EPICES

European Platform for Innovation and Collaboration between Engineer Students

Introduction

Prepared by Alexis François and Antoine Lanthony

Workshop – WEEF 2015 – Florence – September 21, 2015

FACTS AND FIGURES

- 2-year European project co-financed by Erasmus+ (from September 1, 2014 to August 31, 2016)

- 2 backgrounds: PLACIS
  - The French PLACIS project and issues raised during PLACIS : A new format to train engineers through at-a-distance international and/or industrial multidisciplinary projects carried out collaboratively by students,
  - The progressive change of the curricula, with new methods, new tools, new complexity, MOOCs issue…

- Partners:
  - Supméca, France (coordinator)
  - KU Leuven, Belgium
  - SEFI, Belgium
  - Riga Technical University, Latvia
  - Aalto University, Finland
  - Universita di Napoli Federico II, Italy
  - Politecnico di Torino, Italy
  - Universitat Politecnica de Valencia, Spain

MAIN GOAL OF EPICES

- Improve the project-based learning in engineering and work on the teachers roles, through 6 intellectual outputs:

  - O1 : Model of facilitator roles and skills in Project-based Learning in European Engineering Education
  - O2 : Initiation of training packages for developing effective facilitation skills for teachers involved in project based learning in European Engineering Education
  - O3 : Creation/adaptation of a platform for teacher networks for sharing best practices of facilitation in different media
  - O4 : Feedback and results on larger scale use of training packages & possible use of guidelines
  - O5 : Assessment Methodology for Project Based Learning in Engineering studies
  - O6 : Development of toolboxes/toolkits (for measurable competencies) for assessment of skills and knowledge with reference to the environment you are working in

PROGRAM OF THE WORKSHOP

- Introduction / 10 min
- Best practices of industry-oriented PBL / 20 min
- Facilitator roles and skills in PBL in European engineering education / 20 min
- Roundtable “PBL” / 40 min
- Break / 10 min
- Methodological and technical skills acquired during PBL in European engineering education / 20 min
- Assessment methodology for PBL in engineering studies / 20 min
- Roundtable “Skills and assessment” / 60 min

EPICES

European Platform for Innovation and Collaboration between Engineer Students

Best practices of industry-oriented project-based learning

Prepared by Alexis François and Antoine Lanthony

Workshop – WEEF 2015 – Florence – September 21, 2015

Erasmus+

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Based on experience in PLACIS and EPICES we have now some feedbacks and we think that they can be presented as best practices.

- Our experience is based on around:
  - 25 projects,
  - With different kind of industrial partner: SME, transnational company or research center,
  - Involving Bachelor and/or Master 1 and/or Master 2 students, from different countries and backgrounds,
  - Both with or without at-a-distance collaborative format,
  - Both with or without international context.

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Main goals of the industry-oriented PBL:
  - Apart from scientific and technical knowledge, projects are expected to contribute to the acquisition of the following skills:
    - intercultural communication
    - language skills,
    - ability to plan,
    - work in teams and at-a-distance,
    - collect, interpret and use data,
    - practical experience in conceiving and designing a system for a client, daily use of the most novel engineering and collaborative tools.

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Based on our experience, main things to do are: Formalize, secure, reassure the company and the students

  - Sign a document (contract or other form) in order to have a formal link with the company or research center. It improves the involvement of the company.
  - Sign a confidentiality agreement with the company or research center, even if the company does not propose it. It secures the company.
  - Use secured tool to share documents.
  - If possible, agree on multi-semester projects in order to improve the involvement of all actors: students will know that they have something to transmit, company will know that it is not only a one-shot project.
  - Formalize the involvement of the students, especially when projects are not fully included into the curricula. It can be done through an individual agreement that secures the student.

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Based on our experience, main things to do are: Organize the project in order to avoid misunderstanding and to ensure a fair communication

  - Organize a kick-off meeting, especially in the case of multi-location at-a-distance collaboration. At least, all the actors of the project can gather and see each other one time. In our opinion, the best is to have this kick-off meeting at the industrial place.
  - During the kick-off meeting, plan the first meetings, and, above all,
    - Make clear what deliverables will be done and what is the level and the available time of the students, in order to adapt the wishes of the company,
    - Make clear the tools to be used,
    - Make clear the main milestones of the project.
  - Have balanced groups, not too large, and adapted to multidisciplinary issues.

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Typical organization scheme of one semester

A company proposes a project (a new one or the continuation of an ongoing one) expertise from different engineering fields.

Industrial and academic partners discuss in order to better define and validate the subject.

Groups of students are formed in both universities in order to create a team.

A kick-off meeting (in-person or via video-conference) is organized with all people involved in the project, at the industrial company.

Then, students carry out their project while staying in their home university and using the tools of collaborative engineering. They are tutored by the teachers and the industrial company providing the subject

The work is assessed (presentation, poster, involvement…) by industrial and academic tutors.

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Example of successful cooperation: Project with Istituto Motori and Universita di Napoli Federico II
  - Work on modeling of hybrid/electric vehicles (buses, scooters, boats) and test-benches associated.
    - Example of the 1st semester 2014-2015:
      - Development of a Modelica library for the preliminary design of electric powertrains, which could be also used for the study of hybrid-electric powertrains.
      - 2 students from Supméca
      - 1 student from Universita di Napoli Federico II

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Example of successful cooperation: Project with Istituto Motori and Universita di Napoli Federico II
  - Positives consequences:
    - Better academic cooperation,
    - More Neapolitan students coming to Supméca in the framework of their academic mobility,
    - More internships at Istituto Motori for Supméca students,
    - Articles published on the project (CFM Lyon 2015 ; IEEE ISSE Rome 2015…),
    - And project still going on, starting its 7th semester in a row.

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Contracts we try to generalize between Supméca and companies (« Contrat de prestation et de coopération pédagogique »)
  - Contains mainly:
    - Purpose,
    - Responsibility and engagements,
    - Property of results and work,
    - Confidentiality,
    - Duration, termination and regime of the contract.

FEEDBACK ON INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Individual pedagogical agreement for a Supméca student
  - Concerns last year students.
  - Agreed and signed by:
    - The student,
    - The referent teacher for the project,
    - The referent teacher for the final year option of the student,
    - The director of curricula.
  - Different articles contains mainly:
    - Presentation of both selected project and involved partners,
    - Selection of courses done by the students (more project = less courses),
    - Presentation of the general framework of PLACIS,
    - Modalities, status of the student, discipline, possible trips,
    - Assessment.

BEST PRACTICES OF INDUSTRY-ORIENTED PROJECT-BASED LEARNING

- Based on our experience, main things to prevent are:
  - Cooperate on a project without any formal agreement and document.
  - Have large group in the same institution (over 5 students).
  - Have one shot / one semester cooperation without future.
  - Do not ensure a real filing of all documents or use multiple tools to share documents (possible, but risky).
  - Have too homogeneous teams.
  - Do not give enough autonomy to the students.

