

Evaluation Framework – results 2017-2018

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INDEX OF CONTENTS

1. Introduction	4
2. Description of the participants in the DESCI activities during the 2 nd year of implementation	5
2.1. Description of the learners participating in the DESCI activities	5
2.2. Description of the teachers participating in the DESCI activities	6
2.3. Description of the tutors participating in the DESCI activities.....	7
3. Evaluation criteria, indicators, and expected results.....	8
4. Evaluation criteria 1: Effectiveness.....	9
4.1. Indicator 1: Percentage of reduction of dropout rates.....	9
4.2. Indicator 2: Number of working tables performed.....	10
4.3. Indicator 3: Number of people involved.....	10
4.4. Indicator 4: Number of toolkits translated into the different languages	11
4.5. Indicator 5: Number of protocols for the adoption of the DESCI system.....	11
4.6. Indicator 6: Consistency between expected and actual workloads and plan.....	12
4.7. Conclusions of the evaluation criteria 1: Effectiveness	13
5. Evaluation criteria 2: Usability	14
5.1. Indicator 7: Level of satisfaction of learners.....	14
5.1.1. Satisfaction with the organization and number of participants in the DESCI activities	14
5.1.2. Satisfaction with the content of the DESCI activities.....	16
5.1.3. Satisfaction with the time and schedule of the DESCI activities.....	18
5.1.4. Satisfaction with the facilities of the DESCI activities	19
5.1.5. Satisfaction with the teachers and tutors of the DESCI activities.....	21
5.1.6. Summary of the level of satisfaction of learners	24
5.2. Indicator 8: Level of satisfaction of teachers	25
5.2.1. Satisfaction with the organization and number of participants in the DESCI activities	25
5.2.2. Satisfaction with the content of the DESCI activities.....	26
5.2.3. Satisfaction with the time and schedule of the DESCI activities.....	27
5.2.4. Satisfaction with the facilities of the DESCI activities	28
5.2.5. Summary of the level of satisfaction of teachers	28
5.3. Indicator 9: Level of satisfaction of tutors	29
5.3.1. Satisfaction with the organization and number of participants in the DESCI activities	29
5.3.2. Satisfaction with the content of the DESCI activities.....	30
5.3.3. Satisfaction with the time and schedule of the DESCI activities.....	30
5.3.4. Satisfaction with the facilities of the DESCI activities	31
5.3.5. Summary of the level of satisfaction of tutors	31
5.4. Indicator 10: Level of usability of the toolkit	32
5.4.1. Conclusions regarding the usability of the toolkit for learners	32
5.4.2. Conclusions regarding the usability of the toolkit for teachers and tutors	34
5.4.3. Conclusions regarding the usability of the evaluation toolkit	37
5.5. Conclusions of the evaluation criteria 2: Usability	40
5.6. Suggestions and comments received through the questionnaires	41
Annex I: Results of the focus groups.....	42
Results of the focus groups in Spain	42
Results of the focus groups in Greece	45

1. Introduction

This report presents the results of the Evaluation Framework analysis of the DESCI project. The data gathered in this document is the result of the collection of data by the three schools participating in the DESCI project during its second year of implementation following the instructions included in the DESCI Evaluation Framework which last update was delivered on 8th of March 2018.

The Evaluation Framework established two evaluation tools to carry out the evaluation:

- Two types of focus groups to evaluate the effectiveness and usability of the toolkits and DESCI activities during the ongoing process:
 - Focus group A: teachers and tutors
 - Focus group B: learners
- Five questionnaires to perform an ex-ante and ex-post evaluation to assess the toolkits usability and effectiveness:
 - Questionnaire 1 - Ex-ante questionnaire for schools
 - Questionnaire 2 - Ex-post questionnaire for schools
 - Questionnaire 3 - Ex-post questionnaire for learners
 - Questionnaire 4 - Ex-post questionnaire for teachers
 - Questionnaire 5 - Ex-post questionnaire for tutors

Figure 1: Evaluation system structure



This document will present in **Section 1** a description of the participants in the DESCI activities (learners, teachers, and tutors).

In **Section 2**, the conclusions regarding the evaluation criteria “**Effectiveness**” will be presented. This conclusions have been obtained after the analysis of the ex-ante and ex-post questionnaires for schools.

The **Section 3** presents the conclusions regarding the evaluation criteria “**Usability**” obtained from the analysis of the focus groups conclusions and from the ex-post questionnaires for learners, teachers, and tutors.

2. Description of the participants in the DESCI activities during the 2nd year of implementation

2.1. Description of the learners participating in the DESCI activities

A total of 152 learners participated in the ex-post questionnaire (60 from Greece, 68 from Italy, and 24 from Spain) as stated in Table 1:

Table 1: Area of Studies of the Participants

	Greece	Italy	Spain	Total
IT	-	68	13	81
Electronics		-	10	10
Secondary School	36	-	-	36
Lower Secondary School	22	-	-	22
Others	2	-	1	3
Total	60	68	24	152

As shown in Table 2, the most of the participants in DESCI activities have been males in Italy and Spain (IT, Electronics, and Multi-platform Application Development). Only in Lower Secondary School and in Secondary School (Greece) we can find a balanced number of male and female students.

Table 2: Gender and Age by School

	Male	Female	Total (M+F)	Age (\bar{X})	Age (range)
Greece	32 (46.7%)	28 (53.3%)	60 (100%)	13.8	13-15
Italy	63 (92.65%)	5 (7.35%)	68 (100%)	16.6	16-19
Spain	22 (91.7%)(2 (8.3%)	24 (100%)	22.04	17-33
Total	117	35	152	17.48	13-33

Regarding the course in which are enrolled the DESCI participants, we can find 99 students enrolled in 1st course of alternating training, 37 in 2nd course and 16 in 3rd course. In Table 3, we can find the distribution for countries.

Table 3: Course of Alternating Training

	1 st Course	2 nd Course	3 rd Course
Greece	31	13	16
Italy	68	0	0
Spain	0	24	0
Total	99	37	16

According to Table 4, most students have no previous working experience (76.2%). The highest percentage of learners with work experience is located in Spain (37.5% of the students enrolled in DESCI activities in this country). This fact can be explained because of all the students of Somorrostro had the highest average age (22 years old).

Table 4: Previous working experience

	No	Yes
Greece	56 (93.3%)	4 (6.7%)
Italy	41(60.3%)	22 (32.3%)
Spain	15 (62.5%)	9 (37.5%)
Total	112 (76.2%)	35 (23.8%)

2.2. Description of the teachers participating in the DESCI activities

A total of 13 teachers participated in the ex-post questionnaire (5 from Greece, 6 from Italy, and 2 from Spain) as stated in Table 5:

Table 5: Area of studies in which the participants are teaching

	Greece	Italy	Spain	Total
Biology, Chemistry	1			1
Geography, Nutrition and Economics	1			1
Professional Training in Electricity			1	1
Professional Training in Computers		1		1
Professional Training in Electronics			1	1
Secondary School	1	1		2
Secondary School , Mathematics	1			1
Secondary School: Computer Science		1		1
Secondary School: Electronics		2		2
Secondary School, Informatics, Technology	1			1
Total	5	6	2	13

As shown in Table 6, there are more female teachers participating in the DESCI activities than male in Greece and Italy. Only in Spain there are not any female teacher.

Table 6: Gender and age by school

	Male	Female	Age (\bar{X})	Age (range)
Greece	2 (40%)	3 (60%)	47	38-61
Italy	1 (16.7%)	5 (83.3%)	55	41-65
Spain	2 (100%)	0 (0%)	45	44-46
Total	5	8	50	38-65

Regarding the course in which are teaching the DESCI participants, we can find 3 teachers in 1st course of alternating training; 5 in 2nd course -one Greek teacher is teaching also in 1st course, because that the total of the Table (14) is different of the total to the teacher questionnaires (13)-; and 6 teachers in 3rd course (Table 7).

Table 7: Course of Alternating Training

	1 st Course	2 nd Course	3 rd Course
Greece	2	2	2
Italy	1	1	4
Spain	0	2	0
Total	3	5	6

2.3. Description of the tutors participating in the DESCI activities

A total of 8 tutors participated in the ex-post questionnaire (4 from Greece, 2 from Italy, and 2 from Spain). They belong to 6 different companies as stated in Table 8.

Table 8: Companies participating in the DESCI implementation

Greece	Spain	Italy
LA COSTENA ,PROTIPO KENTRO DIANOMON S.S	TECUNI	FORMASCIENZA
LIÁ CULTIVATORS		
MELISSOKOMIA CHELMOS		
MYLAN INC		

We have a balanced number of males and females, and the average age of the participant tutors was 41 years old (Table 9).

Table 9: Gender and age by country

	Male	Female	Age (\bar{X})	Age (range)
Greece	1 (25%)	3 (75%)	41	28-61
Italy	1 (50%)	1 (50%)	43	40-46
Spain	2 (100%)	0 (0%)	39	36-43
Total	4	4	41	28-61

3. Evaluation criteria, indicators, and expected results

Table 10: Evaluation criteria, indicators, expected results from the DESCI proposal and evaluation tools

EVALUATION CRITERIA	INDICATORS	EXPECTED RESULT	TOOLS
Effectiveness	1. Percentage of reduction of dropout rates	Decrease in student dropout rates in classes involved in testing phase (-10%)	Ex-ante questionnaire Ex-post questionnaire
	2. Number of working tables realised	15 working tables per year per country, total 90	Ex-post questionnaire
	3. Number of people involved	18 teachers, 6 tutors (business representatives), 12 learners involved	
	4. Number of toolkits translated into the different languages	3 multilingual validated toolkits	
	5. Number of protocols for the adoption of the DESCI system	3 protocols that formalize the adoption of the DESCI system in the schools involved	
	6. Consistency between expected and actual workloads and plan	100% of implementation of the project according to the workloads and plan	
	Increase of performance of students participating in the DESCI project	Improving the performance of the students involved in testing phase (final evaluation of the students improved by 20% compared to students not involved in the experimental process)	To be measured in the Evaluation Toolkit ¹
	Increase of auto-efficacy in learners	Positive self-assessment evaluation from learners	To be measured in the Evaluation Toolkit ²
Usability	7. Level of satisfaction of learners	Positive feedback of learners at the end of the testing phase	Ongoing (focus groups) Ex-post questionnaire
	8. Level of satisfaction of teachers	Positive feedbacks of teachers at the end of the testing phase	
	9. Level of satisfaction of tutors	Positive feedbacks of tutors at the end of the testing phase	
	10. Level of usability of the toolkit	Positive feedbacks on high usability of the toolkits	Ongoing (focus groups) Ex-post questionnaire

¹ Coordinating partner Assoknowledge

² Coordinating partner Assoknowledge

4. Evaluation criteria 1: Effectiveness

4.1. Indicator 1: Percentage of reduction of dropout rates

The indicator “Percentage of reduction of dropout rates” under the evaluation criteria “Effectiveness” of the DESCI project has been assessed through the results obtained in the Questionnaires 1 (Ex-ante questionnaire for schools) and 2 (Ex-post questionnaire for schools).

Expected result:

Decrease in student dropout rates in classes involved in testing phase (-10%)

Neither the Italian school IT Enrico Fermi nor the Greek school 1st experimental school of Athens experimented dropout, so this indicator has been measured in the Spanish school Somorrostro.

As we can see in Table 11, the students from Somorrostro that have been participating in the DESCI activities are enrolled in 2nd and 4th course of the alternating training, corresponding to 2nd course of medium VET and 2nd course of higher VET respectively.

The dropout for the students enrolled in 2nd course of alternating training (corresponding to 2nd course of medium VET) was 2.33% in the academic year 2016-2017 and 2.15% in 2017-2018. However, none of the students participating in the DESCI activities left the alternating training.

As for the students enrolled in 4th course of alternating training (corresponding to 2nd course of higher VET), the dropout was 2.9% in 2015-2016 and 3.15% in 2016-2017. Nevertheless, none of them left the alternating training.

Thus, according to the observed results, we can say that the objective has been accomplished as the dropout rate for the students involved in the DESCI activities has been 0.

Table 11: Dropout in the Spanish school Somorrostro

	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
% of students who left the alternating training in 1st course	5,16%	5,74%	6,38%	5,12%	4,72%
% of students who left the alternating training in 1st course participating in the DESCI activities					
% of students who left the alternating training in 2nd course	0,58%	2,34%	5,00%	2,33%	2,15%
% of students who left the alternating training in 2nd course participating in the DESCI activities				0,00%	0,00%
% of students who left the alternating training in 3rd course	10,17%	9,04%	11,30%	9,80%	12,57%
% of students who left the alternating training in 3rd course participating in the DESCI activities					
% of students who left the alternating training in 4th course	1,63%	1,87%	2,56%	2,90%	3,15%
% of students who left the alternating training in 4th course participating in the DESCI activities				0,00%	0,00%

4.2. Indicator 2: Number of working tables performed

The indicator “Number of working tables realised” under the evaluation criteria “Effectiveness” of the DESCI project has been assessed through the results obtained in the Questionnaire 2. Ex-post questionnaire for schools.

Expected result:

15 working tables per year per country, total 90

A total of 54 working tables have been organised in all the participating schools during the two years of the DESCI project implementation (Table 12). This number means that 60% of the expected working tables have been performed. None of the participant schools have reached the objective (86.67% in Greece, 60% in Italy, and 33.3% in Spain).

Table 12: Number of working tables performed

	2016-2017	2017-2018	TOTAL
Greece	7	19	26
Italy	7	11	18
Spain	5	5	10
			54

4.3. Indicator 3: Number of people involved

The indicator “Number of people involved” under the evaluation criteria “Effectiveness” of the DESCI project has been assessed through the results obtained in the Questionnaire 2. Ex-post questionnaire for schools.

Expected result:

18 teachers, 6 tutors (business representatives), and 12 learners involved

The expected results have been largely achieved as a total of 30 teachers have been involved in the DESCI testing phase (Table 13), as well as 27 tutors (Table 14), and 550 students (Table 15).

Table 13: Number of teachers involved in the DESCI testing phase

	2016-2017	2017-2018	TOTAL INVOLVED	FULFILLED THE QUESTIONNAIRES
Greece	7	6	13	5
Italy	4	4	8	6
Spain	4	5	9	2
			30	13

Table 14: Number of tutors involved in the DESCI testing phase

	2016-2017	2017-2018	TOTAL INVOLVED	FULFILLED THE QUESTIONNAIRES
Greece	3	8	11	4
Italy	2	2	4	2
Spain	6	6	12	2
			27	8

Table 15: Number of learners involved in the DESCI testing phase

	2016-2017	2017-2018	TOTAL INVOLVED	FULFILLED THE QUESTIONNAIRES
Greece	20	75	95	60
Italy	148	20	168 ³	168
Spain	33	37	70	24
			550	252

4.4. Indicator 4: Number of toolkits translated into the different languages

The indicator “Number of toolkits translated into the different languages” under the evaluation criteria “Effectiveness” of the DESCI project has been assessed through the results obtained in the Questionnaire 2. Ex-post questionnaire for schools.

Expected result:

3 multilingual validated toolkits

According to the feedback provided by the schools, only the Italian school translated the three toolkits in their own language.

4.5. Indicator 5: Number of protocols for the adoption of the DESCI system

The indicator “Number of protocols for the adoption of the DESCI system” under the evaluation criteria “Effectiveness” of the DESCI project has been assessed through the results obtained in the Questionnaire 2. Ex-post questionnaire for schools.

Expected result:

3 protocols that formalize the adoption of the DESCI system in the schools involved

³ At least 20 learners were involved in 2017-2018

According to the feedback provided by the schools, both the Italian and the Spanish school have a protocol formalizing the adoption of the DESCI system in the schools involved. However, Greece does not have a protocol.

4.6. Indicator 6: Consistency between expected and actual workloads and plan

The indicator “Consistency between expected and actual workloads and plan” under the evaluation criteria “Effectiveness” of the DESCI project has been assessed through the results obtained in the Questionnaire 2. Ex-post questionnaire for schools.

Expected result:

100% of implementation of the project according to the workloads and plan

According to the feedback provided by the schools, the Italian and the Greek school implemented the project according to the workloads and plan.

