INFORMATION SOCIETY TECHNOLOGIES (IST) PROGRAMME

InTraServ

Intelligent Training Service for Management Training in SMEs

Deliverable DL 8

Impact Evaluation Results and Analysis

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1. INTRODUCTION

The importance of the evaluation of any training activity is unquestionable. Only if we know which are the points of view and experiences of all the people directly related to the teaching we will be able to understand the processes, results and suitability of training. And only on the basis of those results we will be able to start the improvement processes that allow us to optimise methodologies, contents and procedures.

InTraServ project is conceived from the very beginning with the objective of putting into practice and evaluate a Web-based intelligent training system. In fact, one of the key activities of the whole project was the evaluation of the created training platform by direct potential users. This means that managers and leading workers from European SMEs would try a pilot course in INTRASERV platform.

InTraServ project planned very ambitious objectives, since an intelligent training system adapts to the users´ needs, giving answer to very different profiles. Both technically and methodologically it supposed a challenge.

A training system like this requires an in-depth analysis of several aspects. On the one hand, the own addressee collective influences to a great extent both contents and methodology. On the other hand, the educative support, completely linked to the new technologies, offers ample advantages but it also could suppose some problem. We have to know if this is a suitable teaching system for the collective, if contents are appropriated to the tasks of the users, if training can be easily transferred to the daily work and so on.

The Evaluation Plan focused on all this issues, and it provided means to gather useful information from users. Once these means are executed we can get interesting conclusions.

This report presents the evaluation main results to get conclusions and to guide the future improvement actions.

2. HOW THE PROCESS WAS

As established on the project proposal, the assessment is based on the Evaluation Plan. This plan takes into account some of the main aspects to analyse when talking about SMEs training needs: distance, time, location, flexibility, availability and immediacy. The plan also incorporates other questions such as effectiveness, efficiency, usability and transference.

When the Evaluation Plan was ready, the pilot experience was organized among participants from European SMEs. Users were selected from two different countries (Italy and Spain) and seven different organizations. The following companies took part in the process:

- 9ICTA (Spain)
- Asimag (Spain)
- CAVAMARKET (Italy)
- JOBIZ (Italy)
- METAFORE & ANALOGIE (Italy)
- MOMA (Italy)
- PASI (Italy)

A total of twenty eight learners tried the training platform and gave their points of view about it.

Some other profiles also took part in the experience. Workers supervisors from all the seven entities also were interviewed to know to what extent the tool and the contents are appropriated for participants.

On the other hand, two more people, the pilot course and a training expert, gave us their suggestions and remarks about InTraServ training tool.

2.1 EVALUATION STAGES

On this basis, the evaluation procedure was divided in three main stages.

A. **Processes Evaluation**: at this point we focus in all the processes that lead to the training realisation. The main objectives of this stage is to study and analyse the qualification reached through the training, to know participants attitude and also to analyse the e-learning system itself**.**

   At this stage three different profile where interviews:

   - Learners, by means of a questionnaire.
   - Teacher, by means of a questionnaire and a scale.
   - Training expert, by means of a questionnaire and a scale.

B. **Fulfilment Evaluation**: this tries to define which has been the application of the imparted training in the tasks fulfilment, the factors that have hindered or favour transferability and the influence of training for the evolution of employment and working conditions.

   Both learners and workers supervisors gave us information by means of two different questionnaires that, in the case of supervisors, was completed with a scale.

C. **Impact evaluation**: is the last step in this process. The main objective of this activity is to know the efficiency of the training to solve workers needs, to analyse how the training contributes to the improvement and also to know how influences the achievement of strategies and results**.**

   Also learners and supervisors are the best qualified to give their opinion about this aspects. Questionnaires where also here the best mean to get information, and in the case of supervisor, also a scale.

2.2 PARTICIPANTS PROFILES

As stated before, there were four main participating collectives in this evaluation stage:

A. LEARNERS

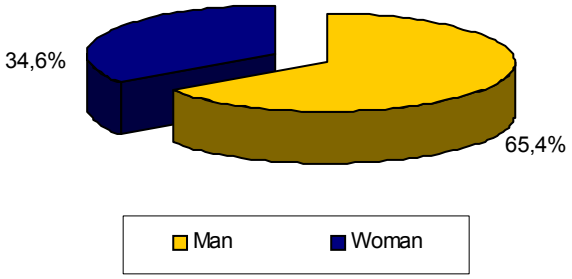
Twenty eight learners were selected from Spanish and Italian SMEs. These companies represent different economical sectors, mainly from services and industrial areas.

There were no significant differences between the two countries and the only requirement was that they had to be managers or intermediate leaders in their companies.

As the following graphs show, a 65,4 % of them were man and a 34,6% was woman. Most of them were between 31 and 40 years old, which represents a young collective. Only one of the participants was over 50 years old.

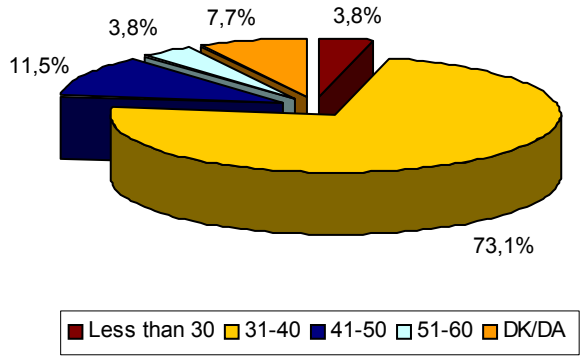
GRAPH 1

LEARNERS GENDER



GRAPH 2

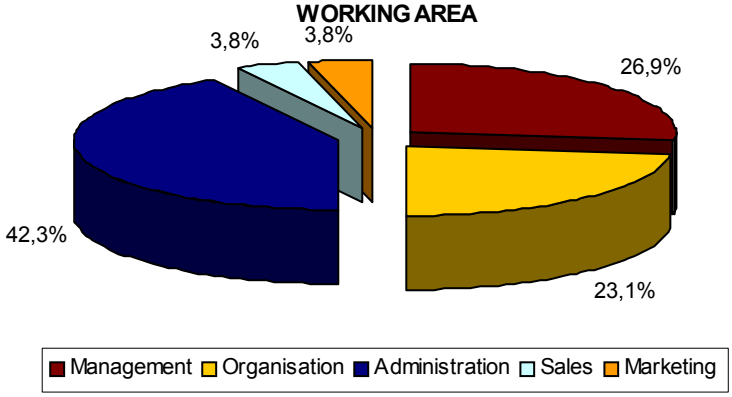
LEARNERS AGE



All the learners were managers in different areas. Around a 42% works on Administration departments and the less representation is from Sales or Marketing departments.

GRAPH 3

WORKING AREA



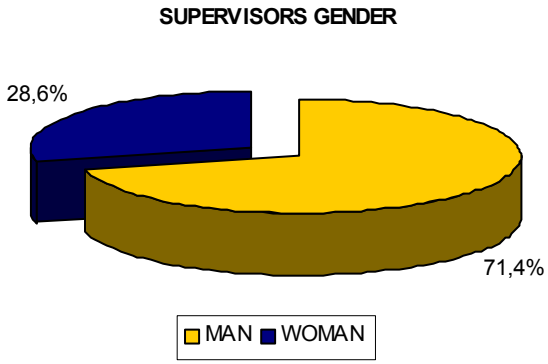
B. WORKERS SUPERVISORS

One of the keys of the evaluation plan is to incorporate other important evaluators, directly related to the learners. The objective is to have a different point of view about the training importance and also about the possibilities that e-learning brings to the professional training process. For this reason, learner's supervisors were also interviewed, both about training in general and about InTraServ training in particular.

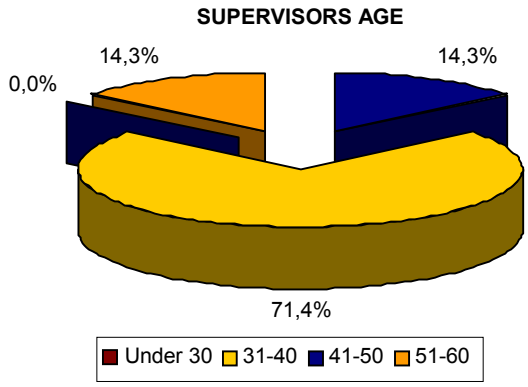
As there were seven the companies participating in the trial, there were also seven the supervisors involved in evaluation. As only requirement they had to have some of the company learners under supervision, and majority of them had all of them.

They were also quite young people, around a 70% of them between 31 and 40 years old and almost three out of four were men.

GRAPH 4



GRAPH 5



They did not have too much people under control, except two of them supervising 50 and 40 people, the other five were in charge of less than ten workers.

The following chart summarize the situation:

	Workers under supervision	Workers under supervision participating in the test
Supervisor 1	3	3
Supervisor 2	50	4
Supervisor 3	40	4
Supervisor 4	2	2
Supervisor 5	4	4
Supervisor 6	3	2
Supervisor 7	9	4

C. TUTOR

It was also essential to know the opinion of the learners tutor. This people, in charge of the monitoring of the test, was also interviewed to let us know their points of view about the apprenticeship process, the implication of the students, their reactions and the results achieved.

D. TRAINING EXPERT

The training expert, involved in the origin of the courses development, gave an interesting point of view. He knew in depth the contents and philosophy of the project and, as a consequence, can give information about the level of potential use that the learners obtained from the created training system.

3. PROCESSES EVALUATION

Processes evaluation gives us information about the tested course itself, the platform as e-learning system, the reasons that lead students to this experience, their expectations and the level of satisfaction reached.

It is important to notice that, at this stage, we still do not receive information about the level of transferability. Anyway, we can consider it as the central assessment stage since it covers the points of view of three main actors: learners, tutor and training expert. We can cross the remarks given by all of them to achieve objective conclusions.

On this basis, we can establish the areas that require improvements or changes and also know those that are properly designed. These informations provide guidelines to follow in future actions.

At this point we have to emphasize that the course was tested in a real training and labour context, which means that learners were management people from different departments in SMEs. They had to coordinate their daily tasks with training. As the range of elaborated courses is not yet wide they had to study contents that, for some of them, maybe do not exactly fitted their needs.

In order to analyse the results it is essential to divide them into several items or aspects. There are four main groups of information: students, e-learning system in general and the case of InTraServ platform in particular and motivations and previous experience with ICTs, opinion and level of satisfaction about the tool (including contents, methodologies, communication…) and, finally, improvement suggestions.

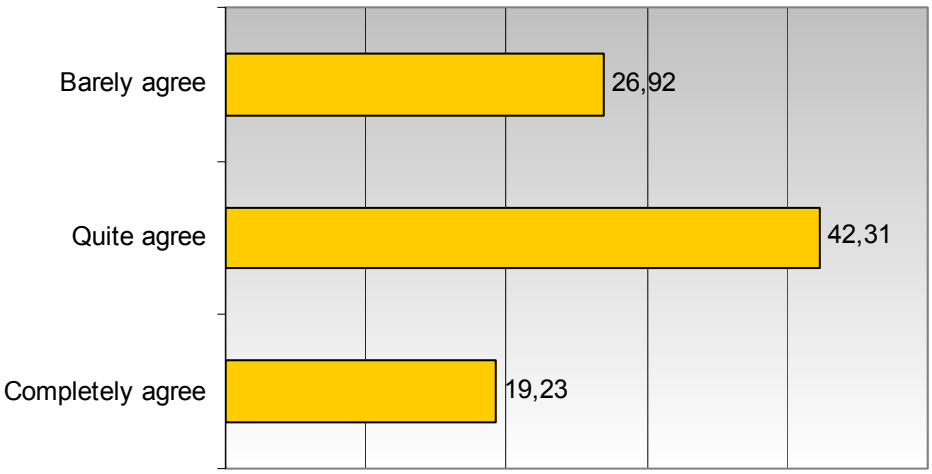
3.1 STUDENTS MOTIVATIONS

After the students acceded the course and tried the platform globally they were asked about several areas, mentioned above. One the most important things to analyse were the reasons that lead students to carry out an on-line course. In this case, the experience was part of a project so the "real" motivations can be considered as the opportunity to test a pilot web-based learning platform.

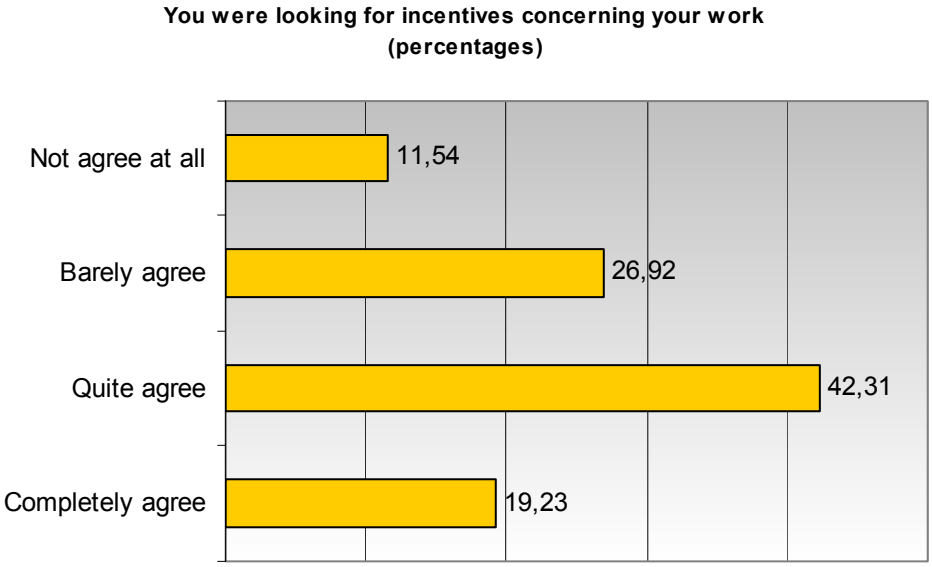
Directly asked about the motivations related to work for receiving training, most of the learners explained that, although they are quite interested in looking for incentives at work they do not consider training for applying it at work but for acquire knowledge. Personal interest seems to be one of the main reasons for participating in professional training.

GRAPH 6

You started the course in order to enlarge your knowledge, but not being especially interested in applying it to a job (percentages)



GRAPH 7

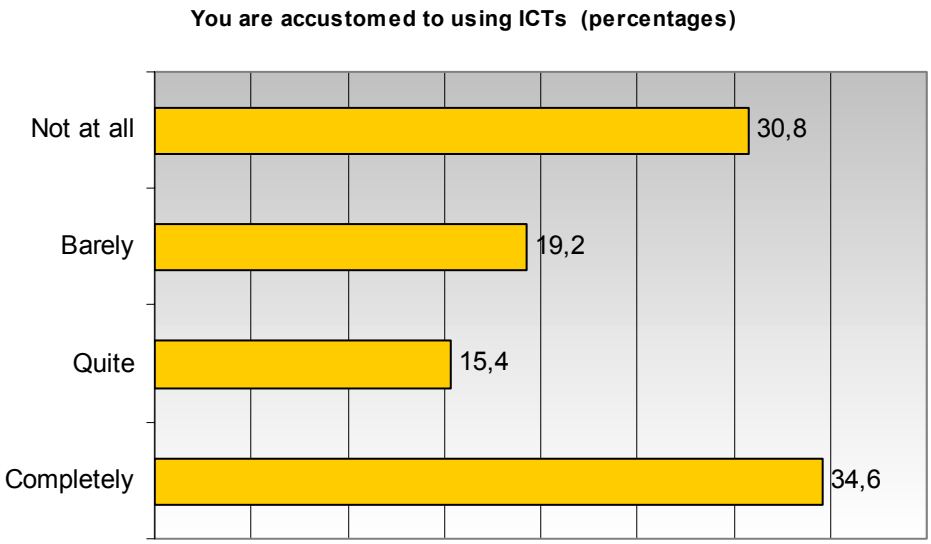


3.2 E-LEARNING

As the created training tool is based on web pages and enables to impart and receive on-line courses there were other questions to analyse. First of all we wanted to know if learners were accustomed to using ICTs in their daily life, it did not matter at this stage if in personal or labour context, and if they had previous experience in e-learning.

Obtained data are very interesting because, although majority of learners have experience concerning new technologies, there is a high percentage of users, around a 30%, that did not use them at all. Later we will see the level of satisfaction with the experience, but we can advance that considering this aspect it is really high.

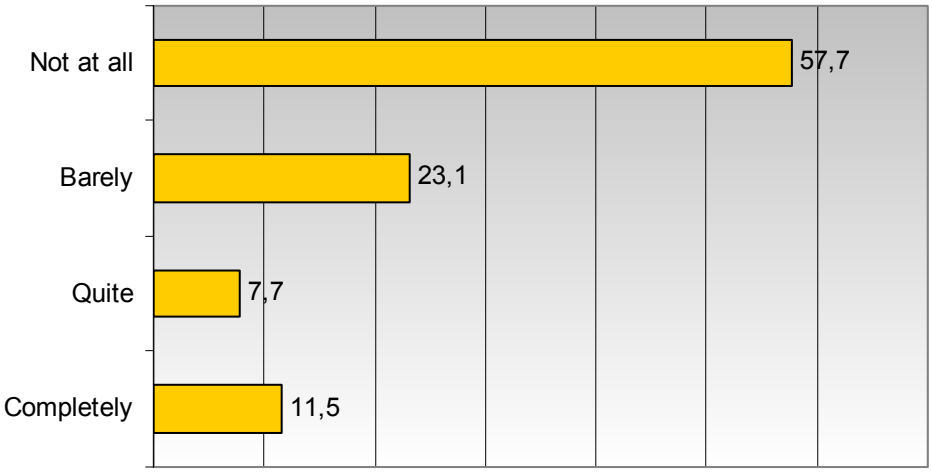
GRAPH 8



Most of the users had no previous experience with e-learning courses, but they think that overcome time and location barriers is one of the advantages that they would get from this kind of system.