ISSUES RAISED FROM OUR INDUSTRY-ORIENTED PBL EXPERIENCE

- Based on our experience, main issues are:
  - Assessment issues (to be developed later in this workshop):
    - By now: assessment =
      - Assessment by the teaching staff and by the supervisor of the industrial partner of the commitment, motivation, autonomy, organization skills and project management skills of the team members,
      - Assessment of the deliverables (written technical report, final presentation, mock-ups developed, posters) by teaching staff and by the supervisor of the industrial partner,
      - Special PLACIS days are organized for this purpose, in order to gather all PLACIS actors and make possible to share the experience.
    - How to link competencies to levels to be reached ? How to assess some kinds of deliverables ? → EPICES

ISSUES RAISED FROM OUR INDUSTRY-ORIENTED PBL EXPERIENCE

- Based on our experience, main issues are:
  - Issues linked to companies:
    - How to deal with such projects, as companies are in general only familiar with internships, but not tutored projects ? → EPICES
    - How to clearly make companies understand that students have a limited amount of time and that indulgence about their work if often needed ? → EPICES

ISSUES RAISED FROM OUR INDUSTRY-ORIENTED PBL EXPERIENCE

- Based on our experience, main issues are:
  - Issues linked to the academic institutions:
    - How to deal with the recruitment of teachers, which is sometimes difficult, in our opinion, because of a lack of tools in order to deal with PBL ? → EPICES
    - How to deal with the different academic curricula ?
    - How to better involve students ? → Through a better involvement of teachers/tutors → EPICES

GOAL OF EPICES

- Improve the project-based learning in engineering and work on the teachers roles, through 6 intellectual outputs, 3 of them being the objects of today's workshop:
  - O1 : Model of facilitator roles and skills in Project-based Learning in European Engineering Education
  - O2 : Initiation of training packages for developing effective facilitation skills for teachers involved in project based learning in European Engineering Education
  - O3 : Creation/adaptation of a platform for teacher networks for sharing best practices of facilitation in different media
  - O4 : Feedback and results on larger scale use of training packages & possible use of guidelines
  - O5 : Assessment Methodology for Project Based Learning in Engineering studies
  - O6 : Development of toolboxes/toolkits (for measurable competencies) for assessment of skills and knowledge with reference to the environment you are working in

CONTACTS

Antoine Lanthony

antoine.lanthony@supmeca.fr

+33 1 49 45 29 39

Alexis François

alexis.francois@supmeca.fr

+33 1 49 45 25 36

EPICES

European Platform for Innovation and Collaboration between Engineer Students

Facilitator roles and skills in PBL in European engineering education

Prepared by Wouter Van der Hoeven, Jeroen Buijs and Wim Van Petegem

Workshop – WEEF 2015 – Florence – September 21, 2015

Erasmus+

PROJECT-BASED LEARNING

"Learning activity in which a group of students work on a task or problem for a longer period of time, in consultation with a coach."

Baert, Beunens & Dekeyser 2002

Important

Professional coaching of the students

Balance 1) Autonomy student
2) Consultation with coach

≠ Conventional TM

COACHING MODEL

Development 'coaching model'

1. Define the optimal coaching method for a specific project
2. Provide guidelines to successfully take on this coaching method
3. Provide tools to facilitate this coaching method

COACHING ROLES

Objective

Insight into role of the coach in PBL

Research

- Literature
- Inquiries and interviews with coaches

Framework

- List of 9 coaching roles → represent ≠ aspects coaching
- Description of every coaching role
- Skills/attitudes necessary

Framework Coaching Roles

1. Advisor	Provides the students with indirect answers and advice.
2. Authority	Provides the students with ready-to-use answers and instructions.
3. Problem solver	Can be reached when problems emerge and helps to solve them.
4. Inspector	Checks if the students are working and making progress.
5. Model	Acts as an example for the students: the students gain insight in the reasoning and thinking of the coach.
6. Motivator	Motivates the students during the course of the project.
7. Feedback provider	Provides feedback, individual and group, on a regular basis.
8. Educator	Steers the learning process by urging the students to reflect on their personal development and their learning methods.
9. Group specialist	Makes sure the group and all its members are functioning properly.

COACHING MODEL

Research

Relationship 'coaching roles– learning objectives – learning results'

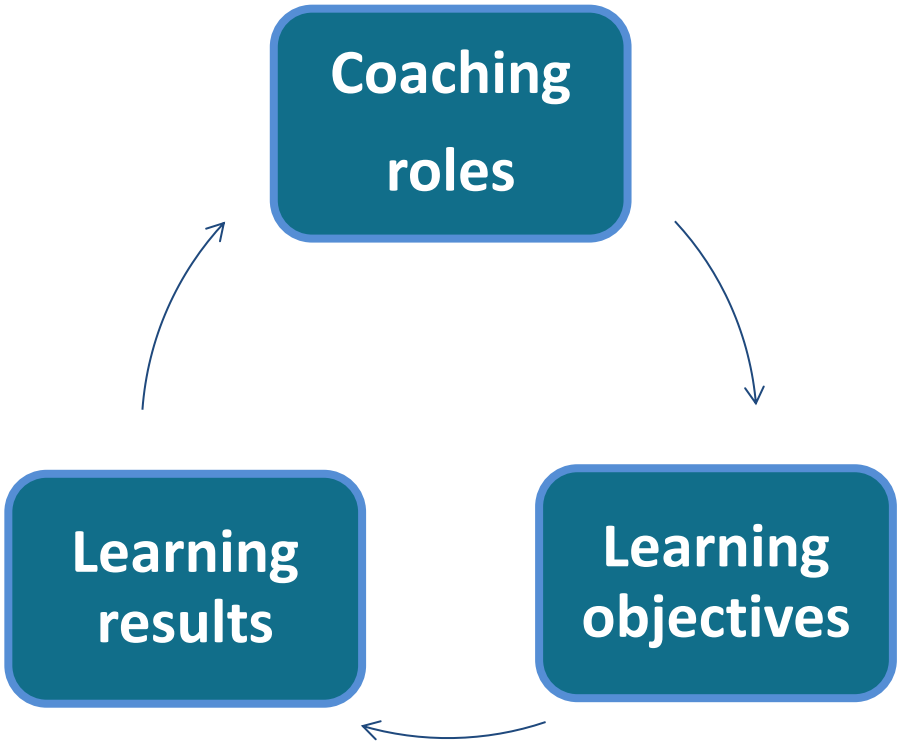
Survey + Journal → 900 students & 50 coaches

