COLIBRI MODULE O17:
Documentation of project results (Year 1)
Preliminary report

This material is developed as a part of the Erasmus+ Strategic Partnership Colibri: Collaboration and Innovation for Better, Personalized and IT-Supported Teaching.

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You can learn more about the Colibri project on www.erasmus-colibri.eu, and also find additional teaching materials, guidelines and reports.
COLIBRI

Collaboration and Innovation for Better, Personalized and IT-Supported Teaching.

Year 1 Report

Erasmus+ Strategic Partnership
Colibri: Who are we?

Academic partners:
1. UNIVERSITY OF AALBORG
2. BOGAZICI UNIVERSITESI
3. RIGAS TEHNISKA UNIVERSITATE
4. UNIVERSITY OF TECHNOLOGY AND AGRICULTURE, BYDGOSZCZ
5. UNIVERSITAT POLITECNICA DE CATALUNYA
6. TECHNISCHE UNIVERSITAET HAMBURG-HARBURG
7. UNIVERSITETET I STAVANGER

Industrial Partners:
8. ETHNIKO IDRYMA EREVNON
9. Talaia Networks S.L.
10. ATeNe KOM GmbH
Colibri: Why we do it?

We experience: Increase on the number of students

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The challenge: Student diversity

- Cultural Background
- Learning styles

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We need: Personalised teaching + new and innovative teaching methods

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We want: Students ready for the labor market + collaborate across nationalities, cultures, and technical disciplines.

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By: Institutions working and experimenting on joint learning activities
Our background experiences

• The involved organisations all have different experiences with new teaching methods, and the staff involved are generally involved in this – and curious. We are sure we can learn from each other.

• Four of the universities in the past were running a successful Erasmus Intensive Programme (summer school), where the students also both followed courses and did projects together.
Colibri: The overall objectives

Enhancing the **quality and relevance** of the learning offer in education by developing new and innovative approaches, and by supporting the dissemination of best practices

Promote the **take-up of innovative practices** in education by supporting **personalised learning approaches, collaborative learning**, by making **use of ICT and Open Educational Resources**, and by exploring the use of blended and virtual mobility

Increase **labour market relevance** of learning provision and qualifications
Colibri: The overall idea

**Important:**
It is a goal of Colibri to not only impact the participating teachers and students, but to have a **systemic and lasting impact** – within the involved institutions, but also beyond.

- Implementation of new and innovative teaching as **joint learning activities**.
- Establishment of a “Living Lab” of students from different **universities**.
- Topic/Theme: Future Internet Opportunities, with participation of students from e.g. business, engineering, entrepreneurship, telecommunications, computer science.
Colibri: Overview of project concept

3 yearly cycles
The course modules offered

- Depending on his background and interests, each student:
  - Follows all 10 introductory modules
  - Chooses 5-7 basic modules to follow
  - Chooses 3-5 advanced modules to follow

- 10 different topics are offered (each at intro, basic, advanced levels):
  - Advances in information syste,
  - Nanonetworking and molecular communications
  - Future Internet Architecture
  - Applications and services
  - Advances in wireless communication technologies
  - Implementation of broadband networks
  - Advances in broadband technologies
  - Network Security
  - Enterprise architecture
  - Entrepreneurship and Corporate entrepreneurship
The teaching methods

- Personalisation by pre-module tests and providing (or linking to) preliminary teaching material.
- Experiment with new ways of conducting the courses and projects
- Short video lectures
- Small assignments
- Mini projects
- Company proposed projects to work in groups

Teacher training seminars

Forum for inspiration lectures, presentations, peer discussions, and time for creating and revising teaching material with the possibility to discuss with colleagues, and give feedback on each others approaches.
Expected outputs

- Focus is on systemic impact and long-term results. The key is to (1) make the material easy for others to use, and (2) to spread the word about the project to university teachers.

- Teaching material that can be re-used and exploited by others. Made publicly available as Open Educational Resources. Packed together with descriptions, instructions, evaluations for easy take-up by others.

- Reports, but also more practical and hands-on inspiration material for different target groups.

- Spread the word: Colibri Ambassadors.
The teaching methods (courses)

• We will experiment with new ways of conducting the courses and projects throughout the project. So, the teaching methods chosen for the second year will be chosen based on our experiences from the first year.

