Annex Design Based Education IO1

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INSPIRE

Social Innovation and Leadership skills for Third Sector Capacity Building

Erasmus+ Social Innovation and Leadership skills for Third Sector Capacity / Ref.: 2019-1-NL01-KA202-060484		
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Introduction

This annex accompanies the European Social Innovation and Leadership curriculum that is the result of Intellectual Output 1 in the project INSPIRE: SOCIAL INNOVATION AND LEADERSHIP SKILLS FOR THIRD SECTOR CAPACITY BUILDING (2019-1-NL01-KA202-060484).

The main purpose of this annex is to provide educators and trainers better support when applying Design Based Education. This is mainly relevant if their teaching /training / facilitating has until now focused on programmes that are not directly associated with design thinking. They might benefit from summaries of insights, guidelines, and references that make them familiar with the field of design based education.

Design-based education (Geitz & de Geus, 2019) is an enhancement of problem-based learning and competence-based education, as it is based on a learning environment in which learners are motivated to develop their learning with fellow learners by engaging in design activities that consist of real-world authentic assignments. They solve these assignments by applying six phases inspired by the principles of design thinking.

Six phases of Design-based education

The six phases of the Design-based Education process are:

(1) research the question

(2) define the core problem

(3) generate ideas

(4) design prototypes

(5) test prototypes

(6) research and improve

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Phase 1 is about exploring the problem and determining whether the problem real is and what the real problem is. First, they have to distinguish between perceived and real problems. Next, they have to distinguish between problems that cannot be solved (e.g., in case of impossible goals or inadequate assumptions) and problems that can be solved by redesigning the solution approach, redesigning the use and co-operation between various resources, et cetera. Phase 1 requires a multi-stakeholder approach, as it requires learners to explore the problem from various different perspectives.

Phase 2 (define the core problem) is an essential step towards solving the problem. The core problem should be formulated as a functional problem of a system, i.e., it should define what function of the system needs to be improved. Many design problems seem to define the core problem as a lack of a tool/method/instrument, but such a formulation of the core problem is misleading, as is does not explain how the system will have to improve in performance after the tool/method/instrument has been implemented. Hence, an instrumental formulation of the problem lacks a clear identification of the main performance indicators of the system that need to be improved, possibly by designing and implementing a tool/method/instrument or other artefact.

Phase 3 is the creative phase of a design-based learning process. Based on the core problem formulation, learners design preferably several ideas or design alternatives that might be able to solve the problem. Some of these ideas might seem unrealistic, but the creative phase should welcome both realistic and unrealistic ideas and stimulate the creativity of all actors involved in order to develop an open mind towards the problem.

Phase 4 focuses on developing one or a few different prototypes of the design. A prototype is to be seen as a proof of concept, helpful in exploring the co-operation between several elements of the solution, and also helpful in demonstrating the main advantages and disadvantages of the solution approach. A prototype can be used in a later stage to further develop the solution in a more mature approach that can be applied in an effective and efficient way to address the problem.

Phase 5 is about testing the prototypes. This validation stage will involve various stakeholders and potential users and will result in insights and results that help to select and implement a solution approach, or restart the design process if no good solution has been found.

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Finally, phase 6 (research and improve) engage learners in researching the effects of their solution in real life and adjust their prototypes accordingly.

Design-based education is an approach that empowers the learning process of learners as well as their facilitators, trainers, problem owners, and other stakeholders. All stakeholders in will be engaged in the iterative process of bridging the gap between the current IST situation and an intended SOLL situation. The iterative Design-based education process requires professional competences such as empathizing, defining, ideating, applying, testing, evaluating, and improving to bridge this gap between IST and SOLL.

Module characteristics

Each module represents a workload of 1 EC (according to the ECTS system). One credit corresponds to 25 to 30 hours of work. According to the European Commission[1], it should be recognized that this represents the typical workload and that for individual learners the actual time to achieve the learning outcomes will vary.

Each module consists of several learning activities, probably organized in one or more lessons. Every lesson and activity has intended learning outcomes. We used the Revised Bloom's taxonomy (see Figure 1) to describe the intended learning outcomes with appropriate verbs in order to help the learners to determine what value the learning activity will have in their learning path.

Learning activities describe what a learner should do to achieve the intended learning outcomes. This can involve individual study, reflecting on a video, or joint design or analysis activities (also denoted as assignments). In a lesson, we offer several options for the learners to test whether they have succeeded in their learning, for example by offering self-tests, quizzes, peer interactions, asking for contributions to discussion fora, et cetera. These tests often offer learners possibilities to receive feedback, either from the learning management system, or from peers. In a physical learning environment, facilitators may also be involved in providing feedback. The modules have also been designed in order to provide

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[1] https://ec.europa.eu/education/ects/users-guide/key-features_en.htm

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advice to learners on how to proceed with their learning path after completing a learning activity. We identify ways to deepen their knowledge, broaden their knowledge, or continue with other topics. Finally, a learning activity may include supporting materials or references to sources where additional materials can be found. We used open source materials for the activities.