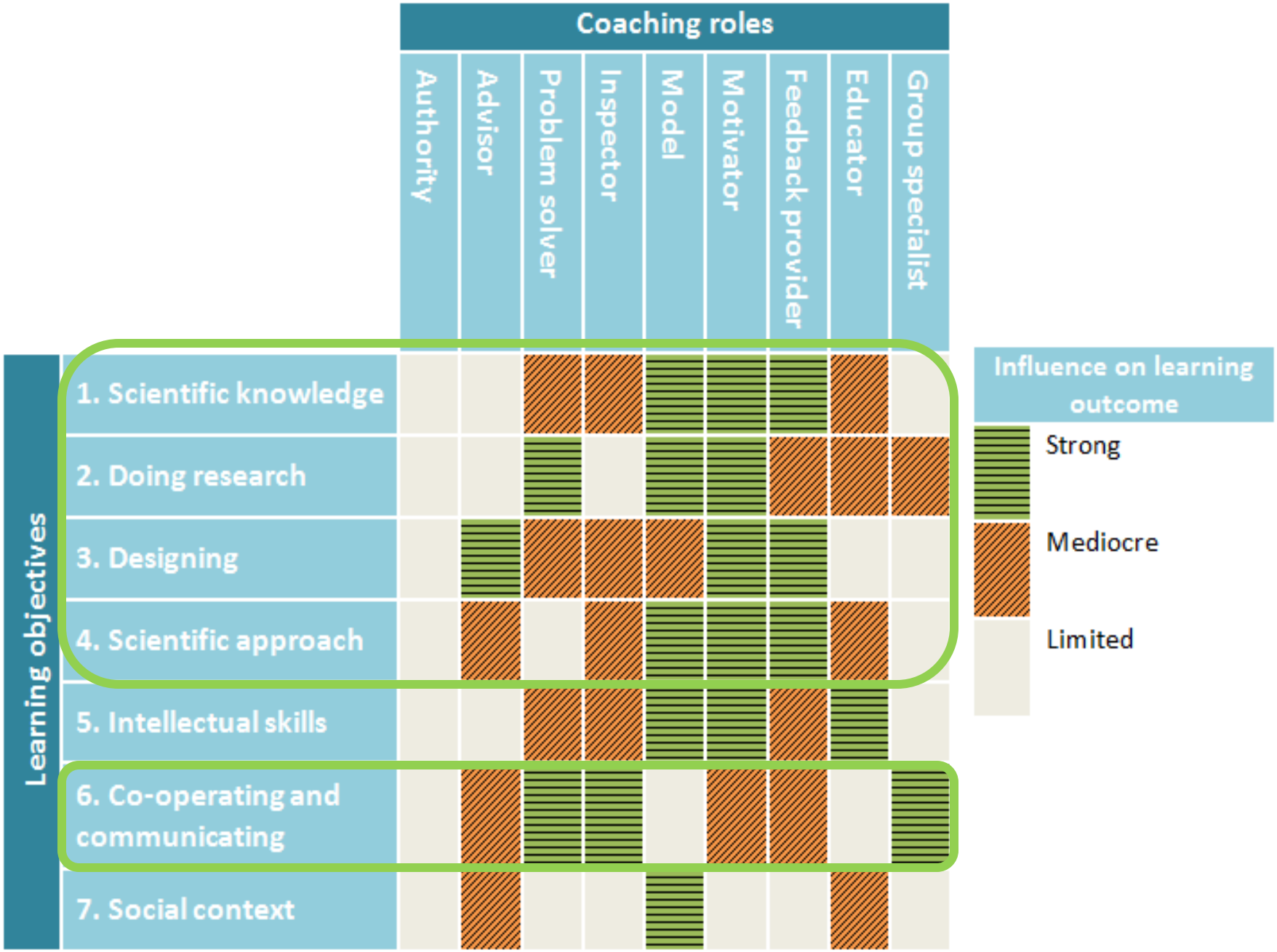
→ ≠ in setting with EPICES

Model

- Which coaching role is needed
- To work on a specific learning objective
- To warrant the best learning result

Relationship = Coaching model

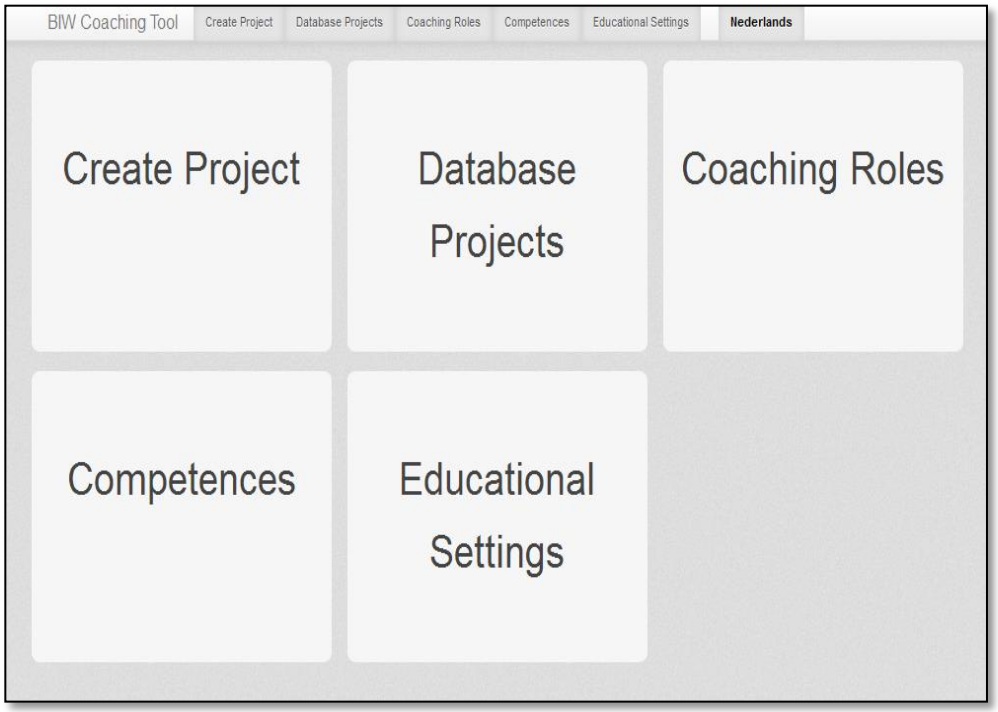



Coaching roles
Authority
Advisor
Problem solver
Inspector
Model
Motivator
Feedback provider
Educator
Group specialist
Learning objectives
1. Scientific knowledge
2. Doing research
3. Designing
4. Scientific approach
5. Intellectual skills
6. Co-operating and communicating
7. Social context
Influence on learning outcome
Strong
Mediocre
Limited

WEB APPLICATION & MANUAL

Objective

- Theoretical model → Daily educational use
- What to do? → How to do it?