• The first year, the courses were mainly based on
  • Preliminary test and preliminary material (to support individual start levels)
  • Small video lectures (recorded). These should be split into segments of approximately 10 minutes, and interchanged with exercises/problems.
  • Shorter problems/exercises to be used in between the video lectures. Preferably these are made available on Moodle, and interactive with possibility for instant feedback.
  • Micro projects, done by students working together.
  • Organized discussions, where students are presenting for each other, and feedback/discussions are facilitated.
The teaching methods (projects)

• We will experiment with new ways of conducting the courses and projects throughout the project. So, the teaching methods chosen for the second year will be chosen based on our experiences from the first year.

• Project questions proposed by companies
• 7 groups – each with 4 students from different universities.
• One supervisor per group (so – one supervisor per university)
• EKT/NHRF supports the projects with a consultancy role.
• Clear learning objectives.
• Starts in midway seminar, ends in project seminar – virtual collaboration in between.
Blended mobility (1)

- The yearly learning activity is introduced to the students in a virtual kick-off seminar during March. The students are introduced to the overall learning objectives, topics, teaching methods, and quality control measurements.

- This is followed by a phase of virtual learning (the course modules).

- The midway seminar is the first physical mobility, and takes place in April. Here, students and teachers meet for five days in order:
  - Let students (and teachers) get to know each other, and work on methods for problem solving and group work.
  - Finalize the courses, with the option of face2face sessions
  - Introduce the projects, project groups and supervisors. Having the groups working together towards a project plan, and initial problem analysis.
  - Focus on connection between course modules and projects, as well as on supporting the team work.
**Blended mobility (2)**

- The midway seminar is followed by a phase of virtual collaboration in the groups. The groups and supervisors will have a large degree on freedom on how to work together, and what tools to use – but objectives/milestones should be clear.

- The project seminar is the second (and last) physical mobility. Here students are working together in order to finalize the projects, and for presentation/examination. Also, the project seminar will be used to receive feedback from students regarding all aspects of the learning activity (evaluation).
Content of the learning activities (projects)

• The student projects are based on real-world problems/cases, and defined by the industrial partners in the programme, with the possibility that other companies may also participate with proposals. EKT/NHRF will also propose projects, where the starting point will be a start-up company with a specific market idea.

• The projects will require the students to work together, and make use of both technical and business-oriented competences. The project analyses a specific problem, and selects appropriate tools/methods to design and verify one or more possible solutions.

• The project must ensure that the learning objectives of the learning activity is supported (key words: Skills in exploring the opportunities in Future Internet, by relating technical, social and business aspects, demonstrating these skills in one or more real-case scenarios. Competences in working together in teams across scientific areas, countries and cultures, and being able to bring into play the students own knowledge in the teamwork).
Teaching methods used – module structure

Each module consists of three levels:
• Introduction (1 h. workload)
• Basic (5 h. workload)
• Advanced (5 h. workload).

• Each student is required to follow all the modules at introductory level (10 modules) and at least 3 modules up to advanced level.
• The total number of hours of the selected modules MUST be 60.
Teaching methods used – Introductory level

- Overview lecture (max. 2 videos of max. 10 min.)
- Individual task or assignment
- Individual task or assignment + peer review
- Peer learning in project groups
- Optional literature/material
Teaching methods used – Basic level

• 10 min. self-assessment (+ preliminary material)
• 60-120 min. literature study
• Video lectures with shorter tasks (max. 10 min. lecture/5-10 min. self-correcting questions/ working with tools) (120-180 min.) max 50% of video lectures.
• Self-correcting quizzes and assignments
• Practical exercises to work with the relevant tools
• Q&A forum
Teaching methods used – Advanced level

- Literature reading
- Video lectures (max. 10 min. lecture)
- Group assignments (in 3-4 people groups)
- Peer assessment workshops: Assignment + peer assessment (students assessing students)
- Article assignment: Reading, discussion, presentation of work in relation to an article
- Additional material in the form of videos, books, scientific papers, PPTs…
- Quizzes

Additionally, the students will be involved in a variety of activities during the physical seminars focusing on presentations such as:
- Pitch talks in front of their peers
- Interactive lectures about presentations and slide deck preparation
- Videos addressing issues in professional communication
Tools and platforms used

- Moodle as learning platform
  - Acceptable for courses and allows for interactive content, but improvements are needed (user interface, activity tracking and completion)
  - Allows for guest access (but with limited functionality)
  - Not suitable for project work -> alternative platforms needed.
- Facebook for general communication
  - Everyone uses it
  - Good for all platforms
  - Gets messy (posts are easily overlooked and forgotten)
- Adobe Connect and Skype for meetings
  - Sometimes they work well. But not for many participants at the same time.
- Youtube for videos
  - Works well all on platforms.
  - Publicly accessible
  - Does not allow for interactive content
The Colibri Ambassadors

• All staff who at some point has been involved in Colibri becomes Colibri Ambassadors.