4.7. Conclusions of the evaluation criteria 1: Effectiveness

Table 16: Level of accomplishment of the expected effectiveness results

INDICATORS	EXPECTED RESULT	ACCOMPLISHMENT
1. Percentage of reduction of dropout rates	Decrease in student dropout rates in classes involved in testing phase (-10%)	Assessed only in Spain as the Greek and Italian school don't have dropout. While the dropout rate was between 2.15% and 3.15%, none of the DESCI participants left the school.
2. Number of working tables realised	15 working tables per year per country, total 90	60% accomplishment (54 working tables instead of 90). Greece: 86.67% (26 WT) Italy: 60% (18 WT) Spain: 33.3% (10 WT)
3. Number of people involved	18 teachers 6 tutors 12 learners	Largely achieved: 30 teachers 27 tutors 550 learners
4. Number of toolkits translated into the different languages	3 multilingual validated toolkits	Only the Italian school has translated the toolkits (not the final version)
5. Number of protocols for the adoption of the DESCI system	3 protocols that formalize the adoption of the DESCI system in the schools involved	Spain and Italy have a protocol but Greece doesn't
6. Consistency between expected and actual workloads and plan	100% of implementation of the project according to the workloads and plan	Greece: Yes Italy: Yes Spain: No

5. Evaluation criteria 2: Usability

The Evaluation Framework established two tools to carry out the evaluation of the usability of the three toolkits of the DESCI project. These tools were:

- The implementation of two types of focus group: The first type of focus group (A) to discuss the usability of the toolkits with teachers and tutors, and the second type (B), with students.
- Three ex-post questionnaires (for learners, teachers, and tutors).

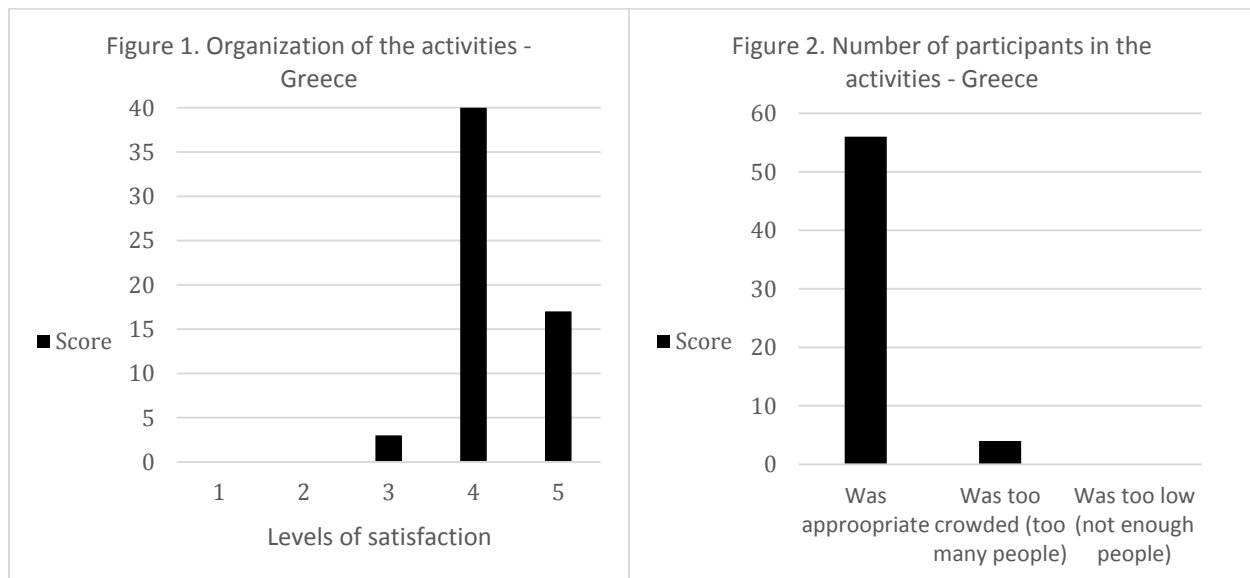
This evaluation criterion is measured by using the following four indicators:

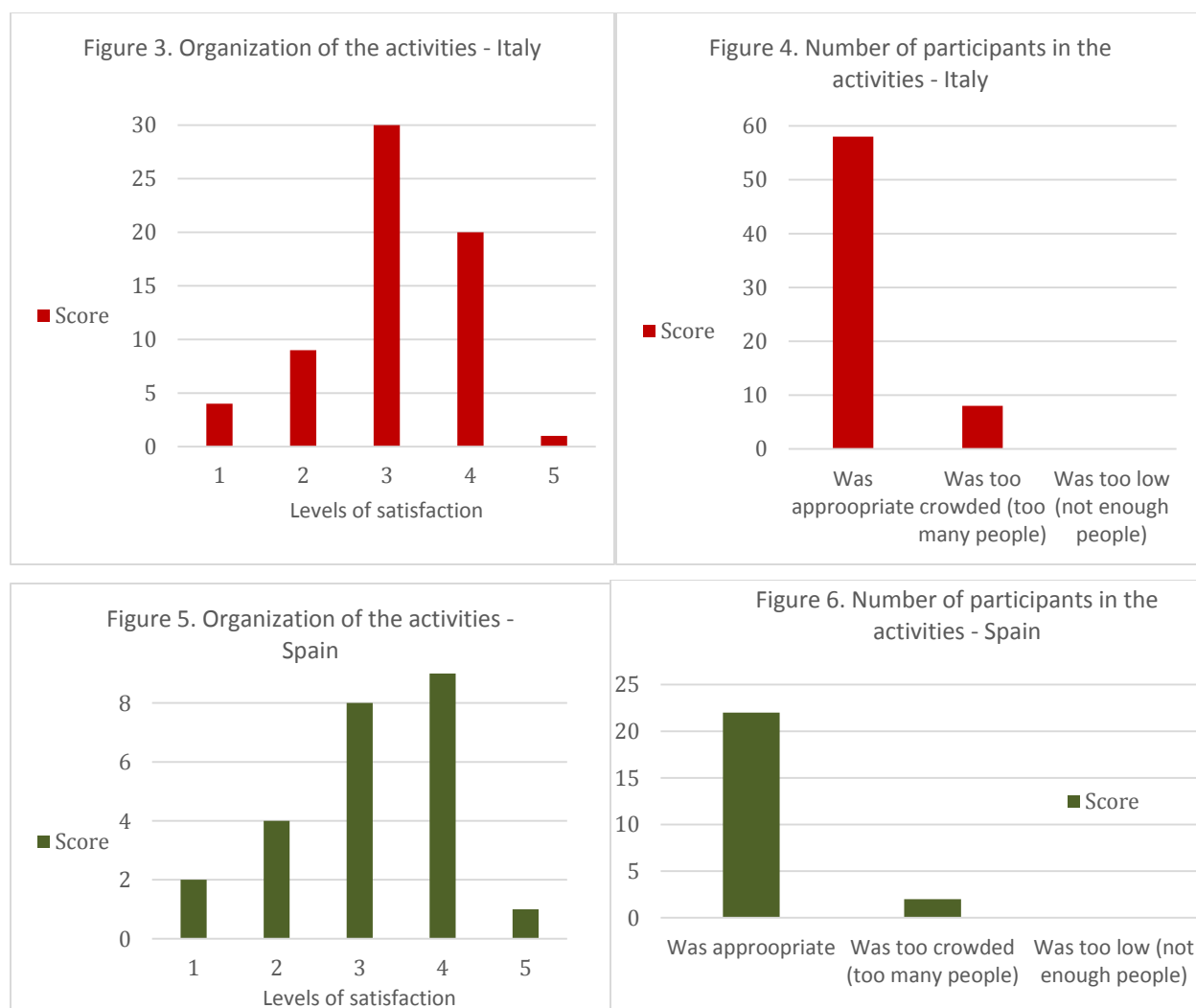
- Level of satisfaction of learners
- Level of satisfaction of teachers
- Level of satisfaction of tutors
- Level of usability of the toolkit

5.1. Indicator 7: Level of satisfaction of learners

The indicator “Level of satisfaction of learners” under the evaluation criteria “Usability” of the DESCI project has been assessed through the use of two different type of tools: 1) Questionnaire “3. Ex-post questionnaire for learners”, and 2) Focus groups.

5.1.1. Satisfaction with the organization and number of participants in the DESCI activities





As we can see in Figures 1, 3 and 5; there are some differences between the different schools participating in the DESCI activities regarding the **organization of the activities**. Therefore, we can appreciate that the Greek learners are the ones who scored highest (median=4; mode=4), the most of Spanish learners scored 4 (median=3), and the Italian learners scored the organization of the activities with 3 (both median and mode).

Regarding the **number of participants** in the activities (Figures 2, 4 and 6), most of the students in all the countries thought that it was appropriate (93.3% In Greece, 91.7% in Spain, and 85.3% in Italy). However, some students thought that the activities were too much crowded (too many people). When they were asked about how impacted that on the activities, they answered:

- There were less chances for interaction; 2 people in Greece, 7 in Italy and 5 in Spain thought that. This number of responds, represents 9.21% about total of the questionnaires for learners (152).
- There were not enough tools for all the participants; 5, 3 and 4 people in Greece, Italy and Spain respectively stated that. Represents 7.89% about total.

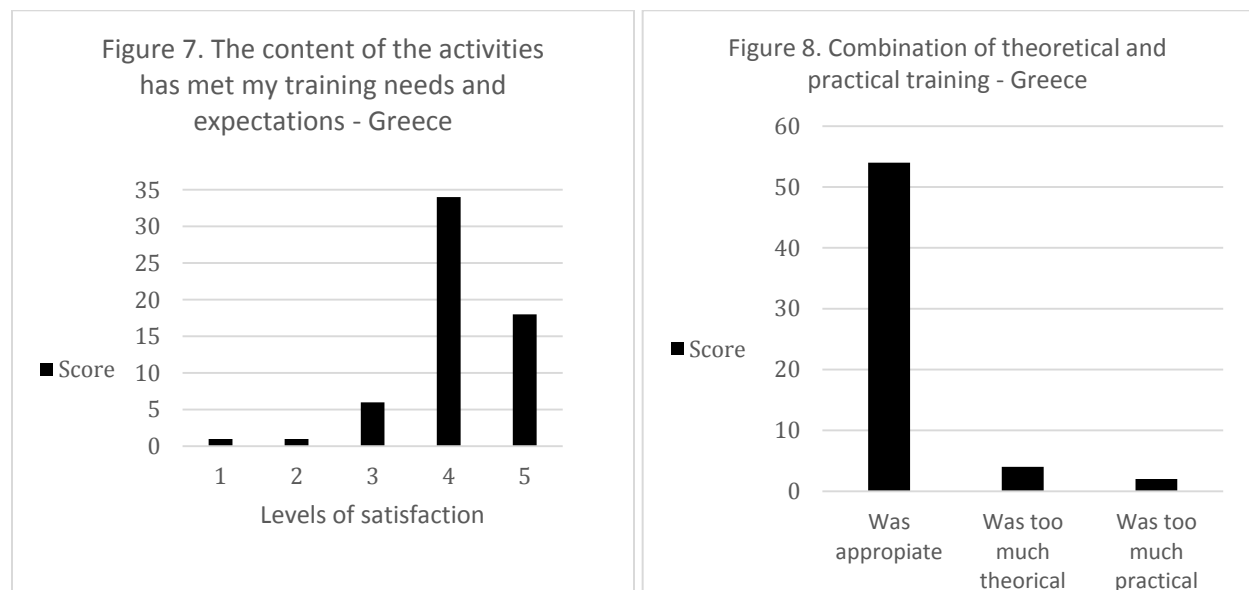
- There were not enough teachers to attend all the participants; 3, 5 and 6 people -Greece, Italy and Spain- said that. Represents 9,21% about total.
- One person in Italy -0.4% about total- said that there was a confusing environment because “many people don’t care to participate”.

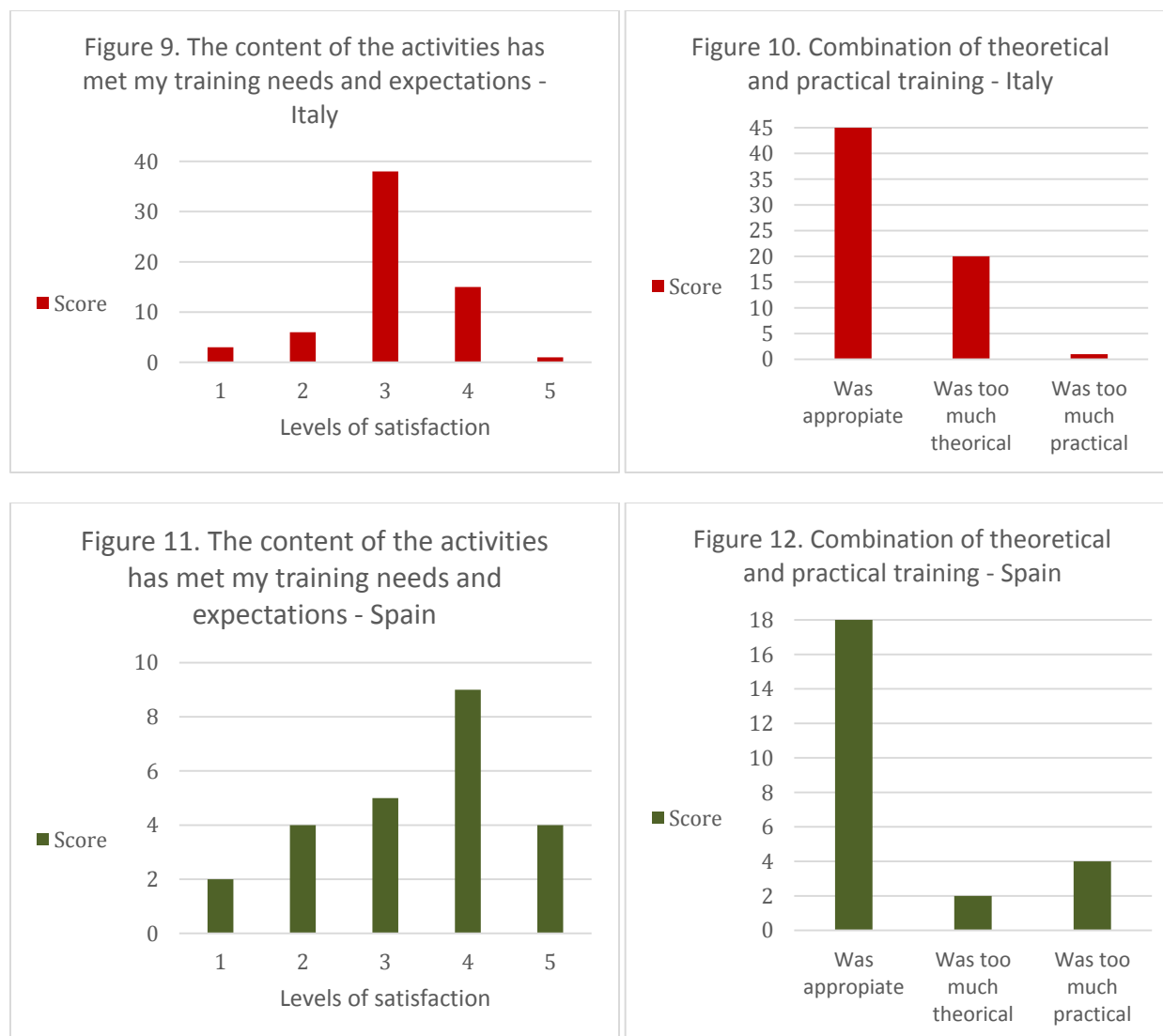
On the other hand, some learners as well responded the question about if the activities were too low. They said:

- There were less chances to interact with different types of learners; 2 people in Greece and Spain thought that, any learner responded in Italy. Represents 2.63% about total.
- There were less chances to interact with different types of tutors or teachers; 4 and 11 people stated that in Greece and Spain respectively, neither any responded in Italy. Represent 7.23% about total.

The conclusions of the focus group in Greece support this perception as they said that the activities were well organised and the number of participants was appropriate to develop the DESCI activities (See Annex I).

5.1.2. Satisfaction with the content of the DESCI activities





As shown in Figures 7, 9 and 11, most of students considered that the **content** of the DESCI activities met their training needs and expectations. The Greek learners were the most satisfied in this regard (86.7% scored with 4 or 5), followed by the Spanish learners (54.2%). The Italian students were those who scored the lowest with a 3 (25.4% scored 4 or 5).