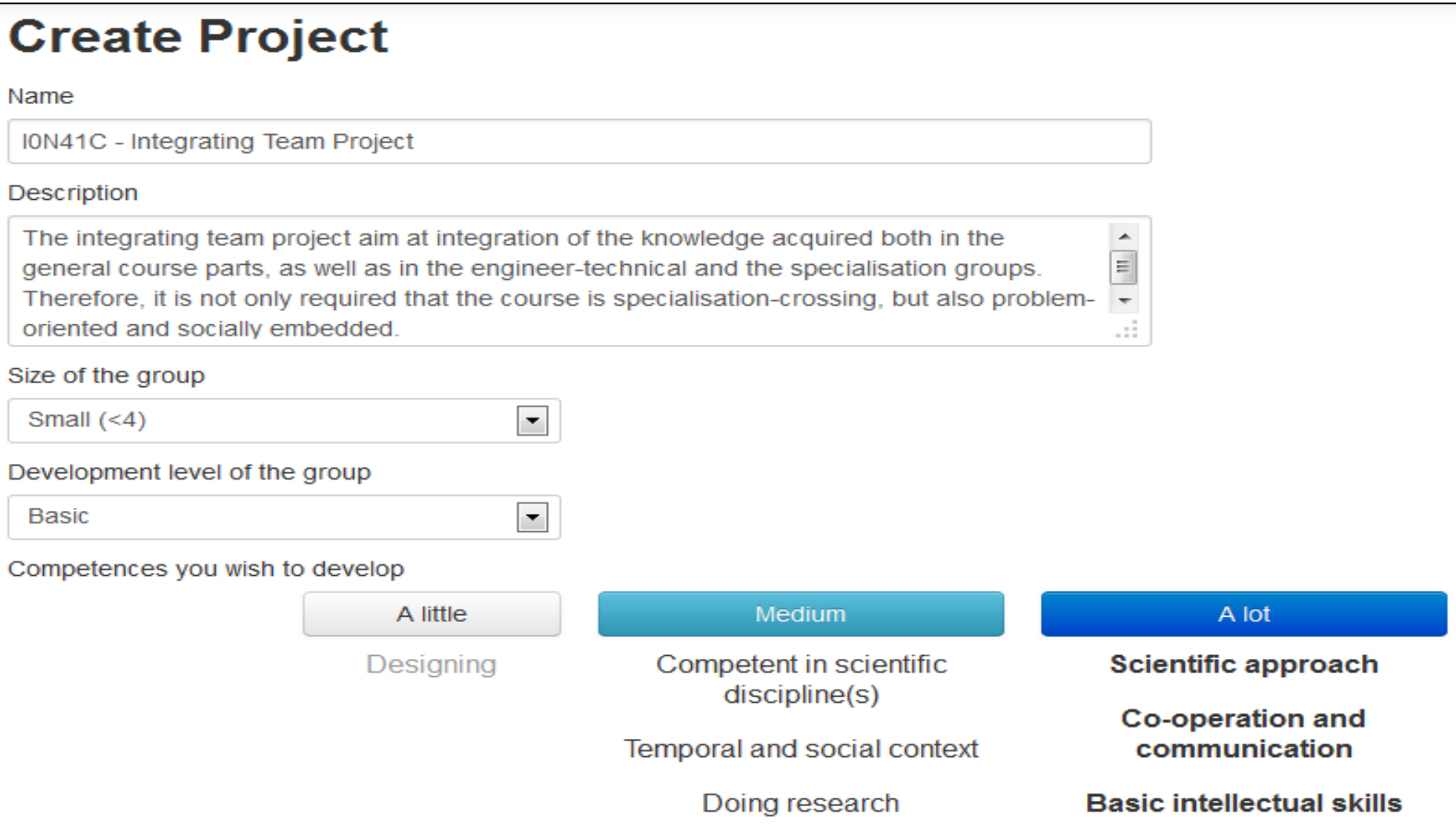
Web Application

Manual (Online in English)

