

**Number LLP-LDV-TOI-09-IT-0461**

## SLOOP2Desc

# Sharing Learning Objects in an Open Perspective to Develop European Skills and Competencies

**Final Report Code:** R 14

**Subject:** Report on the increase of the users skills in the fields of  
education and training.

**WP:** WP8 – Exploitation and transfer to the system through the  
teacher training.

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## **1 Introduction**

The WP 8 called "Exploitation and transfer to the system through the teacher training" was dedicated to transfer the training model SLOOP2DESC through teachers training courses (cascade model). The training course have been activated in November 2010 and ended in May 2011.

### **1.1 Teaching Methodology**

The methodology of the course is learning by doing. The trainees learn to become online teachers attending an online course; they get familiar with competence-based education attending a course based on competence-based learning, but more importantly, they learn by designing and building materials, open educational resources for their students.

The model of online training adopted is the virtual classroom in Moodle, with the following features:

- The trainees are organized into online classes (30-40 people) which were assigned two tutor,
- the activities are scheduled in a way that all trainees deal
- a strong interaction among students and between students and tutors (in forums and other tools such as email, chat, videoconference) is required, sometimes as a discussion and exchange of ideas, other times as a collaboration in carrying out activities (also in this case using tools such as wikis, GoogleDoc, MindMap, ...)

### **1.2 Course Structure**

The course is organized in 5 modules and its duration of 16 weeks.

The modules are characterized by a common structure:

- a description of the module and its purpose (video or presentation),
- the definition of the learning outcomes,
- a discussion forum with some threads created by tutors and others opened up by trainees step by step,
- the several units constituting the course, - a competence self-assessment questionnaire that asks participants to indicate if and at which level, they believe to have achieved the expected results,
- a satisfaction questionnaire by the trainees concerning the proposed activities, instructional materials and tutoring provided.

**Module 1** is focused on learning how to use Moodle.

In **Module 2**, the trainees experience the Web 2.0 tools for collaboration - such GoogleDoc, Skype, Delicious, ... - tools to be used in Module 5 collaboratively to produce the resources, but

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also to use in the future with students.

**Module 3** focuses on the production and sharing of open educational resources: therefore, firstly, the focus is on the concept of sharing, on the legal characteristics (license) and techniques (e.g. access to the source) that a resource must have to be open, on the sharing environments (such as Slideshare, YouTube, Scribd ...) and finally on the tools to produce resources (eXeLearning, HotPotatoes, ...) and last but not least on repositories where to share the resources developed, specifically on FreeLOms, a repository developed first in the Sloop project and revamped in Slop2desc.

**Module 4** is detached from the former three modules as it addresses the issue of competences and in particular the EQF framework is presented. This module introduces a third session that describes a system of specific skills; this session is adapted according to the disciplines of teachers who attend the training course. The following list identifies the 4 certification systems analyzed and adopted according to the involved teachers:

- 1) digital competences and ECDL syllabus (for those who must teach the use of computers);
- 2) IT professionals competences and EUCIP and e-CF frameworks (for teachers of computer science);
- 3) language competences and the framework of the European languages (for foreign language teachers),
- 4) competences in the maritime sector and the IMO system (only in Romanian for teachers in that sector).

The heart of the course is **Module 5**, one dedicated precisely to the production of resources, where by this term we mean both single objects - a presentation, a video, a quiz, ... - and an entire Moodle course.

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## **2 Measurement of the increase skills of teachers**

The evaluation of course participant's skills increase has been made taking into account different aspects. First we assessed the participation level of students; then, at the end of each module, we analyzed the results of the self-assessment questionnaire, and finally, at the end of module 5, we analyzed the resources produced by students. These assessments provided the basis to release the certificate of attendance. In the following paragraphs we illustrate the assessment of specific aspects for each country involved in the project activity.

### **2.1 Italy**

The cascade courses have been publicized on the web at national level and, the regional schools departments of Sicily and Lombardia have sent specific letters to schools.

The goal was to reach 400 teachers (primarily computer science teachers).

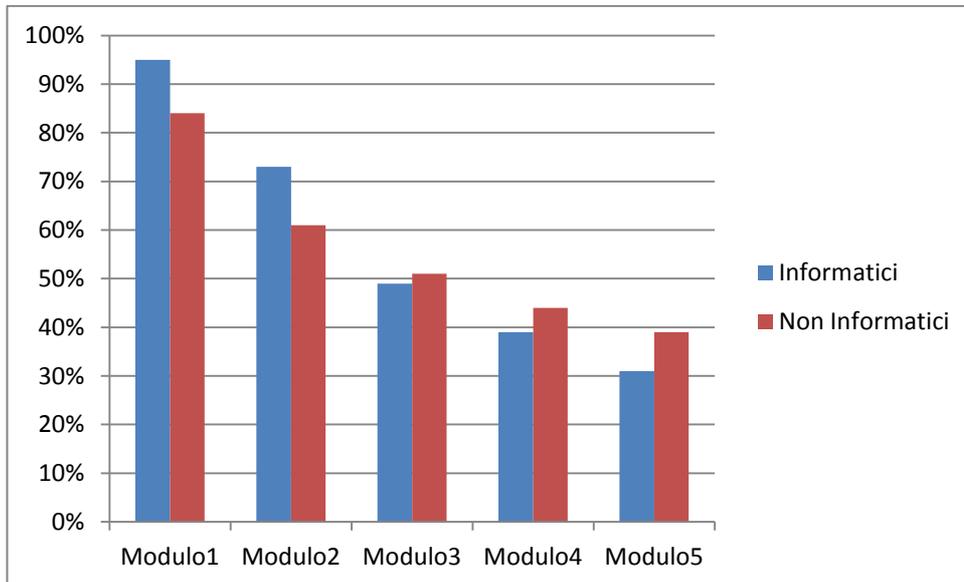
The applicants were more than 1,700: teachers from secondary schools (but not only) of all disciplines, demonstrating a strong interest in the themes of the course and a great need of training even though in the absence of incentives or formal recognition. All the applications of computer science teachers and mathematics teachers, in some way involved in teaching computer science, were accepted: to them teachers of other disciplines were also added to reach the total of 547 trainees.

The participants were grouped into 11 classes, two mentors have been assigned to each class, and these mentors were selected from participants to pilot courses. The 11 classes were constituted by: N. 6 classes composed of teachers in computer science and electronics, N. 3 classes composed by teachers in mathematics, N. 1 class composed by teachers in Italian and foreign language and N. 1 class composed by teacher in Business economy.

#### **2.1.1 Participants and dropout rate**

The 11 cascade courses involving 547 students. Analysis of the data reveals a drop rate that remains constant during the transition from 1° to 2° module and from 2° to 3 module °, but this gap decreases in subsequent transitions through the modules. The following graph shows the percentage of participation rates subdivided for Informatics teachers and no Informatics teachers.