GRAPH 9

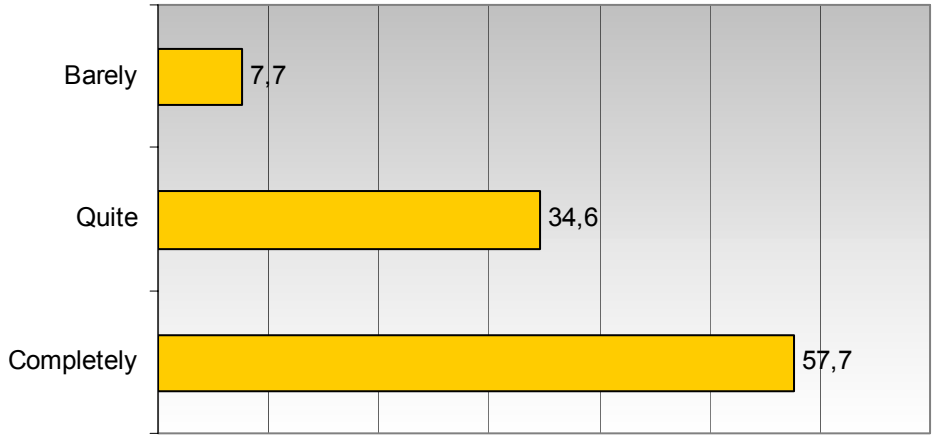
You had previous experience as attendant of e-learning courses (percentages)



We can see in the graph above that a 57.7% of the students had no previous experience with e-learning systems. Anyway, as we explained before, although the decision to participate in this experience was free and they were volunteers, they were under the framework of a concrete project. So it is not clearly time or space restrictions, which motivate to take part, but for sure the students agreed that they are the best advantages. We will confirm this point later too, when talking about e-learning advantages.

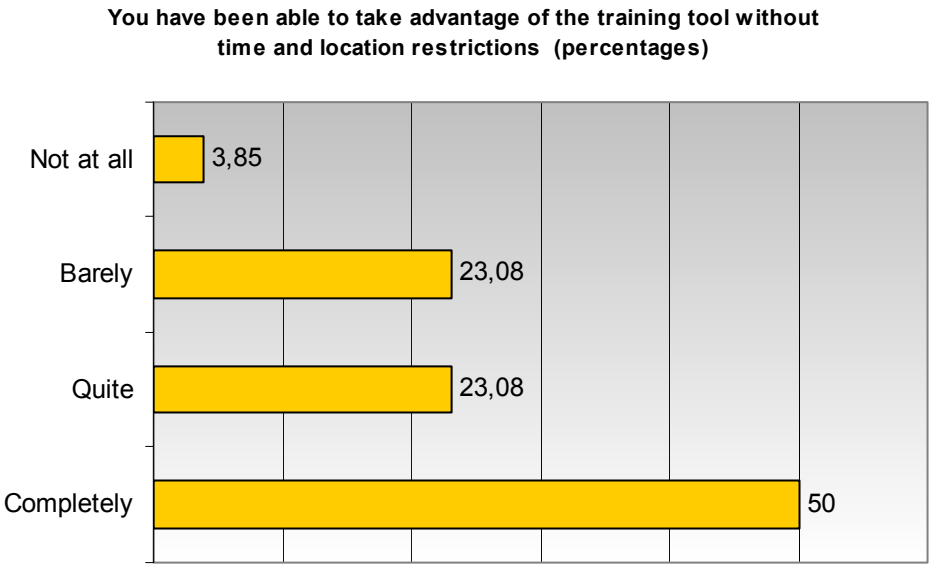
GRAPH 10

You decided to start the course owing to the opportunity of Distance Learning, in order to get training without time and location restrictions (percentages)

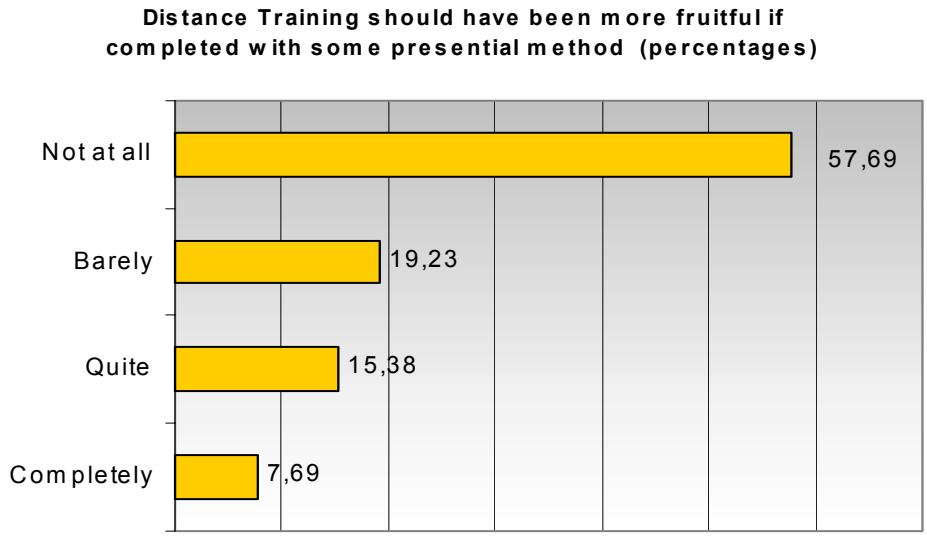


This way of thinking is also confirmed by the fact that students think that mentioned barriers were overcame in this experience, and do not consider necessary at all presential supporting training to take advantage of contents.

GRAPH 11



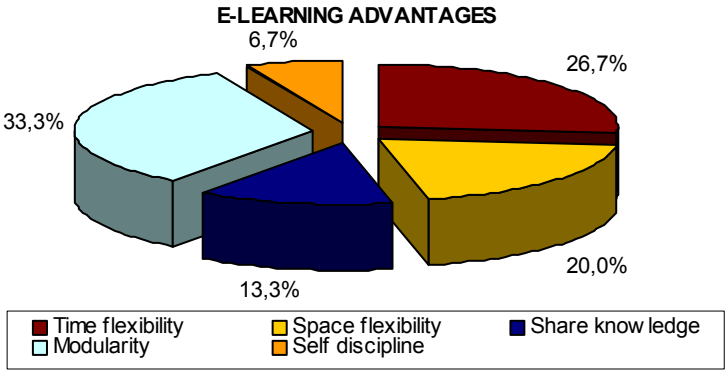
GRAPH 12



In this case we can see as majority of participants considered the e-learning methodology good enough as they did not think that traditional classes would have improved the received training.

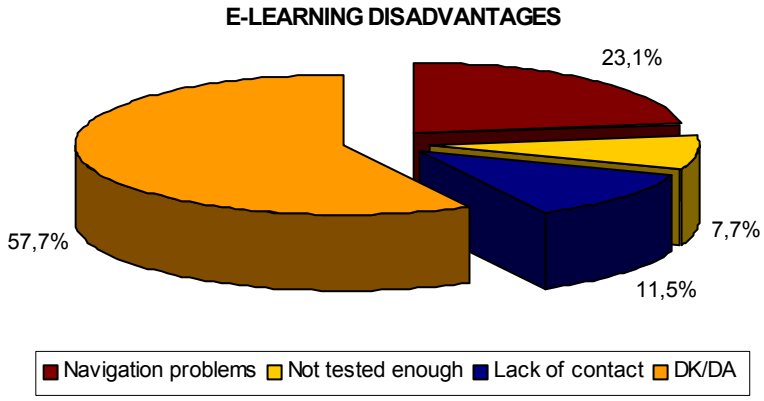
Students gave us some remarks on what they consider advantages of e-learning systems and also on their weakness.

GRAPH 13



Advantages are clearly linked with the election possibilities, understood them as the freedom to choose connexion hours, place, contents and so on. The student can adapt the apprenticeship process to their needs and previous knowledge. On the other hand, e-learning disadvantages mainly deal with technical aspects. It is also significant that most of the participants do not know which could be these disadvantages.

GRAPH 14



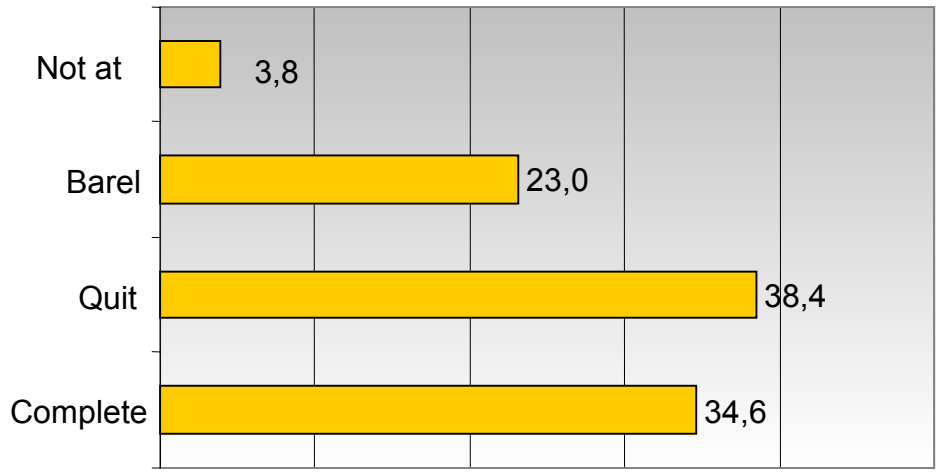
3.3 LEVEL OF SATISFACTION

Evaluation Plan intends to get information about the level of satisfaction about InTraServ training platform. Not only technical aspects were interesting for us but also contents themselves, methodology, communication possibilities and possibilities brought to combine training and working activities.

In general, the valuation about InTraServ e-learning system is very good. When asked if they felt satisfied about received training most of them answer positively, as we can see in the graph bellow.

GRAPH 15

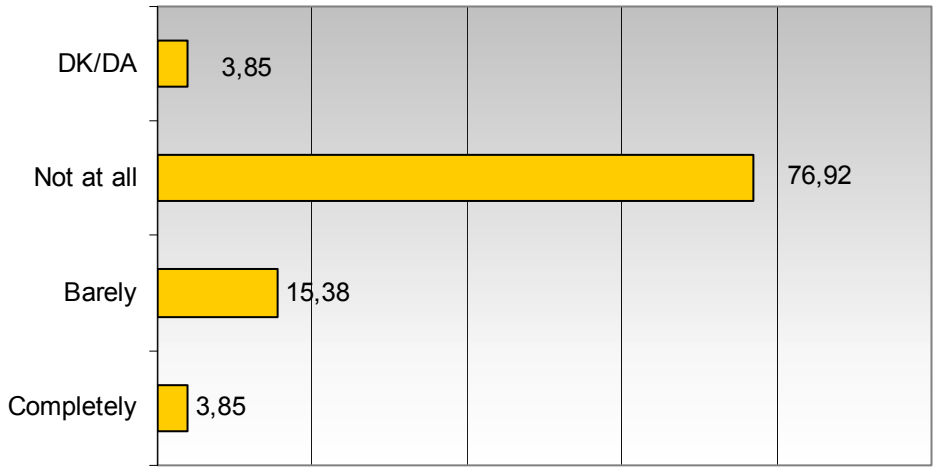
You feel satisfied with that you learned at the training course (percentages)



Only one of the students thought on leaving the course, and a percentage of 77% never thought on doing it. This would confirm the interest on the experience and the level of satisfaction about it.

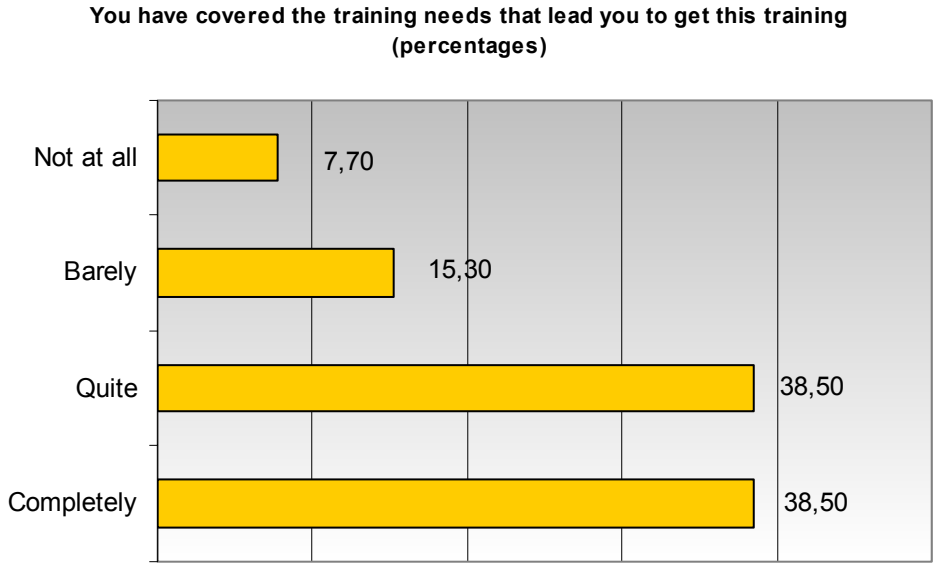
GRAPH 16

You thought on leaving the course (percentages)



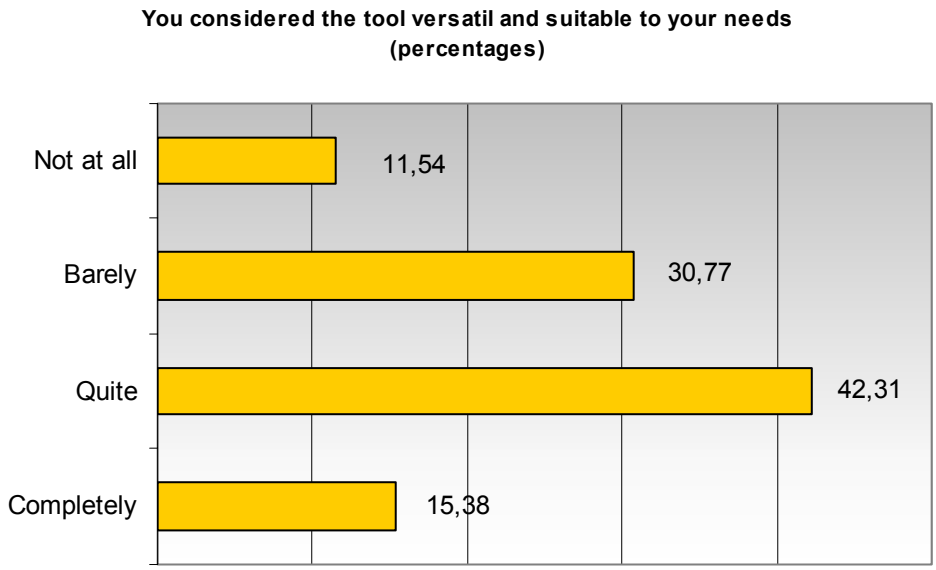
In general, InTraServ course covered users training needs. The system customized the contents according to the learner previous knowledge and users detected that individual needs were satisfied.

GRAPH 17

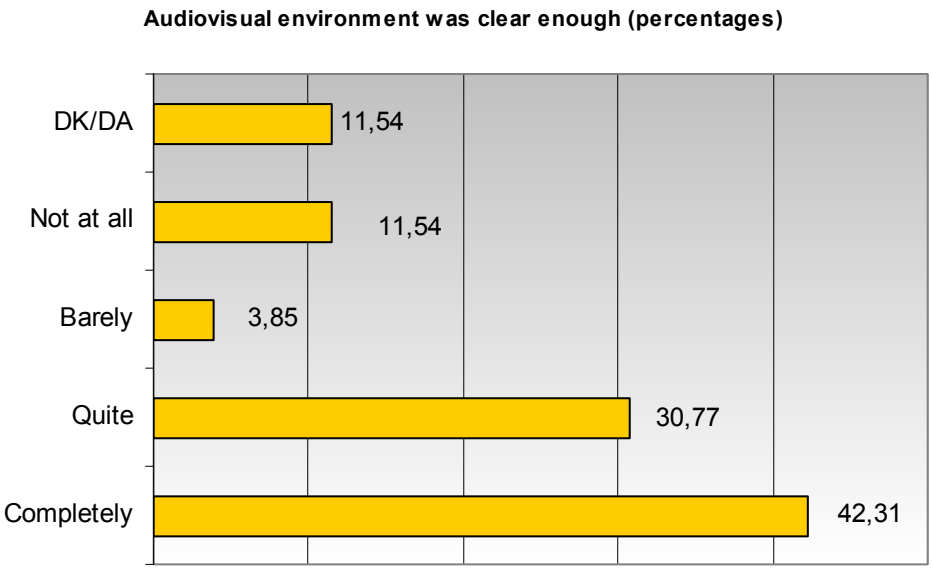


Apart from contents we would like to emphasize that students easily used the system, especially if we take into account that, as mentioned before, a high percentage was not accustomed at all to using ICTs and 57.7% of them had no previous experience on e-learning contexts.