Create project

Input: - Details project
- Characteristics project
- Learning objectives

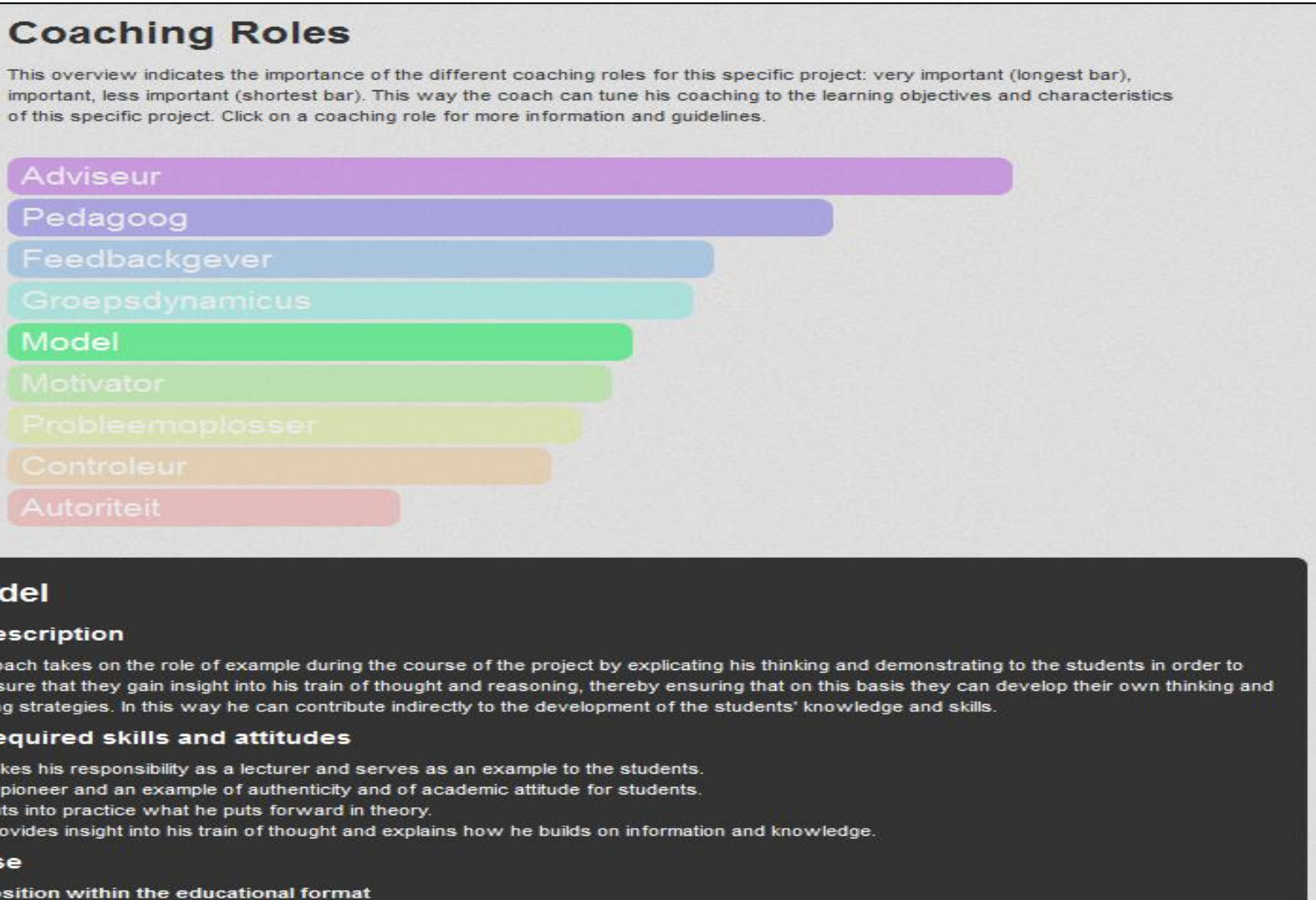
Web Application



Coaching profile

Output: - What to do? → Coaching roles & contribution
- How to do it? → Guidelines & info
- Database projects
- Tools to facilitate coaching

Web Application



Manual

- Coaching roles, competences & educational settings
- Guidelines educational practice
- Details & background information

Web Application

- Advisor
- Authority
- Problem solver
- Inspector
- Model
- Motivator
- Feedback provider
- Educator
- Group specialist

Advisor

1. Description

The coach uses an advisory approach characterised by providing indirect answers and advice. He only makes his expertise available to the students when they specifically request it or when they need it in the event of them getting stuck. The main goal of this approach is to mobilise the student's own expertise.

2. Required skills and attitudes

- Possesses a thorough theoretical and practical knowledge of the learning content and methods in the field of study.
- Possesses the didactic skills to transmit this expert knowledge to the students.
- Adopts an open, social and communicative approach with regard to the students.
- Uses an indirect approach that is characterised by the provision of indirect answers and advice and the mobilisation of the student's own expertise.

3. Use

3.1 Position within the educational format

One of the most important characteristics of project-based learning as an educational format is that it creates an activating and stimulating learning environment that first and foremost activates the student's own expertise. That is why the role of advisor has traditionally been linked to this educational format. The intention is in fact that students complete the task successfully by using their already acquired skills and knowledge and in doing so broaden their skills and knowledge.

3.2 The nature of the role

The role of advisor is characteristic of project-based learning as an educational format and forms an ideal choice for the coach in most situations. As an advisor he gives no direct answers or instructions and makes his expertise available only when the students specifically ask for it or are in need of it. This approach is therefore characterised by the provision of indirect answers and advice with a view to mobilising the students' own expertise, hence allowing them to go in search of the right solution or method.

3.3 Points of attention

The frequent adoption of the role of advisor is advised and recommended, given that it contributes to achieving one of the most important goals of this educational format: guided self-motivation. To carry out this role successfully and correctly in practice, the following guidelines should be taken into account:

1. The coach only makes his expertise available when the students specifically request so or when the situation so

COACHING MODEL VS. EPICES

Starting point

Coaching Roles + Coaching Model

≠ setting

- European vs. Belgian
- Multi-campus vs. Single-campus
- Master vs. Bachelor

Fine-tuning

- Influence of ≠ setting on usability?
- Coaching roles and model?
- Web application and accompanying tools?

CONTACTS

Wouter Van der Hoeven
wouter.vanderhoeven@kuleuven.be

Jeroen Buijs
jeroen.buijs@kuleuven.be

Wim Van Petegem
wim.vanpetegem@kuleuven.be

EPICES Erasmus plus O2 – A2

- Katrina Nordström, professor
- Marko Närhi, M.Sc. (Dr.Tech -student)
- Pirjo Pietikäinen Dr.tech

EPICES O2: Testing the KU Leuven model for teacher faciliation

- AIM: To study teacher roles as faciliators in order to identfy issues that could be incorporated into the coaching of Teachers for project-based learning accross different countries and insitutions
  - 11 teachers (= 11 student projects); 54 students
  - 3 questionnaires (web-based) (start, middle and general) for teachers, 1 for students
  - Projects (teachers and students from UPV (Spain) RTU (Latvia), UNNINA (Italy), PoliTo (Italy) Supméca (France), and Aalto University (Finland).
- Questions on 1) roles that teachers have as faciliators and 2) important learning goals – how well in line are views of teachers and students ?
- Also questions on social interactions, cultural differences, feedback, group formation etc., still under analysis

Results so far

- Teachers have many roles and therefore they can not be allocated any specific roles as suggested by the tested model
- Teacher views of their own role changes during the projects – in the beginning more ”ideal” roles are indicated, towards the end the teacher and student views become more unified
- Students and teachers views on **teacher faciliation** are more in line than are views on **what are important learning goals** – ie. Students set slightly different goals

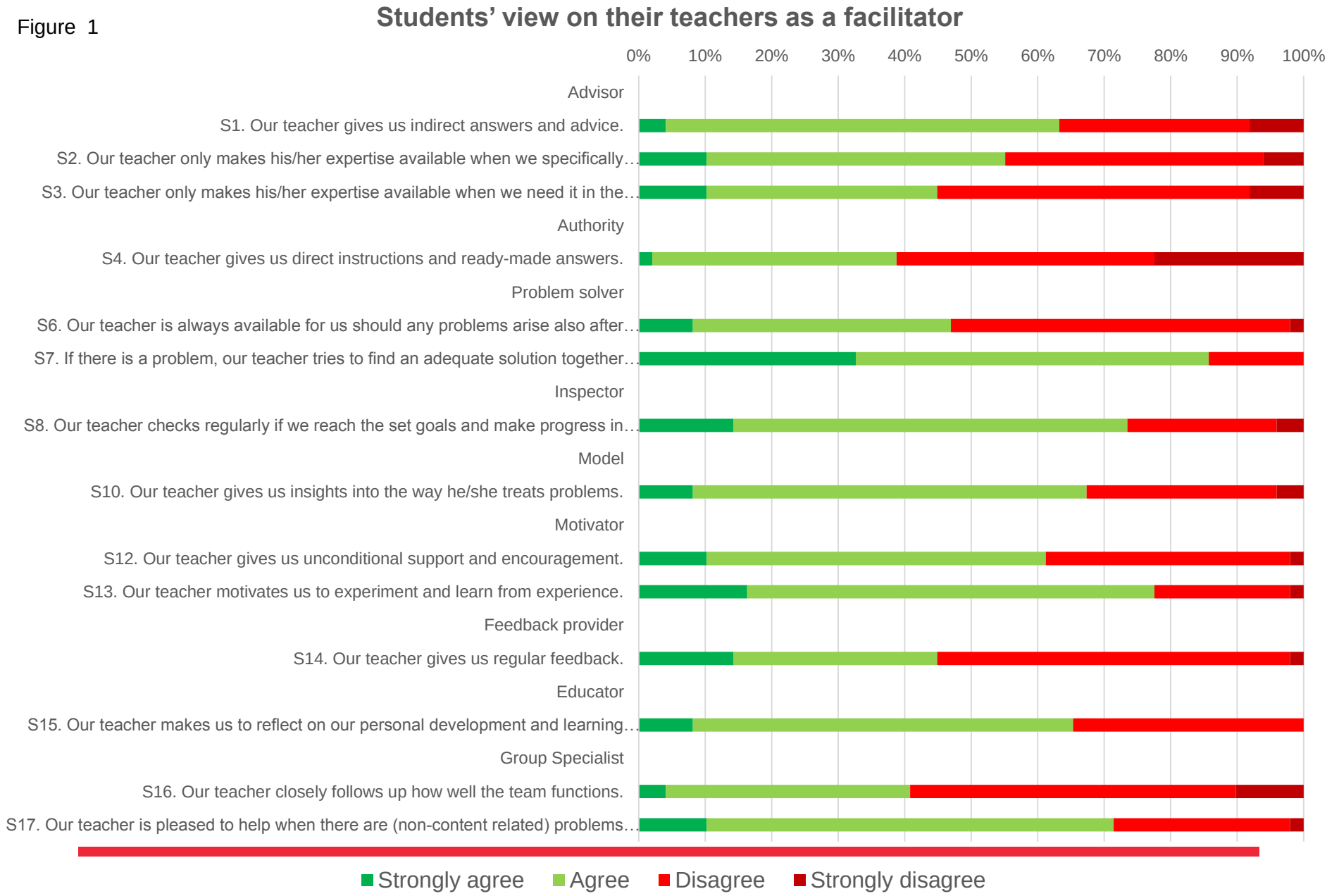
Table 1. Facilitation: Views of teachers, changes during the projects and experiences of the students