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In detail:

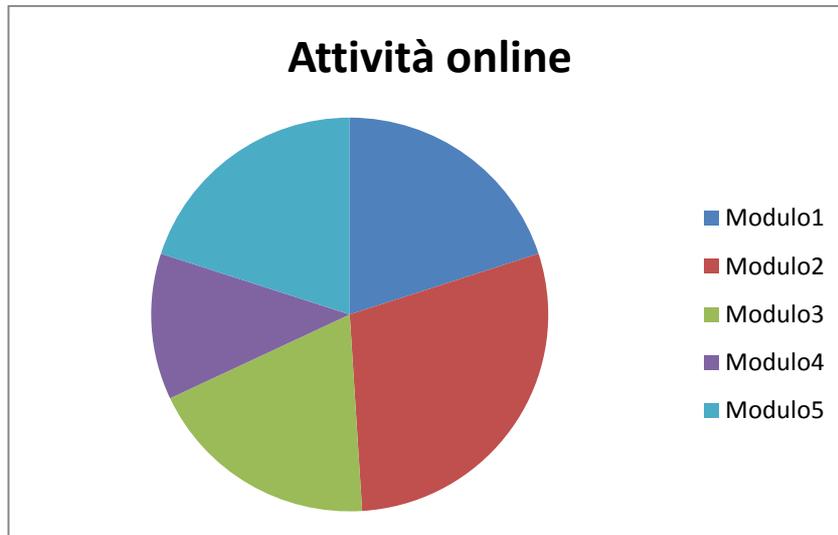
- 95% of informatics teachers attended to the first module, while non-informatics teachers were only the 84%;
- 73% of informatics teachers and 61% of non-informatics teachers attended to the second module;
- 49% of informatics students and 51% of non-informatics teachers attended to the third module;
- 39% of informatics teachers and 44% of non-informatics teachers attended to the fourth module;
- Finally, 31% of informatics teachers and 39% of non-informatics teachers attended to the fifth module;

Interesting is the turnaround in the dropout rate. The drop level for the informatics teachers' decreases during the course, 64% of those who attended the module 2 is also attended in module 5. Instead, only 43% of informatics teachers attended to module 2 is arrived to the module 5.

The data collected in the different virtual classrooms reveals a heterogeneous situation about the times of Internet connection related to several factors: typology of activities proposed in the module, expectations, problems arising from the issues addressed, motivations and previous experiences of each participant.

The following chart shows the percentage of Networking: Module 1 (20%), Module 2 (29%), Module 3 (19%), Module 4 (12%), Module 5 (20%).

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The data that regard the total time of Internet connection of one or more classes per module does not indicate the aims of the connection: is possible, for example that during the period, formally dedicated to a specific module, the trainee was still working on the previous module. In addition, the comparison between the time devoted to a module or to other does not take into account the drop: the time dedicated to a module depends not only on individual time but also on the number of students.

### 2.1.2 Questionnaires

The assessment of skills acquired by teachers during the course was made by questionnaires administered at the end of each module. In these questionnaires the learner can:

- self-assess his individual skills developed during the module using a 5-level Likert scale characterized by the following values (1 = None, 2 = Very Limited, 3 = Basic, 4 = Good, 5 = Very good).
- answer to a satisfaction questionnaire about the proposed activities, instructional materials and tutoring.

The appendix lists, subdivided according to the different modules, show the skills assessed in the questionnaires (see 4.1) and the items of satisfaction questionnaires most relevant for the evaluation of the skills increase (see 4.2). This analysis shows an excellent overall performance. This trend is not overestimated because the performance related to more difficult modules are slightly lower.

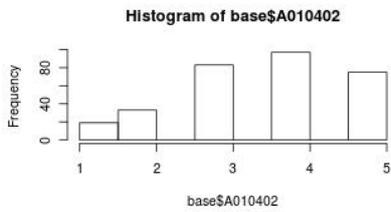
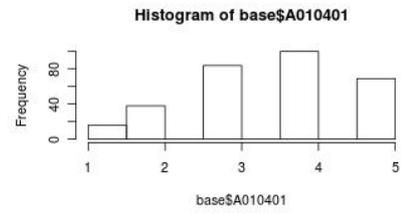
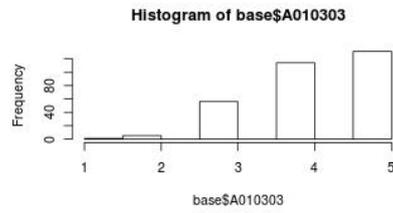
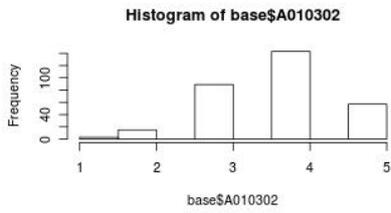
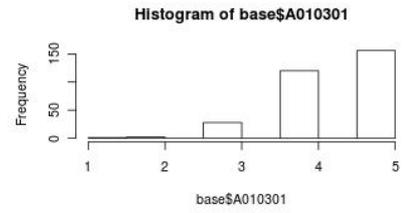
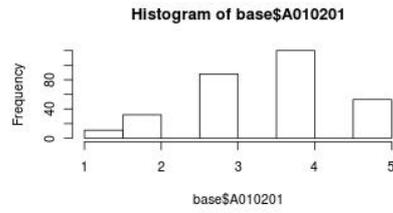
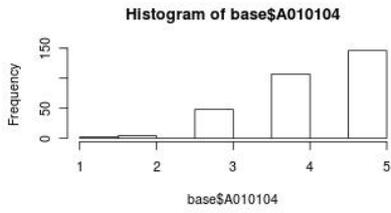
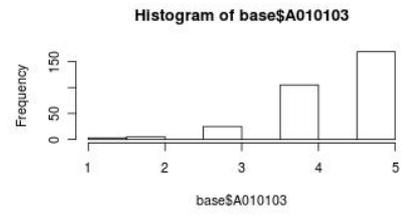
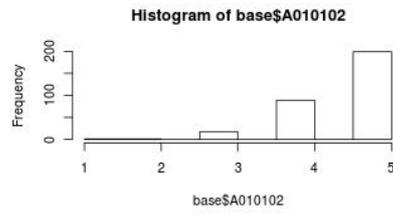
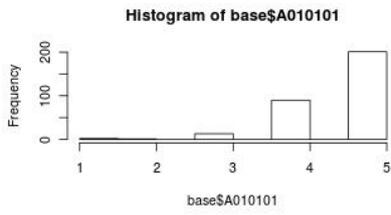
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### 2.1.2.1 Self-evaluation

#### Module 1

Code	Mean	St. Deviation	Median	25th Percentile	75th Percentile	Valid N
<b>A010101</b>	4,58632	0,65295	5	4	5	307
<b>A010102</b>	4,57655	0,64411	5	4	5	307
<b>A010103</b>	4,40717	0,78820	5	4	5	307
<b>A010104</b>	4,27362	0,81853	4	4	5	307
<b>A010201</b>	3,56579	1,01260	4	3	4	304
<b>A010301</b>	4,39414	0,70782	5	4	5	307
<b>A010302</b>	3,76873	0,84129	4	3	4	307
<b>A010303</b>	4,20195	0,81545	4	4	5	307
<b>A010401</b>	3,54723	1,12323	4	3	4	307
<b>A010402</b>	3,57329	1,15059	4	3	4	307

