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A One Day Workshop on:

Design of PBL-based Bachelor Degree Programs

When: Thursday, February 11, 9.00-16.00

Where: Fib 11, room 39

Who: Delegation from Moldavian Universities and AAU Team

Purpose:

The purpose of the workshop is to draft a design of a bachelor degree program (3 years) according to PBL-principles in the context of the Moldavian regulatory and institutional framework.

Organisation:

Based on a set of general PBL-principles, the Moldova teams for five bachelor programs will work during the day on preparing the first rough draft of their bachelor degree program. They will be supported by their Danish counter parts. The output of the day is a set of slides with one to two slides for each of a set of topics related to the design.

The general design principles have been prepared in two steps where step 1 consists of a very generic set of principles and step 2 is a more specific set of principles based on how each of the Danish bachelor programs is designed.

The Basic PBL-Design Principles.

Frame/Assumptions:

1. The overall frame is a bachelor degree of three years consisting of six semesters and with a bachelor thesis in the final semester of the third year. Students' background is that of a 3-years' secondary school education. The students are around 17 years when they enter the university.

2. The overall assumptions about students are that (within a PBL framework) they are proactive, curious and eager to learn but in need of guidance and supervision from insightful teachers. We are in the business of human development.
3. The generic learning objectives for the PBL-based bachelor degree are that (a) students progressively mature academically and learn from engaging in the realities around them. (b) students are able to integrate theoretical reflections (theories) with practical realities (practice); (c) students learn how to work in teams; how to independently search for information and knowledge through multiple sources, including the Internet, field works etc.; how to communicate professionally both orally and in writing

Design principles:

4. Progression: The progression in learning over the six semesters must be explicitly stated. Progression can as one extreme be achieved in a linear fashion where each learning block builds on the previous ones (the analytical progression). As another extreme, each block may be more holistic so that students from the beginning work with holistic views and analysis – at the beginning relative primitive but gradually they learn to capture the holism in their analysis.

Example: If you have to learn business economics, you may be asked to study a company function by function (marketing, organisation, etc.) or you may be asked to work with the complete company from the beginning. Overall, progression means that students over time are able to define, analyse and provide solutions to increasingly complex problems using refined scientific methods and tools.

5. Overall design principles:

- a. Macro-Micro: One overall design principle that many like is to move from macro (the framing of the study – society at large; law systems, etc.) to the micro. This makes logically sense but not necessarily learning sense. Sometimes it is better to start with the field that the students will develop skills within and perhaps have a job within.
- b. Foundation-Core Courses: Another overall design principle that also many like is to have foundational courses or pre-requisite courses before they are allowed to go into the core courses of an educational programme. For example, a foundation in mathematics or statistics, methodology, philosophy, and other topics those students must learn before they can “understand” the topics of the field. This is not a good way in PBL-terms, as we want to solve problems and learn how to use methodology, etc. when solving the problem. Thus, there is not anything called first fundamental things before you are allowed to think independently. Statistics is part of PBL.

- c. Another overall design principle that many like is to break the educational programme into a set of disciplines that the programme conventionally consists of. Here professors often have strong opinions and all tend to favor their own subject as the most important (which must of course be treated separately and cannot be part of a PBL-model they argue). When all start screaming this way, we have lost PBL. We must design the teaching so that no platform is left for fights between disciplines – i.e. between scientific positions rather than social realities. This problem can be solved by having modules (of for example one month) where we combine the disciplines around actual company problem. We hereby integrate the disciplines around PBL instead of seeing the disciplines as a set of theories.
6. Exam: Another principle is related to exams: All ECTS must be examined. The exam in a PBL context is more like a continuing learning and reflection activity than a control measure. OR we can say that we control the learning outcome through a reflection process. Thus, we can summarize the PBL-exam formula as follows:
- a. The number of exams are relative few (e.g. min 10 ECTS per exam, i.e. max three exam per semester)
 - b. The exams are normally based on a project prepared in groups and followed by an oral exam (of some length) either as an individual or group examination. The student starts with an oral presentation of a key issue in the project (not a simple repetition)
 - c. All grading is individual grading (even if the exam was a group exam)
 - d. All or most exams are conducted by an examiner (e.g. the supervisor) and an internal or external examiner/censor that is the guarantor for the proper conduction of the exam.
7. Freedom to choose: PBL is a student centered programme and students should have the possibility under guidance to choose problem/project to work on. You may stipulate that a certain percentage of the ECTS should be free for students to choose. Typically, in a PBL-setting the projects are the ones where students can freely choose (while teachers define the courses).
8. Independent work: Closely related to the freedom to choose, is the principle of independent work by the students in groups. Students must be challenged by identifying a real problem and by own independent search of information and knowledge, including using theoretical texts as well as Internet, field works and other ways of collecting information.
9. Oral communication and written expressions: Students must learn to express themselves orally as well as in writing.

10. Independent but guidance: Students must be guided in their learning. Teachers are mentors or supervisors that guide the students rather than directing students.
11. Integration of theory and practice: This principle should penetrate all courses/modules. A principle could be that in all courses and all modules, reality must be a direct part of the course. This could be in the following way:
 - a. Cases and especially interactive cases
 - b. Visits with assignment to units outside the university
 - c. Projects together with units outside the university
 - d. Internships.
12. The design exercise – using the above principles may start by formulating the overall learning objectives for the programme (max five) and the overall structure for the three years.

Attached is a set of elements that may be used when designing the individual courses or modules.

Design Elements

Below is a list of several design elements that can be used to various degrees in the module.

- **Lectures and seminars:** The purpose of lectures is to provide overviews of a field, leaving it to the students to acquire the details from reading and using. The purpose of any seminars you may design should be to debate an issue.
- **Texts, articles and other reading materials** (e.g., annual reports etc.): The design should include compulsory literature and supplementary literature. The compulsory literature is the core literature so that students understand the basics of the module. Supplementary literature is to be used for specific investigations and general interest in the subject. It is essential to notice that we have free access to the internet, it is expected that students search their own literature and materials.
- **Exercise:** Exercises should normally be developed around a concrete real business problem, for example, how company X should globalize its R&D activities; Or how should an entrepreneur in tourism prepare his business plan; As part of the exercise, you may want to ask the student to give an account of the relevant theories.
Example of a possible exercise:
 - a. A case on company X has been prepared in advance and given to the students (e.g. 20 pages)
 - b. The students are asked to prepare a small project on, for example, 10-20 pages answering three questions:
 - a. Provide a brief account of the difference between incremental, radical and disruptive innovation.
 - b. Analyze the type of innovation that company X (the case company) is pursuing
 - c. Prepare a strategy for company X on its innovation.
- **Interaction with companies:** The Module should interact with companies and other units outside the university to provide some business reality to the teaching. A case may be prepared together with the company; a guest visitor from the company and other organisations (including business associations, ministries, etc.) may be called upon; Visits to companies etc. are always appreciated by the students so they can observe practice.
- **Group exercise:** The exercise should be prepared in groups of students (for example, 3-5) and in writing.
- **Supervision:** Apart from lectures and seminars, the teachers also function as supervisors trying to guide the students when they prepare the exercise. It is guidance and not directions. As the students must work independently and take their own decisions.
- **Exam:** The exam is an oral exam based on the written project. The exam is individually based.

Important final note: The principles laid down above are meant to guide you in the development of the module. They should be discussed to make a design of the module that optimizes the learning of the students. The module you are responsible for is an important component in the building of excellent Innovation Managers.