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Distance Learning Experience within the "Training Course Addressed to Operators of Sustainable Agriculture Development in Mediterranean Climate Countries": Analysis of Results

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FOREWORD

The need to create Distance learning systems in the Centres of excellence of higher Education was also reaffirmed on the occasion of the enlarged Ministerial Conference on the "Creation of a Euro-Mediterranean space for Higher Education" being hold within the framework of the Italian Presidency on 7-8 November 2003 at the University of Catania.

During this Conference, the Minister of Education Letizia Moratti declared that such an event contributed to trigger "*a political strategy aimed at laying the foundations for a renewed and gradual integration process of educational and training policies in the Mediterranean and pivoting upon the students' needs, on the necessity to improve employment mobility of graduates, on the prospect of more intense circulation and supply of knowledge and crafts*".

In particular, in the basic document submitted at the conference, it is recognized that cultural traditions and civilizations in the Mediterranean region, the dialogue between such cultures, human and cultural, scientific and technological exchanges are essential to approach peoples, to promote understanding and improve mutual perception.

Basically, it is desirable to create greater opportunities for education and access to knowledge in the whole Mediterranean area, thus favouring cultural pluralism and the opportunities for studying and working in a multi-ethnic and multilingual context.

The present activities of direct training and technical assistance to local institutions that the Mediterranean Agronomic Institute of Bari (MAIB) is promoting in favour of its partners, would require supplemental actions and synergies to increase its multiplying effects, stepping up the number of beneficiaries of the training action as well as improving their quality.

Actually, distance learning and its more advanced Internet-based interaction in particular, allows approaching users having low mobility by their *status* or due to economic reasons, and applying advanced training models that are proving to be highly efficient in initial training and especially *lifelong learning* and professional development.

The "Training Course Addressed to Operators of Sustainable Agriculture Development in Mediterranean Climate Countries" implemented by MAIB and funded by *MAE/DGCS* (Ministry of Foreign Affairs/Directorate General for Development Cooperation) is one example.

It was addressed to 47 operators, selected among technicians and managers of public and private bodies and institutions of the agricultural sector of Albania, Algeria, Bosnia Herzegovina, Egypt, Lebanon, Macedonia, Morocco, Palestine, Serbia Montenegro, Syria, Tunisia and Turkey and some countries (Georgia, Iran, Libya and Mauritania) indicated by the Italian Cooperation.

The project was globally positive in terms of student's interest and participation and of training quality and its multiplying effects, with the possibility of reproducing the experience acquired through the training course proposed by MAIB in their own countries and thereby creating partnership networks.

<div align="center">
Cosimo Lacirignola
CIHEAM-IAMB Director
</div>

INTRODUCTION

This action concerned the implementation of advanced training course on Sustainable Agriculture through distance learning.

The course was organized by CIHEAM, International Centre for Advanced Mediterranean Agronomic Studies through the Mediterranean Agronomic Institute of Bari (MAIB), within the framework of specific institutional support activities by the Italian Cooperation (Ministry of Foreign Affairs) to combat poverty in Southern countries.

The objective of the course was to provide participants with update multi-disciplinary knowledge to effectively contribute to implementing sustainable agriculture development programs in their countries also within the framework of plans and actions to combat poverty.

Participants were forty-seven fellowship holders coming from Southern Mediterranean countries, and selected among officers of the Ministries of Agriculture and Managers of professional organizations of the agricultural sector.

The course length was 7 months (December 2004 through June 2005). It included an initial residential period of about 2 months at MAIB, a period "at a distance" of about 4 months during which participants returned to their countries to continue the experience "on-line", and finally the third residential "follow-up" period of about 1 month.

This BLENDED SYSTEM, blending a "face-to-face" period with a "distance" one, had already proved to be quite effective, both in terms of learning and psycho-social approach, in a previous experience developed by MAIB.

The beneficiary countries of this action were: Albania, Algeria, Bosnia Herzegovina, Egypt, Lebanon, Macedonia, Morocco, Palestine, Serbia Montenegro, Syria, Tunisia and Turkey and some countries (Georgia, Iran, Libya and Mauritania) indicated by the Italian Cooperation.

Priority was given to those countries where Country Programs of the Italian Cooperation are already working, those where actions specifically addressed to combat poverty or where complementarities and synergies with training of local officials of the agricultural sectors are possible.

STRUCTURE OF THE COURSE

The Course had a total length of 800 training hours and it was implemented into three training phases, each having its own objective and specific contents.