GRAPH 18



GRAPH 19

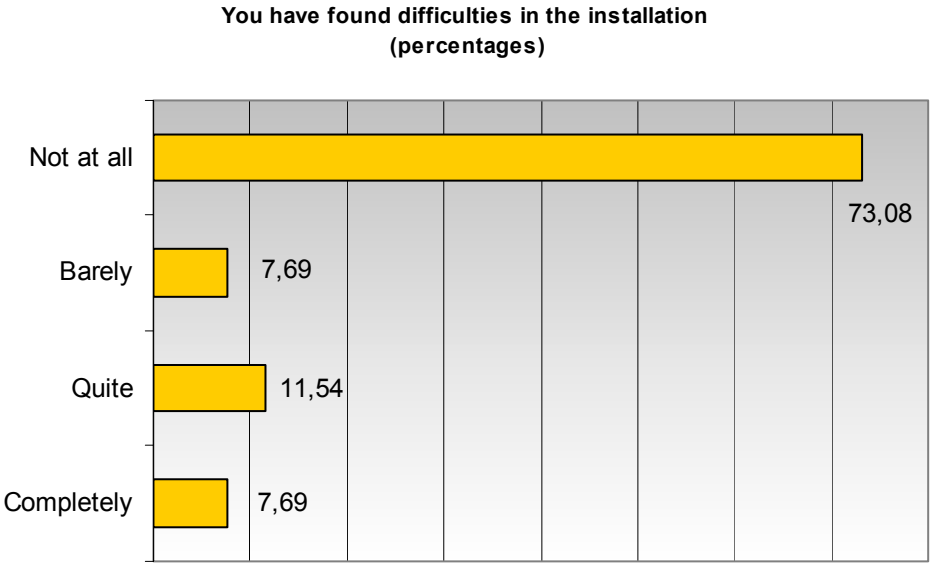


It is also important to notice that, although the general valorisation is positive there is a percentage of 11,54% thinking that the environment is not clear enough and the tool does not fit their needs. We should take this information into account when introducing improvements or changes.

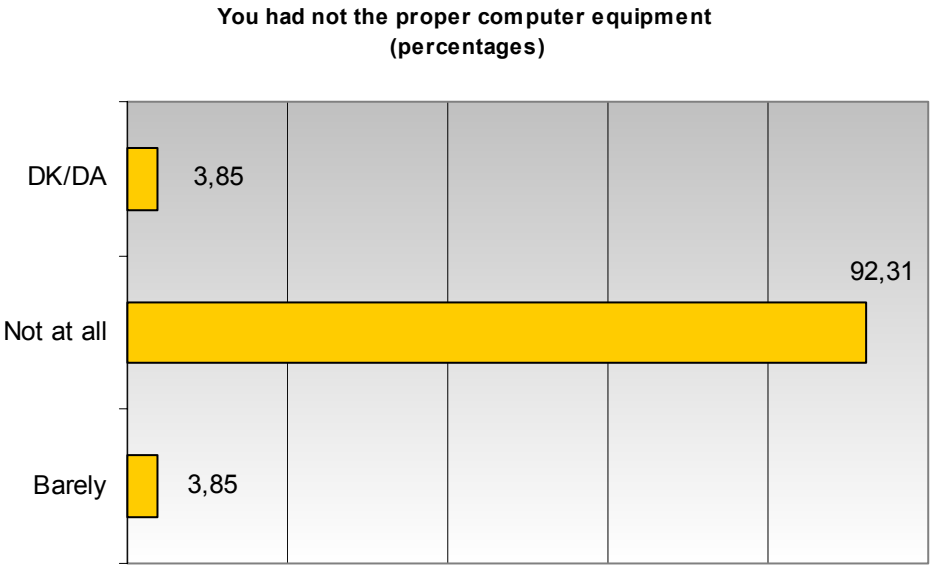
These points of view would be confirmed by both the teacher and the training expert, because they also considered the course adapted to pupils needs and completely agree when asked about the positive opinion of students and their level of satisfaction.

If we focus on technical aspects, we can check that the main part of the users did not found difficulties and the computers were proper enough. Tutor did not detected special problems due to the technical knowledge among students and teacher also expressed the same opinion.

GRAPH 20

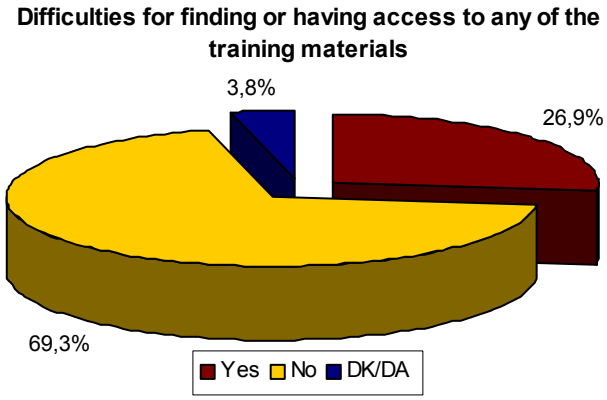


GRAPH 21



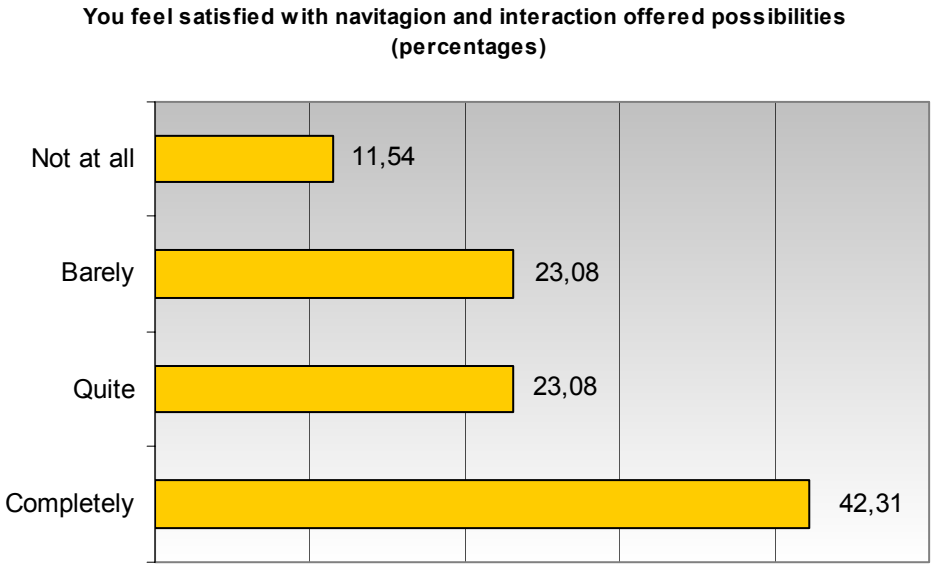
This graph shows how users do not agree at all with the statement about their computer equipments. They also do not were supposed to have great difficulties to find or access the training materials so the only real problems expressed were technical problems with Internet connexions, which are not directly linked to the platform itself, usability and translation problems.

GRAPH 22

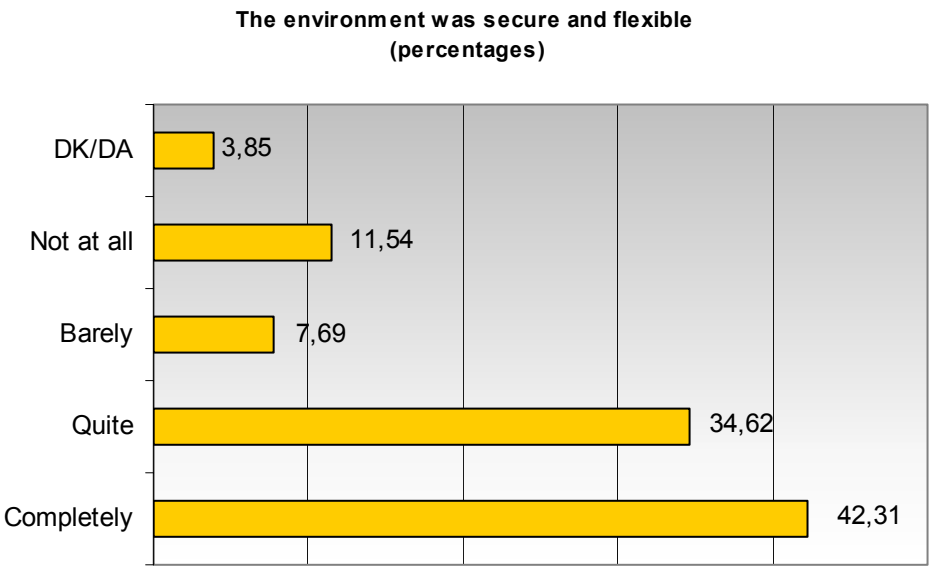


Summarizing technical aspects, we can affirm that the interface and navigation environment were satisfactory for most of the users. More than a sixty per cent felt completely or quite satisfied with offered possibilities on these areas. They also think that the system is secure enough on around a 75%.

GRAPH 23



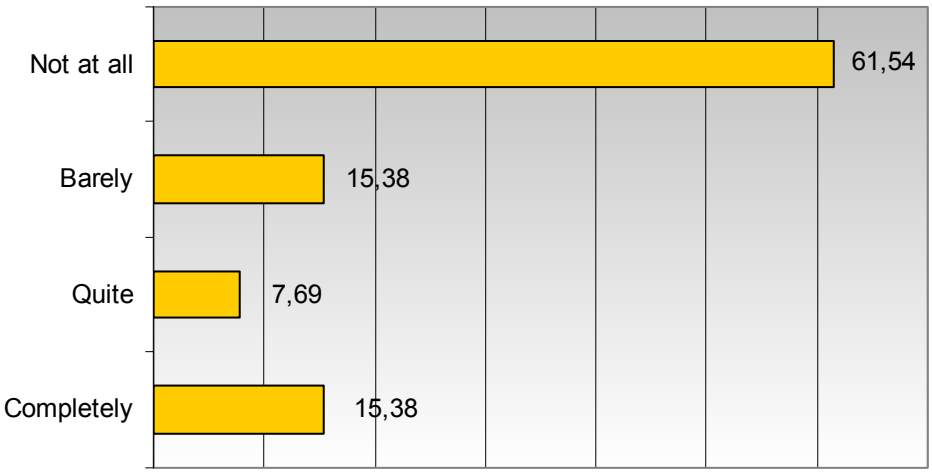
GRAPH 24



Definitively, technical problems did not interfered on apprenticeship in a special way but they are a point to take into account as around a 25% of students think that they were an essential or quite essential obstacle on their training process.

GRAPH 25

Technical problems have made difficult the apprenticeship (percentages)



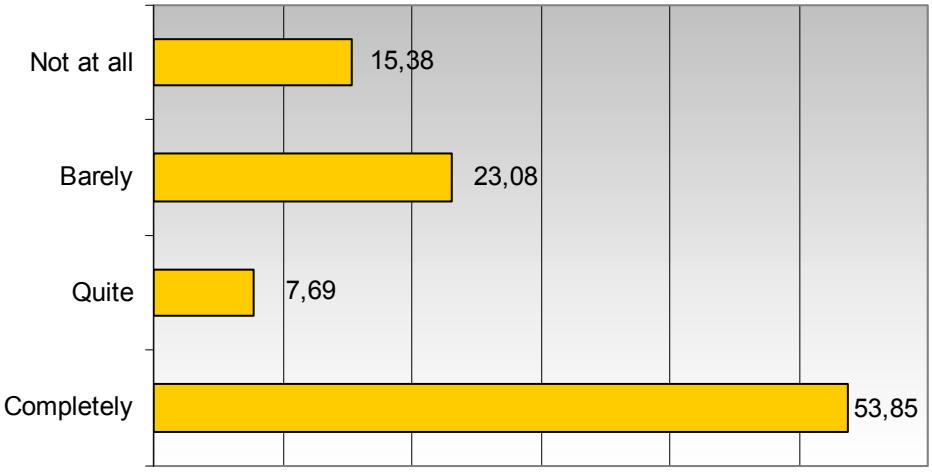
3.3.1 CONTENTS

Contents are the basis for apprenticeship. They have to fit students' needs and be presented following the proper methodology. One of the key points of InTraServ was the possibility of customize the contents to the user profile and allow her or him to accede them in a modular way.

The general impression from students interviews is that they found good contents. Most of them think that they were clearly presented and structured, as the following graphs show.

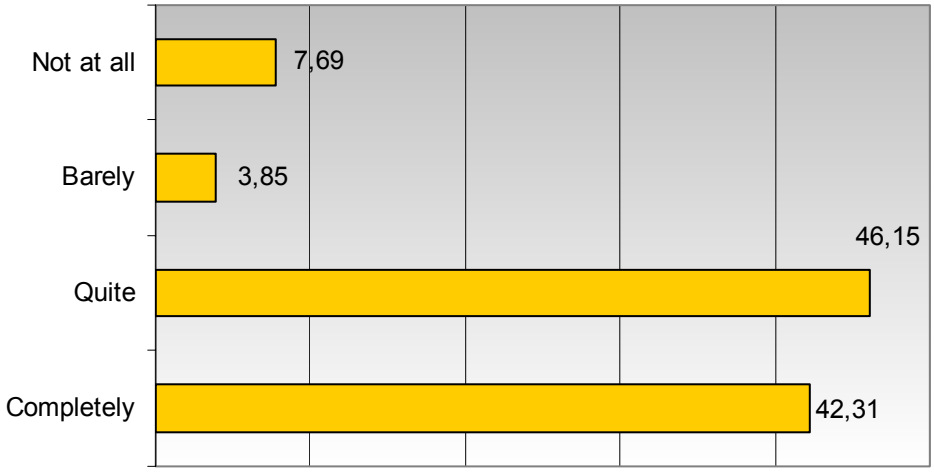
GRAPH 26

Contents have been clearly presented (percentages)



GRAPH 27

Contents were structured enough (percentages)

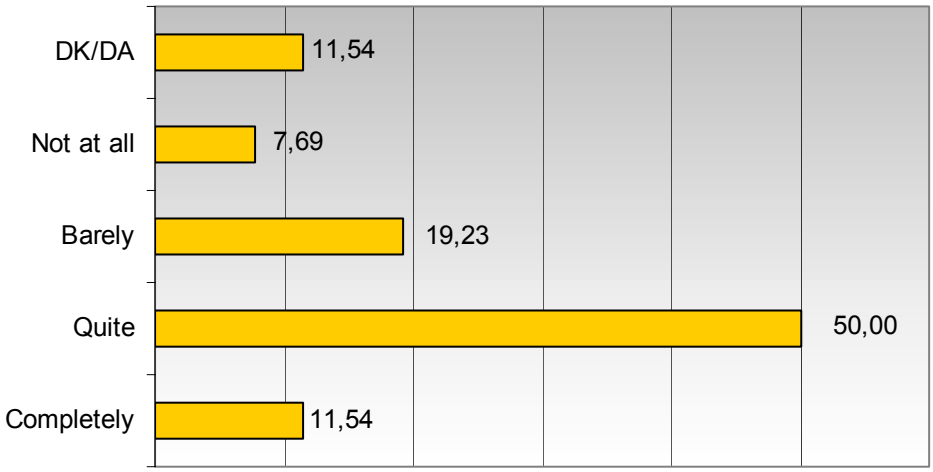


Students also told us which were the subjects that presented more difficulties for them. We can highlight technical concepts and practical use of theoretical questions. On the other hand, there are three main areas that fulfilled their interest and are considered relevant from all learned concepts. They are Making decisions theme, Strategical planification and, a little bit less efficiency measuring.

Related to these questions, participating people emphasized the importance of practical cases as examples of real contexts where apply concepts. More than a half of learners consider that practical contents were very useful to understand theory.

GRAPH 28

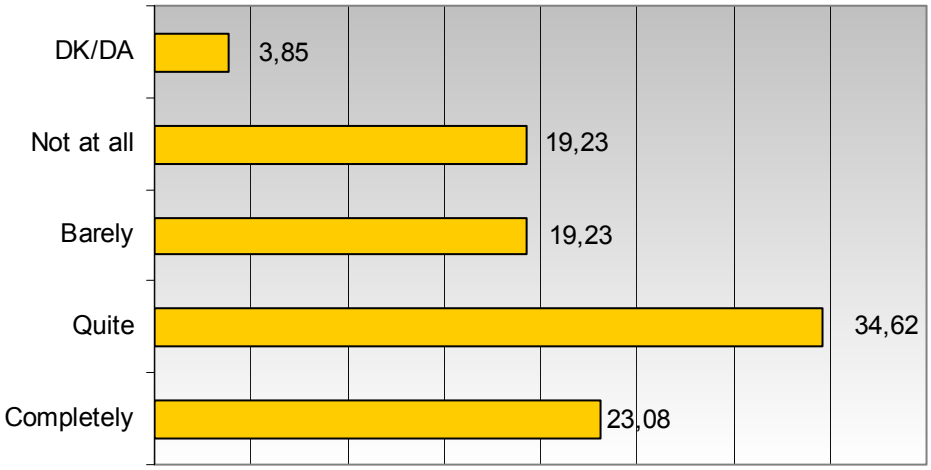
Practical cases have helped the apprenticeship (percentages)



And more than 50% of students would add practical cases to the contents presented, as the following graph shows.

GRAPH 29

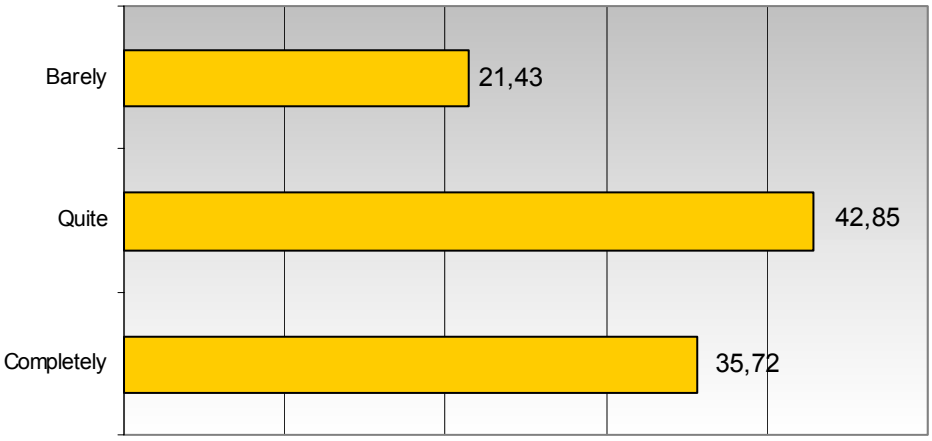
It is necessary more practical contents (percentages)



In this sense it is very important to emphasize the positive opinion of the students toward the Business Game. This consisted on a practical and real situation were they had to analyse and make decisions in an enterprise context on the basis of the concepts learned. Around a 78% of the students agreed (completely or quite) that Business Game is suitable in the training process.