Regarding the satisfaction with the **combination of theoretical and practical training** (Figure 8, 10 and 12), overall the participants in the DESCI activities thought that it was appropriate (90% of the Greek learners, 75% in Spain, and 68.2% in Italy). Even though, some remarks were stated by the learners who thought that the activities were too much theoretical:

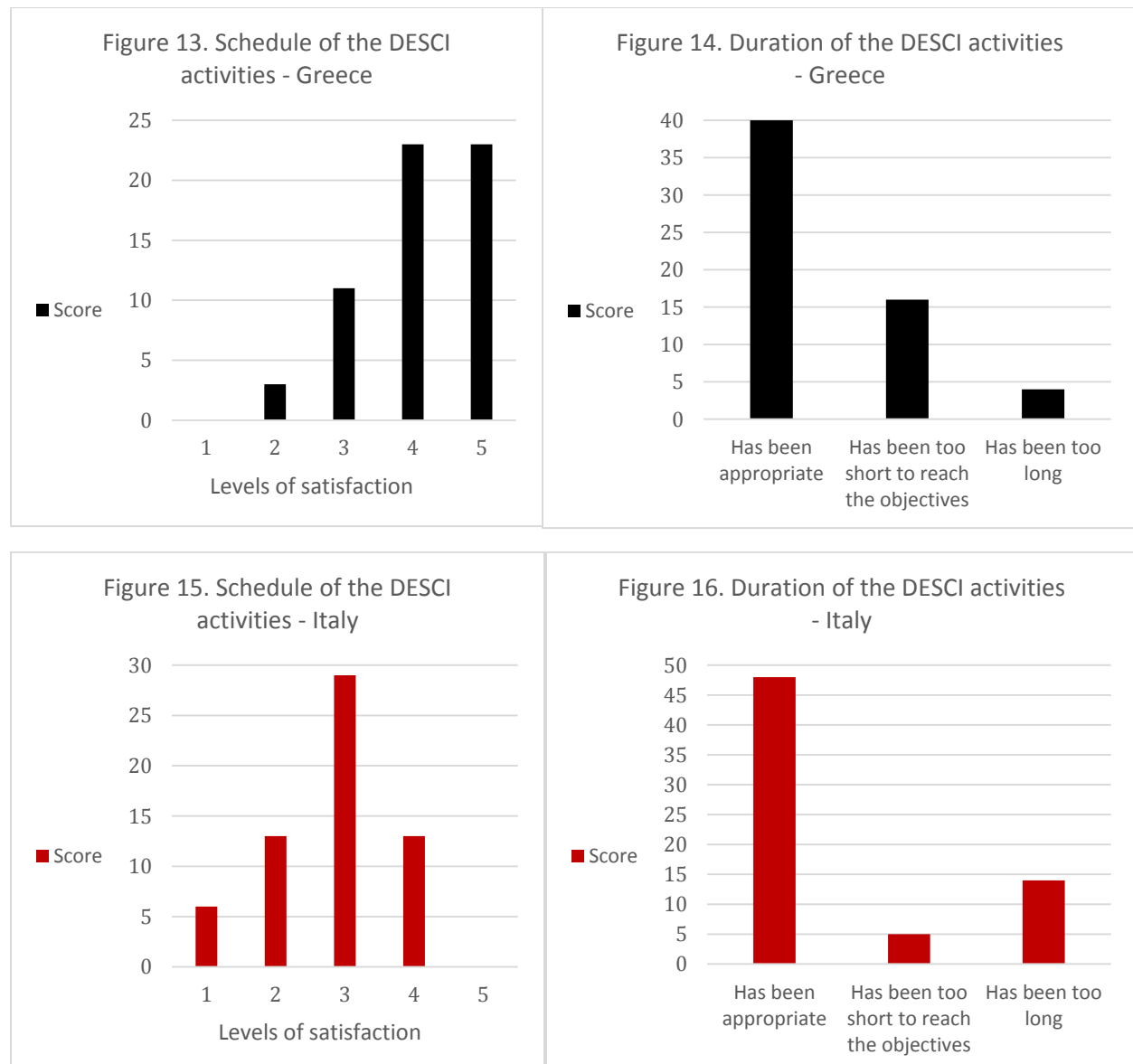
- 9.9% of the whole participants (Greece, Italy and Spain) thought that at the end of the activity the participants didn't know how to implement the theory in real settings. This percentage represents the 4, 6 and 5 answers given by the students of Greece, Italy and Spain respectively.
- 13.8% stated that the theoretical content was already known by the participants. This score represents 12 learners of Italy -the most high score-, 5 of Greece and 4 of Spain.

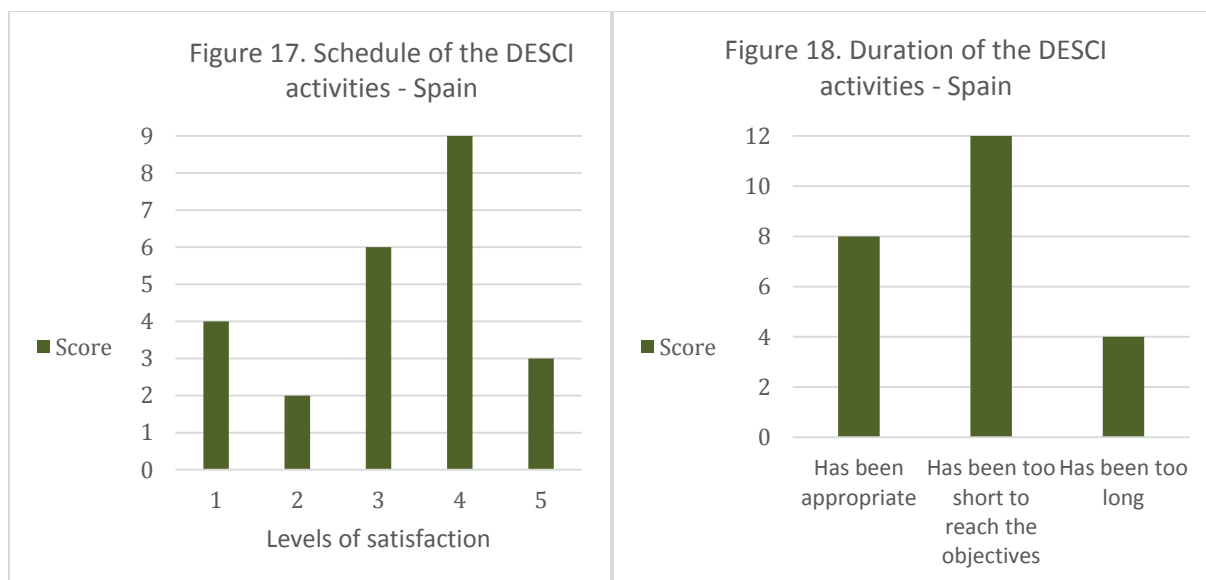
- 3.3% of the group of student participants in Desci project (five people in Italy) said that it was boring, or too much theory and not all explained, or that they don't work at practical level.

On the other hand, some students thought that the training was too much practical. In this way, 15.1% of the participants stated that they don't know the context and theory below the practical issues. 5, 8 and 10 students greek, italian and spanish thought that.

The conclusions of the focus group in Greece are aligned with the idea that the acquired knowledge were meaningful for the learners as the combination of theoretical contents at the beginning with the practical application was appropriate.

5.1.3. Satisfaction with the time and schedule of the DESCi activities





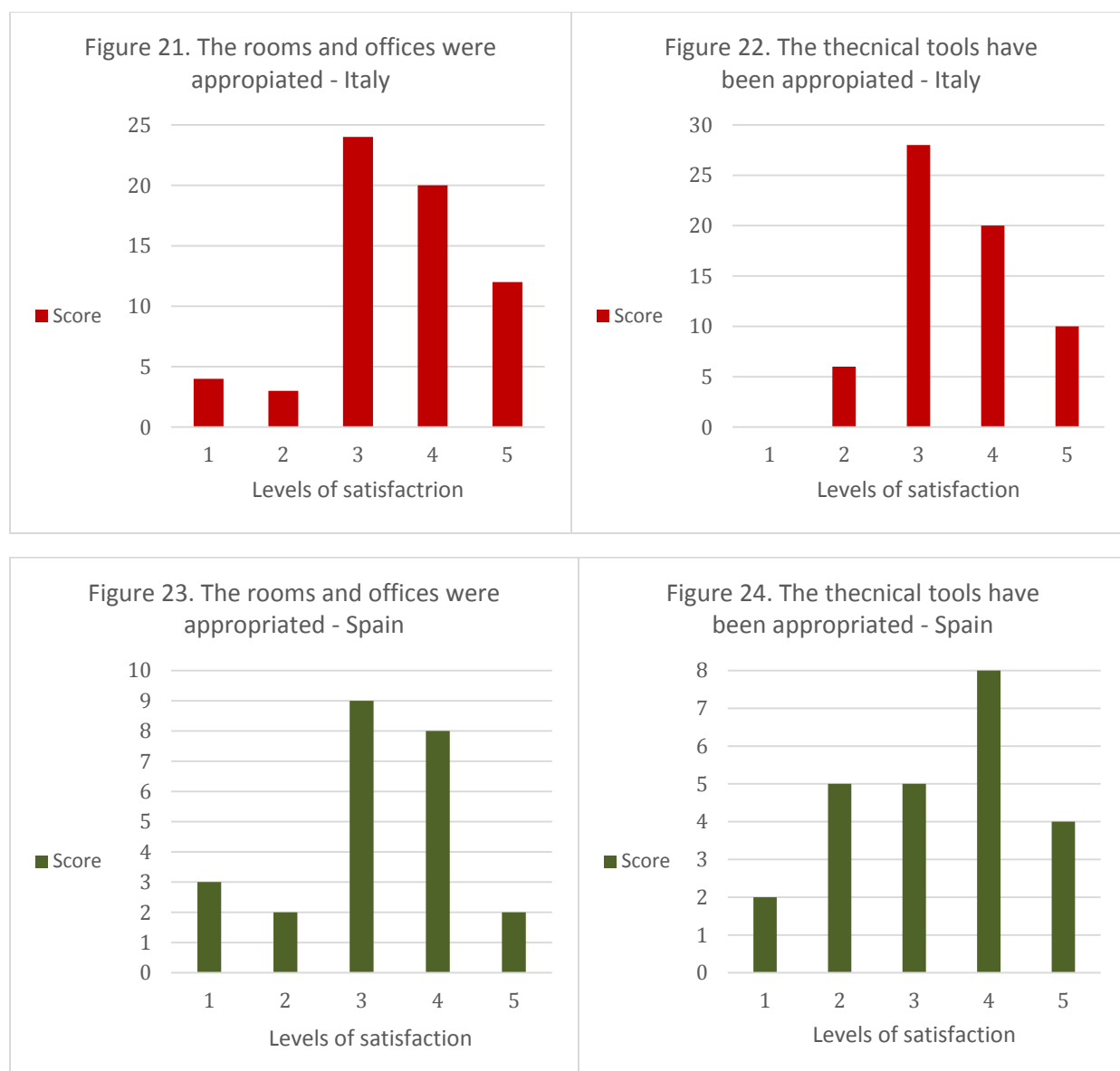
As shown in Figures 13, 15 and 17; in general the learners were satisfied with the **schedule** of the DESCI activities, even though we can find some differences between countries. In this way, 76.7% of the Greek learners scored with 4 or 5, and the numbers for Spanish and Italian students were 50% and 21,3% -just scored 4- respectively. Regarding the latter ones students, the most preferred score was 3 with a 47,5%.

As for the **duration** of the activities (Figures 14, 16 and 18), even though the most chosen option was that it has been appropriate, we can find important differences between the participant countries. While the most of Italian and Greek participants (70.6% and 66.7% respectively) stated that it has been appropriate, on the other hand, a significant number of Spanish students (50%) thought that the time was too short

According to the results of the focus group in Greece, the schedule of the activities facilitated their attendance and the time was sufficient even they would have liked to spend more time with some of them.

5.1.4. Satisfaction with the facilities of the DESCI activities





As shown in Figures 19, 21, 23; there are some differences between countries regarding their perception of appropriated rooms and offices; while 80% of Greek participants thought that they were adequate with a score of 4 or 5, this number decreases to 47.1% and 41.7% for the Italian and Spanish learners respectively.

As for the technical tools (boards, projectors, laboratories, computers, tablets and any other devices) used during the DESCI activities, 93.3% of the Greek learners perceived that they were appropriated (score of 4 or 5), while for the Spanish and Italian students, these numbers were 50% and 44.1% respectively (Figures 20, 22 and 24).

In the focus group in Greece, the learners said that the facilities at school were generally satisfactory but for some activities they would have preferred more computers to work on.

5.1.5. Satisfaction with the teachers and tutors of the DESCI activities

Figure 25. The implemetation of the activities by the teachers and tutors has facilitated the learning - Greece

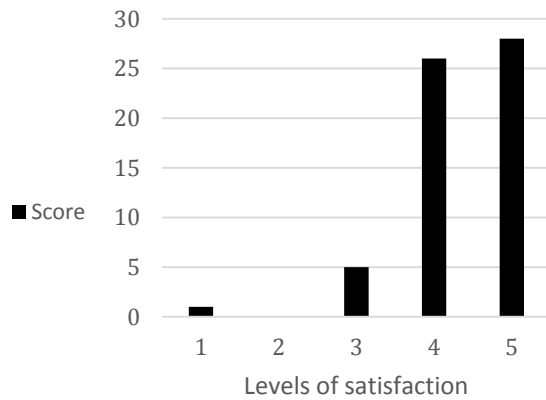


Figure 26. The experience of the teachers and tutors has facilitated the learning - Greece

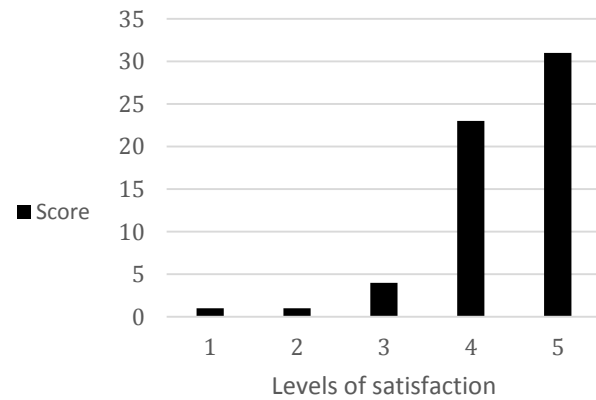


Figure 27. The implemetations of the activities by the teachers and tutors has facilitated the learning - Italy

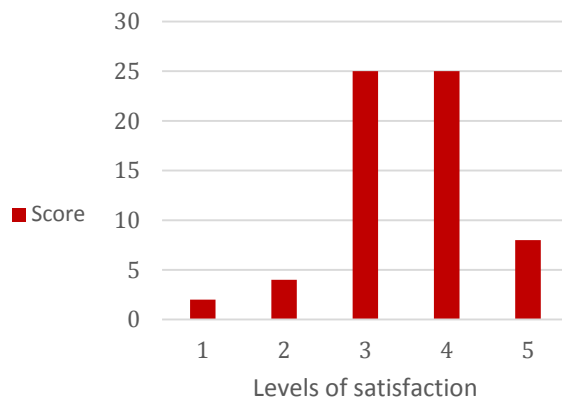
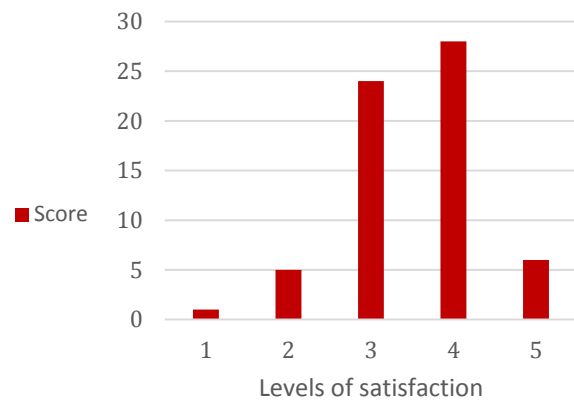
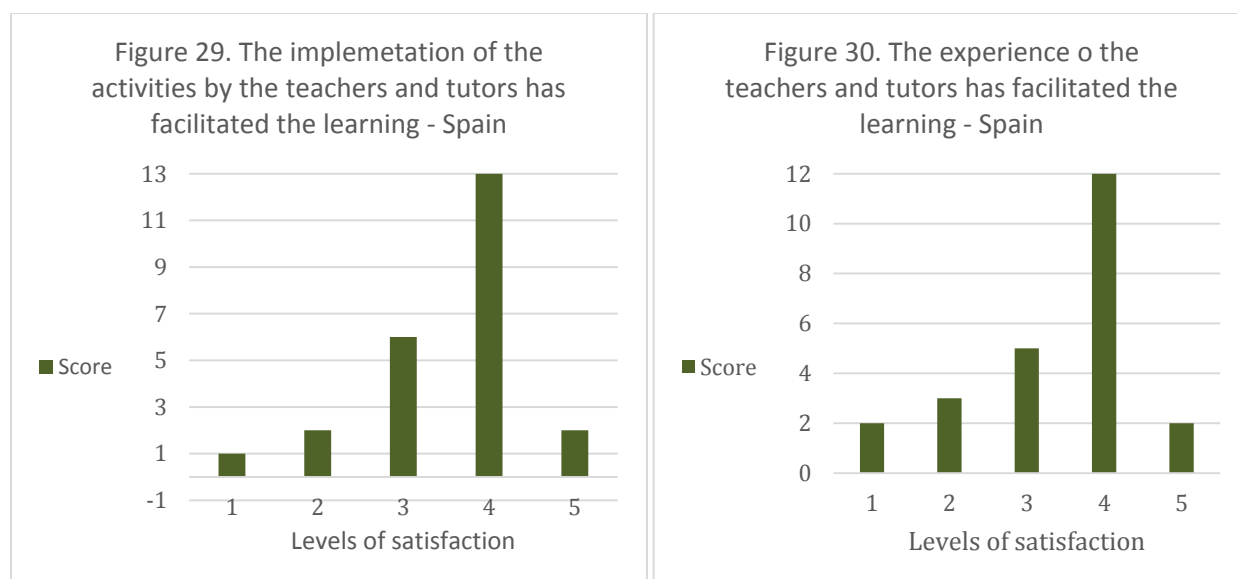