Teachers feel it is important to:	% of teachers agreeing at start or middle of course	% of teachers agreeing at the end of course	% of students agreeing (at the end of the course
to give students examples of the teachers' own experience and make sure that students understand how the teacher thinks that the possible problem(s) in the project should be solved	100 %	15 %	70 %
to support the student groups and make sure that the groups function well and students understand the process of project	100%	40 %	60 %
insist that goals should be met and the teacher should interfere when this is not happening exactly according to plan	80 %	40 %	75 %
give insights into their own (=teachers) trains of thought and reasoning	80 %	40 %	70 %
give regular feedback	85 %	15 %	45 %
find solutions to problems together with the students	80 %	45 %	85 %
give unconditional support to create a safe and activating learning environment to generate an active learning environment	80 %	30 %	60 %
make expertise available only if students specifically request	50 % or less	15 %	55 %
give student direct advice and instructions so that they can compete the project successfully	50 % or less	50 % or less	40 %

Table 2. The importance of learning goals from Teachers point of view and course outcome from student learning point of view

Thematic areas of learning goals	Teachers in agreement	Students in agreement
Competence in scientific discipline	60-90 %	60-75%
Understanding scientific approach	70-90 %	30-70 %
Development of basic intellectual skills	90-100 %	55-70%
Learning to co-operate and communicate	10-100 %	35 -60 %
Ability to carry out research	40-70 %	50 -60%
Designing	40-70 %	40-70%
Understanding temporal and social context of projects	40-70 %	40-50%

Figure 1



Aalto University
School of Chemical Technology

Summary so far

- The role of the teacher (11 teachers) changes during student projects, towards a more interactive role
- Roles of teachers overlap, and there are elements of ”Authority” also in the interactive ”Motivator” – types of facilitators
- Students and teachers views on learning goals are quite different – this is supported by previosu data in Aalto which shows that students also adopt very different learnign strategies (fast – don’t worry about grades, slower – try to get good grades, deep learning – not focused on grades – want to learn…)

EPICES

European Platform for Innovation and Collaboration between Engineer Students

Assessment Methodology for Project-Based Learning in Engineering Studies

Prepared by Ilmars Viksne

Workshop – WEEF 2015 – Florence – September 21, 2015

Erasmus+

MAJOR CRITERIA FOR PROJECT-BASED LEARNING (PBL)

- **PBL projects**
  - are central, not peripheral to the Curriculum;
  - are focused on questions/problems that "drive" students to encounter the central concepts and principles of a discipline;
  - involve students in a constructive investigation;
  - are student-driven to some significant degree;
  - are realistic, not school-like.

Source: Thomas, J. W. (2000). A review of research on project-based learning.

ASSESSMENT TENDENCIES

- Integration of assessment, learning and instruction.
- Skills or intend learning and assessment.
- Assessment as a tool for learning.

THE TRADITIONAL OBJECTIVES OF THE ASSESSMENT

- To investigate the student's ability
  - to recall information;
  - to understand basic concepts and principles;
  - to apply information, concepts, and principles in new situations.

THE OBJECTIVES OF THE ASSESSMENT IN PBL

- To evaluate
  - acquired skills by the students;
  - ability to apply knowledge instead of the simple reproducing of previous learned material.

ASSESSMENT STEPS

- Initial assessment at the beginning of a project.
  - The initial assessment is not a component of the final grade.
- A series of short intermediate assessments.
- Final assessment at the end of the project.

TYPES OF GROUP ASSESSMENT TASKS

- Classroom presentations.
- Exhibitions and demonstrations.

TYPES OF INDIVIDUAL ASSESSMENT TASKS

- Tests:
  - true-false or multiple choice;
  - problem solution.
- Performance tasks.
- Student portfolios.
- Essays.
- Self-assessment.
- Peer-assessment of other students in the group.

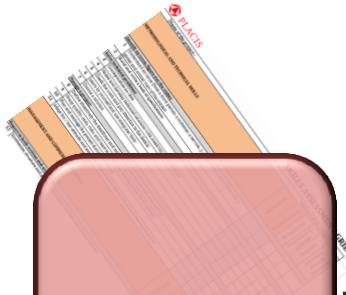
STUDENT ASSESSMENT TASKS IN PBL

- Initial assessment at the beginning of a project:
  - tests (true-false or multiple choice, problem solution);
  - essays.
- A series of short intermediate assessments:
  - classroom presentations;
  - exhibitions and demonstrations;
  - performance tasks;
  - tests (true-false or multiple choice, problem solution);
  - student portfolios.
- Final assessment at the end of the project:
  - the final presentation;
  - student portfolios;
  - self-assessment;
  - peer-assessment of other students in the group.

STARTING POINT

- Competencies are already defined by stakeholders an accepted by universities in the PLACIS project.
- There are approved curriculums.
- There are students form undergraduate and graduate courses.