GRAPH 30

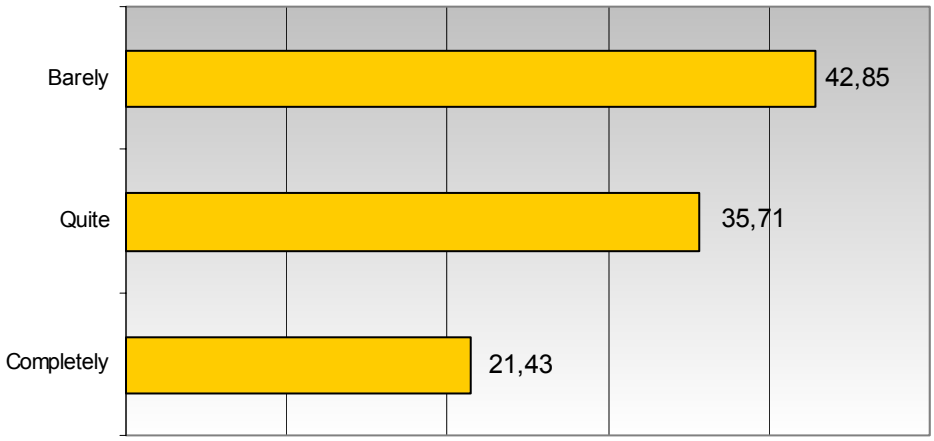
The learning approach of Business Game is suitable in the training (percentages)



They also found quite useful in they daily activities the questions they saw in Business Game, so the practical approach not only was interesting to test apprenticeship but also provided tools for the student real working context.

GRAPH 31

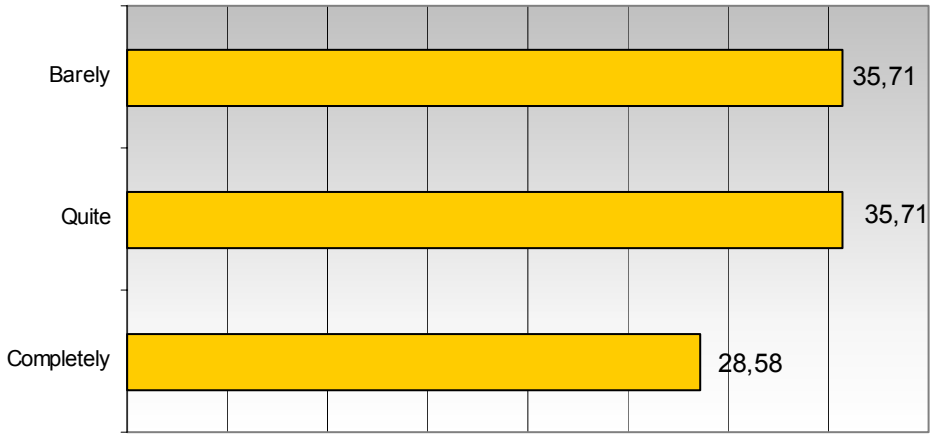
The Business Game for strategic decisions is useful in my daily work (percentages)



These results can be justified for the realistic exposition of this kind of exercise. As we can see in the graph bellow, 28.58% of students completely agree with the utility of Business Game for strategic decisions and a 35.71% quite agree with this statement.

GRAPH 32

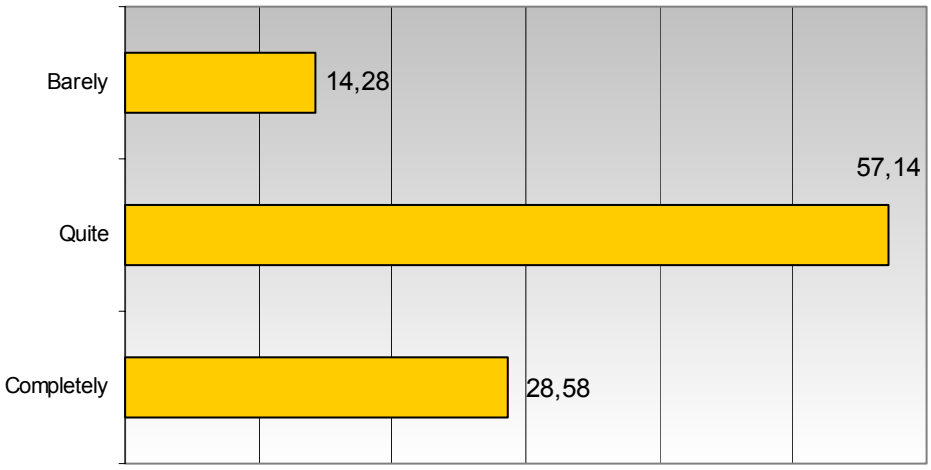
The Business Game for strategic decisions is realistic simulation (percentages)



The key of the success can be the simplicity in the use of the Business Game and the opportunity provided to put in practice the theoretical questions. Majority of the learners thought that the Business Game is simple to play, as the following graph shows.

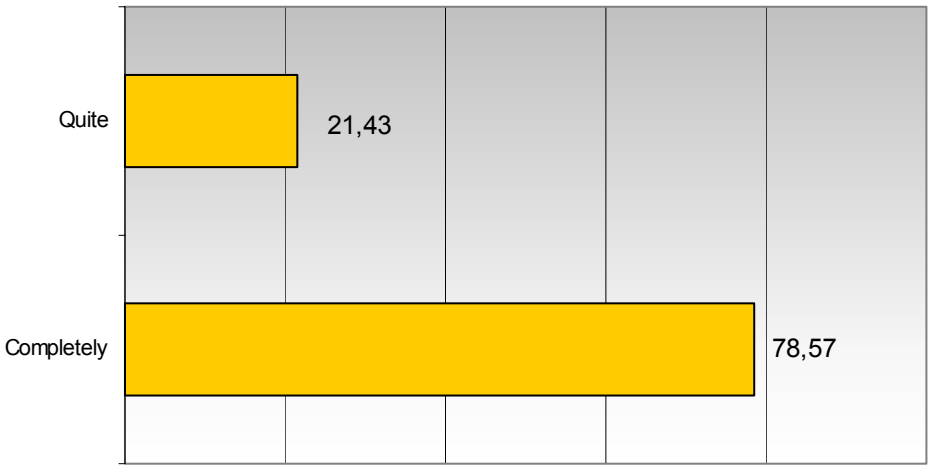
GRAPH 33

The proposed Business Game is simple to play (percentages)



GRAPH 34

I would like to take part to another Business Game (percentages)



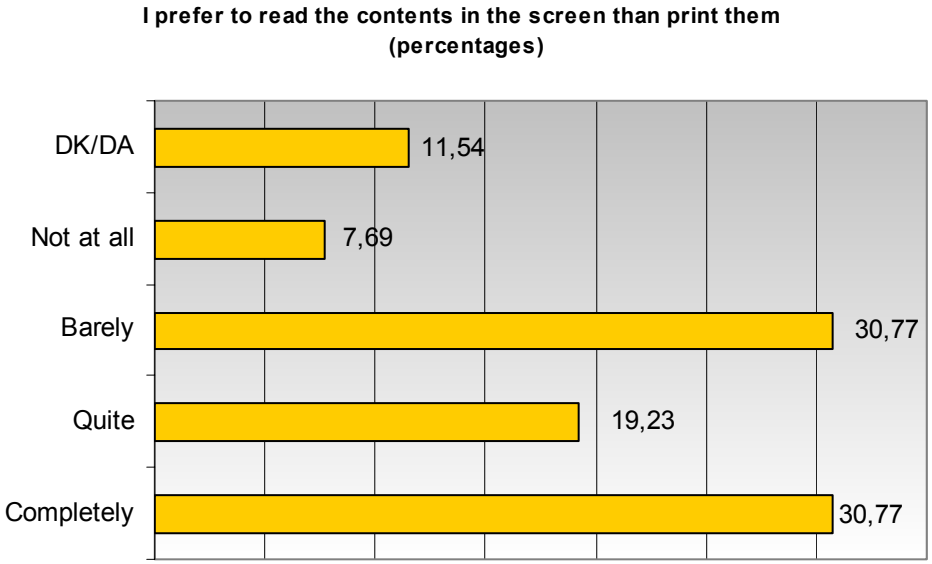
And also a majority of the them would be interested in repeating the experience. We have to highlight that nobody gave a negative opinion on this part of the course.

3.3.2 METHODOLOGY

There are some other interesting questions to analyse related to e-learning methodological aspects. Training expert pointed that the methodology used in InTraServ system fully answers managers and directors needs, so the course material organization is synthetic and immediate.

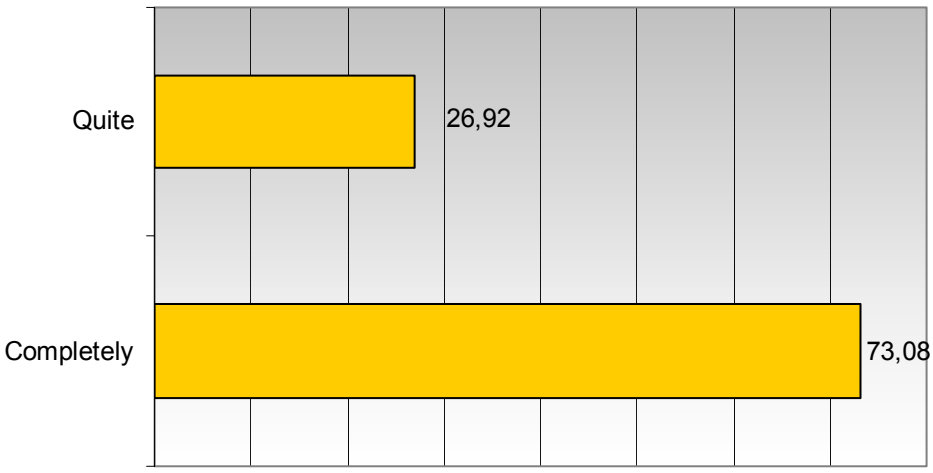
This way of presenting contents was also appreciated by the users that, for example, thought in approximately a 50% that it is better to read the texts on the screen better than printing them. But there is also a high percentage of them that are not completely convinced about this point, around a 38%.

GRAPH 35



They also prefer to have a visual apprenticeship environment, one of the advantages of the new technologies applied to training processes. Pictures, charts, maps and, in general, visual elements favour the interest and make easier concepts assimilation. All the students agreed on this point.

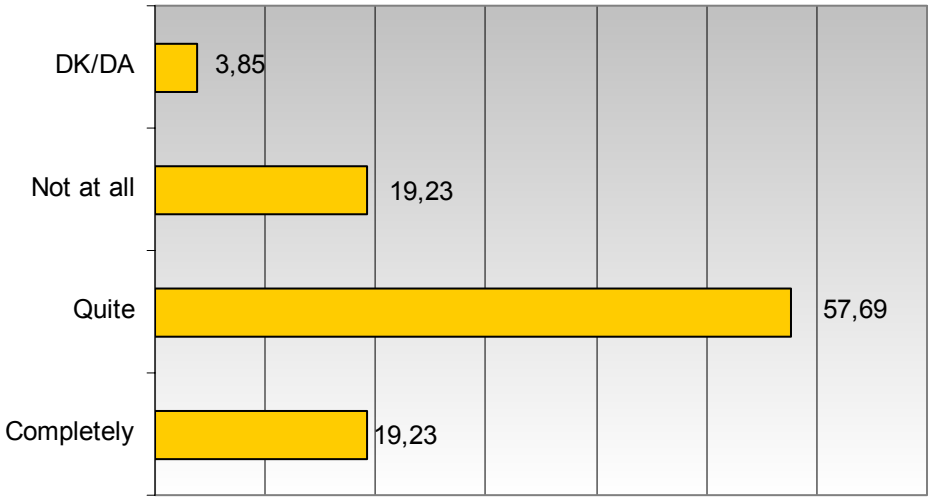
GRAPH 36



Concerning assessment methodology, based on previous access test, chapters tests and final evaluation test, students agree with the plan proposed, although not forcefully. A 57.7% of them are quite satisfied with this method and a 19.2% feel completely satisfied about it in front of a 19.2% of students that did not like it at all. This introduces some guidelines of improvement in methodological aspects.

GRAPH 37

I feel satisfied with assessment method (percentages)

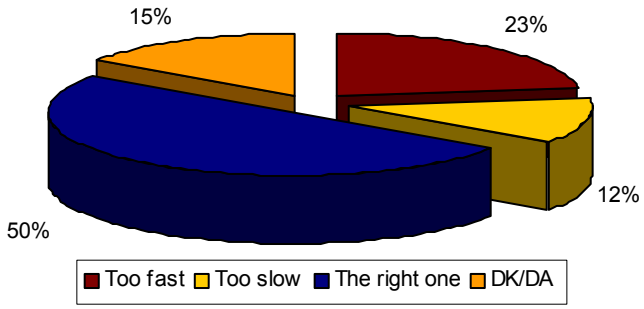


It is interesting to introduce here the expert and tutor's point of view. In fact, they considered that the assessment method gave the most positive results, taking into account that intermediate tests showed satisfactory levels of learning reached by students.

Tutor expressed that the course lasted around 40 hours, and from her/his point of view the structure was appropriate. This would be confirmed by students. When asked about the apprenticeship rhythm established, half of the participants felt satisfied about it. However, we have to emphasize here that almost one out of four expressed that the course was too fast.

GRAPH 38

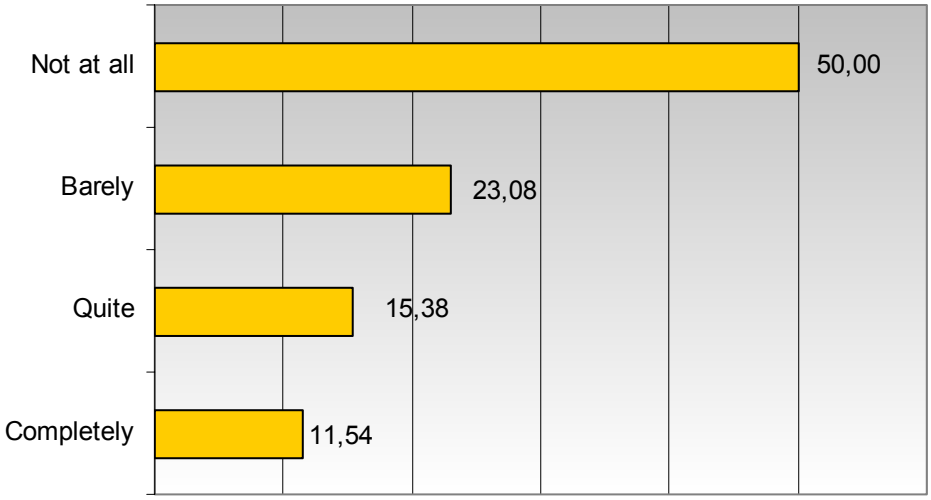
The training plan rhyhtm was...



Anyway, they would not preferred a shorter course in a 50% but the other 50% could be interested, at different levels, on an extension in terms of time for receiving the training.

GRAPH 39

You should prefer a shorter course (percentages)



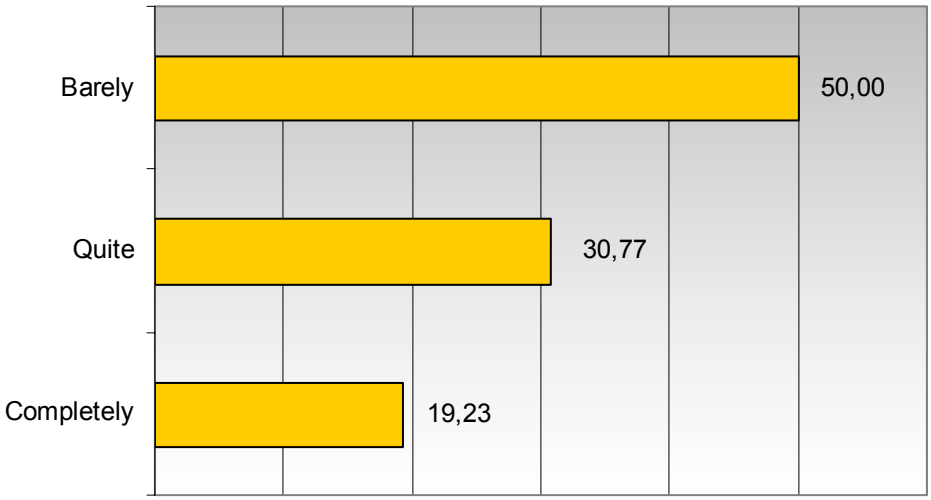
3.3.3 COMMUNICATION ASPECTS

One the weakness traditionally attributed to e-learning systems is the lack of communication and the student loneliness. InTraServ system established means to avoid this lack and to promote participation but, as we can see, students did not use them to a great extent.

Just half of the learners did not use forum at all and a 30.8% barely used it. Although available, communication tools are not usually used by students.