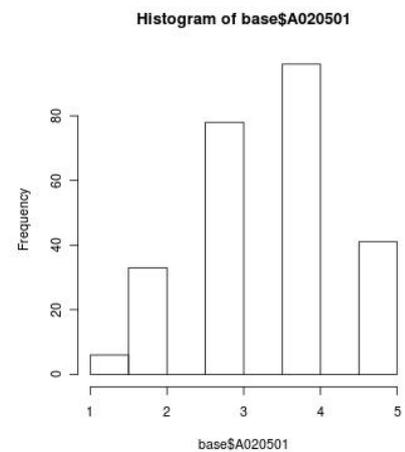
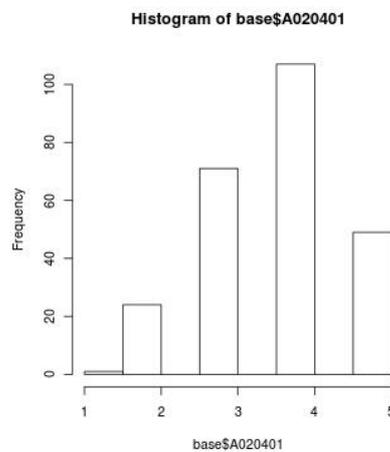
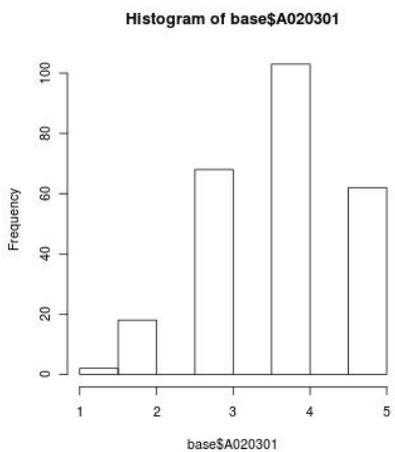
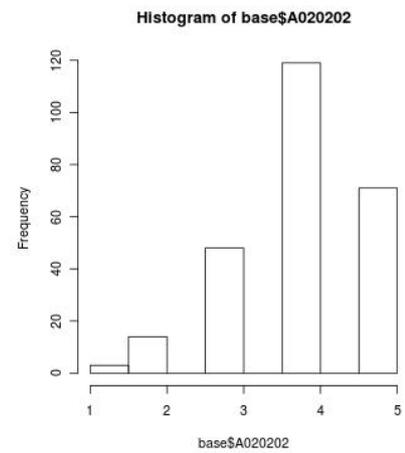
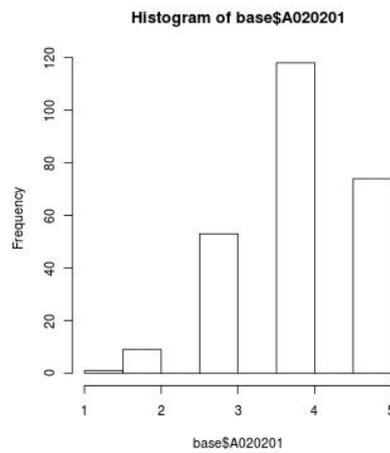
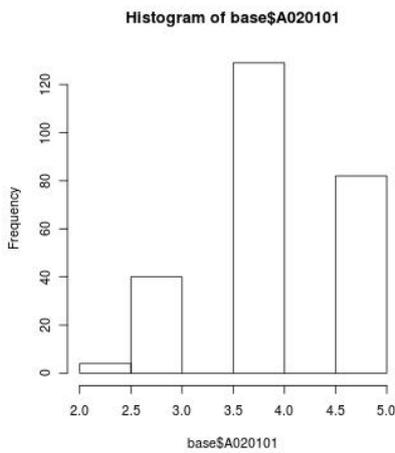
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**Module 2**

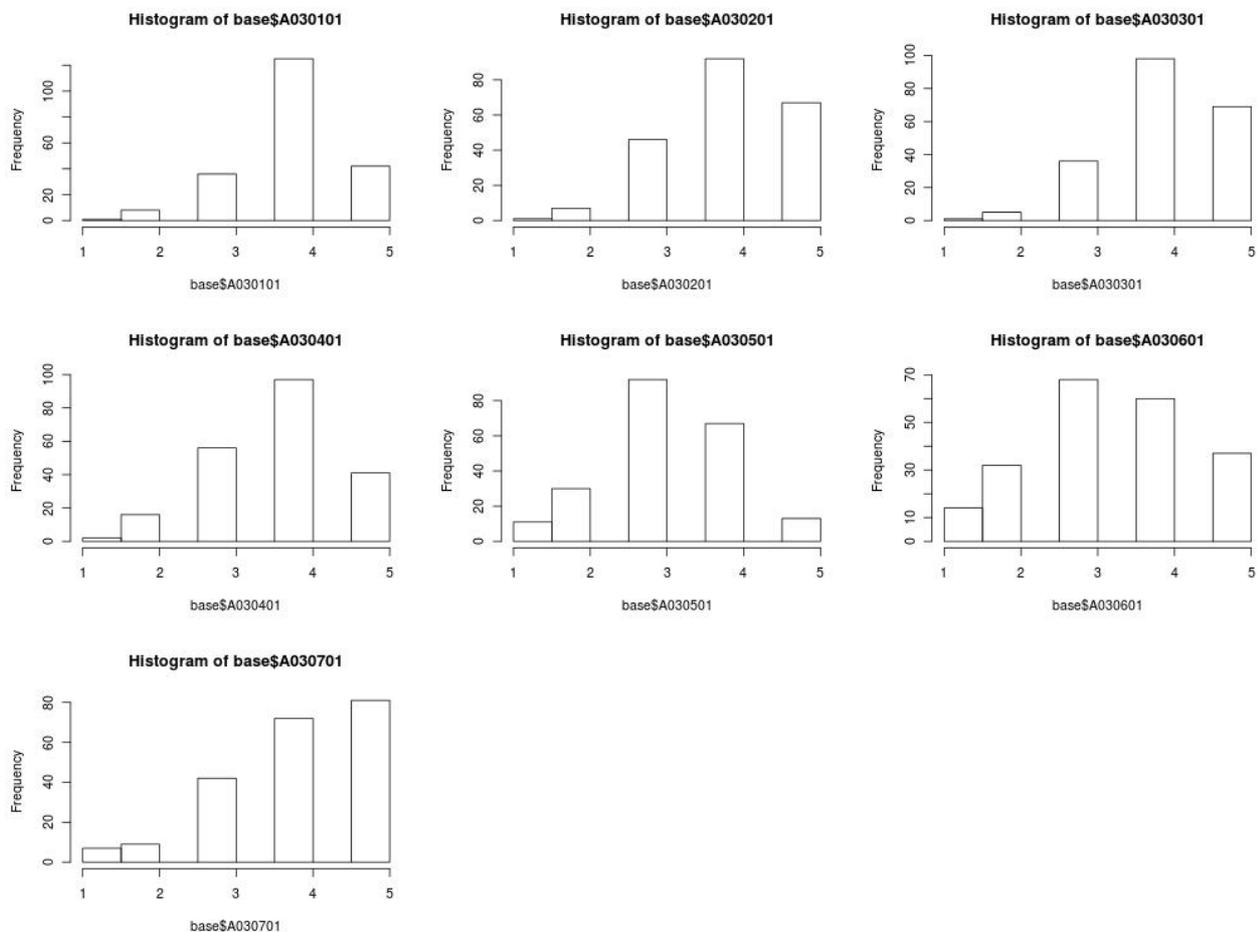
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<b>A020101</b>	4,13333	0,72489	4	4	5	255
<b>A020201</b>	4,00000	0,82290	4	4	5	255
<b>A020202</b>	3,94510	0,89008	4	3	5	255
<b>A020301</b>	3,81028	0,91481	4	3	4	253
<b>A020401</b>	3,71032	0,90120	4	3	4	252
<b>A020501</b>	3,52362	0,98879	4	3	4	254