ASSESSMENT FRAMEWORK



Assessment
(29 skills)
- METHODOLOGICAL AND TECHNICAL SKILLS;
- MANAGEMENT AND COMMUNICATION SKILLS;
- BEHAVIORAL AND CULTURAL SKILLS.

Assessment Types
- Classroom presentations;
- performance tasks;
- Tests;
- The final presentation;
- Student portfolios;
- Self-assessment;
- Peer-assessment of other students in the group
- .....

Selection of assessment type content by the assessing skills

Determination of assessment steps
- Initial assessment;
- Short intermediate assessments;
- Final assessment.

The list of tested skills in each assessment with weight coefficients

Assessment schedule

Weight coefficients for skills

Grade scale

Questionnaire 3 for teachers

Transition to the national (university) rating scale

Assessment tool
- Web?
- Excel?

RTU CASE: AUTOMATION OF CALCULATIONS OF CONSTRUCTION DURABILITY

LEARNING OUTCOMES

- to be familiar with the mathematical foundations of solution methods and the basic concepts of CAD/CAE;
- to identify the problems to be solved by CAE;
- to create the virtual 3D models for computations;
- practical skills to perform static analysis (strength, buckling, fatigue, frequency) and optimization calculations for the constructions applying the CAE software.

ASSESSMENT

- The mid-semester test.
- The coursework.
- The final exam.

ACTIVITIES OF SCOOTER SUBPROJECT

- Study and analysis of actual battery pack.
- Designing of the arrangement for the new battery compartment.
- Integration of a new battery pack.

METHODOLOGICAL AND TECHNICAL SKILLS

Automation of Calculations of Constuction Durability 6.0 ECTS credits. Autumn semester 2015. Prof. Aleksandrs Januševskis				The test revelance to the skills		
				The mid-semester test	The coursework	The final exam
METHODOLOGICAL AND TECHNICAL SKILLS						
Identify an issue, figure out the stakes						
Understand an issue (from a third person, a customer, a service...), reformulate it, stand back, with a global and critical view of the context	Y	6	3.59%	Y	Y	Y
Build and write a book of specifications	Y	4	2.40%	N	Y	N
Solve technical problems						
Conceptualize an idea	Y	7	4.19%	N	Y	Y
Model and develop technical solutions with creativity and innovation	Y	9	5.39%	N	Y	Y
Check the work and pay attention to the details	Y	7	4.19%	N	Y	N
Learn by yourself and use computer tools	Y	10	5.99%	N	Y	Y
Choose a solution	Y	9	5.39%	Y	Y	Y
Manage a project						
Define objectively the deadlines and milestones of the various tasks of an activity	Y	4	2.40%	N	Y	N
Grasp quality, costs, risks, and react to differences relating to the life of a project	Y	4	2.40%	N	Y	N
Plan and manage the project during its lifetime	Y	4	2.40%	N	Y	N
Adapt his / her attitude and accuracy of deliverables taking into account the requirements	Y	7	4.19%	Y	Y	Y

METHODOLOGICAL AND COMMUNICATION SKILLS

Automation of Calculations of Constuction Durability 6.0 ECTS credits. Autumn semester 2015. Prof. Aleksandrs Januševskis				The test revelance to the skills		
				The mid-semester test	The coursework	The final exam
MANAGEMENT AND COMMUNICATION SKILLS						
Report in both written and oral form						
Synthesize, structure and present information in a clear and precise manner	Y	7	4.19%	N	Y	Y
Communicate in both written and oral form in a foreign language	Y	6	3.59%	Y	Y	Y
Use new ICT	Y	9	5.39%	N	Y	Y
Present and argue a solution or an idea to all kinds of public	Y	7	4.19%	N	Y	Y
Find the necesary ressources						
Identify the necessary skills and resources, both internally and externally	Y	5	2.99%	N	Y	Y
Negotiate / motivate and call upon his / her resources and skills	Y	5	2.99%	N	Y	Y
Animate a working group or a team						
Drive, unite and mobilize a team and delegate (leadership)	Y	2	1.20%	N	Y	N
Take responsibility of decisions and be pro-active (maturity)	Y	4	2.40%	N	Y	Y

BEHAVIORAL AND CULTURAL SKILLS

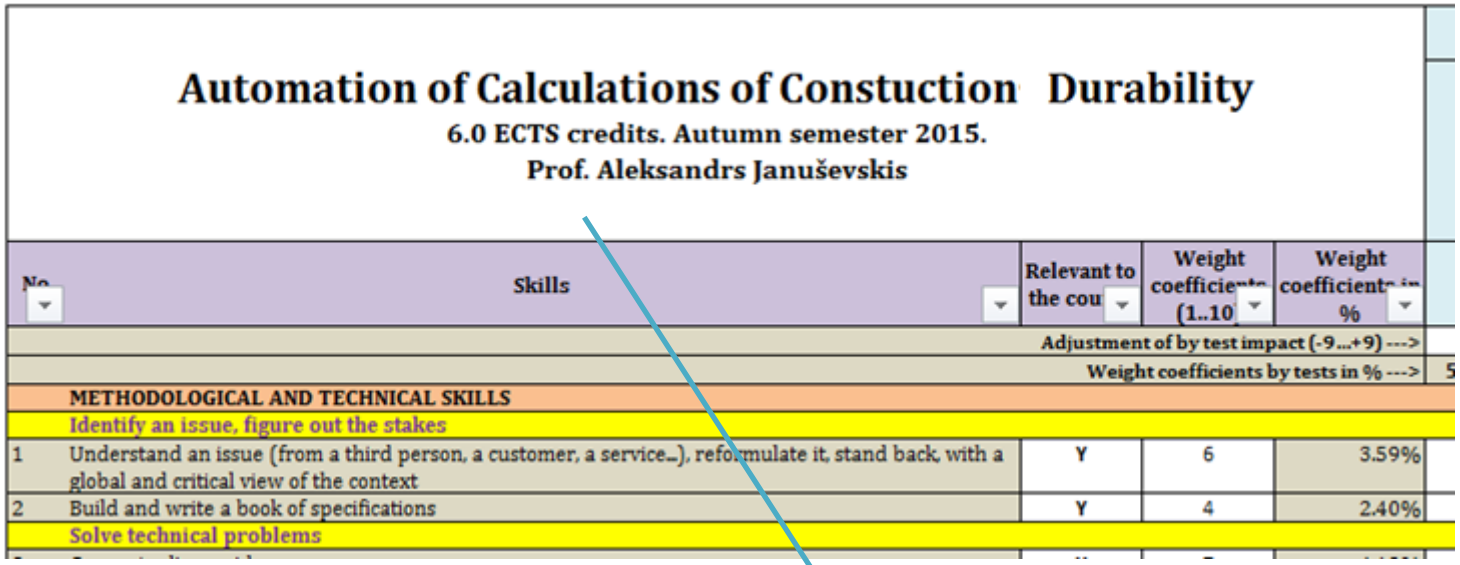
Automation of Calculations of Constuction . Durability 6.0 ECTS credits. Autumn semester 2015. Prof. Aleksandrs Januševskis				The test revelance to the skills		
				The mid-semester test	The coursework	The final exam
BEHAVIORAL AND CULTURAL SKILLS						
Involvement						
Make commitments (punctuality, deliverables, ...) and respect people	Y	6	3.59%	N	Y	Y
Be autonomous, persistent and take initiatives	Y	7	4.19%	Y	Y	Y
Be curious and open-minded	Y	7	4.19%	Y	Y	Y
Adaptability						
Get organized and manage complexity, unpredictable situations and stress	Y	4	2.40%	Y	Y	Y
Adapt to a new environment (professional and / or academic and / or cultural and / or linguistic)	Y	6	3.59%	N	Y	Y
Values and ethics						
Show honesty, ethics and exemplary	Y	7	4.19%	Y	Y	Y
Follow the procedures in place in institutions (companies and / or academic)	Y	5	2.99%	Y	Y	Y
Respect the constraints of intellectual property and confidentiality	Y	3	1.80%	N	Y	Y
Maturity						
Self-assess	Y	6	3.59%	N	Y	N
Assess the team work	N	0	0.00%	N	N	N