GRAPH 40

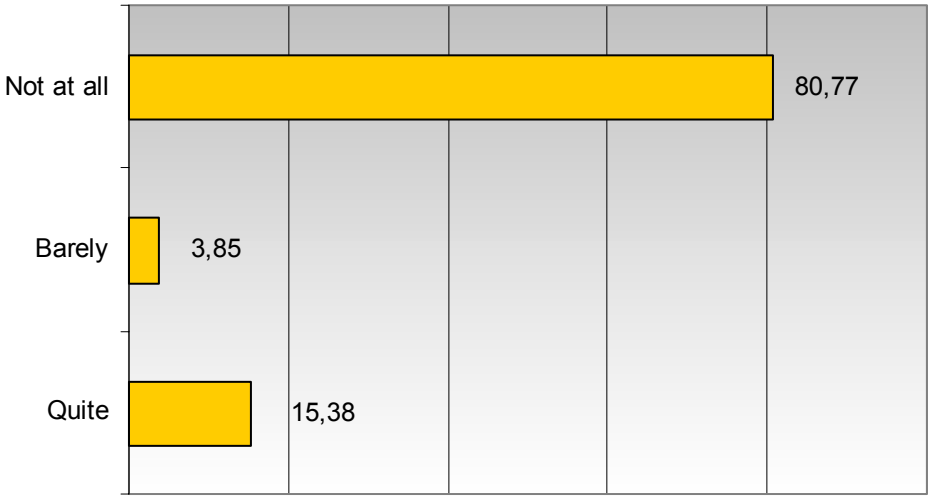
You took part in the forum (percentages)



We also see that they did not contact teacher for clarifying doubts or ask for guideline. An 80.8% did not do it at all, and only a 15,4% did it quite often.

GRAPH 41

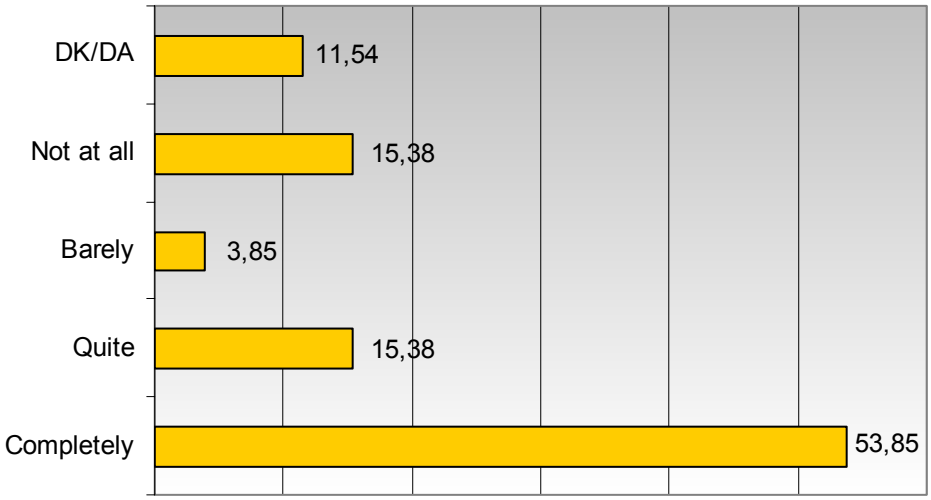
You contacted the teachers to consult doubts (percentages)



This data contrast with the information given later referring the level of satisfaction about the communication with teachers. More than a half of students felt completely satisfied with teachers activities and only a 15,4% felt not satisfied at all.

GRAPH 42

You feel satisfied with teachers activities (percentages)



In fact, tutor told us that the questions that students presented were 15. In this case, we can check low level of communication. At the same time, the tutor perception was that pupils were not too devote to the course so the difficult here is to take the students attention and implication.

On the other hand, training expert also told us that, although he thought that students were quite interested in learning, one of the ways to improve learners´ skills and competences is a strong and frequent interaction with the teachers.

When talking about communication it seems that one of the questions that should be improved is the level of implication of students and their interest on using communication tools.

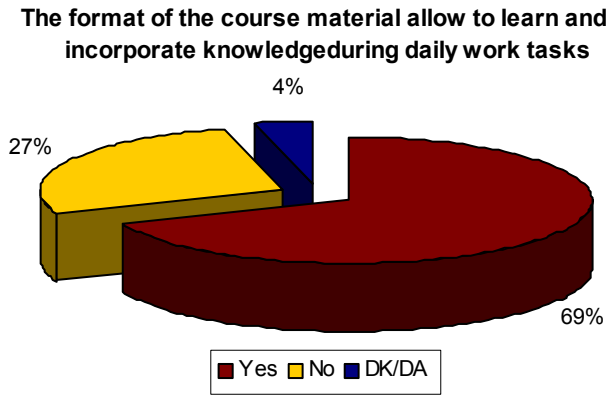
As a consequence of the information given we can conclude that teachers were not perceived as necessary for the majority of the students. Anyway, and apart form the several reasons that can explain this statement, we can also detect a significant percentage of participants that were not completely satisfied with communication so participation promotion could be one of the improvement areas. The final objective would be to achieve a complete satisfaction about this point.

3.3.4 TRAINING AND WORK COMBINATION

One of the essential elements when talking about professional training is the possibility of transferring acquired knowledge to real working activities. As the main objective of this kind of training is to improve workers skills and capacities we can consider a course successful if students are able to use learnt concepts to solve real problems in labour contexts.

Sometimes, as training is mainly received at work, students can apply knowledge immediately. When asked about the possibilities of incorporating learnt concepts into daily work most of the users answered in a positive way.

GRAPH 43



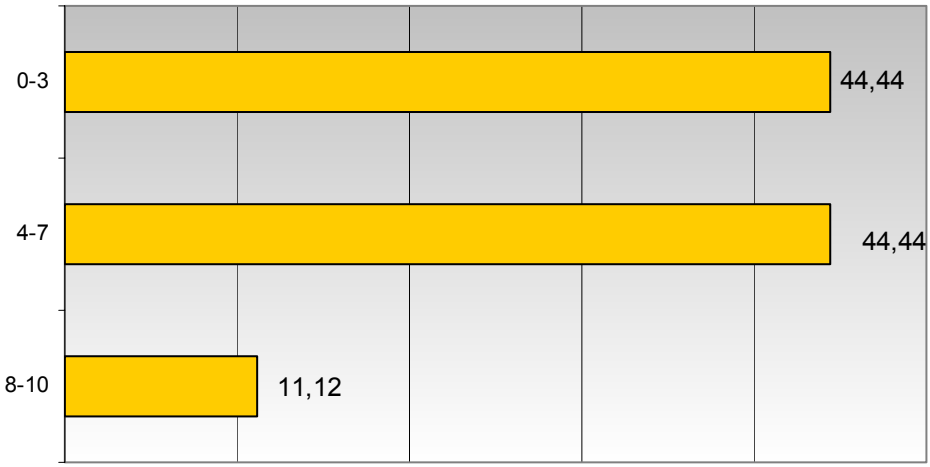
Those that answered no to this question think gave us as reasons that the course contents were too theoretical and the lack of practical cases. They also explained that the course did not fit they needs but, as explained at the very beginning, we have to take into account the character of trial of this experience and the limitation on the courses offer.

3.4 OBJECTIVE RESULTS

Additionally to the students opinion we also had to get objective information about the level of knowledge achieved by the students. To evaluate the assessing the success of the learning process we make a quantitative evaluation through a start an final test on the course concept and we make in confront the results of students of static course and of enhanced course where the student are followed by a intelligent tutoring system.

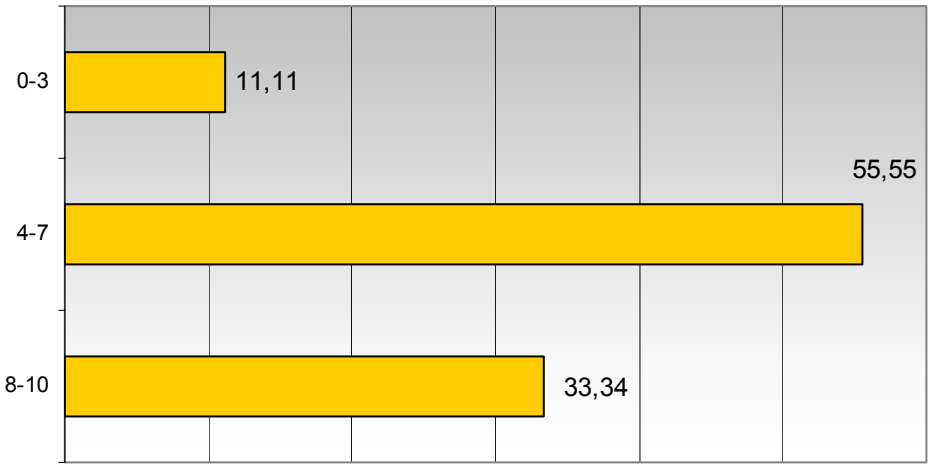
GRAPH 44

Start Test Result (percentages)



GRAPH 45

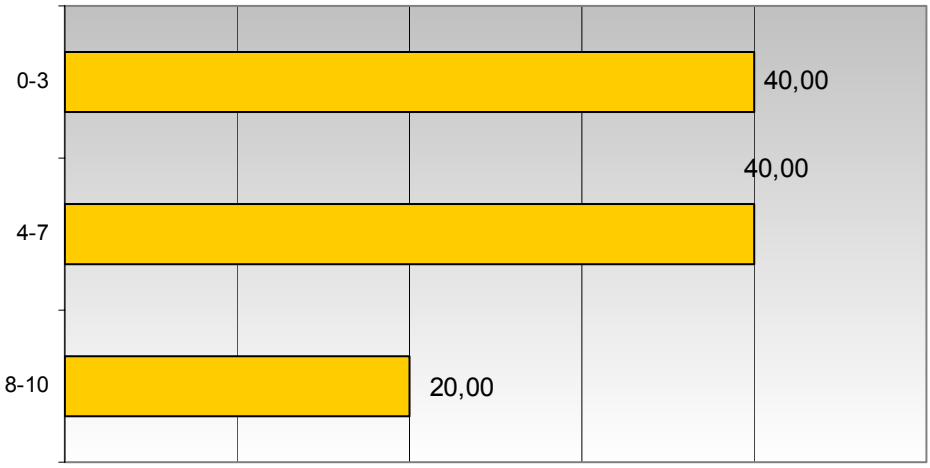
Final Test Result (percentages)



Previous graphs show the efficiency of the training in global, how we can see we have an improvement of the skill, in fact before the course we have about 44% of the students at low level of competence and only the 11% to high level, after the course we have only a 11% of the students with a low level of competencies and 33% of the students at a high level of competencies, so we have about 88% of students between medium and high level of competences.

Following graphs show the efficiency of the just-in-time on-the-job personalised training tool. We compare the results of the student that have followed the course in the classic way (Simple Course) and the results of the student that have followed the course with the just-in-time on-the-job personalised training tool (Enhanced Course).

GRAPH 46

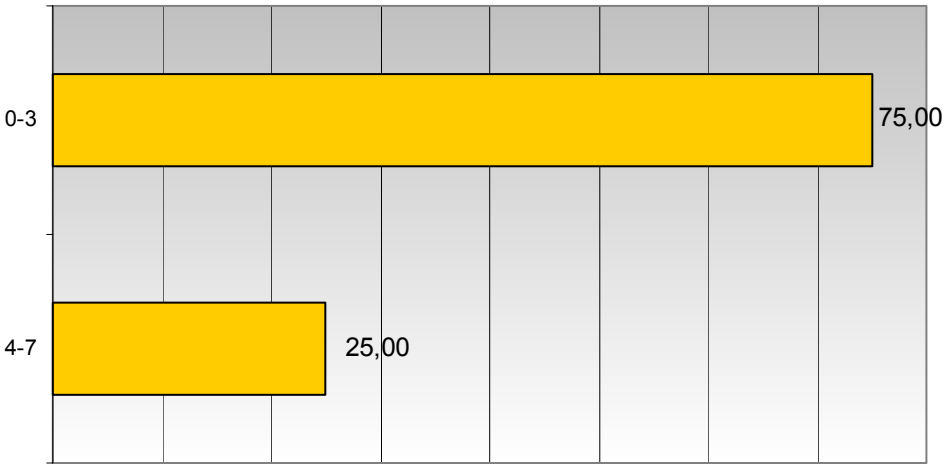


GRAPH 47

With the classic course we have an improvement of 40% from low level competencies to medium level of competencies.

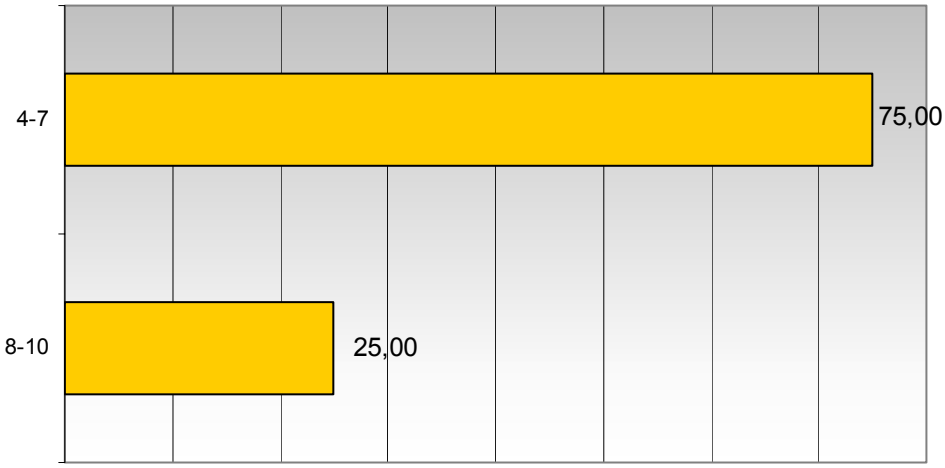
GRAPH 48

Start Test Enhanced Course Students (percentages)



GRAPH 49

Final Test Enhanced Course Students (percentages)

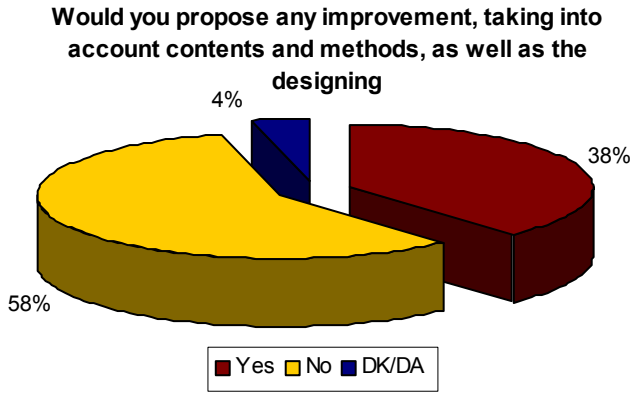


With the enhanced course we have an improvement of 75% from low level of competencies to medium level of competencies and an improvement of 25% of high level of competencies. So we can conclude that, from an objective perspective, the positive effects of this kind of course in the apprenticeship process are clear.

3.5 IMPROVEMENT SUGGESTIONS

To finish this first stage of evaluation among students we asked them about lacks of improvement suggestions for InTraServ system and tested course. Around a 57% of users told us that they would not include or change anything, which is very interesting information and reflects the level of satisfaction. On the other hand, approximately a 38% of them gave us some improvement remarks.

GRAPH 50



Those improvements had to do with interactivity and practical examples as main answers, but also with communication and usability. This information just ratifies the information obtained from previous questions.

Training expert and tutor also gave us some improvement suggestions for the system. On the one hand, training expert suggested to add some elements to the contents, for example, enterprise strategies and decisional processes and notions of management control. These aspects agree with the suggestion made by tutor: management control, enterprise strategies, decisional processes and marketing.

4. FULFILMENT EVALUATION

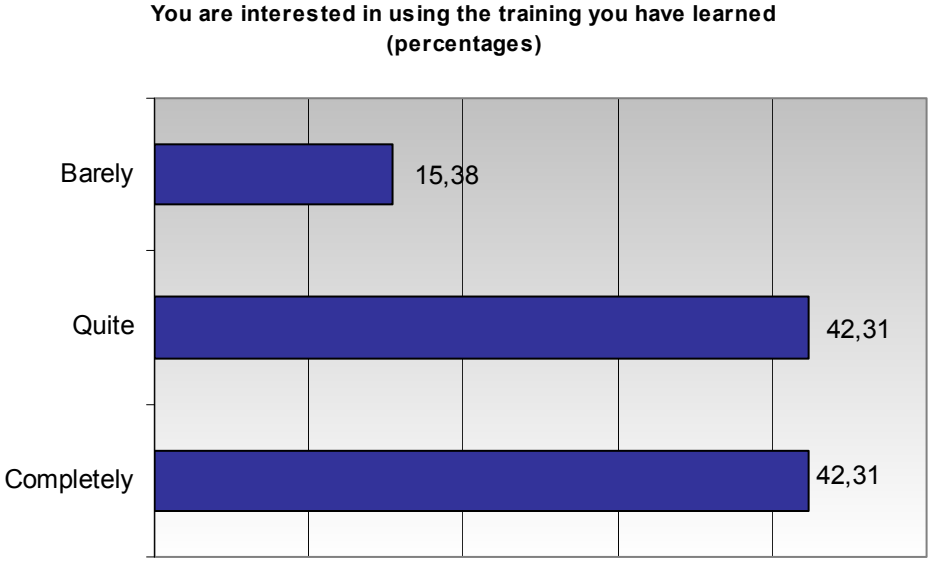
Fulfilment evaluation stage is clearly aimed at obtaining information about the degree of knowledge application on working daily tasks. If this application is not possible we can detect which are the elements that could have hinder the transferability and, after that, we can analyse the influence of the received training on the workers employment in terms of facilitation of tasks and including possible career evolution.