Phase 1 – Implementation of the residential course – Part I
- Residential training activity at the MAIB to equalize computer knowledge, acquire specialized knowledge and perform applied and supervised work:
    - An introduction to sustainable agriculture
    - Rural Development
    - Decentralization
    - Farmers' Organization
    - Agro-ecology
    - Preservation of territorial resources
    - Research and technical assistance
    - Participatory process to promote sustainable agriculture
    - Environmentally-friendly production systems
    - Building Design-capacity for cooperation actions in agriculture
    - Techniques and technologies used in Distance Learning (DL)

Phase 2 – On-line training
- On-line training and developing actions for sustainable agriculture in Developing Countries:
    - e-learning experimentation
    - Applied work and questionnaire administration

- Tutor-assisted on-line discussion between officers
- Simulated design activity

Phase 3 – Residential follow-up – Part II
- Completion and strengthening of residential training on specific topics related to sustainable agriculture
- Finalizing the project document produced during phase 2
- Final workshop
- Visits to agricultural and development centres in Italy

ANALYSIS OF DISTANCE LEARNING (DL) ACTIVITIES

Here we will deal only with the results relative to the methodological and technological aspects of the said experience whereas the analysis of the technical results could possibly be covered in another publication.

The real DL activities were developed in the second phase of the course when participants returned to their countries to continue on-line training through the Internet.

As previously said, this phase extended over 4 months, the first two of which (from February 1st through March 31 2005) were effectively devoted to training, whereas the remaining 2 months (April and May) were devoted to research work and the elaboration of "case studies" in view of practical applications in their own countries.

Participants were 47 and came from 16 countries. They were subdivided into 6 groups based on the scheduled topics and the favourite language. Each group was assisted by a tutor (selected through a tutor-addressed distance learning action organized by MAIB), an external teacher and a MAIB technical staff expert for a total number of 67 participants (see Annex 1).

STUDY MATERIAL

To facilitate the on-line activity, before leaving to return home, each participant was given:
- The printed lecture notes of the course;
- A CD of the course in the digital format;
- A login and a password to access to the platform.

Each course is subdivided into 4 teaching modules to be studied on line in about 2 months (one every 15 days).

In addition to scientific contents, each course includes references, self-assessment tests, the proposed case studies and a monitoring questionnaire to be returned at the end of each teaching module (every 15 days).

LEARNING PROCEDURE

During the first week of the module, each participating "student" was asked to read and study the contents. In the second week, the tutor of each course had to start a discussion forum on a subject or a specific aspect of the said module as suggested by the subject-matter expert of MAI-B. In each discussion forum, every student had to send at least one comment or a question relative to the subject and react to a comment or a question by his/her colleague. Moreover, at the end of the module every student was required to perform an evaluation test (if applicable), and send an assignment to the MAIB expert.

The real "collaborative" and "constructive" work was done through the discussion forums where the contributions of each one effectively contributed to increase knowledge, both in terms of contents, and problem-solving ideas and practical experiences.

The effort for further reflection on contents and possible in-depth analyses allowed the student to acquire more skills to go through the discussion and thus acquire better knowledge.

TECHNOLOGICAL SOLUTION: WHY "OPEN SOURCE", WHY "CLAROLINE"

Due to the high costs related to fee-based and proprietary software solutions, the academic world is changing its strategies in favour of "Open Source" solutions, i.e. made available so that users can access and customize it. The idea of barrier-free "Knowledge management" falls within a cooperative context that facilitates the assignment, to third parties, of source programs free from copyright and intellectual property. This is the theory the Claroline community (www.claroline.net) maintains and that also gives a technological, economic, political and pedagogical response opposed to the Taylorist educational models of North America.

The "Open Source" technological response is competitive with proprietary pieces of software in terms of reliability, stability, compatibility, rapidity, service, surpassing them by modularity and multilingualism. It is economical in that it is free and has low system resource requirements. Through its intuitive and essential interface, Claroline succeeds in limiting training costs of instructors and of all actors.

The approach policy is oriented to cultural, scientific and pedagogical autonomy against models "we are supposed to stick to". The geographic areas participating in Claroline project are many: South America, Africa, Asia and Europe. The community introduced many languages in the interface to the service of the many countries that collaborate through their diversified knowledge and content scenarios about a good ICT practice. Nowadays, Claroline is used in most European countries with translation into their respective languages and stands out, by diffusion, as the European "open source" platform for e-learning.