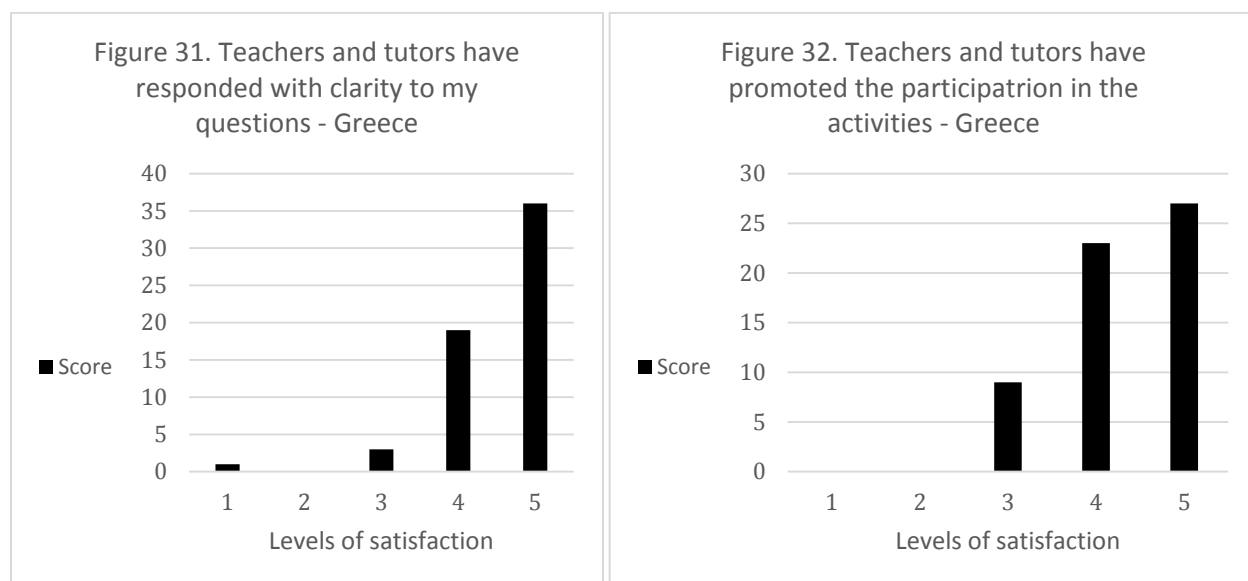
Figure 28. The experience of the teachers and tutors has facilitated the learning - Italy

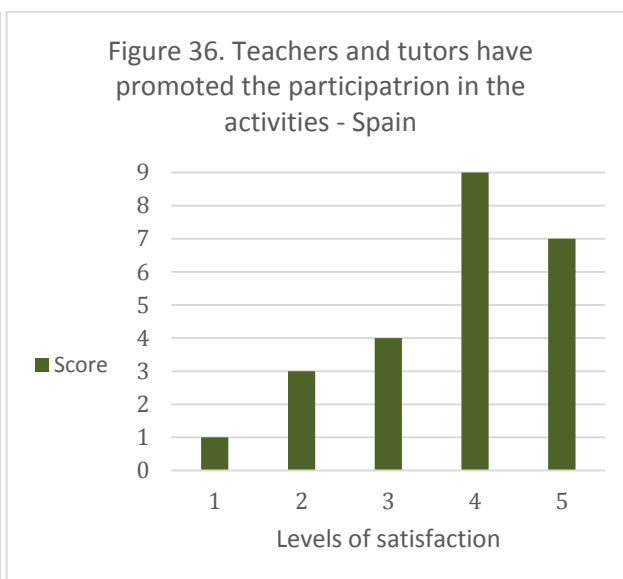
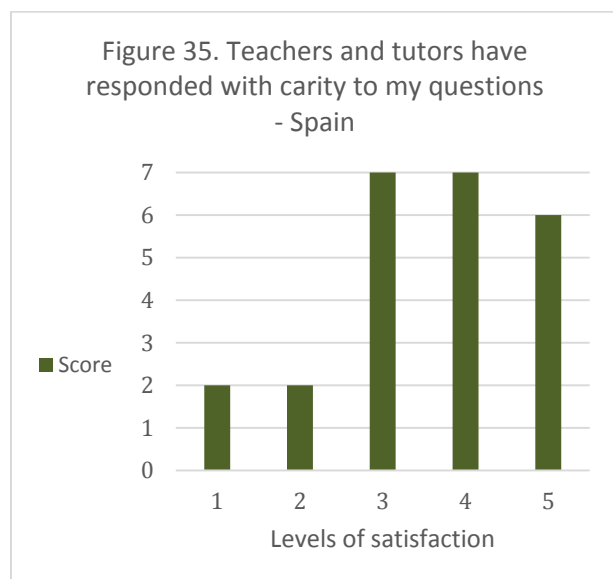
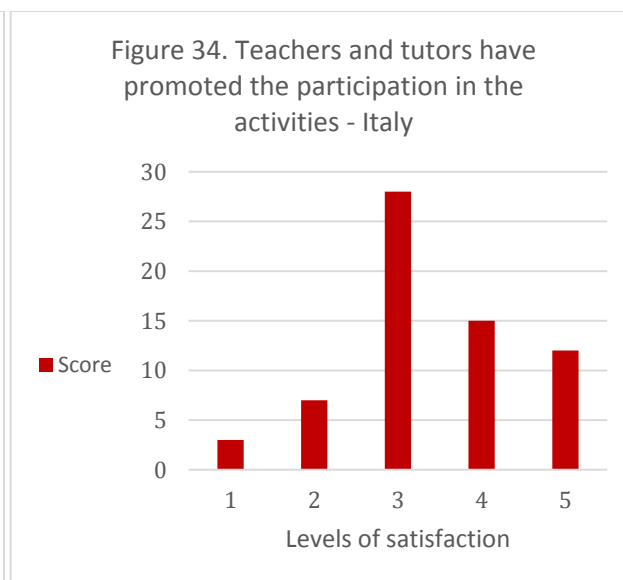
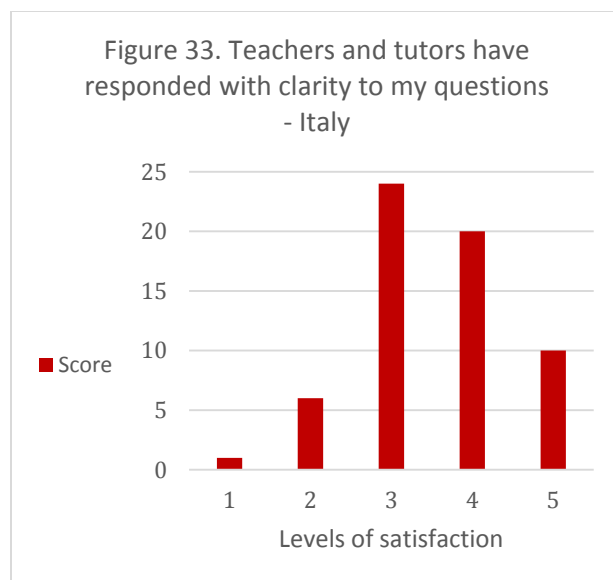




90% of the students in Greece think that the implementation of the activities by the teachers and tutors has facilitated the learning with a score between 4 or 5. For the participants in Spain and Italy, these figures decrease to 62.5% and 48.5% respectively (Figures 25, 27 and 29).

As for the experience of the teachers and tutors (Figures 26, 28 and 30), we find very similar figures (90% of Greek students, 58.3% of Spanish, and 50% of Italian learners have scored 4 or 5).





As shown in Figures 31, 33 and 35; most of the Greek participants thought that the teachers and tutors responded with clarity to their questions (91.7%). For the Spanish and Italian students, the numbers were 54.2% and 44.1% respectively.

Regarding the promotion of participation by teachers and tutors, 83.3% of the Greek learners scored with 4 or 5 this sentence, and the figures were 66.7% and 39.7% for the Spanish and Italian learners respectively (Figures 32, 34 and 36).

5.1.6. Summary of the level of satisfaction of learners

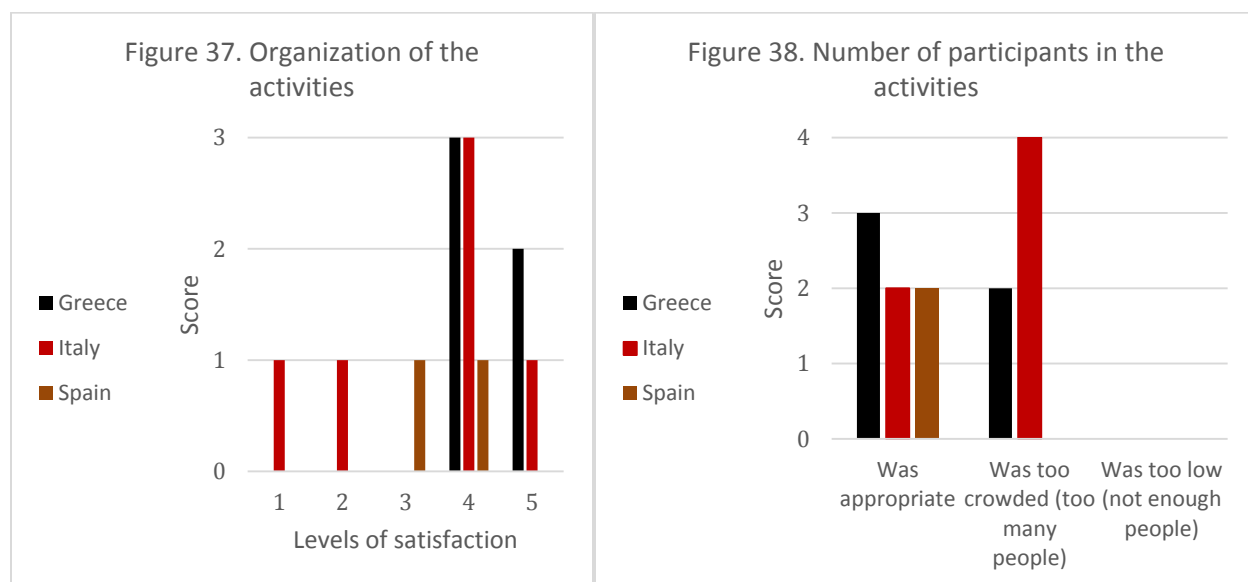
	GENERAL	GREECE	ITALY	SPAIN
Satisfaction with the organization and number of participants in the DESCI activities				
In general, the activities have been well organized	4	4	3	Median: 3 Mode: 4
The number of participants in the activities	Was appropriate			
Satisfaction with the content of the DESCI activities				
The content of the activities has met my training needs and expectation	4	4	3	4
The combination of theoretical and practical training	Was appropriate			
Satisfaction with the time and Schedule of the DESCI activities				
The schedule of the DESCI activities has facilitated my attendance to them	3	4	3	4
The duration of the DESCI activities	Was appropriate	Was appropriate	Was appropriate	Was too short
Satisfaction with the facilities of the DESCI activities				
The rooms and offices where the DESCI activity have taken place were appropriate	4	4	Median: 4 Mode: 3	3
The technical tools, as boards, projectors, laboratories, computers, tablets and any other devices used during the DESCI activities have been appropriate	4	5	3	Median: 3 Mode: 4
Satisfaction with the teachers and tutors of the DESCI activities				
The implementation of the activities by the teachers and tutors has facilitated the learning	4	Median: 4 Mode: 5	4	4
The experience of the teachers and tutors has facilitated the learning	4	5	4	4
Teachers and tutors have responded with clarity to my questions	Median: 4 Mode: 5	5	3	4
Teachers and tutors have promoted the participation in the activities	4	Median: 4 Mode: 5	3	4
Usability of the toolkit for learners				
It was nearly effortless to understand the structure of the toolkit	3	4	3	3
It was nearly effortless to understand the language of the toolkit	Median: 3 Mode: 4	Median: 3 Mode: 4	3	Median: 3.5 Mode: 4

It was nearly effortless to understand the content of the toolkit	3	4	3	Median: 3 Mode: 3-4
It was fast for someone who never had seen the toolkit before to have a clear idea about how to use it	Median: 3 Mode: 4	4	3	Median: 3.5 Mode: 4
After reading the document (toolkit) I could remember enough to use it effectively	3	4	3	3

5.2. Indicator 8: Level of satisfaction of teachers

This section shows the “Level of satisfaction of teachers” under the evaluation criteria “Usability” of the DESCI project.

5.2.1. Satisfaction with the organization and number of participants in the DESCI activities



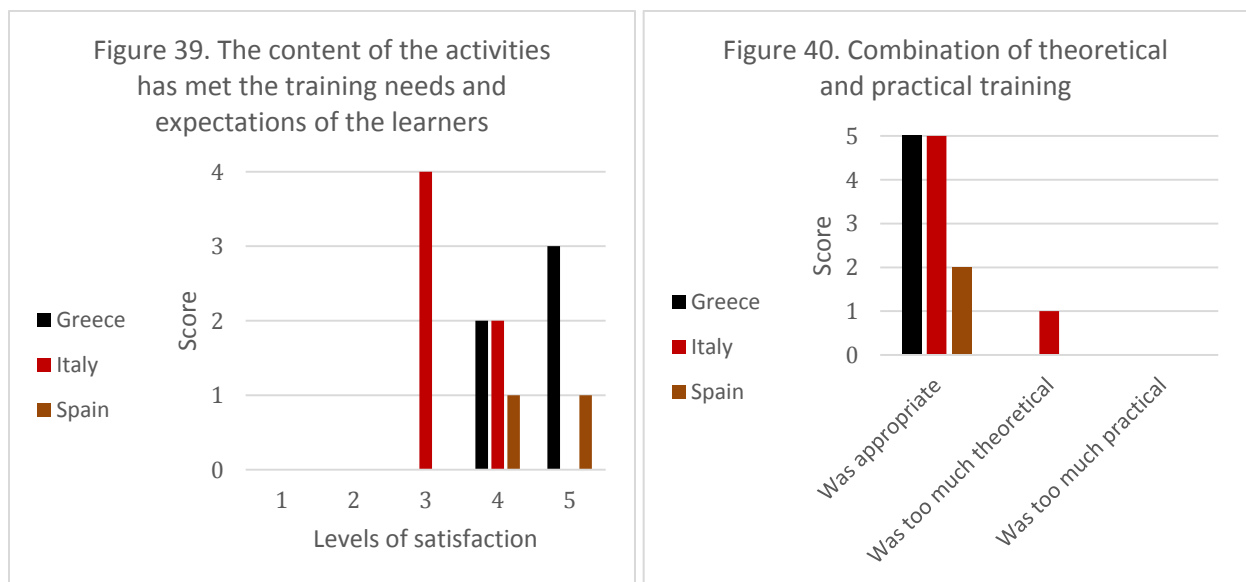
As we can see in Figure 37, the **organization** of the activities has been perceived as good in general (4 over 5), even though there are some differences between the schools participating in the DESCI activities. Therefore, we can appreciate that 100% of Greek teachers scored with 4 or 5, half of Spanish teachers scored 4 or 5 (take into consideration that only two Spanish teachers answered the questionnaire), and 66.7% of the Italian teachers scored the 4 or 5.