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**Module 3**

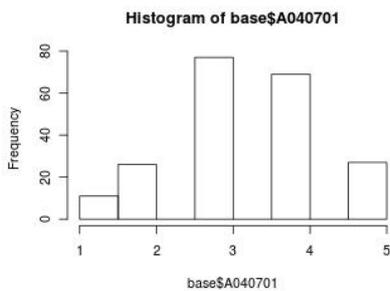
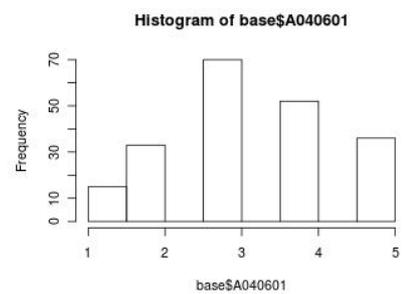
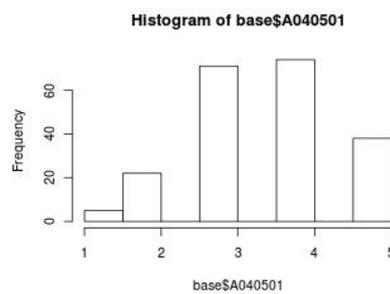
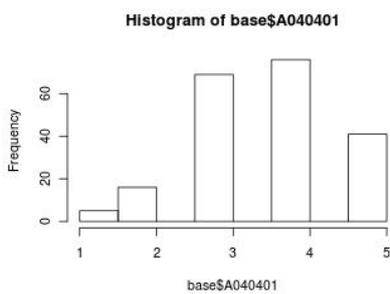
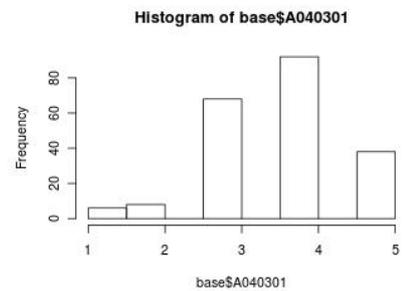
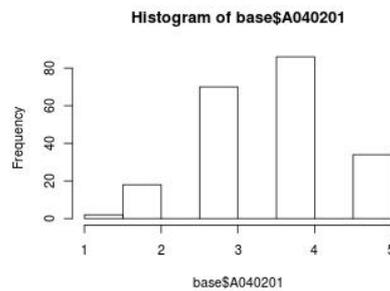
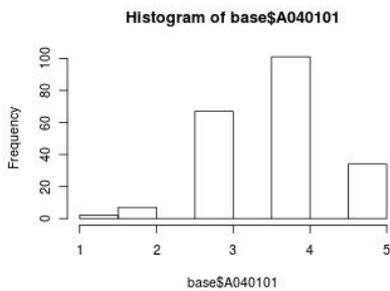
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<b>A030101</b>	3,93868	0,74847	4	4	4	212
<b>A030201</b>	4,01878	0,84095	4	3	5	213
<b>A030301</b>	4,09569	0,79689	4	4	5	209
<b>A030401</b>	3,75000	0,88631	4	3	4	212
<b>A030501</b>	3,19249	0,93443	3	3	4	213
<b>A030601</b>	3,35071	1,13399	3	3	4	211
<b>A030701</b>	4,00000	1,02817	4	3	5	211



**Modulo 4**

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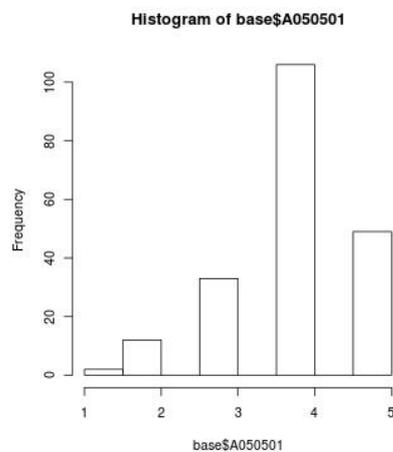
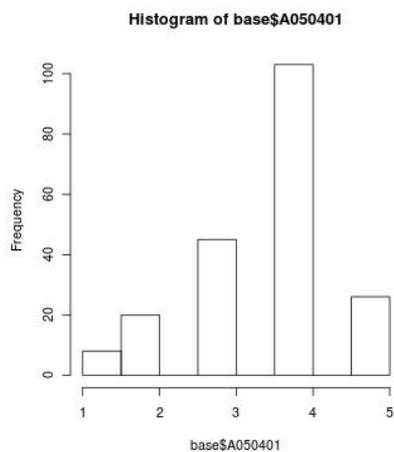
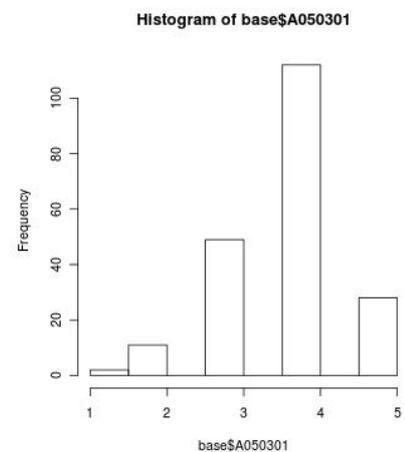
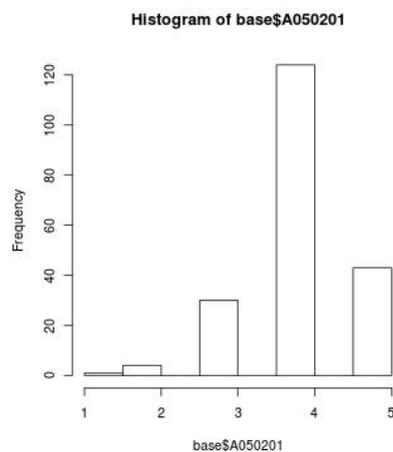
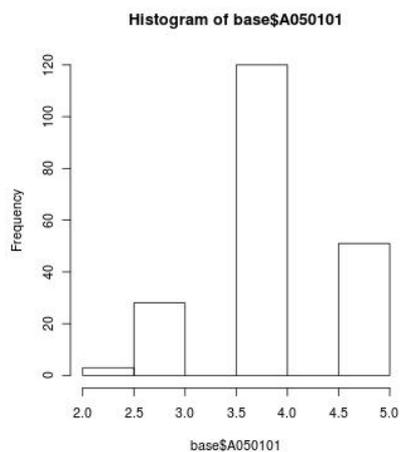
Code	Mean	St. Deviation	Median	25th Percentile	75th Percentile	Valid N
<b>A040101</b>	3,74882	0,79788	4	3	4	211
<b>A040201</b>	3,62857	0,88860	4	3	4	210
<b>A040301</b>	3,69811	0,90465	4	3	4	212
<b>A040401</b>	3,63768	0,96498	4	3	4	207
<b>A040501</b>	3,56190	0,98237	4	3	4	210
<b>A040601</b>	3,29612	1,14963	3	3	4	206
<b>A040701</b>	3,35714	1,02648	3	3	4	210