We interviewed both students and supervisors in order to obtain quantifiable data to measure all mentioned aspects. Some of the comments are also interesting, so we would incorporate them to the analysis.

4.1 MOTIVATIONS AND SATISFACTION

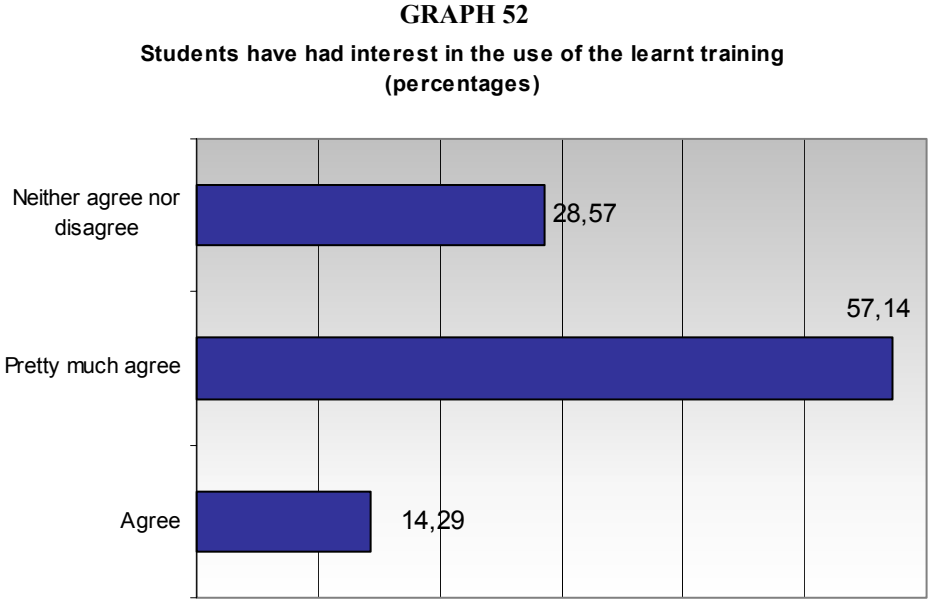
First of all, we have to focus on studding motivations. The first questionnaire gave us some information about this point. Students were not mainly moved towards training due to the interest in applying it to the job, but it is very interesting to check how at this point, after receiving the training, they expressed a high interest in using what they have learned. Around and 80% said they were completely or quite interested on it and, which is also important, none expressed any negative opinion.

GRAPH 51



Supervisors confirmed us this aspect since most of them think that workers are interested in applying training at work.

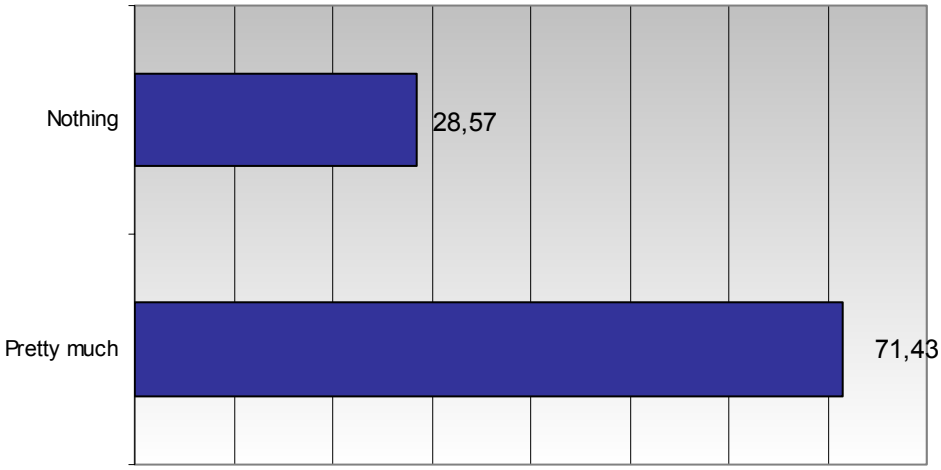
GRAPH 52



But they also gave us complementary data. They think that people felt interested in participating in training. As the graph bellow shows, around of 71% of students were pretty much interested in taking part in the courses. The supervisors also considered that an 85.7% of themselves fully promoted this participation.

GRAPH 53

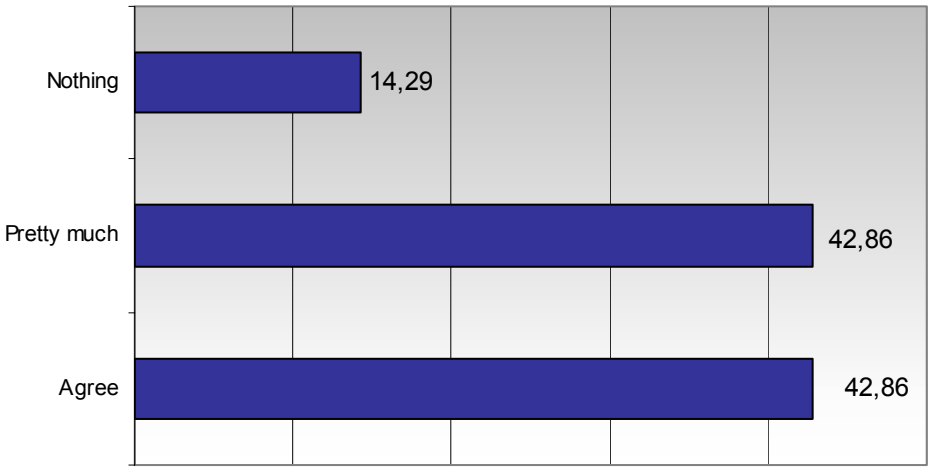
The participation in the training plan has come up from those who have attended it later (percentages)



It is interesting to notice that, spite of this promotion; almost a 60% of them affirmed that did not participated at all in the designing of the training plan. We have to take this information in its context, as the training was a trial in the framework of a concrete project. Apart from this fact, supervisors think that students had information enough about the course.

GRAPH 54

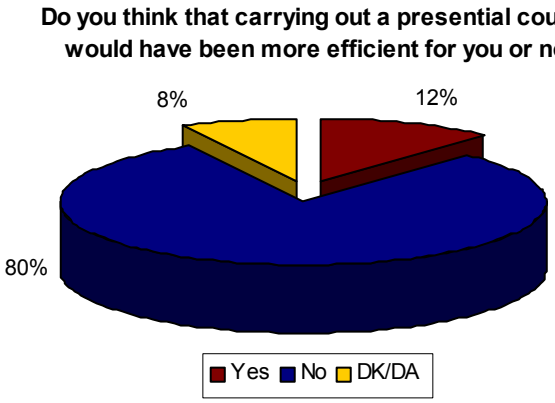
Those who have attenden the training have counted on enough information about it (percentages)



Most of the supervisors think that the reasons that make workers attend training courses, in general, are looking for work incentives, promotion, efficiency on their daily tasks and improving their working environment.

On the other hand, after receiving the training we have also to emphasize that students confirmed the suitability of e-learning system. Most of them did not think that presential training could have improved apprenticeship or make the course more efficient.

GRAPH 55



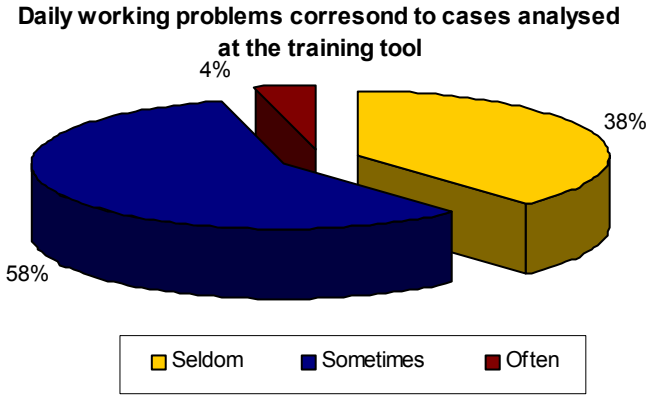
Only two of the students told us reasons for preferring presential training. These reasons were direct interactivity and communication with teachers and other students.

4.2 TRAINING SUITABILITY AND TRANSFERIBILITY

Generally, the students perception is that the training received is suitable to their needs. Around a 70% of them are very or quite convinced about it.

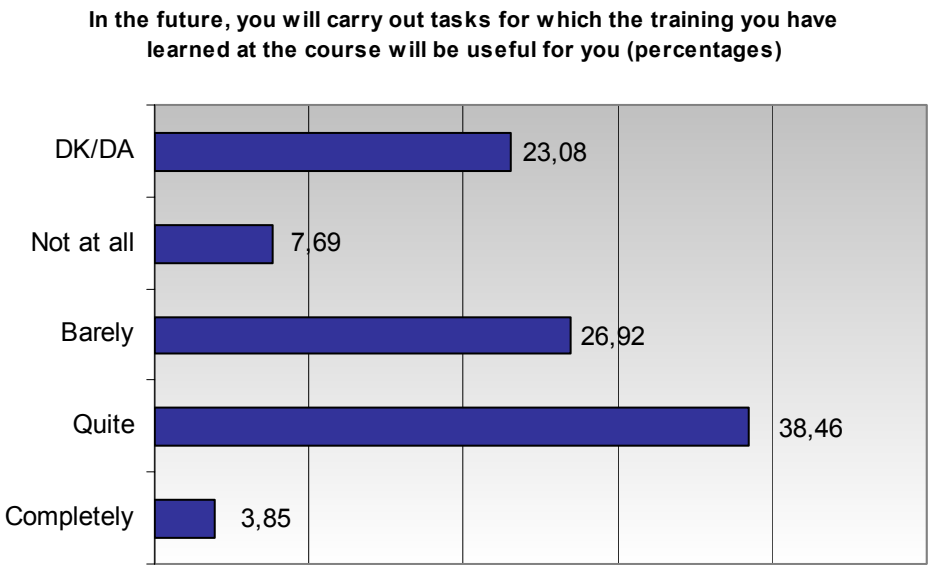
This suitability cannot be immediately related to their working needs, as reflected in the following data. Half of the learners expressed that only sometimes their daily working activity corresponds to contents studied with InTraServ course.

GRAPH 57



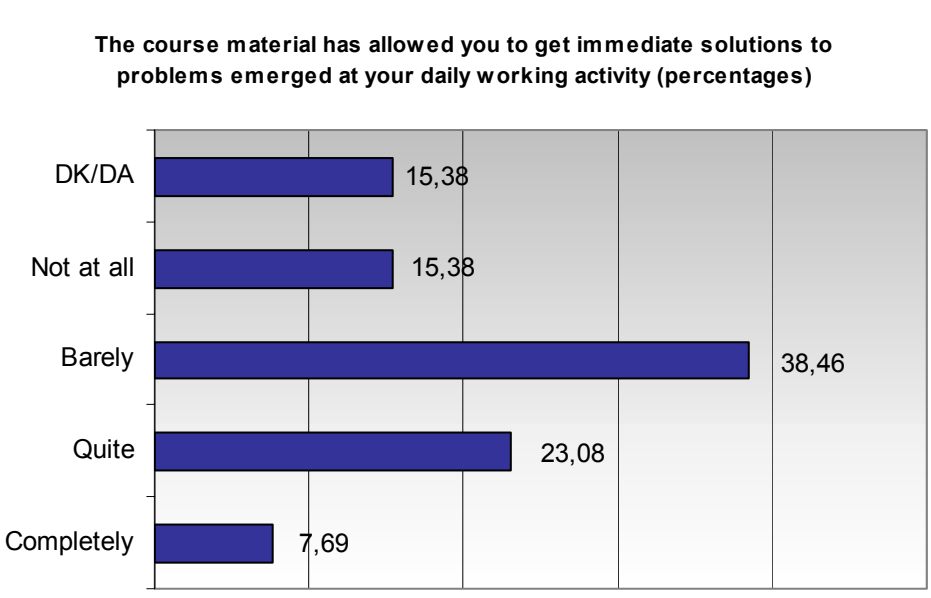
A 4% of students expressed that the contents studied are often present on their daily activity. But learners also expressed that their tasks in the future could be related to the contents studied. The suitability of the training is clear then at short-medium term.

GRAPH 58



In fact, asked about the possibility of giving immediate solutions to current working problems based on the received training, most of the learners answered positively at different degrees. A 15.4% of them considered that they could not apply at all any of the contents studied.

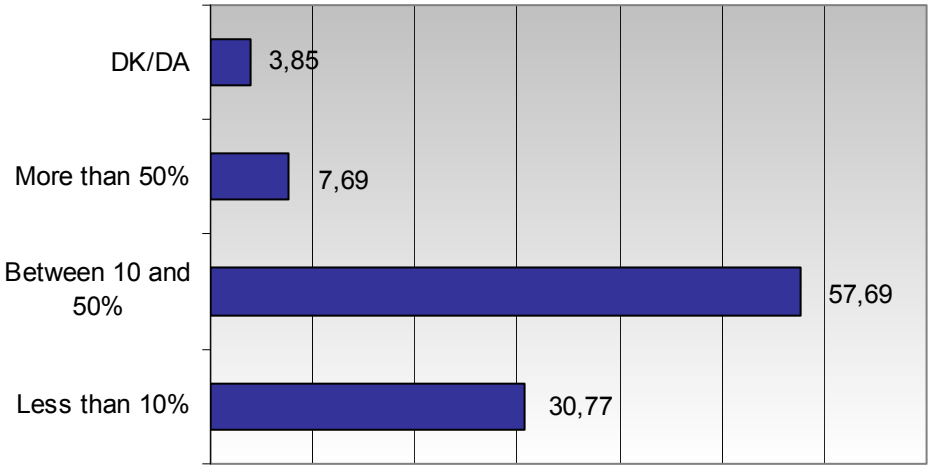
GRAPH 59



We also tried to measure the percentage of knowledge that could be applied to the job, currently or in a near future. The biggest figure is between 10 and 50%, given by the 57.7% of the participants.

GRAPH 60

Proportion of the training you have learned that can be applied by you at work, currently or in the future (percentages)

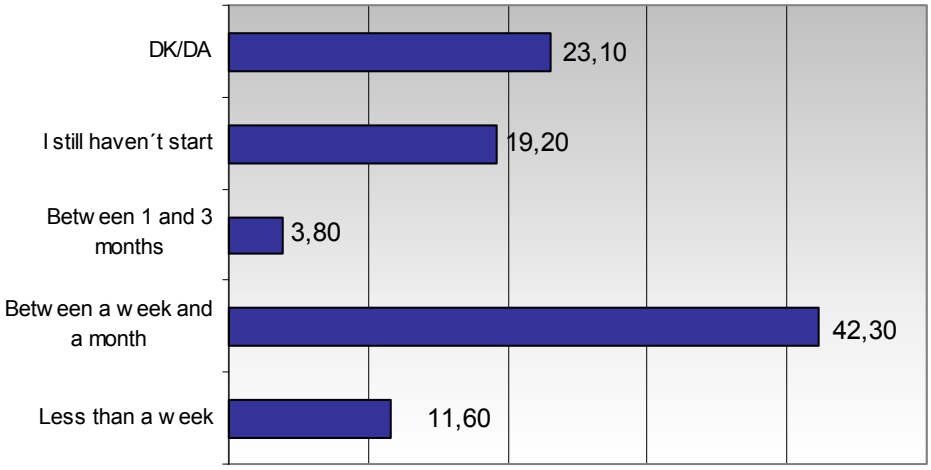


The average of time for those applying knowledge to work tasks is between a week and a month. Around a 20% did not start to apply training when the survey was made.

It is also significant the high percentage of people that do not know or do not want to answer, around a 20%.

GRAPH 61

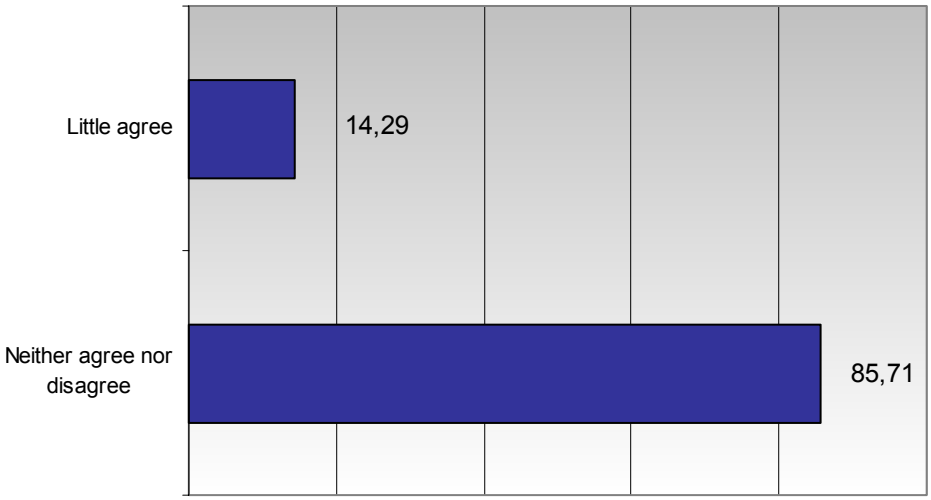
Time you have taken to start to apply the training to your job, once you have finished the course (percentages)



Supervisors point of view is also interesting because they did not feel completely convinced about the application of training, as only a 14,3% little agree this and the higher percentage showed some doubts.