• These are the people who “spread the word” both inside and outside our organisations. We use this to get in touch with a large number of university teachers (and we keep track of how many).

• We make sure that the Colibri Ambassadors are ready to take on the role: They get to know the project well, and we keep them informed about progress and results (both through our Facebook group and by yearly meetings in each organisation).
Results from the 1st year

• Based on surveys to all students, teachers and company representatives
• Feedback during midway seminars and final seminar
• Detailed results of all modules all projects available on erasmus-colibri.eu
Students: To what extent do the teaching methods used in Colibri increase the quality of the learning offer?
Students: To what extent do the teaching methods used in Colibri increase the relevance of the learning offer?

- None: 0%
- Minor: 10%
- Somewhat: 20%
- Moderate: 70%
- Major: 10%
Students: To what extent do the teaching methods used in Colibri increase the labour market relevance of learning provisions and qualifications?

- None: 0%
- Minor: 5%
- Somewhat: 25%
- Moderate: 40%
- Major: 35%
Students: Personal outcome: To what extent do you think the teaching methods used in Colibri will help you in your further studies?

- None
- Minor
- Somewhat
- Moderate
- Major

[Bar chart showing percentage distribution: Moderate is the highest at approximately 50%, followed by Somewhat at around 20%, Minor at about 10%, and Major also at around 20%.]
Students: Personal outcome: To what extent do you think the teaching methods used in Colibri will make you better prepared for the national labour market?
Students: Personal outcome: To what extent do you think the teaching methods used in Colibri will make you better prepared for the international labour market?

- None: 0%
- Minor: 10%
- Somewhat: 20%
- Moderate: 30%
- Major: 60%
Teachers: To what extent do the teaching methods used in Colibri increase the quality of the learning offer?
Teachers: To what extent do the teaching methods used in Colibri increase the relevance of the learning offer?
Teachers: To what extent do the teaching methods used in Colibri increase the labour market relevance of learning provisions and qualifications?
Companies: To what extent do the teaching methods used in Colibri increase the quality of the learning offer?

- None
- Minor
- Somewhat
- Moderate
- Major
Companies: To what extent do the teaching methods used in Colibri increase the relevance of the learning offer?
Companies: To what extent do the teaching methods used in Colibri increase the labour market relevance of learning provisions and qualifications?

- None: 0%
- Minor: 10%
- Somewhat: 20%
- Moderate: 30%
- Major: 60%
Dissemination and impact from first year of Colibri

- Tangible and intangible results of Colibri has been used in 28 courses/learning activities. A total of 583 students have benefited from this.

- 74 colleagues in the local teaching environments have been inspired by the use of Colibri, from which 325 students have benefited.
Take away messages from the first year

• Based on both comments and qualitative evaluations, it is clear that the international, cross-disciplinary and problem based approach is highly valued. This is by many of the participants seen as the most valuable aspect of Colibri. Thus, it is especially the improved horizontal competences that are seen as benefiting from the project.

• This is also confirmed in the rating of personal outcome, where the students are particularly happy about the improvement of their preparedness for the international labour market (average rating 4.3 on a 1-5 scale).

• Similarly, especially the companies indicate that the teaching methods used in Colibri to a very large degree (average 4.7 on a 1-5 scale) improve the students preparedness for the labour market.
Take away messages from the first year

- The course was generally well received by the students – especially when they got to work in international groups on real-world problems.

- For the modules, the video lectures, quizzes and to some part self-study activities worked out well.

- We need to be more precise on group exercises and peer learning (i.e. this really need to be facilitated).

- With no physical interaction between students and teachers in the beginning, it is important that it is very clear and explicit what the students are expected to do (and there should be a way of follow progression of modules and projects).

- Next year we will try to implement progression-tracking, and also final tests for each introductory, basic, and advanced module.
Take away messages from the first year

• Peer learning is a good idea, but need clear instructions and guidelines (e.g. it is hard to self-organize).

• The students had mixed experiences with the virtual collaboration between the two seminars. We need to focus (more) on the team work process in the midway seminar.

• Panel discussions in the midway seminar were received very well by students and teachers, this is something we should do more of (rather than focusing on the individual modules).

• For the projects: Supervisor guidelines and cheat sheets – templates for students to enable progression tracking (e.g. minutes of meetings, time plans).

• Video/presentation training during midway seminar was well received.
Thanks for listening!

Questions, comments, reflections?

www.erasmus-colibri.eu