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### Module 5

Code	Mean	St. Deviation	Median	25th Percentile	75th Percentile	Valid N
<b>A050101</b>	4,08416	0,66755	4	4	4,75	202
<b>A050201</b>	4,00990	0,69819	4	4	4	202
<b>A050301</b>	3,75743	0,79524	4	3	4	202
<b>A050401</b>	3,58911	0,96942	4	3	4	202
<b>A050501</b>	3,93069	0,85527	4	4	4	202

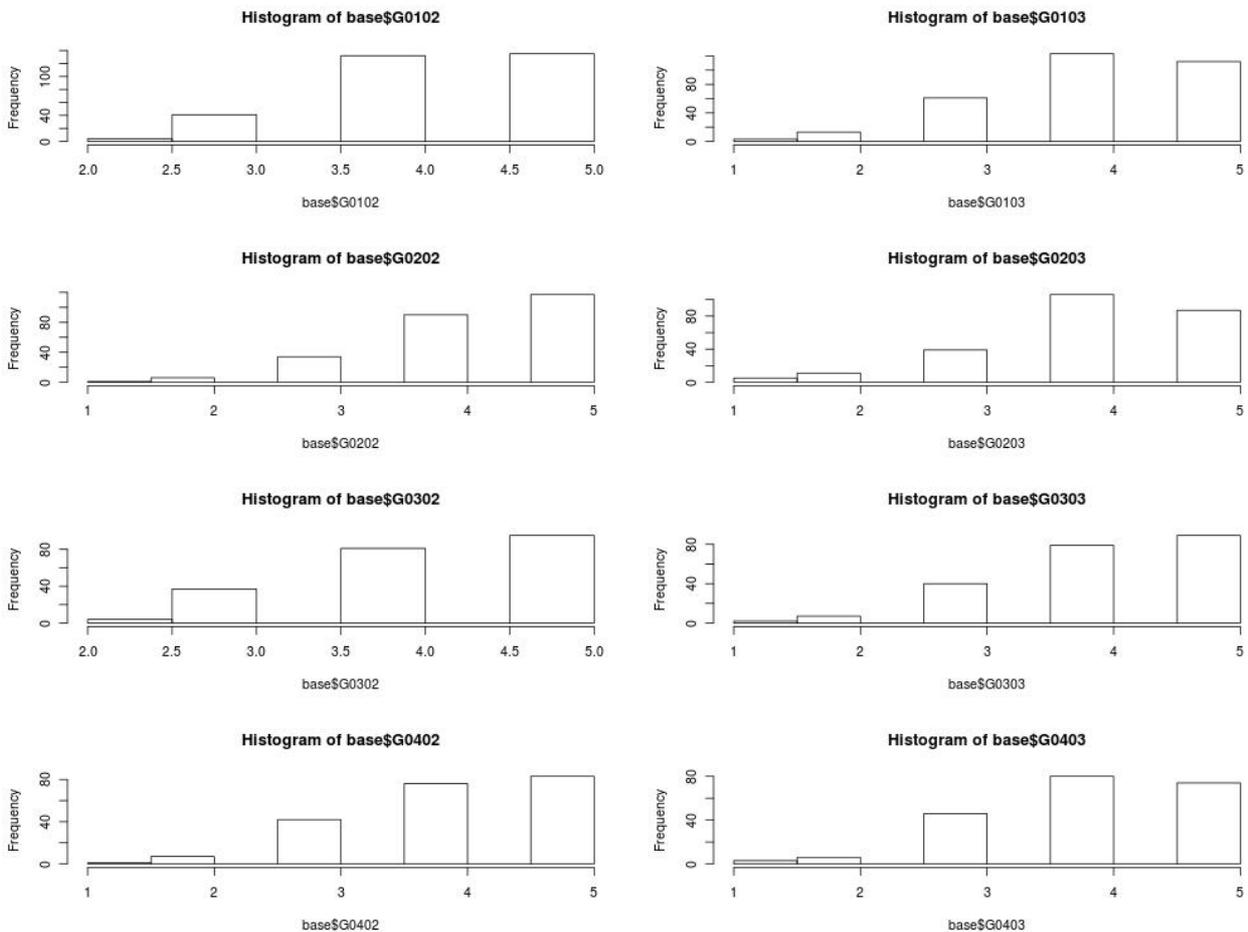


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### 2.1.2.2 Module Evaluation

Code	Mean	St. Deviation	Median	25th Percentile	75th Percentile	Valid N
<b>G0102</b>	4,27564	,73562	4	4	5	312
<b>G0103</b>	4,05128	,89869	4	4	5	312
<b>G0202</b>	4,27419	,81820	4	4	5	248
<b>G0203</b>	4,04435	,93192	4	4	5	248
<b>G0302</b>	4,23041	,79489	4	4	5	217
<b>G0303</b>	4,13364	,89008	4	4	5	217
<b>G0402</b>	4,11483	,87498	4	4	5	209
<b>G0403</b>	4,03349	,90608	4	3	5	209
<b>G0102</b>	4,27564	,73562	4	4	5	312
<b>G0103</b>	4,05128	,89869	4	4	5	312

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**2.1.3 Evaluation of the Italian participants’ products**

The improvement of teacher’s skills, according to the certification of skills can also be measured by the ability to produce OER. In particular, in module 5 is required to teachers to work together to produce Moodle courses (or individual resources to be included in them) to use with their students in the curricular teaching program.

The goal was to have, at the end of the course, teachers prepared to plan and run online competence-based teaching paths and develop educational resources available for that activity.

In the following paragraphs we show some data on OER products by issues:

**2.1.3.1 OERs developed in the Cascade courses**

In this area the term “informatic resources” includes two meanings: computer training and teaching of computer applications and programs.

A high number of resources have been developed.

Referring only to Moodle courses, they are as follows:

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- 3 ECDL courses: two on spreadsheet and one on OpenOffice;
- 3 courses related to the area of Plan core: project management, business plans, types of organizations and their structures;
- 2 courses related to EUCIP Core: Information Technology and Computer Architecture;
- 3 courses related to IT Administrator: Modules 1, 2 and 4;
- 3 courses in programming;
- 5 courses on databases;
- 5 courses on the design and production of web pages;
- 1 course on Linux;
- 2 courses in electronics: operational amplifiers and power supplies and switching regulators.

To these many other single LOs, used as components of those courses, must be added

FreeLOms currently contains 75 informatics resources and 27 computer use resources (also including the resources produced in the pilot course or in the previous project Sloop). A simple glance at the tag indicates the spectrum of topics, sufficiently different to be considered as the achievement of one of the aims of the project: to have available a wealth of materials to which you can access for designing online courses. The core ECDL syllabus is well covered, but also many points of EUCIP core and IT Administrator syllabuses are covered (the tags are partly in Italian and partly in English because they have been entered like that by the trainees).

### 2.1.3.2 OER di matematica

In the classes formed with mathematics teachers, five Moodle courses have been developed, all issued under a Creative Commons license (by-sa and by-nc-sa)

1. Conics (class Loi),
2. The number systems (class Borsellino),
3. From propositional logic to Boolean algebra (class Montinaro),
4. Today ... conics (class Traina),
5. Statistics (Class Loi)

Four of the courses offered are complete with a well-defined structure, sometimes with a precise schedule, ready to be used as they are, or they can be modified, since all have been made available in FreeLOms.

The tools that the trainees have used are mainly links to videos, video lessons and Web sites, from the perspective of reuse, but there was also a massive production of materials made from scratch: many texts and presentations, interactive tests, self-satisfaction questionnaires, videos, interactive charts produced with GeoGebra, for a total of 36 SCORMs.