GRAPH 62

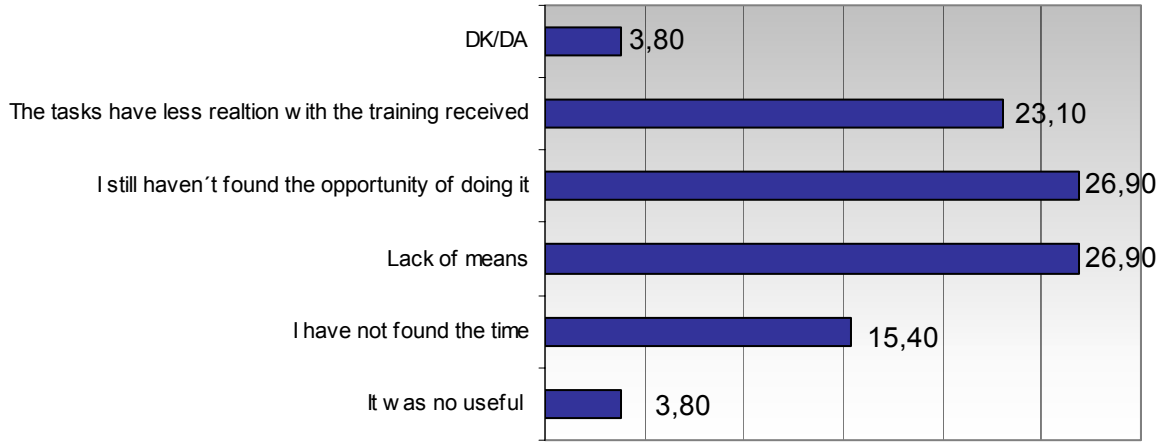
Learnt training has been applied to the jobs (percentages)



There are several reasons given by those students that did not use the training received. We can consider the two main reasons as "lack of working possibilities". Almost a 27% of the students had no the means to apply the knowledge and another 27% did not found the opportunity of doing it.

GRAPH 63

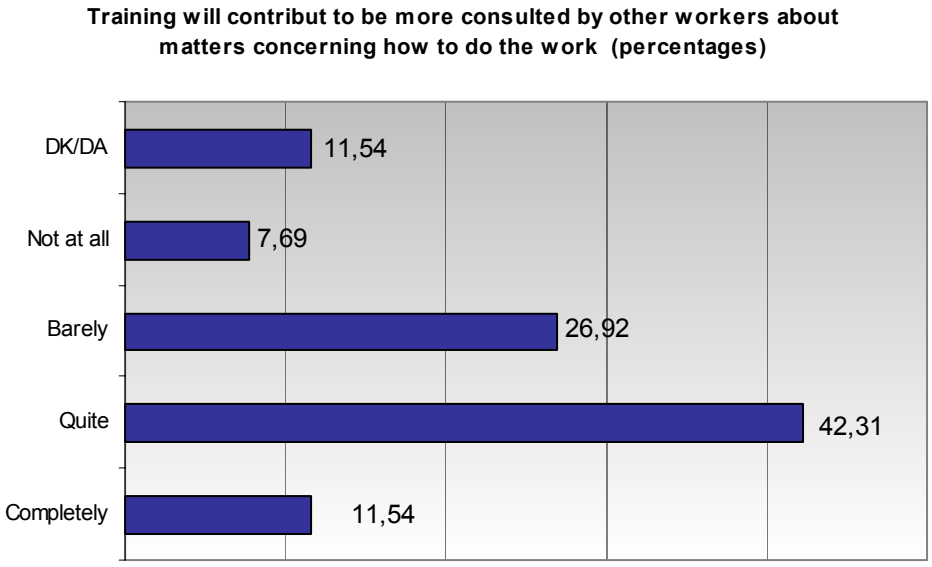
In case that you have not applied almost anything of training, it is because (percentages)



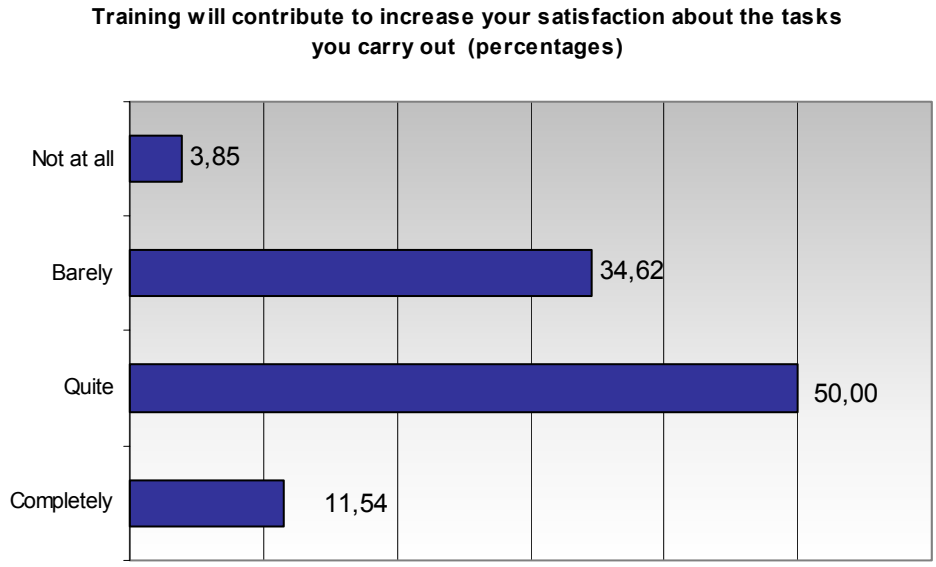
It is interesting to analyse this answers linked to the working area of the student. For example, for people working on Management department the main reason is that still have not found the opportunity for applying the training. Another interesting data is that people from those catalogued as "Other departments", which means in this case Sales and Marketing departments, only gave as reason that the training received has less relation with their daily work.

Finally, there are some interesting points of view provided by the students and linked to the contribution of training to their tasks. Most of them think that the course received will make other workers ask them how to use do some tasks.

GRAPH 64

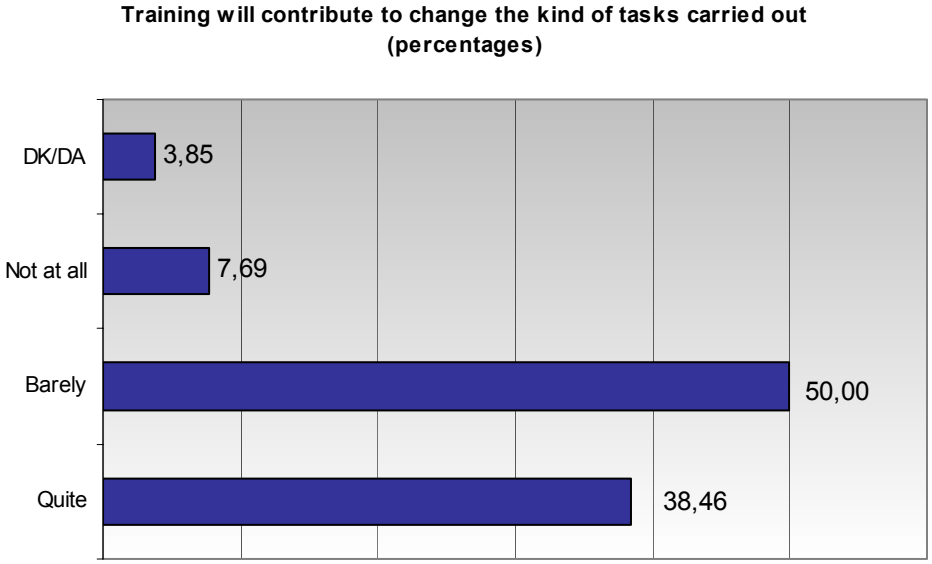


GRAPH 65



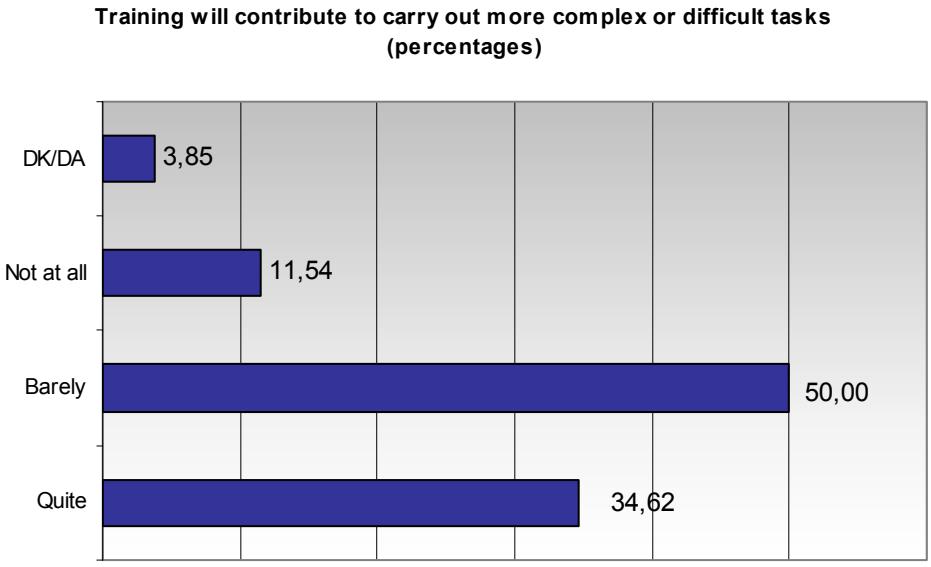
More than a 60% considered that they feel more satisfied about their work. Linked with the following charts, they also think that received training will vary kind of tasks they have to do, so this could be understood as a working improvement.

GRAPH 66



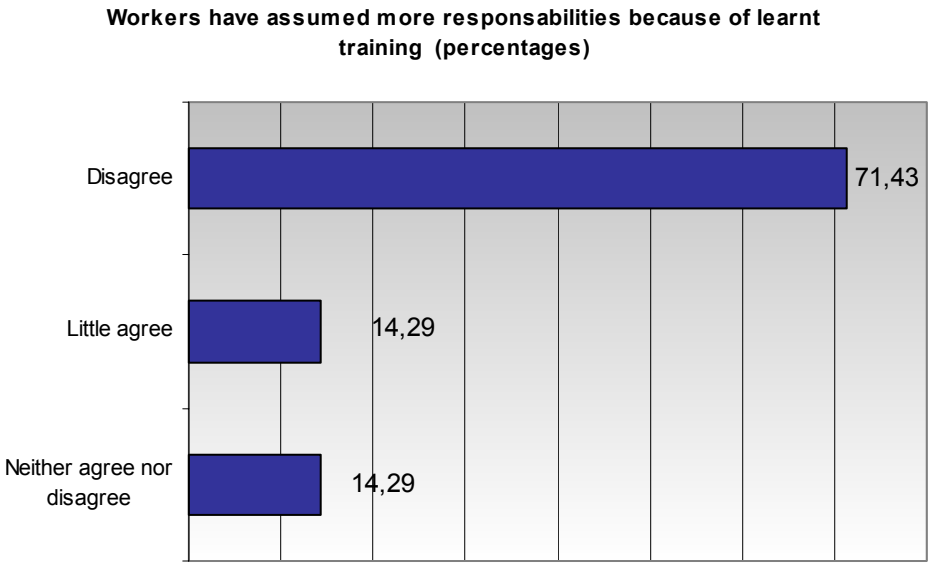
This change of tasks and work could imply the acquisition of bigger responsibilities, because they also expressed that they quite or barely agree with this statement.

GRAPH 67



Supervisors completely agree with these affirmations as most of them think that workers have assumed more responsibilities because of knowledge acquired and a 71,4% of them also think that the level of difficulty of daily tasks have decreased.

GRAPH 68



As main conclusion of this stage evaluation we can affirm that students feel satisfied with received training, both with contents and with e-learning system itself. Although still not fully applied to the job, acquired knowledge is useful at short-medium time for most of them.

Supervisors showed less interest in training than workers but they think that the training made easier the daily tasks fulfilment for participants and allowed to give them more responsibilities.

5. IMPACT EVALUATION

As established in the Evaluation Plan, this third step of evaluation is probably one of the most important of all. Apart from the levels of satisfaction about training it is essential to know to what extent it was profitable for workers and for the company. Impact evaluation intends to obtain information about the efficiency of the training to solve needs and problems, how it contributes to work improvement, and to what extent planned strategies and results are achieved.

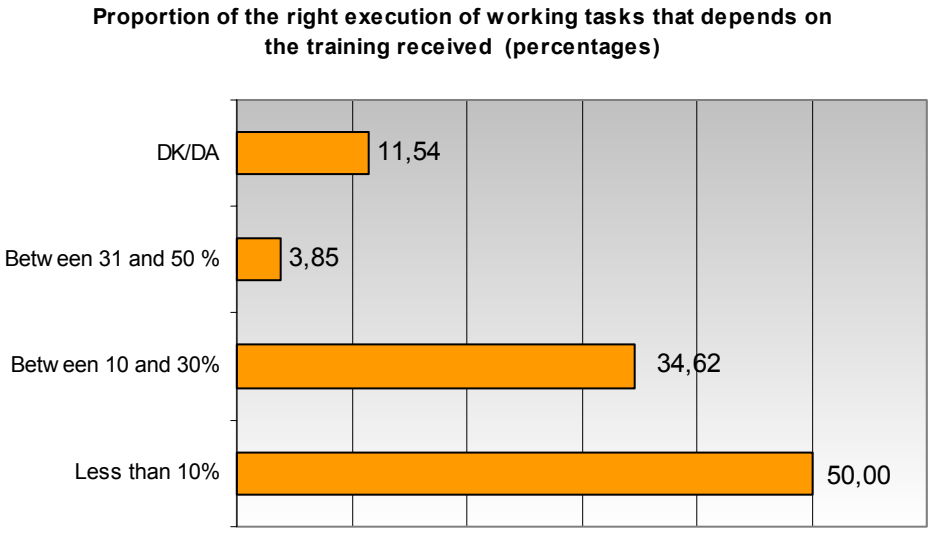
Probably this step is also one of the most influenced by the character of test of imparted training. And at this point we have to emphasize two questions: on the one hand, that received training is conditioned by the limitation of the contents and linked to his pilot experience and, on the other hand, time available to execute the phase of experimentation has not made possible, due to the limitation of the own call, to carry out an impact analysis at long term.

Anyway, although we have to take into account these aspects, we can analyse some interesting results extracted from interviews with students and their supervisors that show to a great extent important trends concerning training impact.

5.1 TRAINING APPLICATION TO WORK

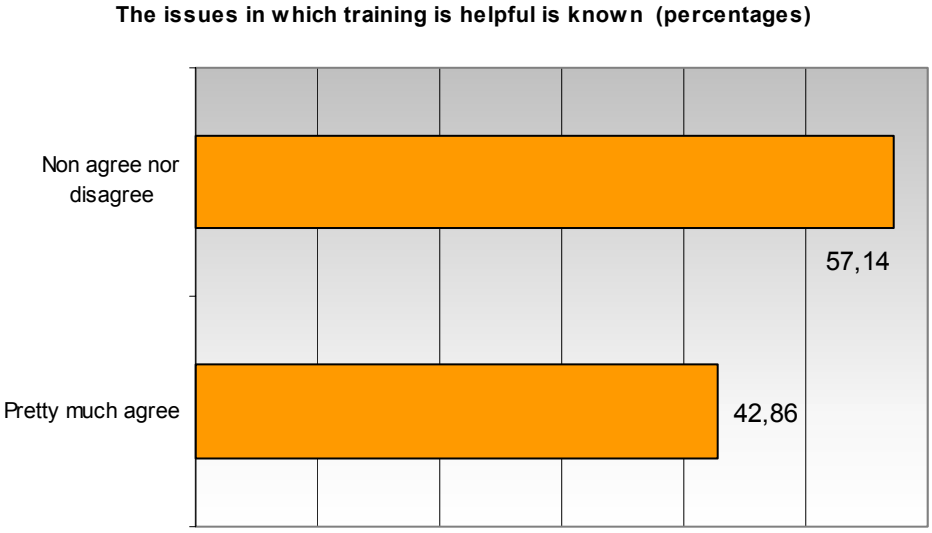
As explained below, impact evaluation has to focus on the application of training to daily work activities. To put in context this question we asked learners in which proportion the right execution of their work depended on the training received. As logical, they mainly stated that less than a 30%. Of course, received training is part of continuous training so developing tasks do not fully depends on training.

GRAPH 69



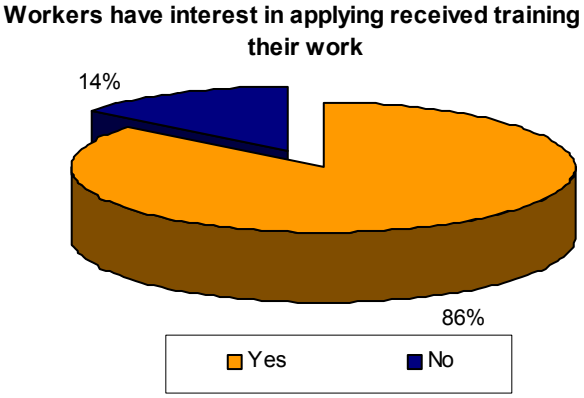
The supervisors, on the other hand, have quite clear that in the scope of the company usually it is known which are the areas in which training is useful.

