn to flexibly adapt to changing environments.

This module can help to strengthen the students' existing potential and to support them in developing new skills in dealing with ambiguity, uncertainty and risk. In order to achieve these aims, the module should consist of the following contents:

1) *Introduction to the topic of ambiguity, uncertainty and risk: What do the terms mean?*

The term ambiguity:

The Oxford English Dictionary defines ambiguity as the fact of something having more than one possible meaning and therefore possible causing confusion. Ambiguity describes the state of being difficult to understand or explain because of involving many different aspects. Ambiguity also means that a word or a statement can be understood in more than one way. Overall one can say, ambiguity describes a situation where you have more than one interpretation leading to confusion and vagueness.

The term uncertainty:

The Oxford English Dictionary defines uncertainty as "something that you cannot be sure about" and "a situation that makes you not be or feel certain." Among others, uncertainty may result from a lack of information, lack of data, lack of detail, lack of experience etc.

The term risk:

The Oxford English Dictionary defines risk as "the probability of a negative occurrence". In other words, risk is a situation of exposing something into danger, loss or harm. Other definitions are more detailed:

"Risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on project objectives. A risk has a cause, and if it occurs, a consequence" (Larson & Gray, 2011, p. 211). Chapman & Ward (2011) say "risk means possible unfavourable outcomes" (Chapman & Ward, 2011, p. 3). The definition of Loosemore et al. (2006) is more detailed and states that "a risk is concerned with unpredictable events that might occur in the future whose exact likelihood and outcome is uncertain but could potentially affect their interests/objectives in some way" (Loosemore, Raftery, Reilly, & Higgon, 2006, p. 8).

The difference between risk and uncertainty is that the outcomes of risks are known, while ambiguity is unknown.

2) *Learning by doing: let students develop, elaborate and conduct their own projects*

After the theoretical part, students develop, elaborate and conduct their own projects. To support the students while working on their projects, the lecturer should provide some helpful input in the form of questions addressed to the students:

- To improve the students' skills, they should ask themselves the following questions on a regular basis:
  o What decision must I make to minimize the risk in spite of not having all the information available?
  o Can I pull together different viewpoints to take informed decisions when uncertainty is high?
  o What big task can I break down into smaller one to facilitate its completion?
  o Can I take decisions evaluating the different elements in a situation that is uncertain and ambiguous?
  o Can I identify risks in my surroundings?
- To avoid exaggeration while dealing with ambiguity, uncertainty and risk, the students should ask themselves the following questions:
  o Am I able to find ways of making decisions when the information available is incomplete and creates confusion and vagueness?
  o Can I make decisions evaluating the different elements in a situation that is uncertain and ambiguous, or am I making decisions too quickly without a reasonable amount of data
  o Am I trying to reinvent the wheel rather than using what I have and what I know?
  o Am I able to look actively for, compare and contrast different sources of information that help me to conduct my project successfully?

3) *Self-paced learning and feedback loops with the lecturer and involved organizations/companies*

Self-paced learning fosters self-reliance and encourages the students to search for new information sources themselves. The implementation of online or blended learning elements boost self-paced learning and can give the lessons a new drive.

Feedback loops are essential for the success of a project to identify areas for improvement. Trough feedback loops key challenges and issues can be tracked and addressed. Feedback loops also support teams in coordinating and collaborating more efficiently and therefore improve the team performance and the output.

4) Group discussions

Group discussions are a dynamic activity and encourage reflective thinking among the group members. Group discussions play are crucial role in reaching a solution on an issue and in generating new ideas or nor approaches to solving a problem. It is important to provide enough time and space for group discussions to discuss current strengths and weaknesses as well as existing problems while working on the project. A regular exchange is very important to get involved all group members and to ensure that all of them have the same information and are motivated to keep working. Furthermore, group discussions help generating more ideas and input and are essential for working together on the project.

Group discussions can also be extended by inviting the other groups to discuss and share their experiences so far.

Final presentation and written project report

In the final presentation, the students should present not only the results of the project, but also explain their motivation for choosing their project and provide some insight how they personally handled ambiguity, uncertainty and risk during the project. The final presentation should be published online as website, wiki or multimedia presentation.

Additionally, the students have to write a final summary project report, including also the students' personal experiences and insights in dealing with ambiguity, uncertainty and risk. A helpful structure of how to write a final summary project report could be: https://new-ton.ex.ac.uk/handbook/PHY/forms/WLB010919-4.pdf

First page:

This page should contain the title, the author(s) and the date. The title should convey the area and scope of the project.