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The teachers, as course authors, have given greater importance to education than to technology, providing clear objectives, materials relevant to the learning objectives, activities to be carried out by students either online or with paper and pen.

### **2.1.3.3 Foreign languages OERs produced in the Cascade courses**

The class named Schifani, composed of teachers of Languages: L2 Italian, French, English, German and Spanish, has developed educational resources and courses in the light of the European Framework for Languages, choosing among the different levels of competences and developing useful learning resources to achieve them. Inside the course 4 working groups were formed and each group has developed a Moodle course where the all resources have been collected.

An analysis for these educational resources can be assessed through three main indicators: functionality, relationship between used tools and educational aims, guidelines for their use.

The functionality from the purely technological point of view is present in almost all of the resources developed and this is a proof of the mastery of the various tools / software proposed in the course.

For some resources, on the contrary the mix of instruments used does not provide a clear identification of how to follow the learning path, creating some confusion in terms of tasks / activities.

### **2.1.4 Certificates of Participation**

ITD-CNR, as partner in charge of training activities in Italy, has established an evaluation committee in order to define the criteria for the evaluation of the learning and therefore issuing certificates of participation.

The Sloop2desc teaching methodology is based on participation in the virtual classroom.

For this reason, it was decided to issue a certificate of participation for all those who have actively participated in the course, through the analysis of 3 key parameters:

- connection time to the platform (we have verified that the users who have actually done the activities have had connection times significantly higher than those who have do only some of the activities provided, or those who are limited to read / download the course materials)
- compilation of self-assessment questionnaires at the end of each module
- participation in the development of educational resources at the end of Form 5.

On the basis of 3 criteria mentioned above, the commission has decided to release 2 types of certificates:

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- one for the teachers that have actively participated in the course and made the resource due at the end of Module 5
- one for the teachers who have actively participated in the course but have not created the resource due at the end of Module 5

At the end of the SLOOP2DESC course of 547 participants, 45 members have never attended the course, the rest were evaluated by a committee that issued 207 attestati, of which 186 types OER and 39 certificates of type Standard.

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## **2.2 Slovenia**

### **2.2.1 Participants and dropout rate**

In Slovenia the recruitment of teachers for the online course was not an easy task. The final number of applicants for the EUCIP online course (64). The majority of course applicants were secondary school teachers.

Out of 64 applicants three never enrolled on the course; the majority of entrants dropped out from the course after the first (30%) or the second (20%) course module, but approximately 50 % of those who originally entered remained in the course and entered the final Module 5 of the course. It needs to be noted that some of those completed most, but not all of the required assignments in modules 2-4. The moderate dropout rate can be attributed to tutors' support and high motivation of the participants. When confronted with a demanding task to prepare learning materials for their own online course, only the most motivated ones persisted and finished the course, therefore the final dropout rate was 74 % indicating that only 17 participants out of 64 fulfilled all the requirements of the Slovenian EUCIP pilot online course.

### **2.2.2 Self-evaluation categories and average rank assigned to each category**

Each course module ended with two questionnaires: self-evaluation questionnaire and module evaluation. The questionnaires were designed in the form of simple statements, and participants were asked to respond to these statements on a 5-point Likert scale ranging from 1 - not at all true, to 5 - very true for me.

Participants were generally more reluctant to evaluate the modules than their learning outcomes. Approximately 20 % more participants evaluated the first module and 9 % more participants evaluated the second module than giving an evaluation of their own learning outcomes of these modules. The frequencies of responses to the third and the fourth module are levelled on both questionnaires, while approximately 8 % less participants evaluated Module 5 than their own learning outcomes. With the first one - the self-evaluation questionnaire - participants of the course were expected to reflect on their knowledge increase while studying the materials of the modules and fulfilling their assignments.

Module 1: Part one - Moodle from the students' point of view (44 respondents)

- Registration (4.8)
- Editing a user profile (4.9)
- Exchange of messages (4.4)
- Entering a trial area (4.6)
- Cooperation in discussion forums (4.0)

Part two – Moodle from the teachers' point of view Self-evaluation categories and average rank assigned to each category:

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- Following student activities (4.0)
- Editing course settings (4.3)
- Adding resources (4.4)
- Adding activities (4.1)
- Adding a link to a Web page and code from You tube (4.2)

### Module 2: (28 respondents)

- Understanding the role of an online tutor (3.9)
- Linkography (3.9)
- Social bookmarking (3.8)
- Using Skype (3.7)
- Using forums (4.6)
- Google Docs (4.6)
- Wikis (4.1)
- Role playing and simulations (3.5)

### Module 3: (23 respondents)

- Understanding the meaning of open resources and learning objects (4.3)
- Understanding the meaning of CC licences (4.0)
- Familiarity with online databases with free teaching resources (3.7)
- Exchange of resources using Web 2.0 tools (4.1)
- Use of eXe Learning software for production of interactive learning resources (3.9)
- Understanding the SCORM model (3.9)
- Production of a SCORM package using eXe Learning (4.0)

### Module 4: (18 respondents)

- Understanding the meaning of EFQ (3.8)
- Understanding the structure of the EU framework of e-competences (3.8)
- EUCIP competences and Informatics profiles (4.0)

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- EUCIP certificates and procedure of certification (3.6)
- EUCIP and IT administrator competences for Informatics professionals (3.7)
- Usefulness of Proximity Profile test for further education (3.6)

### Module 5: (15 respondents)

- Planning learning resources (courseware) (4.1)
- Production of courseware (4.4)
- Sharing learning resources in an open perspective (4.1)
- Collaboration in preparation of a Moodle course (4.5)

Only 72.1 % of participants who originally enrolled for the online course responded to the first questionnaire, 46 % responded to the second, 38 % to the third, 28 % to the fourth, and 23 % to the fifth. Such results could be explained either by indifference or forgetfulness on the part of the participants, since they were always specifically invited at the end of the module to fill-in both questionnaires. From the results of the self-evaluation questionnaires it is possible to conclude that participants evaluated their study outcomes for each module as above average (< 3) or good (= < 4).

Unfortunately, these high average scores were not always reflected, either in the quality of their assignments or in the timeliness of completion. For example, they claimed high proficiency in using Google Docs (4.6) and Wiki (4.1), but they had problems in collaborative tasks of the second module.

Also on using eXe and producing a SCORM package of their own they achieved above-average scores of 3.9 and 4.0 respectively, but only 19 participants managed to complete the task on time. In spite of having had the possibility to address the problems encountered in using the eXe programme and SCORM production through the discussion forum, only a few participants used this option to overcome problems. They also very highly rated their abilities to plan and collaboratively prepare courseware, but their products and the high dropout rate from their workgroups did not support their claims.

### **2.2.3 Evaluation of the Slovenian participants' products of the on-line Eucip Course**

31 participants (out of 64) entered the final Module 5 of the Slovenian EUCIP online course. They selected topics for collaboratively designing and preparing courseware for 5 online courses, aimed to meet goals of three EUCIP Core Syllabus knowledge categories (A7, B2 and B4) and selected knowledge areas from two modules of IT Administrator (M1 and M2).

For the evaluation of the quality of products, a special approach has been developed by the tutors and a respective evaluation template designed. The following building blocks of the course were evaluated: (1) diversity of teaching tools used (28 points maximum), (2) adequacy

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of content coverage (maximum 50 points), and (3) adequacy of didactical approaches (50 points maximum). Results of the evaluation are presented in the Table 1.