DISCUSSION TOPICS

- What are advantages and disadvantages of implementing a PBL approach for the course?
- What is the overall satisfaction about the PBL course and the instructor?
- How to achieve the quality and reliability of the peer assessment of other students in the group?

ASSESSMENT TOOL

STEP 1



Automation of Calculations of Constuction Durability

6.0 ECTS credits. Autumn semester 2015.

Prof. Aleksandrs Januševskis

No	Skills	Relevant to the cou	Weight coefficients (1..10	Weight coefficients in %
			Adjustment of by test impact (-9...+9) --->	
			Weight coefficients by tests in % --->	
	METHODOLOGICAL AND TECHNICAL SKILLS			
	Identify an issue, figure out the stakes			
1	Understand an issue (from a third person, a customer, a service...), reformulate it, stand back, with a global and critical view of the context	Y	6	3.59%
2	Build and write a book of specifications	Y	4	2.40%
	Solve technical problems			

Add course information

STEP 2

No	Skills	Relevant to the course	Weight coefficients (1..10)	Weight coefficients in %
			Adjustment of by test impact (-9...+9) --->	
			Weight coefficients by tests in % --->	
	METHODOLOGICAL AND TECHNICAL SKILLS			
	Identify an issue, figure out the stakes			
1	Understand an issue (from a third person, a customer, a service...), reformulate it, stand back, with a global and critical view of the context	Y	6	3.59%
2	Build and write a book of specifications	Y	4	2.40%
	Solve technical problems			
3	Conceptualize an idea	Y	7	4.19%
4	Model and develop technical solutions with creativity and innovation	Y	9	5.39%
5	Check the work and pay attention to the details	Y	7	4.19%
6	Learn by yourself and use computer tools	Y	10	5.99%
7	Choose a solution	Y	9	5.39%
	Manage a project			

1. Select relevant skills.

2. Add weight coefficients of the selected skills.

STEP 3

Automation of Calculations of Constuctions Durability 6.0 ECTS credits. Autumn semester 2015. Prof. Aleksandrs Januševskis

10	is the highest mark

No	Title	Type	Date	Description
1	The mid-semester test	Problem solution test	12.10.2015	
2	The coursework	Classroom presentation	03.09.2015	
3	The final exam	Problem solution test	14.10.2015	
4				
5				

1. Add information on the planned assessment.

2. Add the highest possible mark.

STEP 4

1. Adjust overall impact of the assessment to the skills.

2. Select the evaluated skills by this the assessment.

The test revelance to the skills		
The mid-semester test	The coursework	The final exam
1	2	3
-4	3	1
5.0%	**61.0%**	**34.0%**
Y	Y	Y
N	Y	N
N	Y	Y
N	Y	Y
N	Y	N
N	Y	Y
Y	Y	Y

STEP 5

			The mid-semester test	The coursework	The final exam			Final
No	Student name	Group	1	2	3	4	5	6
1	Student 1	EPICES	7	4	6			**4.83**
2	Student 2	EPICES	7	10	10			**9.85**
3	Student 3	EPICES	8	7	8			**7.39**
4	Student 4	EPICES	5	6	5			**5.61**
5	Student 5	EPICES	6	7	7			**6.95**
6	Student 6	EPICES	8	0	0			**0.40**
7	Student 7	EPICES	6	5	4			**4.71**
8	Student 8	EPICES	9	10	6			**8.59**
9	Student 9	EPICES	7	7	7			**7.00**
10	Student 10	EPICES	6	7	7			**6.95**

2. Add assessment results.

1. Create students' list.

STEP 6

Student name	The mid-sem	The coursew	The final exa
Student 3	8	7	8

1. Select the student.

7.39

	Skills	Maximal points	Achieved points	Achieved %
	METHODOLOGICAL AND TECHNICAL SKILLS			
	Identify an issue, figure out the stakes	**0.5988**	**0.4380**	73%
1	Understand an issue (from a third person, a customer, a service...), reformulate it, stand back, with a glob	0.3593	0.2703	75%
2	Build and write a book of specifications	0.2395	0.1677	70%
	Solve technical problems	**2.5150**	**1.8579**	**74%**
3	Conceptualize an idea	0.4192	0.3120	74%
4	Model and develop technical solutions with creativity and innovation	0.5389	0.4012	74%
5	Check the work and pay attention to the details	0.4192	0.2934	70%
6	Learn by yourself and use computer tools	0.5988	0.4458	74%
7	Choose a solution	0.5389	0.4055	75%
	Manage a project	**1.1377**	**0.8184**	**72%**
8	Define objectively the deadlines and milestones of the various tasks of an activity	0.2395	0.1677	70%
9	Grasp quality, costs, risks, and react to differences relating to the life of a project	0.2395	0.1677	70%
10	Plan and manage the project during its lifetime	0.2395	0.1677	70%
11	Adapt his / her attitude and accuracy of deliverables taking into account the requirements	0.4192	0.3154	75%
	MANAGEMENT AND COMMUNICATION SKILLS			
	Report in both written and oral form	**1.7365**	**1.2956**	**75%**
12	Synthesize, structure and present information in a clear and precise manner	0.4192	0.3120	74%
13	Communicate in both written and oral form in a foreign language	0.3593	0.2703	75%

2. Analyze acquired skills.

CONTACTS

Ilmars Viksne

ilmars.viksne@rtu.lv

+371 29 18 74 03

Antoine Lanthony

antoine.lanthony@supmeca.fr

+33 1 49 45 29 39

Alexis François

alexis.francois@supmeca.fr

+33 1 49 45 25 36