Regarding the **number of participants** in the activities (Figure 38), the two teachers participating in Spain thought that the number of participants was appropriate while 40% of Greek teachers and 66.7% of Italian ones thought that the activities were too much crowded. The ones who considered that the activities were too crowded (and some of the teachers who said the number of participants was appropriate) stated that this impacted on the activities as follows:

- 33.3% said that there were not enough teachers to attend all the participants
- 44.4% thought that there were less chances for interaction
- 22.2% perceived that it was difficult to create a learning environment
- 11.1% (one teacher) said that there were some communication difficulties and uncomprehension amongst alumns
- 11.1% (one teacher) said that some students were not involved to the extent that they should with the activities because some groups had a slightly larger number of pupils

According to the results of the focus group in Greece, for oth teachers and tutors the activities were well organised and, in general, the number of participants in the activities was appropriate.

5.2.2. Satisfaction with the content of the DESCI activities

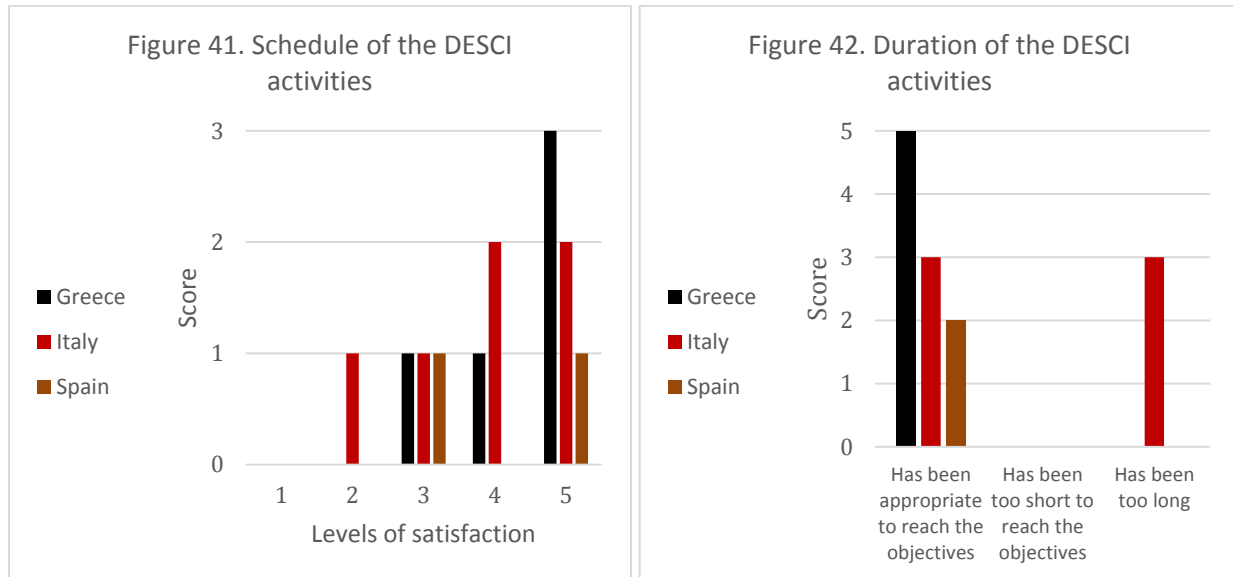


As shown in Figure 39, all the participant teachers from Greece and Spain considered that the **content** of the DESCI activities met the training needs and expectations of the learners (fig. 8 and 12); only 33.3% of the Italian teachers scored under 4 (with a 3).

Regarding the **combination of theoretical and practical training** (Figure 40), 92.3% of the teachers participating in the DESCI activities thought that it was appropriate. Only one Italian teacher thought that the activities were too much theoretical.

During the focus group in Greece with teachers and tutors, it was concluded that the content of the DESCI activities seemed to be quite interesting for students and that, in general, there was a balance between theoretical and practical training.

5.2.3. Satisfaction with the time and schedule of the DESCI activities

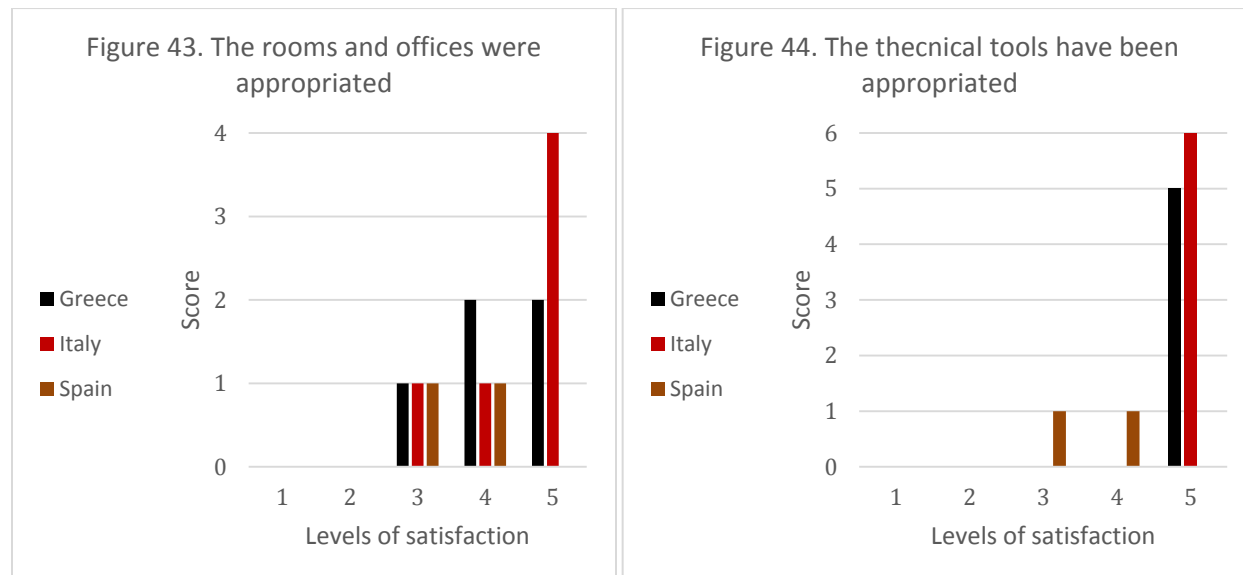


As shown in Figure 41, in general the teachers were satisfied with the **schedule** of the DESCI activities, even though we can find some differences between countries. In this way, 80% of the Greek teachers scored with 4 or 5, and the numbers for Spanish and Italian students were 50% and 66.7% respectively.

As for the **duration** of the activities (Figure 42), 76.9% of the participant teachers thought that it was appropriated to reach the objectives. This means that 100% of Greek and Spanish participants were satisfied with the duration of the activities. Regarding the Italian teachers, 50% (3 teachers) thought that the duration was too long.

During the focus group in Greece, teachers said that the DESCI activities were integrated into the school's timetable so they were programmed in such a way that teachers could attend the activities.

5.2.4. Satisfaction with the facilities of the DESCI activities



As shown in Figure 43, there are some differences between countries regarding their perception of appropriated **rooms and offices**; while 80% of the Greek and 83.3% of the Spanish teachers thought that they were adequate with a score of 4 or 5, this number decreases to 50% for the Italian participants.

As for the **technical tools** (boards, projectors, laboratories, computers, tablets and any other devices) used during the DESCI activities (Figure 44), all of the Greek and Italian teachers perceived that they were appropriated (score of 4 or 5), while 50% of the Spanish participants (one teacher) scored with 3.

The participants in the focus group in Greece stated that the facilities were generally satisfactory.

5.2.5. Summary of the level of satisfaction of teachers

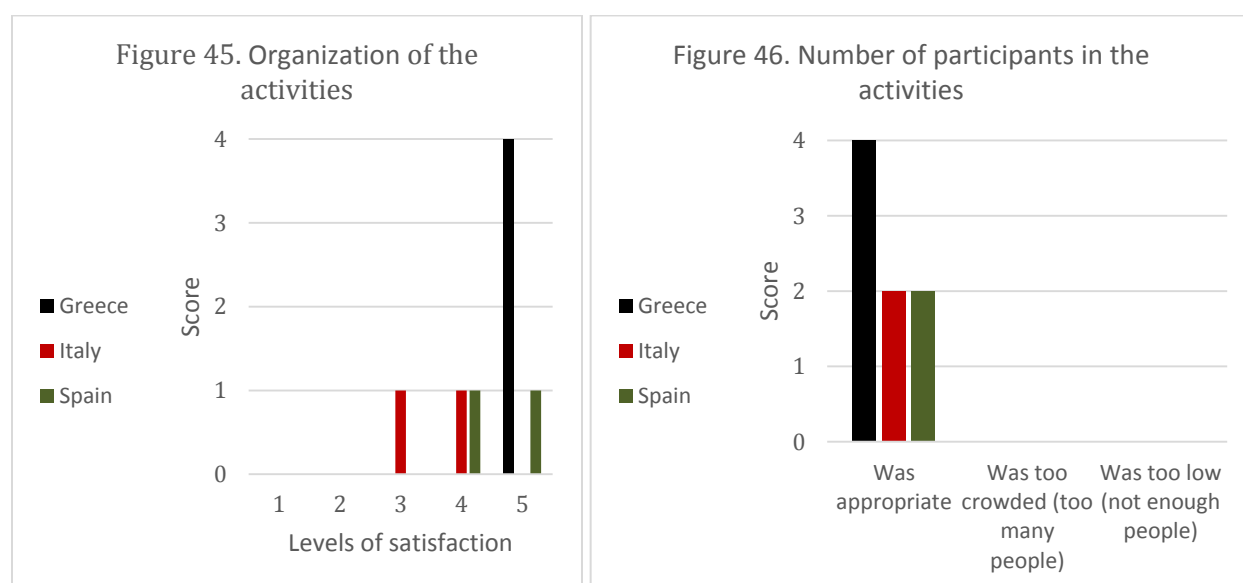
TEACHERS	
Satisfaction with the organization and number of participants in the DESCI activities	
In general, the activities have been well organized	4
The number of participants in the activities	Was appropriate (53.8%) Too crowded (46.1%)
Satisfaction with the content of the DESCI activities	
The content of the activities has met the training needs and expectations of the learners	4
The combination of theoretical and practical training	Was appropriate
Satisfaction with the time and Schedule of the DESCI activities	
The schedule of the DESCI activities has facilitated my attendance to them	Median: 4 Mode: 5
The duration of the DESCI activities	Was appropriate

Satisfaction with the facilities of the DESCI activities	
The rooms and offices where the DESCI activity have taken place were appropriate	Median: 4 Mode: 5
The technical tools, as boards, projectors, laboratories, computers, tablets and any other devices used during the DESCI activities have been appropriate	5

5.3. Indicator 9: Level of satisfaction of tutors

The indicator “Level of satisfaction of tutors” under the evaluation criteria “Usability” of the DESCI project has been assessed through the use of two different type of tools: 1) Questionnaire 5. Ex-post questionnaire for tutors. (Detailed results in Annex 3) and 2) Focus groups.

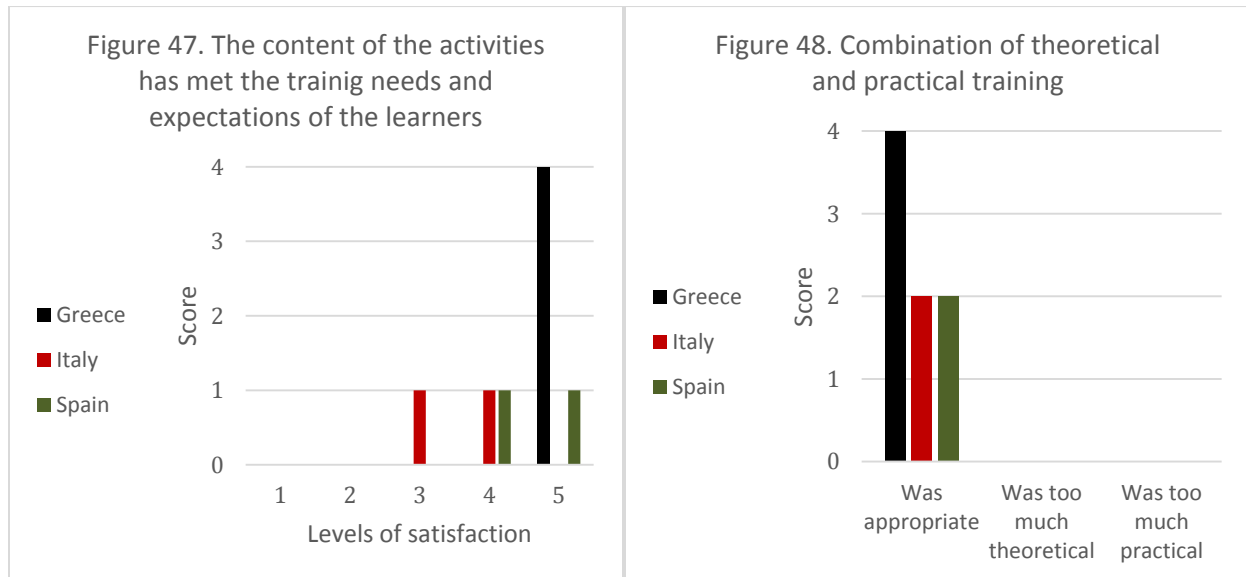
5.3.1. Satisfaction with the organization and number of participants in the DESCI activities



As we can see in Figure 45, the **organization** of the activities has been perceived as good in general. In this way, 100% of Greek tutors scored with 5 out of 5, 100% of Spanish tutors scored 4 or 5 (take into consideration that only two Spanish teachers answered the questionnaire), and 50% of the Italian tutors scored the 4 or 5.

Regarding the **number of participants** in the activities, all the tutors from Greece and Spain thought that the number of participants was appropriate while the Italian participants thought that the activities were too much crowded. These two Italian tutors stated that, due to the activities were so crowded, there were less chances for interaction and one of them added that there were not enough teachers to attend all the participants.

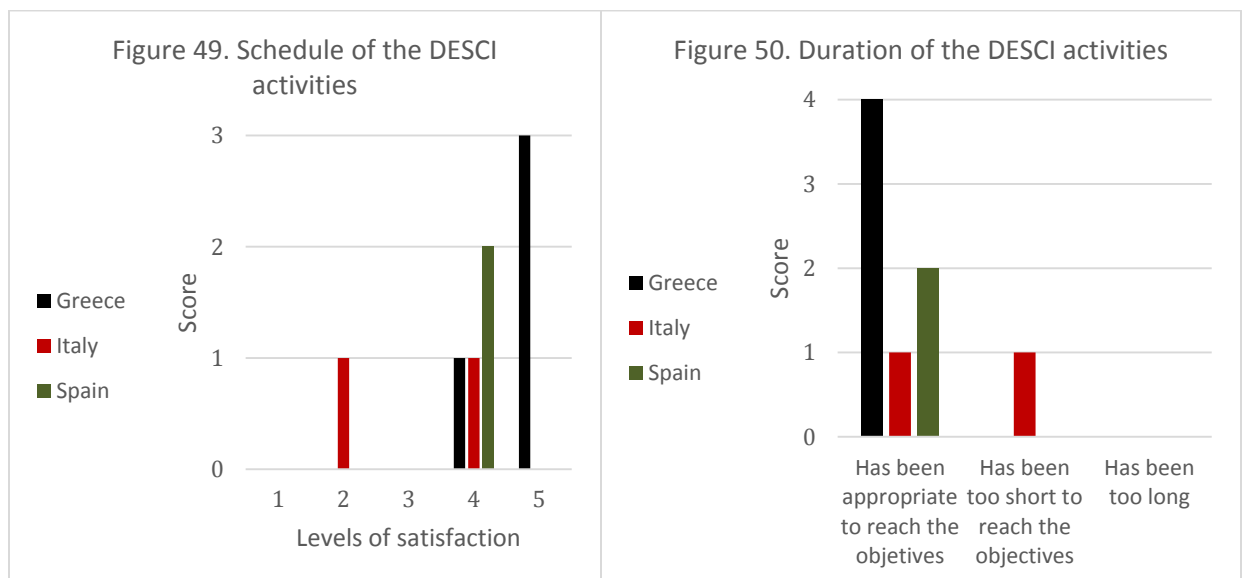
5.3.2. Satisfaction with the content of the DESCI activities



As shown in Figure 47, all the participant tutors from Greece and Spain, and half of the Italian ones considered that the **content** of the DESCI activities met the training needs and expectations of the learners.

Regarding the **combination of theoretical and practical training** (Figure 48), all the tutors participating in the DESCI activities thought that it was appropriate.