Table 1: Quantitative evaluation of working groups' products

Evaluation categories (max. points)	Group A7	Group B2	Group B4	Group M1	Group M2
Diversity of tools used (28 p)	19	13	23	17	6
Adequacy of content selection (50 p)	25	25	50	25	25
Didactical presentation of content (50 p)	50	50	50	50	40
Total number of points (Max 128p):	94	88	123	92	71
Percentage (%)	73%	69%	96%	72%	55%

### Legend:

A7: Legal and Ethical Issues (six participants);

B2: Data Management and Use (six participants),

B4: User Interface and Web Design (seven participants),

M1: PC Hardware (six participants),

M2: Operating Systems (six participants).

**Diversity of tools:** SCORM, Lesson in Moodle, Slide Share, original film clip, Quiz in Moodle, Assignment in Moodle, Forum in Moodle, etc.

**Adequacy of the content:** coverage of the selected topic as defined in the EUCIP Core Syllabus IT Administrator Syllabus

**Didactical presentation:** presentation of goals of the course and tutors, the structure of the course, inclusion of content in the form of SCORMs or Lessons in Moodle, quizzes, assignments for the participants, etc.

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20 participants participated in the final preparation of the online courses, and they got a qualitative feedback of their work in which strengths and weaknesses of their products were outlined, Table 2.

Table 2: Strengths and weaknesses of working groups' product

Working group	Final no. of active participants	Comments
A7: Legal and Ethical Issues	4	<i>Strengths:</i> variety of tools used, good course structure <i>Weakness:</i> not all topics covered
B2: Data Management and Use	3	<i>Strengths:</i> good structure and didactical design of courseware <i>Weakness:</i> low variety of teaching tools, not all topics covered
B4: User Interface and Web Design	7	<i>Strengths:</i> good coverage of topics, great variety of teaching tools selected <i>Weakness:</i> introduction missing
M1: PC Hardware	4	<i>Strength:</i> the course represents coherent teaching material <i>Weakness:</i> topics only partially covered
M2: Operating Systems	2	<i>Strength:</i> two high quality SCORMs prepared with a SCORM test <i>Weakness:</i> the course does not meet the criteria for the course design since only two participants remained in the group

Those 20 participants also got **the certificate of successful completion of the course**, while those participants who finished all the tasks of the previous fourth Modules but dropped-out of their working group of the fifth Module (11 participants), got only the certificate of participation.

## 2.3 Romania

### 2.3.1 Participants and dropout rate

The training was conducted between November 19, 2010 and May 4, 2011. Its main objective, to enroll 40 trainees in the IMO course (primarily experts in shipping), was reached as, finally, the number rose to 75 (58 from CERONAV Constanta and 17 from CERONAV Galati).

The course started with two face-to-face meetings in Constanta and Galati. During the 5. and a half months of the course, all the activities were organised only online. The proposal primarily addressed IMO experts, but all of those who applied were received, including professionals, administrative personnel and staff.

Unfortunately, of the 75 enrolled trainees, 13 (17.33%) did not take part even in the face-to-face meeting and never accessed the platform, and 10 (13.33%) accessed it only once. We therefore refer only to the 52 students (69.33 %) who finalized all the five course modules.

### 2.3.2 Self-evaluation categories and average rank assigned to each category

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Each course module ended with two questionnaires: self-evaluation questionnaire and module evaluation. The questionnaires were designed in the form of simple statements, and participants were asked to respond to these statements on a 5-point Likert scale ranging from 1 - not at all true, to 5 - very true for me.

### Module 2: (38 respondents)

- Understanding the role of an online tutor (3.6)
- Linkography (3.6)
- Social bookmarking (3.6)
- Using Skype (4.0)
- Using forums (4.0)
- Google Docs (3.8)
- Wikis (3.9)
- Role playing and simulations (3.5)

### Module 3: (36 respondents)

- Understanding the meaning of open resources and learning objects (3.6)
- Understanding the meaning of CC licences (3.7)
- Familiarity with online databases with free teaching resources (3.3)
- Exchange of resources using Web 2.0 tools (3.7)
- Use of eXe Learning software for production of interactive learning resources (3.6), Understanding the SCORM model (3.3)
- Production of a SCORM package using eXe Learning (3.4)

### Module 5: (33 respondents)

- Planning learning resources (courseware) (3.6)
- Production of courseware (3.7)
- Sharing learning resources in an open perspective (3.5)
- Collaboration in preparation of a Moodle course (3.7)

## 2.3.3 Evaluation of the Romanian participants' products of the on-line IMO Course

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The trainees were asked to cooperate to produce Moodle courses for their students. The goal was to have, at the end of the course, teachers prepared to plan and run online competence-based teaching paths and develop educational resources.

The main objectives of the course were:

- to make teachers able to use the software for the production of digital material and virtual environment;
- to encourage teachers to contribute to the creation of pedagogical materials used and modified freely according to the philosophy of sharing and reuse.

The trainees were free to choose any topic, irrespective of their specialization. Nevertheless, they were recommended the following Learning Object (LO) structure, according to the model developed by Sloop:

- Presentation of the course;
- List of learning units;
- Learning objectives;
- Learning resources for each teaching unit (SCORM, texts, web pages, links, presentations, videos);
- Evaluation and Self-evaluation tests (at the end of the course and /or at the end of each unit).

At the end, 52 participants (out of 75) entered the final Module 5 of the Romanian IMO Course. They selected topics for collaboratively designing and preparing courseware for 3 fields (A-related to IMO disciplines, B-related to Danube and Danube Delta, C-related to project management, business plan, human resources). For the evaluation of the quality of products, a special approach has been developed by the tutors and a respective evaluation template designed. The following building blocks of the course were evaluated: (1) diversity of teaching tools used (20 points maximum), (2) adequacy of content coverage (maximum 30 points), and (3) adequacy of didactical approaches (30 points maximum), Self-evaluation questionnaires completed (10 p), Module evaluation questionnaire completed (10 p).

The results of the evaluation are presented in the Table 1.

Table 1: Quantitative evaluation of participants' products

Category (max. points)	Field A	Field B	Field C
Diversity of tools used (20 p)	12	10	9
Adequacy of content selection (30 p)			

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	25	25	20
Didactical presentation of content (30 p)	20	15	15
Self-evaluation questionnaires completed (10 p)	10	10	10
Module evaluation questionnaire completed (10 p)	10	10	10
Total number of points	77	70	64
<b>Percentage (%)</b>	<b>77</b>	<b>70</b>	<b>64</b>

In Module 5, the trainees have been developed 26 Open Educational Resources:

- 1) The Vienna Danube;
- 2) Cruise Boats (1);
- 3) Cruise Boats (2);
- 4) German idioms recommended in inland water navigation;
- 5) Diagnosis of human resources strategies;
- 6) Regulation of navigation on the Danube;
- 7) Sea pollution: causes and effects;
- 8) Safety at Sea (Project);
- 9) Flaw detection in electronic equipment;
- 10) Medical first aid;
- 11) Galati – events;
- 12) Ceronav trainees workbook;
- 13) Text processing using Microsoft Word;
- 14) Maritime English;
- 15) NELI Project;

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- 16) The Danube Delta;
- 17) Technical writing. Elaboration of scientific and technical materials;
- 18) Pollution;
- 19) Meteo;
- 20) Community law;
- 21) Marketing policies;
- 22) Logistics;
- 23) Workplace safety law;
- 24) Service strategy;
- 25) Marketing plan elaboration.