GRAPH 70



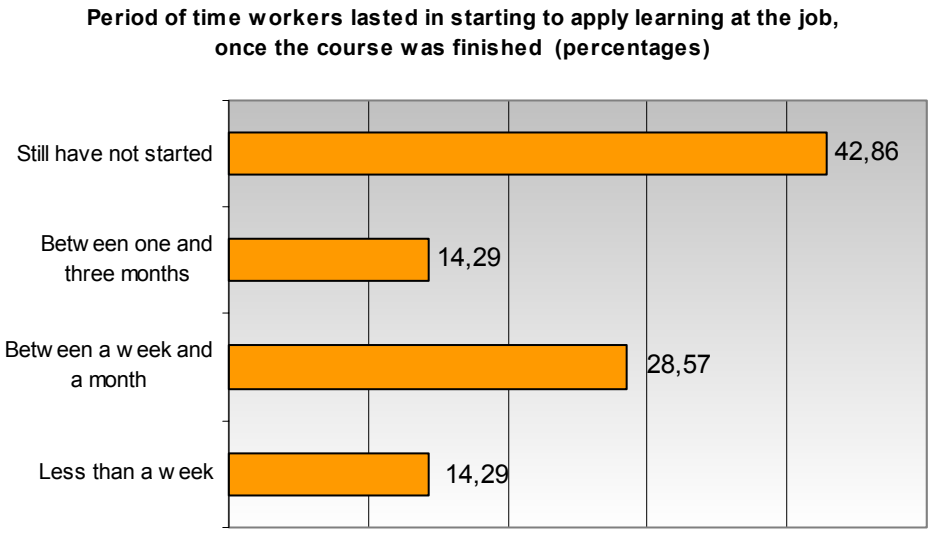
And they also pointed that workers have interest in applying received training at work.

GRAPH 71



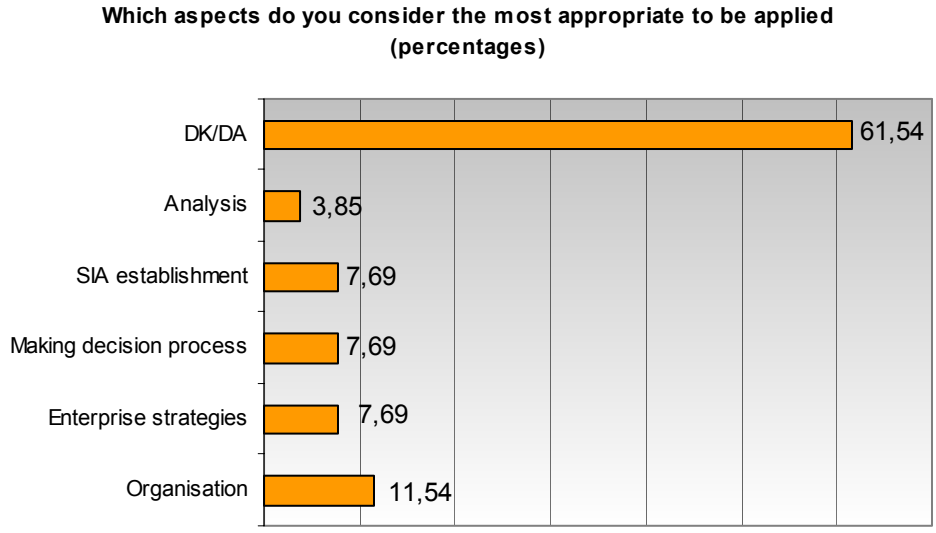
Supervisors are also convinced, in an 85,7%, that workers carry out tasks for which training will be useful and completely coincide with learners about the period of time that new knowledge application took, as we see in the following graph:

GRAPH 72



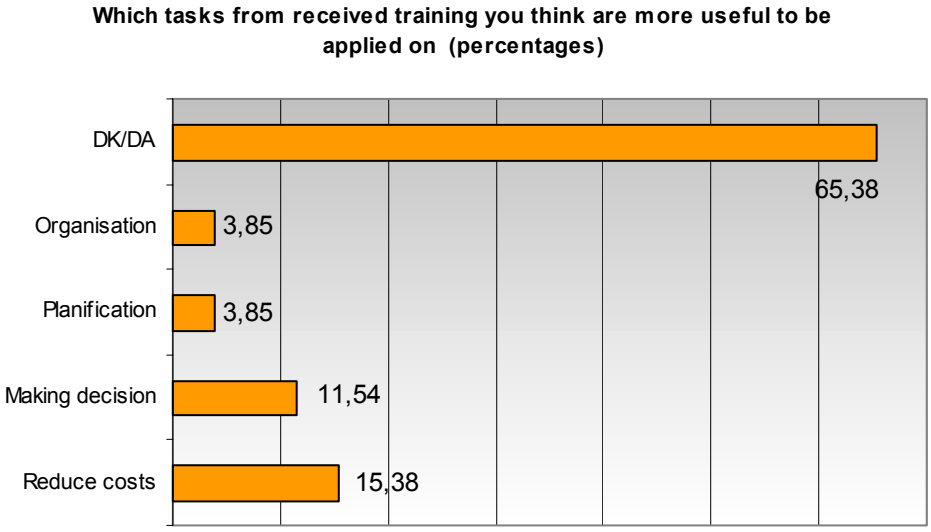
From this context, we wanted to know which studied aspects were more appropriate to be applied at work. Most of them had no clear this question, but students that gave us an answer prioritised Organization followed by Making Decision, Enterprise Strategies and SIA establishment themes.

GRAPH 73



It is very interesting to notice here that these answers completely fits with the answers given later when we asked about the working tasks that can be improved by the new knowledge. These are clearly Costs Reduction, linked to Organization, and Making Decision.

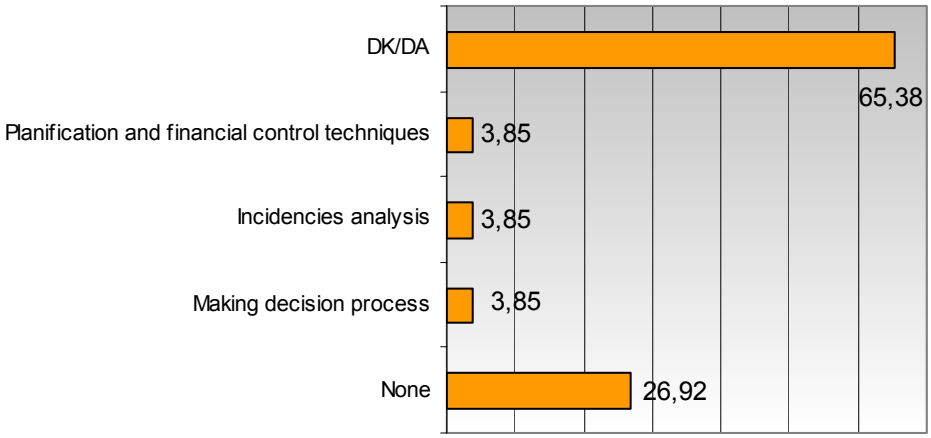
GRAPH 74



When we asked students about the problems that were solved thanks to the training received they mainly had no a clear answer. We have to remember here the information given at fulfilment evaluation, when learners told us that they had not yet the opportunity of applying new knowledge. Taking this into account, we check how most of them gave no information and, those that did it told us that Making decision problems, incidences analysis and planning and financial control the subjects where they found help from received training.

GRAPH 75

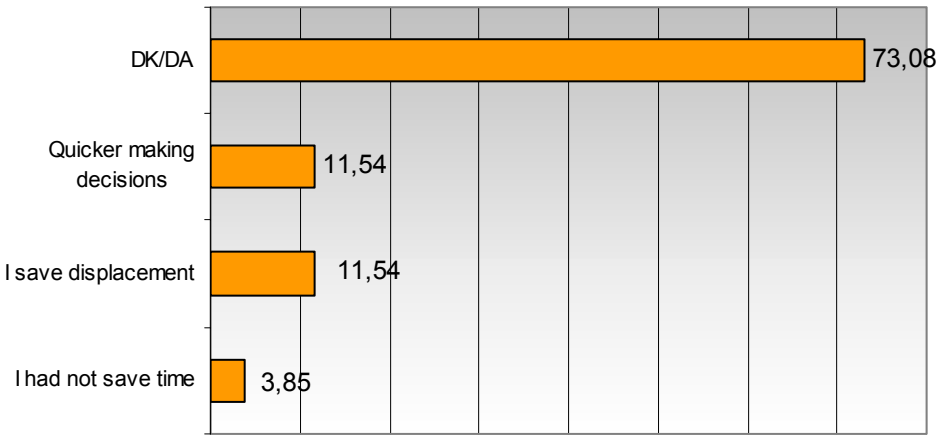
Which kind of problems are you solving in a better way through the training tool application (percentages)



Another important indicator is how the training received allowed to save time at work. Again most of the students did not what to answer but those that answered indicated quicker making decisions and displacement time. Only a 3,8% told us that they saved not time at all.

GRAPH 76

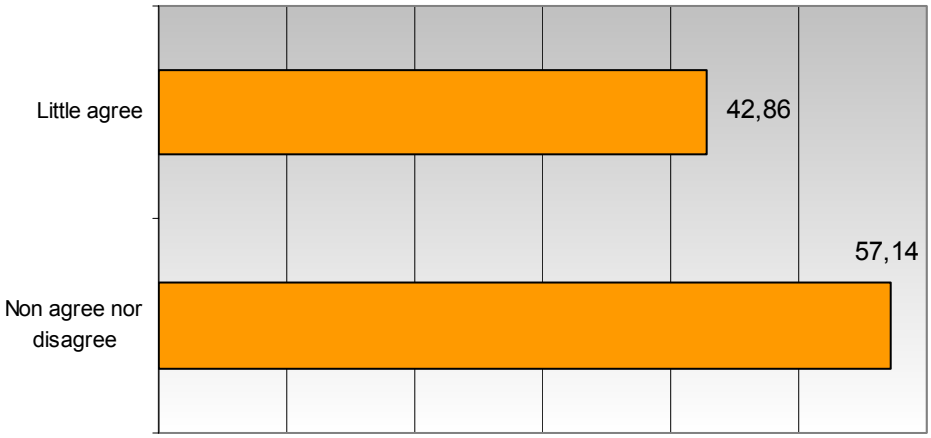
In which way the use of the training tool has allowed you to save time for your regular work (percentages)



In contrast, supervisors are quite convinced that received training allowed workers to save time when executing the tasks. Although most of them had no a clear answer 42,9% of them little agree with this statement.

GRAPH 77

It is detected saving time when executing the tasks, as a result of obtained training (percentages)

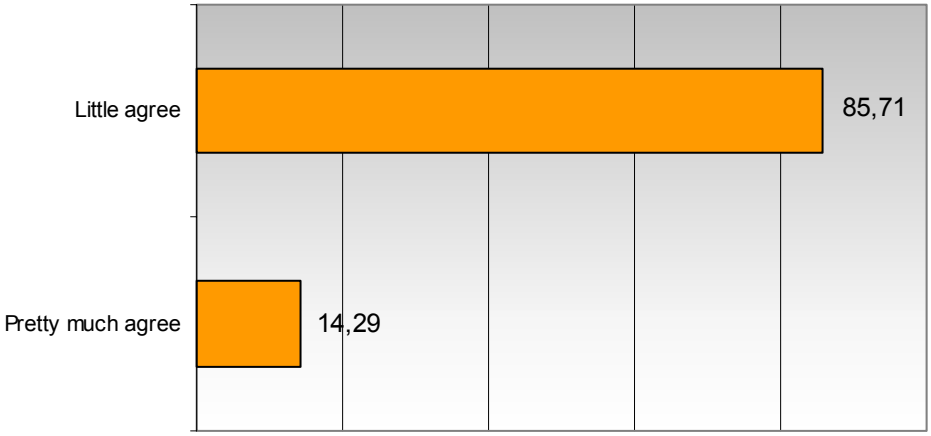


5.2 TRAINING PROFITABILITY

Training profitability is an essential aspect to analyse, as training process requires important efforts both by workers and enterprise. In this sense, it is interesting to notice that supervisors recognize, in economical terms, the profitability of training. Although most of them softly agree with this statement, none of them expressed a negative opinion about it.

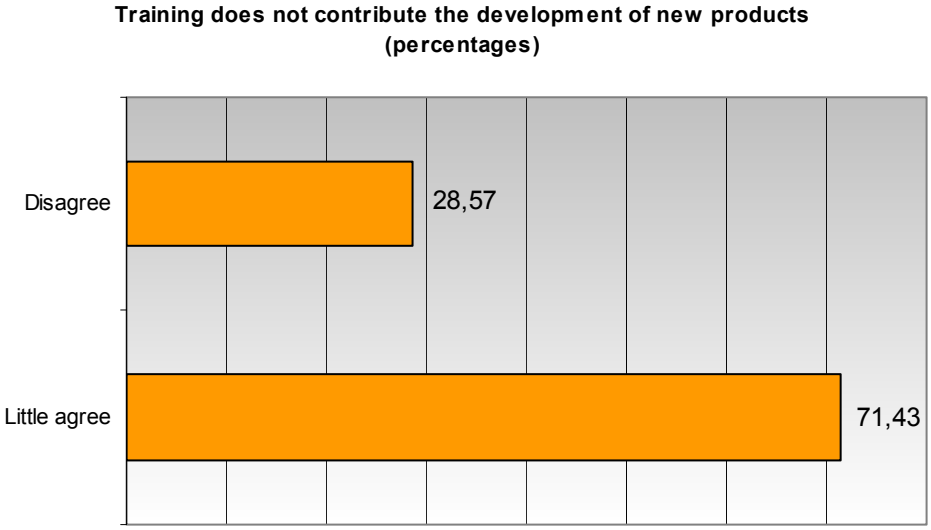
GRAPH 78

In economical terms, it is known the profitability of the training (percentages)



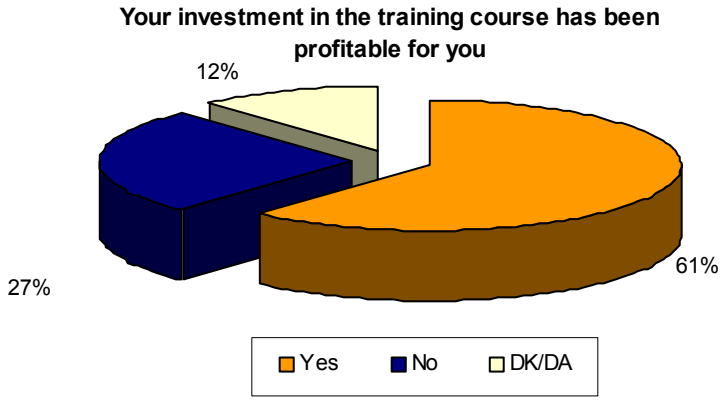
This benefit can be materialised, many times, in the enterprise production improvement and the development of new products. Most of the supervisors took into account this possibility as real, a 28,6% of them. The direct relation between training and new products is not completely clear for a 71.4% of them.

GRAPH 79



Apart from these general supervisors points of view, students themselves expressed a high level of satisfaction and most of them consider received training profitable.

GRAPH 80



Finally, students gave us some remarks on the training tool used and, according to all the previous comments, they suggested the possibility of incorporating more practical cases to improve the contents, improve the system interactivity and finally, introduce shorter courses commonly known as "training pills".

6. CONCLUSIONS

Finally, we can focus on several aspects that should be emphasized as main conclusion of this experimentation stage. InTraServ platform was fully approved by potential users and also by their supervisors. E-learning method and course contents were proper and suitable to the users needs. The presentation and methodology fulfil the users needs and the only suggestion in this sense was the introduction of more practical cases.

Both interface and navigation environment were satisfactory for most of the users, who also perceived the system secure. Technical problems did no interfered on apprenticeship in a special way, and this question is especially important, as many of the students were not accustomed to using ICTs at all.

This lack of habitual use of Internet tools could explain the lack of communication. Learners did not use to a great extent the means that were available, as forum or email. In contrast, most of them felt satisfied with the teachers activities.

Concerning the use of acquired knowledge, most of the students expressed a complete interest in applying it at work. In this sense, it is also remarkable the fact that most of them also think that the training received was suitable to their needs as more than a half of the contents directly dealt with daily working problems.

When taking about training impact the results are also very positive. Most of the users considered the experience as profitable for them. Supervisors also expressed they detected time saving and, in general, training profitability is clear.

Following we will summarize the most significant data:

- Most of the students felt satisfied with the training course and the knowledge acquired, around a 96%.
- Around a 77% never thought on leaving the course.
- Three out of four students expressed a positive feeling about the overcoming of space and time barriers. 73,08 of them were completely or quite able to take advantage of e-learning system in this sense, and another 23,08% barely did it.
- At the very beginning, almost a 60% considered that presential training would not have improved received learning, figure that increased until an 80% once the training process finished.
- The training tool was pointed as versatile and suitable for the needs in more than an 88% of learners, and more than a 92% considered that their training needs in the course area were covered.
- Contents were perceived as clear and well structured for more than an 84% of the students.
- The Business Game was very or quite simple to use for more than an 85% of the participants, and suitable in the training process for more than 78% of them. All of the students were interested in taking part in another Business Game.
- A 69% of learners were able to combine working tasks and learning activities.
- Only around a 20% of users contacted teachers for support but most of them, 73.08%, felt satisfied with teachers activities.
- Around an 84% of students are completely or quite interested in using the knowledge acquired. Supervisors confirmed this point as 86% of them think so.
- More than an 88% of participants think that received training is suitable to their needs. In this sense, around a 70% of them expressed they already used to solve working problems in some way.
- Objective results showed that the level of competencies of students improved. From a starting situation of 44% of participants in low level of competencies once the course finished 88% of students were between the medium and high level of competences.
- While with the classic course we have an improvement of 40% from low level competencies to medium level of competencies, with the enhanced course (the just-in-time on-the-job personalised training tool) we have an improvement of 75% from low level of competencies to medium level of competencies and an improvement of 25% of high level of competencies.
- A 61% of students think that the experience was profitable for them.

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