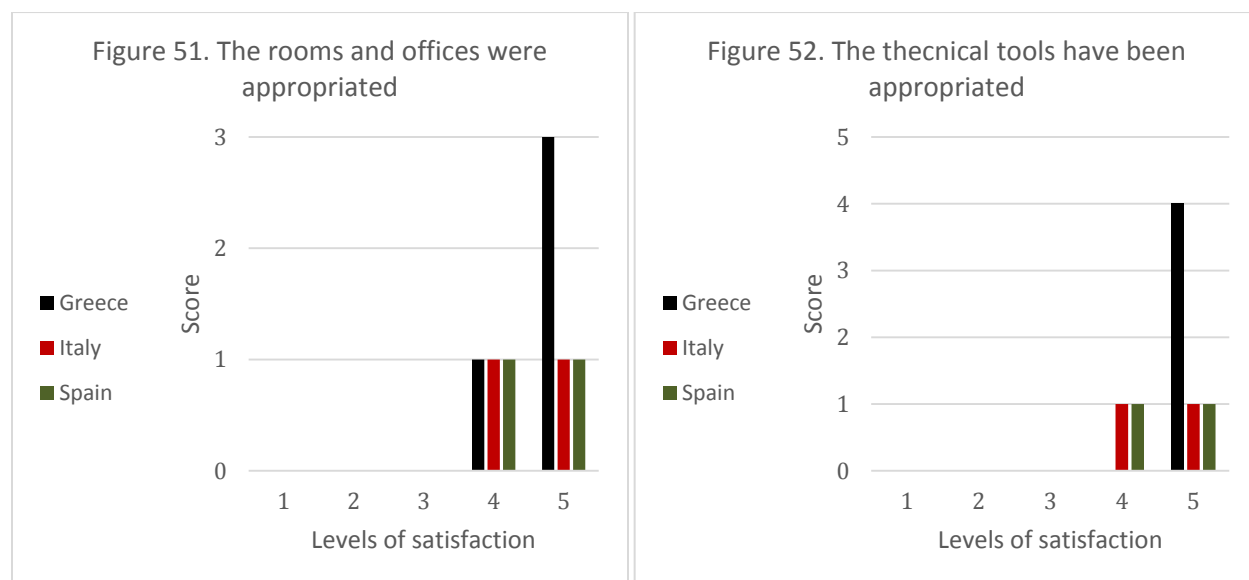
5.3.3. Satisfaction with the time and schedule of the DESCI activities



As shown in Figure 49, in general the tutors were satisfied with the **schedule** of the DESCİ activities. In this way, all the Greek and Spanish tutors scored with 4 or 5. Only one Italian tutor scored low (with 2).

As for the **duration** of the activities (Figure 50), 87.5% of the participant tutors thought that it was appropriated to reach the objectives. This means that all the Greek and Spanish participants were satisfied with the duration of the activities. However, one Italian tutor, thought that the duration was too short.

5.3.4. Satisfaction with the facilities of the DESCİ activities



As shown in Figure 51, all the tutors participating in the DESCİ activities though that the **rooms and offices** were adequate with a score of 4 or 5 out of 5. The same result occurs for the **technical tools** (boards, projectors, laboratories, computers, tablets and any other devices) used during the DESCİ activities (Figure 52): all the tutors perceived that they were appropriated (score of 4 or 5).

5.3.5. Summary of the level of satisfaction of tutors

	TUTORS
Satisfaction with the organization and number of participants in the DESCİ activities	
In general, the activities have been well organized	5
The number of participants in the activities	Was appropriate
Satisfaction with the content of the DESCİ activities	
The content of the activities has met the training needs and expectations of the learners	5
The combination of theoretical and practical training	Was appropriate
Satisfaction with the time and Schedule of the DESCİ activities	

The schedule of the DESCİ activities has facilitated my attendance to them	4
The duration of the DESCİ activities	Was appropriate
Satisfaction with the facilities of the DESCİ activities	
The rooms and offices where the DESCİ activity have taken place were appropriate	5
The technical tools, as boards, projectors, laboratories, computers, tablets and any other devices used during the DESCİ activities have been appropriate	5

5.4. Indicator 10: Level of usability of the toolkit

5.4.1. Conclusions regarding the usability of the toolkit for learners

As shown in Table 17, 37.1% of the participant learners read the toolkit for learners.

Table 17: Students who read the toolkit for learners

	Yes	No
Greece	36 (60%)	24 (40%)
Italy	4 (6%)	63 (94%)
Spain	16 (66.7%)	8 (33.3%)
Total	56 (37.1%)	96 (62.9%)

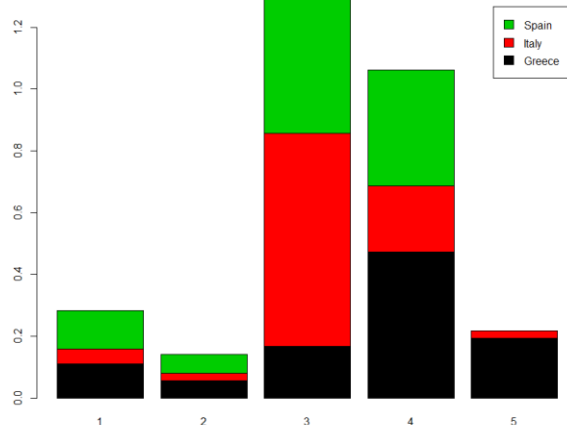


Figure 53: It was nearly effortless to understand the structure of the toolkit

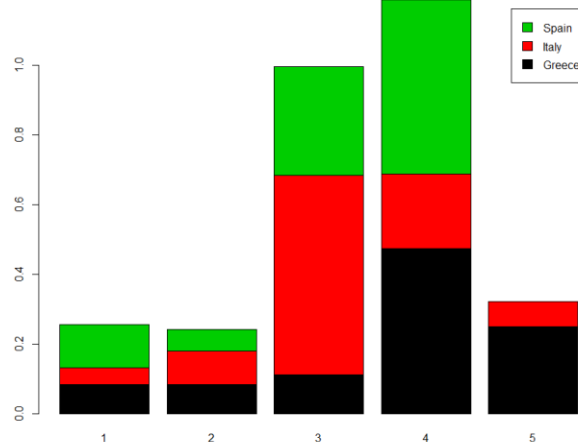
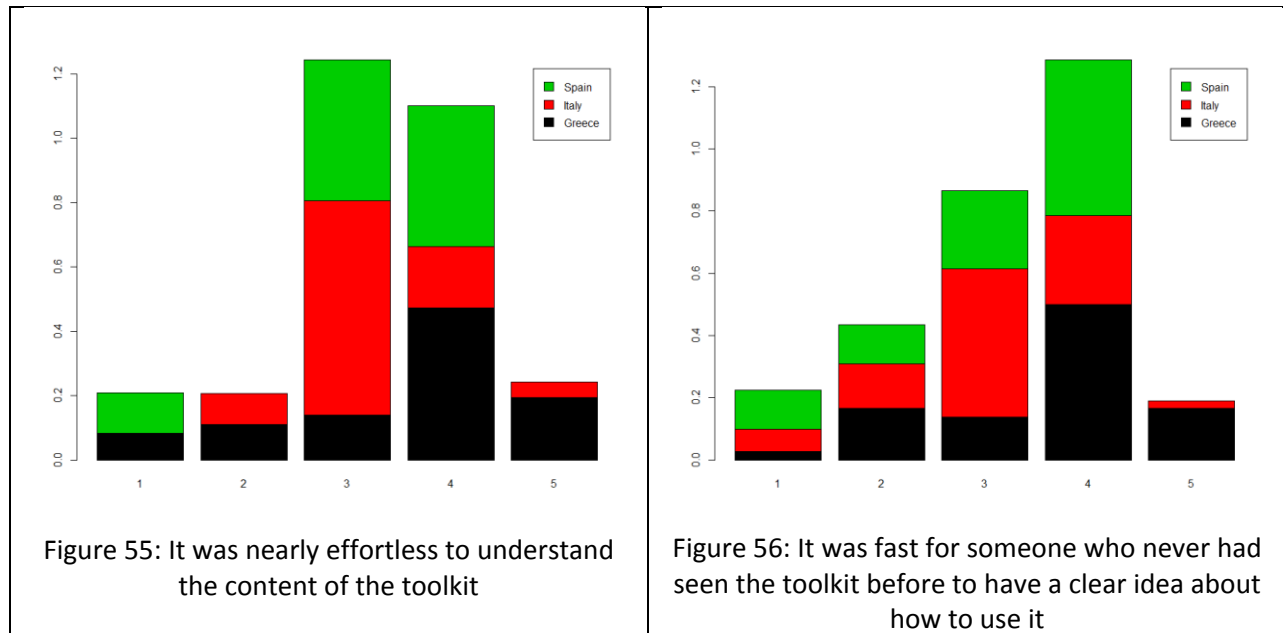


Figure 54: It was nearly effortless to understand the language of the toolkit

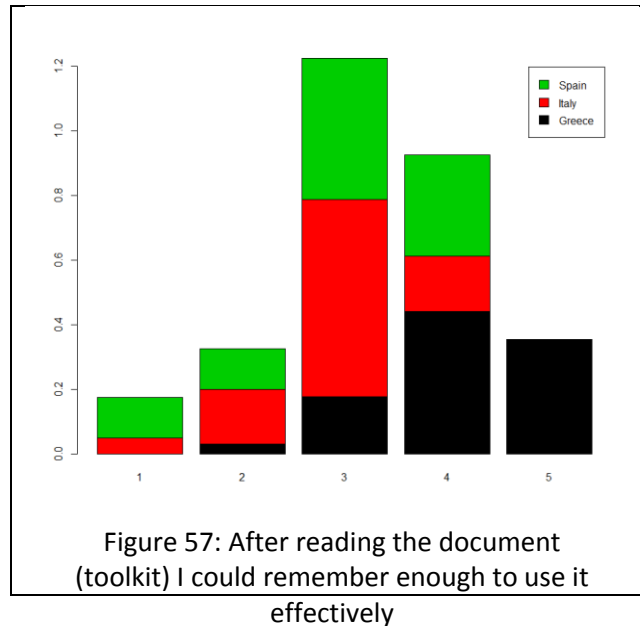
Within the participants who read the toolkit for learners, 66.7% of the Greek students thought that it was nearly effortless to understand the **structure of the toolkit** (score of 4 or 5 over 5). These figures were 37.5% and 23.8% for the Spanish and Italian learners respectively (Figure 53).

Regarding the **language**, it was easy to read for 72.2% of the Greek students; 50% of the Spanish learners; and 28.6% of the Italian participants who read the toolkit (Figure 54).



As for the **content** of the toolkit (Figure 55), 66.7% of the Greek students stated that it was easy to understand. For Spanish and Italian learners, the figures were 43.7% and 23.8% respectively.

66.7% of the Greek learners thought that it was fast for someone who never had seen the toolkit before to have a **clear idea** about how to use it, while for Spanish and Italian students, these numbers were 50% and 30.9% respectively (Figure 56).



Finally, 79.4% of the Greek participants perceived that after reading the document (toolkit) they could **remember enough** to use it effectively, while the Spanish shared this statement in 31.25%, and the Italian learners in 17.1% (Figure 57).

According to the results of the focus group in Greece: “Although the text was written in English, it was quite clear with examples and illustrations. Also, our teachers helped us with difficult terms. Something else that would make it easier to read would be bigger fonts.”

5.4.2. Conclusions regarding the usability of the toolkit for teachers and tutors

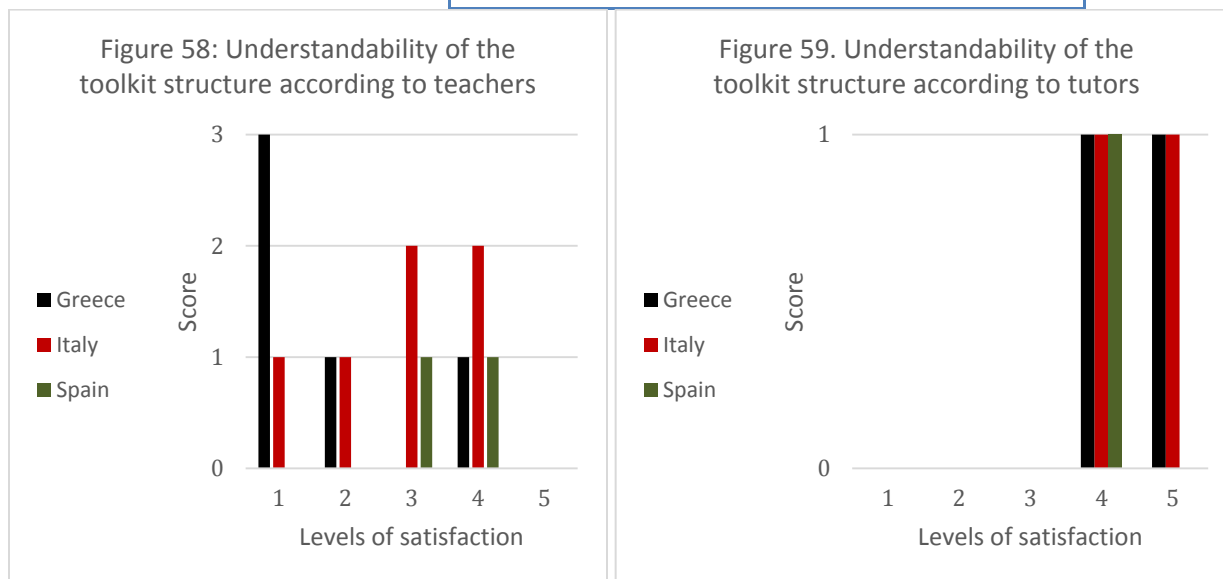
This section exposes the conclusions regarding the usability of the toolkit for teachers and tutors gathered through the ex-postquestionnaires for teachers and tutors.

All the teachers participating in the DESCI activities read the toolkit for teachers and tutors. As for the tutors, 6 of them (75%) read the toolkit while 2 (25%) didn’t read it (one from Greece and one from Spain). However, from the 6 tutors who read the toolkit, one of them didn’t answer the questions about its usability.

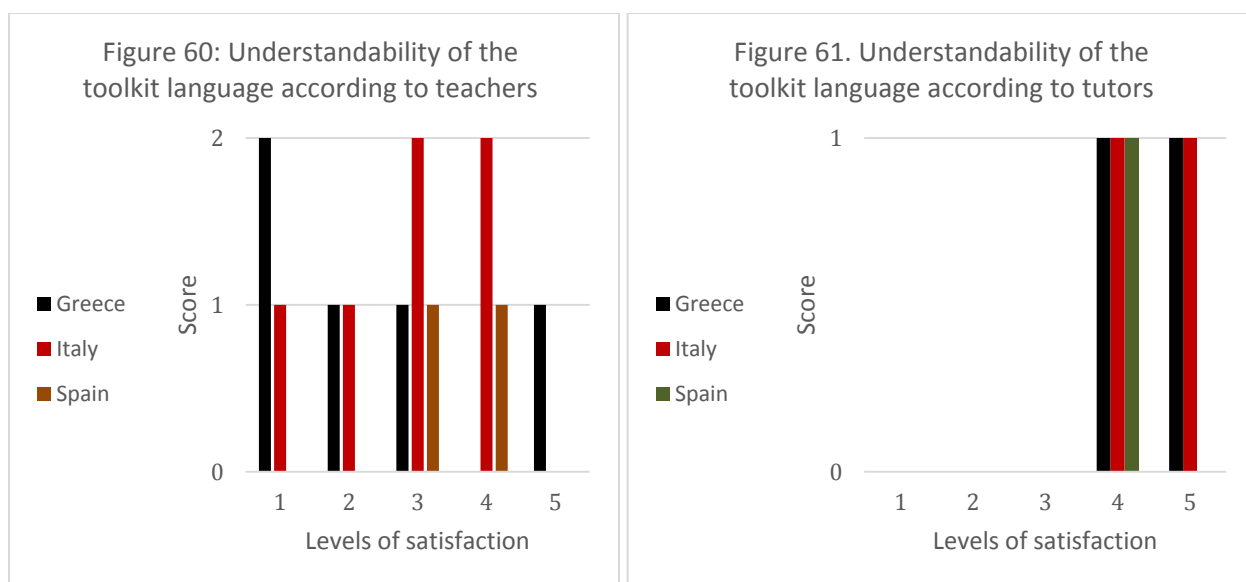
Therefore, as stated in Table 18, we have considered the feedback of 13 teachers and 5 tutors.