Second page:

The second page should consist of the abstract. The abstract provides a brief summary of the report. The reader should be able to get an idea of what the project is about, how it was undertaken and what has been found out. The abstract should not review the report, but rather gives an overview of the contents of the report. Typically the abstract should be less than 200 words.

Third page:

This page should comprise a table of contents, indicating the page numbers of the different sections.

Fourth page and onwards:

- Introduction: This section outlines the underlying concepts (and if necessary or required a brief version of the relevant theory) needed to discuss the project
- Results and discussion: This section presents the results in a logical sequence, highlighting what is important and how the data have been analyzed to provide the results discussed, adopting a critical approach. It is necessary that all diagrams, graphs etc. are properly labeled and have a caption.
- Summary and conclusion: This section summarizes the results, including a concise discussion, highlighting what have been found out, what have the problems been, and what might be done in the future to improve them. An indication how the outcome could usefully be continued should also be made.
- References: The final report also indicates references to the literature and sources used.

Helpful links for educators when teaching the topics ambiguity, uncertainty and risk:

- [A Handbook for Teaching and Learning in Higher Education. Enhancing Academic Practice](#)
- [ECT Enhancing the Curriculum Toolkit provided by EEUK (Enterprise Educators UK)](#)
- [The Entrepreneurship Competence Framework](#)
- [Risk Management in Business Lesson Plans](#)
- [Free Management Templates](#)

8. Implementation/Integration, Extent, ECTS

The format of this module should be held in group meetings and can be easily adapted for online teaching as well as for blended lessons. The outcome of this module is the successful implementation and debriefing of a project carried out by the students. For this module, a maximum of 3 ECTS can be accredited.

Due to the topic and its structure, this module can be implemented in any course of the curriculum for initial teacher education. Furthermore, the module can also be offered and carried out in the form of an intensive workshop over one semester.

It is crucial to implement enough time for introducing the purpose and aim of this module and for initial brainstorming to identify corresponding projects. Furthermore, the lecturer should also make sure that the students have enough time for group discussions and feedback loops as well as for questions to the teacher. Finally, there has to be an adequate space for the final presentation.

9. Relevance and transferability to school context

The competences developed in this module can also be used in other subjects and can contribute to a better handling of the issues of ambiguity, uncertainty and risk, both at school and in private life.

10. Evaluation

After completing the module there will be a final evaluation and feedback session with all students of the course, the educator and – if relevant – the involved organizations, companies etc. for which the projects were carried out.

The final feedback session and the final evaluation should include the following set of questions:

- How did you conceive the problem at the beginning?
- What was your strategy?
- What worked well?
- What did not work?
- What are your personal experiences and insights in dealing with ambiguity, uncertainty and risk?

Possible evaluation criteria could be:

Evaluation Criteria	Weight in %
Approach to the project	20
Dealing with the issues of ambiguity, uncertainty and risk	20
Teamwork	20
Way of working	20
Presentation of the results	20

Figure 2: Criteria for the evaluation of students completing the "Uncertain Times Ahead" module.

11. References

Bacigalupo, M., Kampylis, P., Punie, Y., Van den Brande, G. (2016). EntreComp: The Entrepreneurship competence framework. Luxembourg: Publication office of the European Union; EUR 27939 EN; doi:10.2791/593884; https://publications.jrc.ec.europa.eu/repository/bitstream/JRC101581/lfna27939enn.pdf.

Business Dictionary (2020). What is a SWOT analysis? Definition and meaning. Retrieved August 25, 2020, from www.businessdictionary.com/definition/SWOT-analysis.html.

Chapman, C., & Ward, S. (2011). How to manage project opportunity and risk. Chichester: John Wiley and Sons Ltd.

Larson, E. W., & Gray, C. F. (2011). Project management: The managerial process (5th ed.). New York: McGraw-Hill Irwin.

Loosemore, M., Raftery, J., Reilly, C., & Higgon, D. (2006). Risk management in projects (2nd ed.). Abingdon: Taylor & Francis.

McCallum E., Weicht R., McMullan L., Price A. (2018). EntreComp into action: Get inspired, make it happen. A user guide to the European entrepreneurship competence framework. (M. Bacigalupo & W. O'Keeffe Eds.) EUR 29105 EN, Publications office of the European Union, Luxembourg, 2018. ISBN 978-92-79-79360- 8, doi:10.2760/574864, JRC109128.

Project risk coach (2020). Retrieved August 28, 2020, from https://projectriskcoach.com/how-to-perform-a-swot-analysis/.