Fig. 1. Countries downloading the platform Caroline (Source: www.caroline.net)

The platform pedagogical tool for e-learning is explicitly conveyed through a learning method. Content-based platforms suggest a learning approach focused on "how to acquire knowledge" and they give priority to interaction tools, whereas others favour collaboration by offering appropriate tools to both instructors and learners. Claroline philosophy is mid-way and is defined as minimalist: the software has to include empty boxes and allow structuring exchanges and contents in different ways.

The Software

Since long a modular, simple and multilingual solution is being proposed. It is light in hardware, both on the "server" and the "client" side and for other resources in general. Priority is given to the learning model that, according to the "open University" style, is effective in use through web services in distance learning. The Software is sophisticated in its technology but creates an interaction scenario between participants through group work, the supervision by tutors, learning, etc.

Claroline neither imposes the use of complex tools nor suggests any special method. It works, as far as possible, as a simple support to choices and meets both the teaching needs and the pedagogical model. Therefore it stands out by:

Usability

Easy handling by those who enter the virtual campus. Few but useful "tools" are displayed, all of them presented through a user-friendly and intuitive interface about the operating principles of web services. Documents are managed exactly as one generally does with "folders" on one's computer desktop.

Flexibility

Users usually ask for a service, not for a product. Virtual campuses of organizations evolve continuously towards better integration with other services like: adding news, functionality, and adaptability to the course.

The fact that Claroline was designed as modules and released under GPL (General Public License), allows each virtual campus manager to modify the tools and adapt them to the context of his/her organization. Experience proves that the use of a platform is strongly dependent on the geographic, linguistic and institutional context.

Compatibility

Teachers wish to create course sites rapidly, without necessarily learning HTML (Hypertext Markup Language) but managing agenda, link lists, announcements and forums directly from their browser, and publishing existing documents in formats like Word, Excel, and PDF etc.

Students, in turn, rely upon standard communication tools and can receive and send light and easily readable documents.

Organizations (universities, schools, research institutes) hope to have a long-lasting service. External partners, like bodies in charge of permanent training, organizations working in consortia, etc.), insist upon the importance of using standard formats and protocols for better communication.

Claroline exclusively uses "open" formats and languages like: PHP, SQL, and HTML. Document management is made for any type of files that, even in the presence of "open" formats, is oriented towards well-established standards like (SCORM, IEEE etc.).

Low Cost

Apart from the costs to be paid to professionals - like instructors, tutors, and computer scientists - the implementation of a virtual campus with Claroline simply requires contents and a good pass band. Downloading all pieces of software is completely free of charge. On the server side, the following operational systems and databases are provided: Linux, Apache, MySQL, Sendmail and Claroline; on the client side, a standard Internet browser.

International Collaboration

In addition to the growing success of Open Source programs, one of the primary objectives is the creation of users' communities, developers, and translators who collaborate to developing new solutions. Claroline has already been translated into 15 languages and is adopted by a large

international community. Universities, schools, companies and organizations collaborate to adapt Claroline to their needs.

The Technological Experience of MAIB: a Short Description of the Tools Used

An "open source" platform is used and, in particular it is MAIB customized "Claroline" at the website address http://elearning.iamb.it/.

The platform provides the most common tools for communication, both synchronous and asynchronous. To each student having a login and a password, it provides the required tools for distance learning. The student can modify his/her profile; he/she is included in a list of participants, namely the "users".

Every student associated to each "group" is only allowed to have access to the course reserved to him/her and is allowed to communicate exclusively with the members of his/her group. The "Tutor" of each group, in addition to playing his/her role, can open up a discussion forum or modify the contents of the course, make them accessible, etc.

The person in charge of the course (instructor, tutor) has the task of animating thematic discussions by stimulating, through agreed pedagogical techniques, the participation of all the students.