Table 18: Number of teachers and tutors providing feedback of the toolkit for teachers and tutors

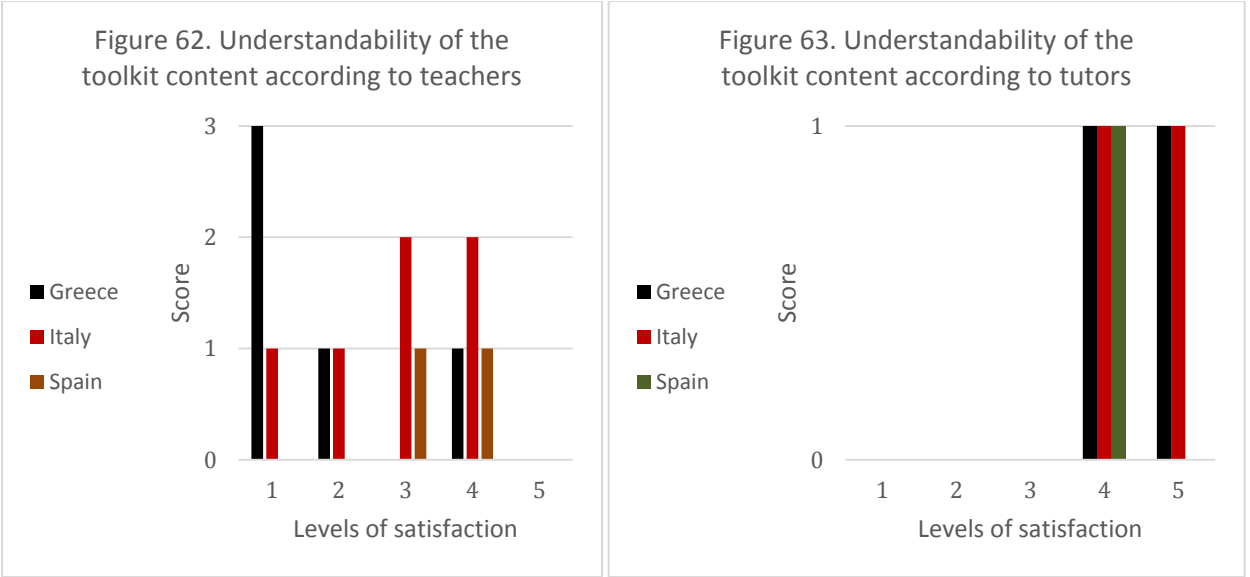
	Greece	Italy	Spain	Total
Teachers	5	6	2	13
Tutors	2	2	1	6



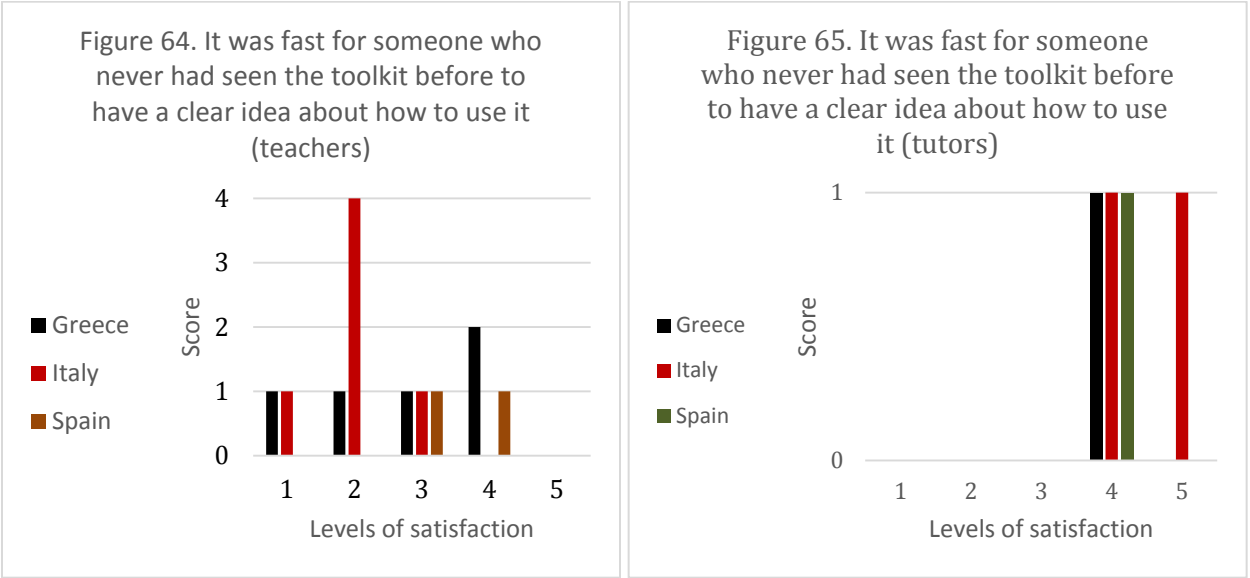
Regarding the **understandability** of the toolkit structure for teachers and tutors, we can find differences between the opinion of teachers and tutors participating in the DESCI activities. For teachers it was not so easy to understand the structure of the toolkit (Figure 58). In this way, in a score out of 5, no teacher scored with 5 in any country. 80% of the Greek teachers and 34% of the Italian ones scored 1 or 2. Almost half of the participants (46.15%) scored with 1 or 2. However, for all the tutors in all the countries it was nearly effortless to understand the structure of the toolkit (Figure 59).



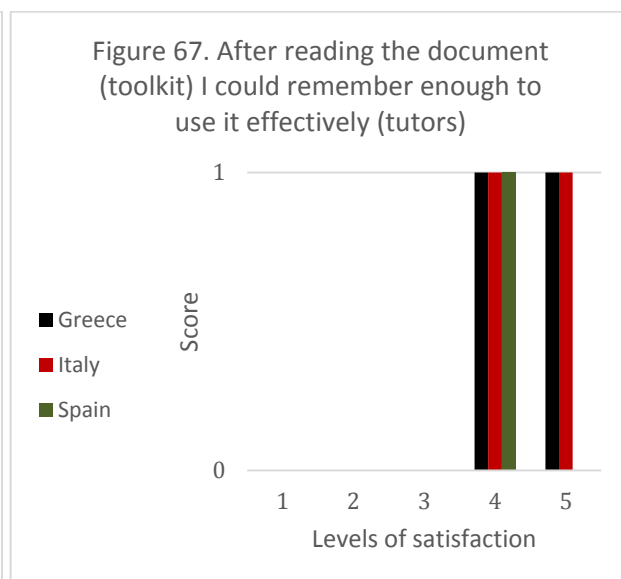
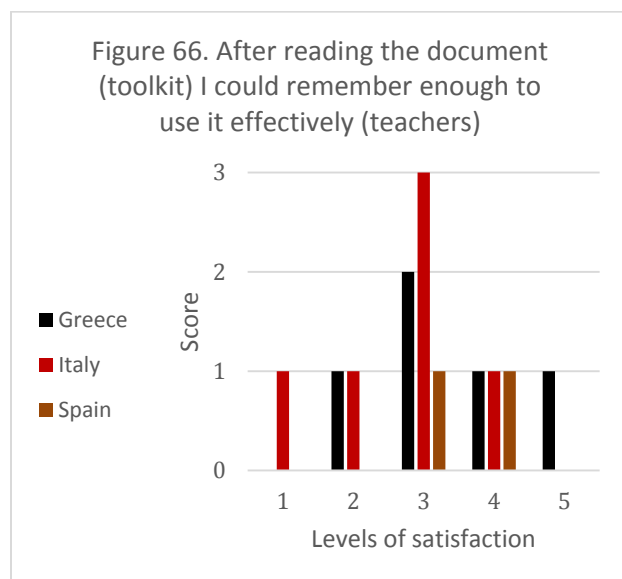
Regarding the **language** (Figure 60), 31% of the teachers participating in the DESCI activities scored with 4 or 5. In the Greek schools is where the language has been an obstacle (60% scored 1 or 2), and in Spain is where the language has been less problematic. However, for the tutors of all the countries it was easy to understand the language of the toolkit (Figure 61).



As for the **content** of the toolkit (Figure 62), 31% of the participant teachers scored with 4 out of 5 (no teacher scored with 5) regarding the effortless to understand the content of the toolkit. We can find some differences between countries as 80% of the Greek teachers and 34% of the Italian ones thought that it was not easy to understand the content (score of 1 or 2). Regarding the tutors, all of them thought it was nearly effortless to understand the content of the toolkit (Figure 63).



23% of the participant teachers thought that it was fast for someone who never had seen the toolkit before to have a **clear idea about how to use it** (Figure 64). We find again some differences between countries. Even though all the Italian teachers scored under 4, 40% and 50% of the Greek and Spanish teachers respectively thought that it's relatively fast to have a clear idea on how to use it. On the other hand, all the tutors thought that it was fast for someone who never had seen the toolkit before to have a clear idea about how to use it (Figure 65).



Finally, 31% of the teachers perceived that after reading the toolkit they could **remember enough** to use it effectively with a score of 4 or 5 out of 5 (Figure 66) while all the tutors thought that they could remember enough (Figure 67).

The conclusions after the focus group in Greece were very satisfactory:

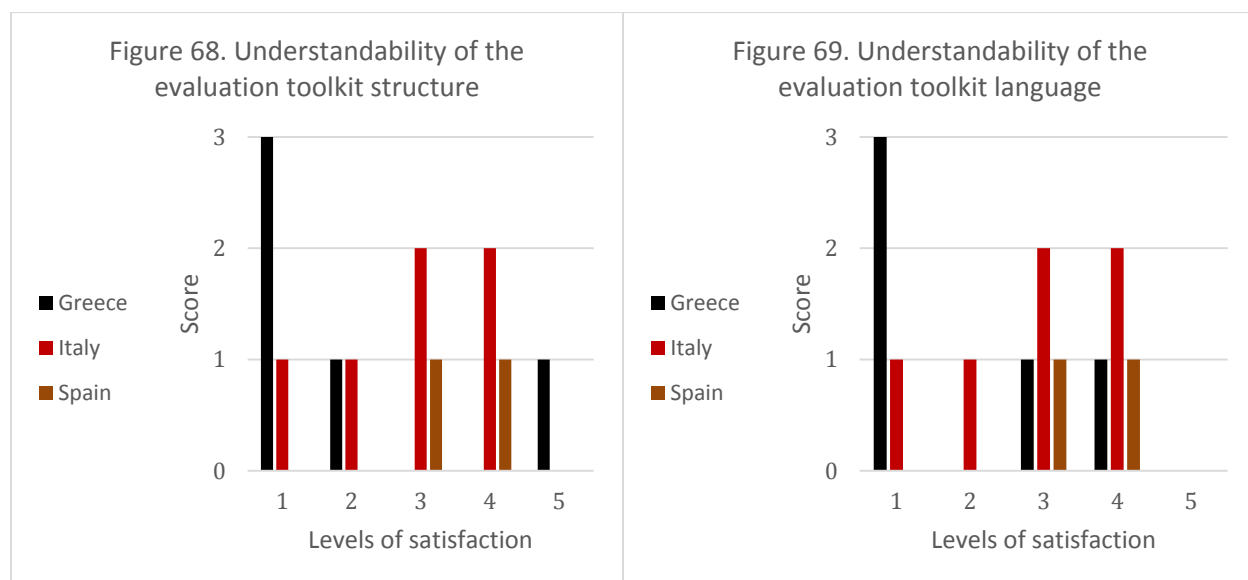
The teacher's toolkit was greatly improved. The latest version was more functional and clearer than the original ones. Several unnecessary information was removed, language was greatly improved, and some ambiguities regarding the role and function of each living lab were clarified. Indicative of how Desci methodology worked is the three exemplary scenarios.

The tool needed to be read carefully by the user, especially in the beginning, to be understood by someone who does not have experience with this type of activity because of the existence of a specific terminology (for example, a living lab approach, etc.) and the simultaneous operation of many living labs with different but interconnected roles.

5.4.3. Conclusions regarding the usability of the evaluation toolkit

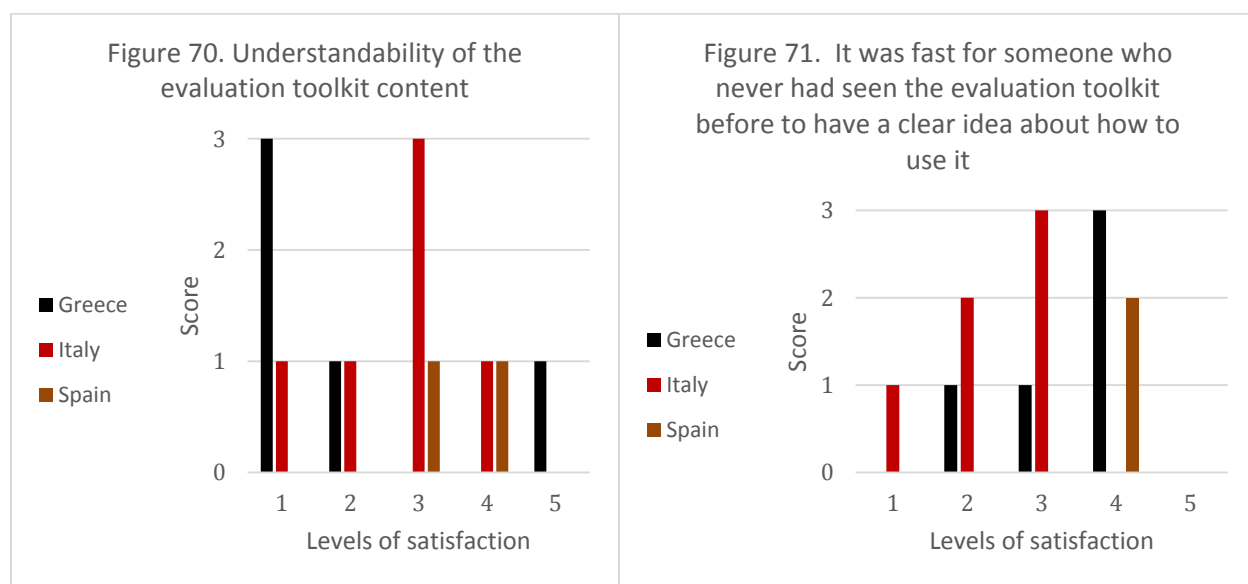
This section exposes the conclusions regarding the usability of the evaluation toolkit through the ex-postquestionnaires for teachers.

All the teachers participating in the DESCi activities read the evaluation toolkit.



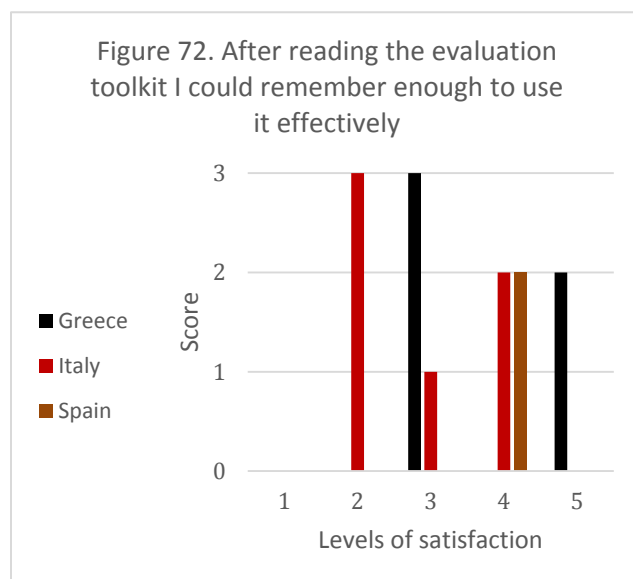
As we can see in Figure 68, 30.8% of the teachers participating in the DESCi project thought that it was nearly effortless to understand the **structure** of the evaluation toolkit (score of 4 or 5 out of 5). These numbers were 20% for Greek teachers, and 50% and 33.3% for the Spanish and Italian ones.

Regarding the **language**, it was easy to read for 31% of the whole teachers participating in the DESCi activities: 20% of the Greek teachers, and 50% and 33% of the Spanish and the Italian ones.



As for the **content** of the evaluation toolkit, 23% of the participant teachers stated that it was easy to understand. These numbers are especially remarkable in the case of Greece, where 80% of the teachers participating in the DESCI activities scored with 1 or 2 out of 5, so they thought that the evaluation toolkit content was not easy to understand. 34% of the Italian teachers also scored 1 or 2.

60% of the Greek and 100% of the Spanish teachers thought that it was fast for someone who never had seen the evaluation toolkit before to have a **clear idea about how to use it**. However, for 50% of the Italian teachers it was not easy to have a clear idea on how to use it (score of 1 or 2 out of 5).



Finally, 100% of the Spanish teachers, and 40% and 33.3% of the Greek and Italian ones perceived that after reading the evaluation toolkit they could **remember enough** to use it effectively with a score of 4 or 5 out of 5. On the other hand, 23% of the Italian teachers thought that they couldn't remember enough to use it effectively.

The conclusions after the focus group in Greece were very satisfactory:

"The improvement of the evaluation toolkit was noticeable in relation to the previous one. It was clearer, and repetitions and overlaps were eliminated. The language used was comprehensible and the questionnaires were concise and comprehensive. A positive thing was the addition of new questionnaires that asked for the opinion of the students' families."