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Definitions	I. Remembering	II. Understanding	III. Applying	IV. Analyzing	V. Evaluating	VI. Creating
Bloom's Definition	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.	Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.	Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.
Verbs	• Choose • Define • Find • How • Label • List • Match • Name • Omit • Recall • Relate • Select • Show • Spell • Tell • What • When • Where • Which • Who • Why	• Classify • Compare • Contrast • Demonstrate • Explain • Extend • Illustrate • Infer • Interpret • Outline • Relate • Rephrase • Show • Summarize • Translate	• Apply • Build • Choose • Construct • Develop • Experiment with • Identify • Interview • Make use of • Model • Organize • Plan • Select • Solve • Utilize	• Analyze • Assume • Categorize • Classify • Compare • Conclusion • Contrast • Discover • Dissect • Distinguish • Divide • Examine • Function • Inference • Inspect • List • Motive • Relationships • Simplify • Survey • Take part in • Test for • Theme	• Agree • Appraise • Assess • Award • Choose • Compare • Conclude • Criteria • Criticize • Decide • Deduct • Defend • Determine • Disprove • Estimate • Evaluate • Explain • Importance • Influence • Interpret • Judge • Justify • Mark • Measure • Opinion • Perceive • Prioritize • Prove • Rate • Recommend • Rule on • Select • Support • Value	• Adapt • Build • Change • Choose • Combine • Compile • Compose • Construct • Create • Delete • Design • Develop • Discuss • Elaborate • Estimate • Formulate • Happen • Imagine • Improve • Invent • Make up • Maximize • Minimize • Modify • Original • Originate • Plan • Predict • Propose • Solution • Solve • Suppose • Test • Theory

Anderson, L. W., & Krathwohl, D. R. (2001). A taxonomy for learning, teaching, and assessing, Abridged Edition. Boston, MA: Allyn and Bacon

Figure 1 Revised Bloom's taxonomy for intended learning outcomes

The number and length of learning activities may differ among the modules. However, we offer learners choices within modules based on their own learning ambitions, so we facilitate alternative paths through the module, as learners differ in their initial knowledge, preferences, learning styles,

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preferences to engage within groups or individually, and their learning ambitions. Hence, the total workload of the set of learning activities might exceed the estimated workload for the whole module.

A facilitator should help learners to select the most appropriate learning activities. For example, the learning path of two students within the same module might be different, as depicted in Figure 2. Still, the design of the lessons is similar: every lesson offers various options for a learner to engage with the topic: prepare, individual study, joint work, design activities, training options, and testing options.
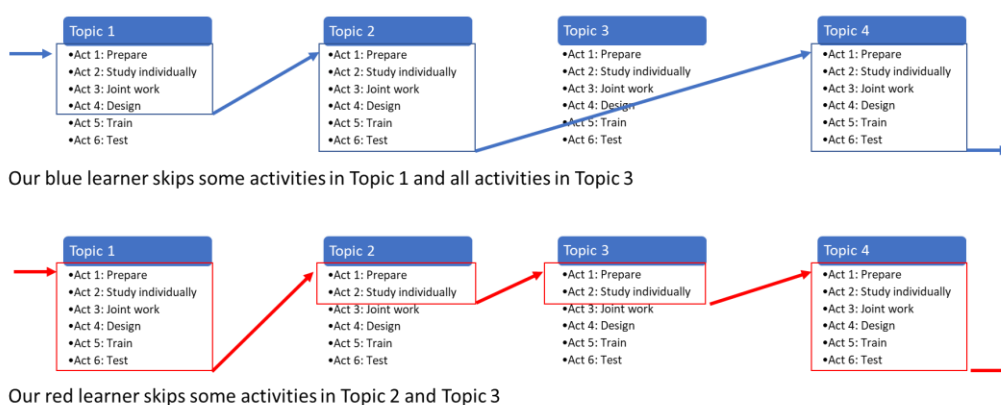
Figure 2 Different learning paths within one module

Lesson template

We have used a lesson plan template that consists of a description of the various learning activities and who has what role in these activities: learners, instructors, or both.

Template lesson plan

Module title:………………………   Lesson title/ topic:……………….

Module objectives: Lesson objectives:

Length	Content	Lecturer activity	Learner activity	Materials	Module objective(s)	Other

Tools for facilitators to support design-based education

In this curriculum, facilitators may benefit from using several design-based education tools. We discuss two tools that the developers of the curriculum have applied, which has resulted in specific learning activities and learning paths for professionals that would like to engage in learning on social innovation and leadership.

Personas

The first tool that has been used in developing the curriculum is a description of various personas. A personas description might consist of the following elements:

Name	Photo
Personality characteristics • Gender • Age • Marital status • Children • Archetype • Attitude towards technology	Personal characteristics • Ambitions in life • Frustrations • Personality trait Description of learning style preferences (e.g., when to learn, how to learn, with whom to learn)

By developing several personas, the design of learning activities and learning paths becomes a process in which these personas seem to be involved as virtual stakeholders. When facilitating the learning activities, a facilitator may also benefit from these personas, as they help to have an open eye for various diversity aspects among the group of learners that require a different type of support, feedback, or acts of motivation.

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Figure 3 Personas example

See Figure 3 for an example of a personas description that might help to inspire you to develop your role as facilitator towards this potential learner in the curriculum.

Inclusive Design Canvas

The other tool that we have implemented in order to design a curriculum based on principles of design-based education is the inclusive design canvas (Figure 4).

Figure 4 Inclusive Design Canvas

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The canvas depicts the intended target audience and aims for the module (left side), the main activities to achieve these aims (middle part of the canvas), and the way we allow for measuring the outcomes for learners, facilitators, and efforts of the organization.

For facilitators, the canvas provides an overview of the main choices made for this module. This helps to guide learners more effectively along their learning paths.

Conclusion

The curriculum intends to engage students in learning activities that are relevant for the practice of managing and leading innovations in social organizations. We do so by offering learning activities that are framed within a design-based education approach. Learners that engage in these learning activities need support of a learning management system in which the materials are made available to them, but also from peers (fellow learners) and facilitators.

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