Referring only to Moodle courses field, they are as follows:

- 14 courses related to IMO disciplines;
- 4 courses related to the Danube and the Danube Delta;
- 8 courses related to project management, business plans, human resources, etc.

Generally, the courses created do not have a well-defined structure, and the tools that the trainees used in creating them are mainly links to videos, video lessons and Web sites. Being involved at present only in traditional, face-to-face teaching, the trainees do not have enough experience in the elaboration of electronic educational resources.

For some of the resources, the mix of instruments used does not provide a clear identification of how to follow the learning path, creating some confusion in terms of tasks and/or activities.

Nevertheless, we can say that the objectives of the course, especially those related to the knowledge of the various IMO disciplines, have been reached in a satisfying manner, although some resources still need to be accompanied by methodological guidelines before being made available to students.

We identified a high interest in improving new pedagogical technologies, including online courses. We can say that these objectives have been achieved, although not always in a complete manner

Those 52 participants also got **the certificate of participation**, while those participants who finished all the tasks of minimum two modules, including Module 5.

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### 3 Conclusions

The Sloop2desc course objectives were manifold:

- to propose a model of integration between face-to-face learning and based-competence learning,
- to make teachers able to use software for the production of digital material and virtual environment,
- to induce reflection on the validity, effectiveness and attractiveness of digital resources and online courses,
- to encourage teachers to contribute to the creation of a repository of materials used and modified freely according to the philosophy of sharing and reuse.

We can say that these objectives have been achieved, although not always in a complete.

The integration of face-to-face and online learning is not just a matter of preparing digital material made accessible to students from home or in the laboratory. What's more, these materials cannot be just texts and images in digital format rather than paper.

Online teaching should provide something that the classroom can not provide, such as the ability to manipulate / create objects (whether graphics, text, pictures, ...), the ability to intervene with conjectures and proposed solutions, the ability to search online for ideas and topics, the ability to employ a discovery-approach.

And this is what, in most of the materials produced by the trainees is missing: was it matter of the short time available or underestimation of this aspect? In proposing the course Sloop2desc we will devote more attention to this issue.

With regard to competence-based didactics, as we expected, the teachers of computer science and the language teachers have based their courses on European standards, this is due to the fact that for their disciplines there are recognized competence frameworks. The others found more difficult to transpose the standards to their teaching subjects.

Finally, as regards the issue of sharing and reuse we can be satisfied with the amount and quality of resources produced and made available. In particular we note that currently in our repository there are 35 full courses, as well as hundreds of individual LO freely usable and modifiable.

We believe we have given with this course, a small but significant contribution to the growth of a community of teachers able to discuss the issues and teaching methodologies, to share resources and collaborate on developing educational paths, a "community where individual competences can become a collective wealth".

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## 4 Appendix

### 4.1 Self-Assessment Questionnaire for italian's courses

Below we list the competencies for each module divided and accompanied by a code used as a legend in graphs and tables.

#### 4.1.1 Module 1

Code	Skill
<b>A010101</b>	Register oneself
<b>A010102</b>	Fil in one's profile and insert ones' own photo
<b>A010103</b>	Exchange messages with other registered trainees
<b>A010104</b>	Enrole on a course and monitor ones's own activities
<b>A010201</b>	Monitor trainee's or groups of trainnes'activities
<b>A010301</b>	Add resources to a course: label, link, text page, web page, folder
<b>A010302</b>	Insert activities in a course: forum, online task, lesson, quiz, hot potatoes quiz, SCORMs, wiki, register;
<b>A010303</b>	Insert an embed code in a label or in a web page to reproduce resources existing in other sites such as Slide Share, YouTube, Scribd, ...;
<b>A010401</b>	Open ex-novo a new course or starting from a pre-existing course
<b>A010402</b>	Assign and modify roles

#### 4.1.2 Module 2

Code	Skill
<b>A020101</b>	Indicate the main features of the Online Tutor's role
<b>A020201</b>	Search and arrange sources with Web 2.0 tools: linkography
<b>A020202</b>	Search and arrange sources with Web 2.0 tools: social bookmarking (Delicious, ...)

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<b>A020301</b>	Guide online activities
<b>A020401</b>	Promote feed-back in to the group
<b>A020501</b>	Promote role exchanges and simulations

**4.1.3 Module 3**

Code	Skill
<b>A030101</b>	Give a definition of "open educational resource" or of "open learning object"
<b>A030201</b>	Describe the Creative Commons licenses
<b>A030301</b>	Share resources in web 2.0 environments (such as SlideShare, YouTube, Scribd, ...) using tags that enable the research.
<b>A030401</b>	Describe the SCORM model
<b>A030501</b>	Describe the LOM IEEE metadata model
<b>A030601</b>	Convert web pages into SCORM objects (using, for example, the Useful Files folder, provided in the LO or in the Reload...)
<b>A030701</b>	Create a SCORM resource using a software like eXe

**4.1.4 Module 4**

Code	Skill
<b>A040101</b>	Describe the goals of the European Qualification Framework for Lifelong Learning - EQF - and its multi-level structure
<b>A040201</b>	Describe the European e-Competence Framework structure, e-CF
<b>A040301</b>	Describe the competences and the Informatics professional profiles of the EUCIP model
<b>A040401</b>	List the EUCIP certifications and the certification procedures.
<b>A040501</b>	Identify in the EUCIP Syllabus the fundamental units of competence required - in-depth level - for a specific professional profile

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<b>A040601</b>	Use the EccoEucip tool to set one's own proximity's profile
<b>A040701</b>	Analyse one's own (or other people's) profile, in order to define the training needs to reach a specific aim profile

### 4.1.5 Module 5

Code	Skill
<b>A050101</b>	Design a learning resource
<b>A050201</b>	Produce a learning resource using your selected tools
<b>A050301</b>	Guarantee the opening of a learning resource (licence, accessibility to the source code, directions about its use and modification)
<b>A050401</b>	Upload learning resource into freeLOms and/or other repositories
<b>A050501</b>	Collaborate to the design and development of a Moodle course

## 4.2 Satisfaction questionnaire for italian's course

Below we list a subset of items of satisfaction questionnaires useful for the evaluation of the increase in skills analysis. These items are accompanied by a code used as a legend in graphs and tables.

### 4.2.1 Module 1

Code	Skill
<b>G0102</b>	Did you find Module1 material in line with your expectations?
<b>G0103</b>	How much did the Module help you to improve your operational abilities to use Moodle platform, compared to your initial level?

### 4.2.2 Module 2

Code	Skill
<b>G0202</b>	Did you find Module1 material in line with your expectations?
<b>G0203</b>	How much did the Module help you to improve your operational abilities to use Moodle platform, compared to your initial level?

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### 4.2.3 Module 3

Code	Skill
<b>G0302</b>	Did you find Module1 material in line with your expectations?
<b>G0303</b>	How much did the Module help you to improve your operational abilities to use Moodle platform, compared to your initial level?

### 4.2.4 Module 4

Code	Skill
<b>G0402</b>	Did you find Module1 material in line with your expectations?
<b>G0403</b>	How much did the Module help you to improve your operational abilities to use Moodle platform, compared to your initial level?