The platform is shown in Fig. 2 and it includes the following tools:
- **documents**, (a container to upload and distribute documents, useful to professors, tutors, students and administrators).
- **announcements** (a distribution list through the e-mail service and electronic bulletin board. This is particularly interesting for good circulation of information, communication announcements, news etc.).
- **forums** (asynchronous on-line discussion between all the actors).
- **chat line** (synchronous communication system) in which two users are logged on at the same time and communicate with each other, **students' paper** (a container for student's contributions).
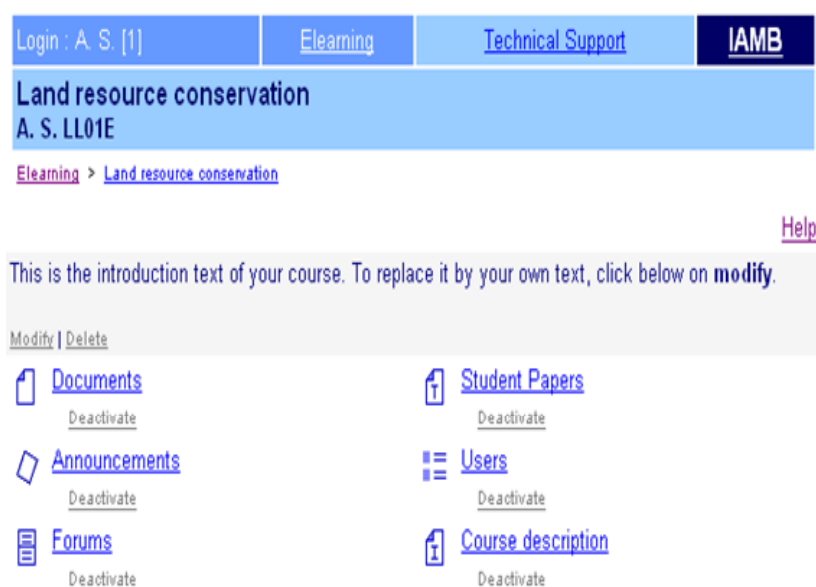

Fig. 2. Components of the platform provides

Conclusions

The experience acquired through Claroline platform was quite encouraging. The system is theoretically robust, reliable and easy to use both by instructors and learners. From a more strictly technical point of view, the platform can be installed on any computer equipped with Windows by Microsoft or Linux and Unix. A simple digital telephone line and a "hosting" service through a local Internet "provider" are enough to input on-line content and support distance learning courses. The world community of Claroline users has rapidly grown and is extremely active. In the future it is expected to increasingly develop and widespread to further improve its flexibility and efficiency. This distance learning project is aimed at improving pedagogical training addressed to adults. Industrialized countries prove that alternatives to traditional teaching do exist. It doesn't require sophisticated telecommunication equipment. Such solutions should step with times and respond to different changing technologies. They might contribute to bridge the gap – technological as well – between western and non-western countries.

To minimize such a gap, not only we need to solve the essentially technological aspects (minimum band width, connection problems, etc.), but also to promote the sustainability of "Distance Learning" tools at a decentralized level and in favour of "Distance Culture".

This experience is worthy being repeated by exporting the whole system (hardware, software, skills, experiences, human resources etc.,) towards emerging realities and in those countries involved in thematic networks and communities of practice. Through the numerous human resources used, training courses and participation in meetings, more networks of expertise sensitive to real "open knowledge management" could be set up.

PEDAGOGICAL PROCEDURE

Distance learning is inseparably linked to the nature of communicational media. The latter are used both to structure and distribute the teaching contents and to frame and follow the student all along the learning pathway.

The choice of a given media for a given distance learning action assumes that the designer perfectly knows the function and potentialities of the media available to him/her.

In our case, 3 types of media were used : printed text, CD ROM and web platform. They were made available to the participating students during the whole training period. Training activities could be performed in a "synchronous" (at the same time) or "asynchronous" (intermittently with a time delay) mode or in a mixed way by using, in some cases, both of them.

Both the aforesaid time-based communication modes depend on:
- Students' time availability.
- Time zone.
- Student's learning capacity.
- Tutor's availability.
- The language.

In our case, where involved students came from different countries with very different usages and customs (from Morocco to Georgia) and, in particular, considering that participants are "managers" with rather notable private and working engagements, the asynchronous mode was the most adequate to the training activities.

An essentially asynchronous training was chosen, allowing the different groups to start, if applicable, some synchronous sessions. However, the choice between the synchronous and asynchronous mode is not necessarily exclusive since the adopted solution should always consist in allowing achieving, according to the student's profile and the learning context, the scheduled pedagogical objectives.