5.5. Conclusions of the evaluation criteria 2: Usability

LEARNERS	TEACHERS	TUTORS	COMMENTS
Satisfaction with the organization and number of participants in the DESCI activities			
Well organised (3-4 with differences between countries) and appropriate number of participants. The general median and mode is 4.	Well organised (4 out of 5) and appropriate number of participants but 46% though that the activities were too crowded.	Well organised (5 out of 5) and appropriate number of participants but 25% though that the activities were too crowded.	The Italian learners were the less satisfied compared to the other countries.
Satisfaction with the content of the DESCI activities			
Contents met their expectations (3-4 with differences between countries) and appropriate combination of theoretical and practical training.	Satisfied with the contents (4 out of 5) and with the combination of theoretical and practical training.	Satisfied with the contents (4-5 out of 5) and with the combination of theoretical and practical training.	The Italian learners were the less satisfied compared to the other countries.
Satisfaction with the time and Schedule of the DESCI activities			
More or less satisfied with the schedule (3 out of 5). Differences between countries. 63.6% thought the duration of the activities was appropriate; 14.5% too long; 21.7% too short.	Satisfied with the schedule (4 out of 5) and with the duration even though 23% thought that the duration was too long.	Satisfied with the schedule (4 out of 5) and with the duration even though 12.5% thought that the duration was too short.	
Satisfaction with the facilities of the DESCI activities			
The rooms and the technical tools were rated 3-4 with differences between countries. Greece rated 5 in technical tools.	Rooms appropriated (4-5 out of 5) and with the technical tools (5 out of 5).	Satisfaction with the rooms and the technical tools (5 out of 5).	
Satisfaction with the teachers and tutors of the DESCI activities			
4 out of 5 for all countries. The mode of Greece was 5.			
Usability of the toolkit for learners			
3 out of 5			
Usability of the toolkit for teachers and tutors			
	3 out of 5	4 out of 5	
Usability of the evaluation toolkit			
	3 out of 5		

5.6. Suggestions and comments received through the questionnaires

Some comments were received from **learners**:

- I think that to be more concentrated to humans and not more about environment
- More practice and less theory
- Work into the company and not into the school
- More instruments and material
- Work in school time and not in afternoon
- More presence of teachers
- More tutor respect to number of student and the activities are low interesting
- To make this course better us as students but also as IT, it had to be done better, for example an extra tutor and with more availability than ours, since it has still created more chaos, exposing badly and with a relationship from my point of view wrong and not adequate, almost as if he did not care while having a normal relationship with us all.,.

One **teacher** said: "It's needed a legend about different level valuations. Personally, I considered the first one strongly disagreed and the fifth strongly agreed".

Two **tutors** stated:

- Excellent and full implementation of teaching tools regarding the Connection with Labour and Business Market
- Impressed by the high educational level of the students

Annex I: Results of the focus groups

Results of the focus groups in Spain

FOCUS GROUP REPORT FOR DESCI PROJECT

CENTRO DE FORMACIÓN SOMORROSTRO

2017/2018 SCENARIO

STRENGTHS:

1- Students:

- a. Transversality: Students have gained transversal competences which will be basic for the future jobs as nowadays employers are looking for skills such as attitude, teamwork, decision making, and so on more than technique knowledge
- b. The students, instead of getting as much theory as in other modules, learn how to face day to day life experiences (deal with providers, problems with the customers...)
- c. The students from the informatics module have had the chance to have a more open-minded view of their possible future thanks to this scenario and the opportunity of seeing how their job could be 100% related to the Industry 4.0

2- Teachers:

- a. Working the way is stated in the DESCI project means a bigger effort, but the reward is more than worth it
- b. They have had the chance to investigate and to acquire new knowledge in the working field when preparing the scenario and working with the students

3- Tutors/Company:

- a. Better relations with the social environment
- b. They train in first hand their future workers (6 students of last years' scenario are working in the company right now)
- c. Interchange knowledge with the students and trainers from the center involved in the scenario
- d. They are able to investigate/experiment in real life situations

WEAKNESSES:

1- Students:

- a. Some frictions among the same team students- but this becomes into a value as they finally learn how to work as a team
- b. At the beginning they show a little reticent as there is a new way or working/being trained that they are not used to
- c. Once they start working on the project, some of them forget about the rest of the subjects, and their learning achievement sometimes goes down
- d. In the electricity and electronics cycles the students work all the modules through the DESCi method, while in the informatics cycle, just one of the modules, making this that students sometimes forget about the rest of the subjects

2- Teachers:

- a. All the modules of the cycles should be teach following the DESCi method, not just one subject, as, if not, some teachers have to modify their lessons and there are some theoretical matters that cannot be seen by the students due to the lack of time.

3- Tutors:

- a. Nothing to declare. They are very happy and satisfied with the whole process

PROBLEMS ARISE DURING THE 2017/2018 SCENARIO:

The only problem to underline was with one of the providers of the materials needed by the students for creating their “pilots” before showing them to the steering group of Tecuni. The company has had a long-time relation with the providers but watching how they “behaved” in relation with the scenario, they realized about some problems and decided that they were no longer going to work with them. At the end, the problem was a way of getting to realize how they wanted their providers to behave and be to keep on evolving for the future.

DIFFICULTIES ARISE DURING THE 2017/2018 SCENARIO:

The teachers and tutors during the preparation of the last year and this year’s scenarios have find a little bit difficult to adapt the curriculum and learning outcomes that the students have to fulfill to a scenario/challenge. Some of the things the students learn during the time they are working in groups are not even part of the curriculum, so they have the chance to learn more things than they are expected, which is a very good point. However, in the same line, some of the theoretical aspects that they have to work in but that are not part of the scenario cannot be totally fulfilled due to the lack of time.

On the other hand, one of the students participating in this year’s scenario has Asperger Syndrome, which gives him difficulties in terms of social abilities. The teacher, seeing his great capacity when it

comes to the studies – he is a very good student- decided to “name” him the leader of one of the teams. Due to his special needs he had struggles to fulfill that role in the team. Summing up, when facing students with special needs, it is important to adapt the DESCI working method to their capacities.

TRANSVERSAL SKILLS THAT THE STUDENTS ACQUIRE THANKS TO THIS WAY OF WORKING:

The DESCI approach, apart from giving the students the opportunity of getting hands on experience in day to day life situations and a direct contact with enterprises in which they may work in a future, give them also the chance to acquire new transversal skills that may be very important for their working future. Nowadays the recruiters are looking for versatile employees with a great variety of soft skills. Thanks to this experience the students have been able to acquire the following competences:

- Teamwork abilities
- Oral communication abilities
- Spoken presentation abilities
- Decision making abilities
- Leadership abilities
- Entrepreneurship
- Commitment
- Respect to their team mates

The students have been able to find their place inside the group and have learnt how to work together. The experience of working in teams has given the chance to the students to better know themselves. During the process of working in groups the students themselves are surprised of their capacity of working with others and how easy they have been able to adapt themselves to it.

TOOLKITS:

Both, the students and teachers have expressed that, even all the information of the toolkit is very useful when facing the scenarios; they are a little bit “harsh” to read due to their length. Teachers stated that the toolkits should be a little more appealing to get the students attention.

However, the teachers, before starting the new scenarios, create a document based in the toolkits and with additional information such as the evaluation framework and all the information regarding the scenario that is based in the toolkits. The student receives the toolkit and this document at the same time, but, as they have stated sometimes, they rely more in the document created by the teachers as they have more clear information on it.

FUTURE:

Teachers and tutors of the company are already working in next year's new scenario. Even though the DESCI project will come to an end, both parts have shown their will to continue working this way.

One of the novelties for next year is that the company wants to name one tutor per students group. Until now there were 6 tutors of the company that worked with different group of students, but, starting next year, each group will have its own tutor to whom they will be able to send emails with doubts and have meetings more often. Tecuni's director stated that they want to have a clear vision of what the students are working on and to offer them as much help as possible.

On the other hand, TECUNI, as part of the multinational Vinci Group, exposed this experience to the rest of companies of the group, and they have named it as a good practice. They want to spread this way of having a contact relation with schools and students all over their enterprises. A month ago, they filmed different images and interviews with students and teachers on how this methodology worked, and they want to spread it among different stakeholders and companies. (Once the video is ready and they send it to us we will share it with the consortium).

Results of the focus groups in Greece

1o Protypo Peiramatiko Gymnasio Athinas

Results of the ongoing evaluation through focus group

Focus group A: Teachers and tutors

Number of Participants: 5

Average age: 40 years old

Results:

A. Satisfaction with the organization and number of participants in the DESCI activities

1. In general, were the activities well organized?

Due to the operation of the after-school clubs in our school's as statutory practice, which have been running for many years, the teachers of our school had good experience of what exactly was required for Desci activities. That's why the activities selected for the realization of Desci methodology were very well organized.

2. Was the number of participants in the activities appropriate? If not, what was the impact on the activities?

In general, the number of participants in each alternating course was appropriate. More specifically:

In the ICT club the participants were as many as the computers in the computer lab.

In the gastronomy club the number of participants was slightly bigger than the appropriate one. The nature of the activities (using knives, ovens, fire) required of the teachers and tutors to pay extra attention to students when they were working in the kitchen.

In the logic games club the number of pupils was also slightly bigger than the appropriate one. Because they needed to work in teams consisting of sub-teams with defined roles, it was a little difficult to coordinate quite large sub-teams.

In the project of virtual enterprises the number of participants was exactly 26, as many as the number of students in a class of our school because the project was operating in the regular program of the school. There were no significant problems with the number of participants because last years' experience was used, and the activities were organized having in mind the constraints that would arise because of this number.

B. Satisfaction with the content of the DESCI activities

3. Did the content of the activities meet the training needs and expectations?

The content of the activities seemed to be quite interesting for students. There was great willingness to join the groups that would make up our scenario based on Desci methodology.

4. Was the combination of theoretical and practical training well balanced? If not, what was the impact on the activities?

In general, there was a balance between theoretical and practical training. More specifically:

In the ICT after-school Club, where students created applications for Playstore, they learned how to write codes and at the same time produce a product.

In the logic games Club, along with the mathematical problems that they needed to solve, they always had in mind the next problem: this one had to be suitable for integration in their electronic game. However, there were not many opportunities to interact with specialists in the area of electronic games development.

In the project of virtual enterprises, the problem of the restrictions set by the legal framework and the students' age, which does not allow apprenticeship in real businesses, was tackled by using simulations.

In the gastronomy club the activities were mostly practical. The main task was preparing menus for restaurants.

C. Satisfaction with the time and Schedule of the DESCI activities

5. Did the schedule of the DESCI activities facilitate attendance?

Desci projects were integrated into the school's timetable. They were programmed in such a way that teachers could attend the activities. Besides, the age of children and our educational system do not allow any kind of activity to take place within the school context, which students could attend without being supervised by a teacher.

6. Was the duration of the DESCI activities appropriate to reach the objectives?

Desci activities were designed in such a way that they lasted for an entire school year for two hours per week, because this is the duration of the operation of the after-school clubs.

D. Satisfaction with the facilities of the DESCİ activities

7. Were the rooms and offices where the DESCİ activity took place appropriate? Were the technical tools, such as boards, projectors, laboratories, computers, tablets and any other devices used during the DESCİ activities, appropriate?

Everything was generally satisfactory as our school facilities were well-equipped in terms of electronic devices such as projectors, internal computer network, internet connection.

E. Usability of the toolkit for teachers and tutors

8. What is your opinion about the teacher's toolkit? Was it easy to read and understand?

The teacher's toolkit was greatly improved. The latest version was more functional and clearer than the original ones. A number of unnecessary information was removed, language was greatly improved, and some ambiguities regarding the role and function of each living lab were clarified. Indicative of how Desci methodology worked is the three exemplary scenarios.

The tool needed to be read carefully by the user, especially in the beginning, to be understood by someone who does not have experience with this type of activity because of the existence of a specific terminology (for example, a living lab approach, etc.) and also the simultaneous operation of many living labs with different but interconnected roles.

F. Usability of the evaluation toolkit

9. What is your opinion about the evaluation toolkit? Was it easy to read and understand?

The improvement of the evaluation toolkit was noticeable in relation to the previous one. It was clearer, and repetitions and overlaps were eliminated. The language used was comprehensible and the questionnaires were concise and comprehensive. A positive thing was the addition of new questionnaires that asked for the opinion of the students' families.

G. Strengths of the toolkit.

The articulation of a methodology that allowed students to experience how someone can become a member of the productive process.

The clear instructions of how to implement Desci methodology.

The expressed urge to use the previous experience of the school in similar activities.

1o Protypo Peiramatiko Gymnasio Athinas

Results of the ongoing evaluation through focus group.

Focus group B: Students

Number of Participants : 8

Average age: 14 years old.

Results:

Q1: I'm going to give you a couple of minutes to think about your experience with the DESCI project. Have you found it useful? What things would you like to change?"

Virtual Enterprises Project: It was a constructive experience as we got to know the business world through simulation. We learned to be responsible and cooperate effectively to achieve a goal. We would like to have more time to complete our activities as it was one hour per week.

Logic Games Club: It was a useful experience as we learned to deal with logic problems and methods. But we would like more time to complete our activities.

Gastronomy Club: We had the opportunity to travel to other countries through tastes (Mexico, India). We learned how customs and traditions are linked to gastronomy. We collaborated and consistently communicated to achieve our goal. We collaborated with sponsors who provided us with top quality fresh ingredients for our menu. We enjoyed making recipes from other countries and would like to learn more.

Satisfaction with the organization and number of participants in the DESCI activities

Q2: In general, how well organized do you consider that the activities were?

Virtual Enterprises Project: The activities were very well organized and it is amazing how many things we did although time was limited.

Logic Games Club: The activities were very well organized too.

Gastronomy Club: The activities were very well organized by the teachers and at the same time there was freedom to improvise.

Q3: Was the number of students in each activity appropriate? Were there any activities carried out in large groups or unsupervised activities?

Virtual Enterprises Project: The number of students was appropriately distributed so that we could work together.

Logic Games Club: The number of students was appropriate for the activities.

Gastronomy Club: We were divided according to our interests (dance, recipes, theatre and culture) and there was no problem with the allocation of the students.

Satisfaction with the content of the DESCI activities

Q4: How would you characterize the Desci activities in terms of content? Were they theoretical or more practical?

Virtual Enterprises Project: In the beginning, the content was more theoretical (economy terms) but then there was application of the knowledge we had gained. This way the knowledge became meaningful for us.

Logic Games Club: The content was slightly more practical than theoretical; we used mathematics as a tool to decode different elements.

Gastronomy Club: At the beginning there was a theoretical part through documentary information, then we expanded our knowledge in more practical terms (cooking, dancing, writing theatrical scripts and speaking the Mexican language).

Satisfaction with the time and schedule of the DESCI activities

Q5: Did the schedule of the DESCI activities facilitate attendance?

Virtual Enterprises Project: All activities were so well-designed that everyone could attend them despite our young age. The DESCI activities facilitated our attendance to them.

Logic Games Club: All activities were well-designed, so students could analyse information and present all their ideas. Also they were easy for younger pupils to follow and understand.

Gastronomy Club: All the activities were well designed, interesting and also very amusing. There was no pressure and we could carry them out effortlessly.

Q6: How would you characterize the duration of the Desci activities?

Virtual Enterprises Project: Some practical activities required more time to complete, as well as some extra-curricular activities.

Logic Games Club: We would like to spend more time on some activities like mathematical paradoxes.

Gastronomy Club: Time was sufficient as all the work was completed at school. Perhaps we would like to have more time to deal with more countries.

Satisfaction with the facilities of the DESCI activities

Q7: Were the facilities suitable for the implementation of Desci?

The rooms and offices where the DESCI activity took place were appropriate.

Virtual Enterprises Project: We worked in different places as well as in the computer lab. However, for some activities we would like to have more computers to work on. Another thing to mention is that sometimes we had to rearrange desks in the classroom.

Logic Games Club: The facilities at school were generally satisfactory.

Gastronomy Club: The facilities at school were generally satisfactory.

Usability of the toolkit for students

Q8: What do you think about the student's toolkit? Was it easy to read and understand?

Although the text was written in English, it was quite clear with examples and illustrations. Also our teachers helped us with difficult terms. Something else that would make it easier to read would be bigger fonts.

Q9: What is your opinion about the evaluation toolkit? Was it easy to read and understand?

It was useful and helped us to understand, provided we had taken the right steps in the student's toolkit. Finally, the letters were very small and it would help if it was in the Greek language because it was a bit tiresome and illegible.