6

Every distance learning mode has its pros and cons. Some advantages of the collaborative asynchronous method are reported below:

- The student is the primary maker of his/her learning.
- The distant learner feels to be relatively isolated and has thus to develop self-reliance and autonomy.
- Trying to establish contacts with the other members of his/her group, with the tutor or the content expert, through electronic mail, forum or telephone, the learner develops his/her communication capacities.
- If a student raises a question in the forum area he/she can get an answer especially from her/her colleagues, thus favouring peer to peer learning.
- There are no time limits and even less of time zone.
- The student is more "aware" of his/her responsibilities than in a traditional "face-to-face" or synchronous situation where the presence of a teacher supposes an immediate answer to questions. In this case, awaiting for an answer, the student will try to find a solution, though temporary or wrong, that will however produce a positive effect.

The role of the teacher or expert or "editor" of the distance course:

- The instructor, the same as in face-to-face traditional training, is the technical responsible for the course and thus the "expert" holder of contents.
- He/she has to "mediate", adapt or create a distance course on the basis of the teaching objectives on one hand, and the technological potentials of the selected media on the other.
- He/she has to participate in the teaching activities mainly as content specialist.
- He/she has then to collect the teaching material, to structure it and transform it into modules and teaching units for distance training. Indeed, to effectively follow the structuring and processing work of contents for distance learning, the teacher relies upon the collaboration of an expert of "editing criteria" of the said modules or teaching units.
- He/she has to anticipate student's feedback and negotiate with the members of the editing team some alternative pedagogical scenarios.

All in all, the teacher or content expert has to produce a complete "self-consistent" course equipped with questionnaires, evaluation tests, references, case studies, etc. adequate to the established teaching objectives. Such a procedure basically differs from the one adopted for face-to-face training where the instructor prepares the contents of the lectures as the course goes on (chapter by chapter).

The student's role:

- To access to the teaching material once it has been fully elaborated (modules and teaching units).
- To recover all the available resources and find out the best strategies for an appropriate use of the established teaching objectives.
- To plan one's study in accordance with time and means available.
- To manage learning in cognitive, emotional and motivational terms.
- To carry out the exercises and the evaluation tests.
- To develop self-reliance and autonomy.
- To comply with the deadlines for executing activities and assignments.
- To participate actively in the discussions and the collaborative learning activities.

The tutor's role:

- To facilitate students' activities.
- To perform the collaborative activities of the students' group discretely by stimulating discussion if need be.
- To favour information exchange between the members of the group and with the subject-matter expert.
- To create a "spirit of group" and facilitate human relationships.
- The tutor should, in any case, have good capacity to individualize each single member of the group and try to help each of them on the basis of individual personality and cognitive style.

In our experience two general tutors were envisaged to deal with general problems and organizational and administrative questions, and a teaching tutor for each of the 6 working groups (see annex 1).

MONITORING QUESTIONNAIRES

In order to follow the evolution of the training activities and perceive the students' reactions and "mood" to the proposed "system" (feedback), at the end of each module each participant was asked to fill an evaluation questionnaire (see annex 2) and send it to the administrative manager of the course.

The aspects to be assessed with different levels of approval concerned:
- teaching contents;
- tutoring;
- advantages and disadvantages of distance learning;
- advantages and disadvantages of collaborative learning;
- students' motivations;
- the proposed technology.

The analysis of results of the said questionnaire allowed evaluating how the approach to the different elements of the adopted system varied with time.

Forty-two out of the 47 participants regularly sent the duly filled questionnaire at the end of each module.

The obtained results and some remarks on them are reported in the following tables.

Table 1. The access to the "Study Package" and to the learning activities

	Module 1 (42)	Module 2 (42)	Module 3 (42)	Module 4 (42)
Easy	20	20	19	22
Medium	17	14	14	12
Difficult	5	8	7	5
Very Difficult	0	0	2	3

Table 2. The study material and the learning activities

	Module 1	Module 2	Module 3	Module 4
Not Interesting	0	0	0	0
Medium	5	7	7	7
Interesting	27	26	21	24
Very Interesting	10	9	14	11

Table 3. The study material (contents, assignments and resources)

	Module 1	Module 2	Module 3	Module 4
Not Sufficient	1	3	3	4
Sufficient	6	12	13	15
Good	29	21	19	17
Very Good	6	6	7	6

Table 4. The SARD tutors' assistance

	Module 1	Module 2	Module 3	Module 4
Not Sufficient	0	0	3	2
Sufficient	7	11	9	9
Good	20	20	16	17
Very Good	15	11	14	14

Table 5. The course tutors' assistance

	Module 1	Module 2	Module 3	Module 4
Not Sufficient	0	1	2	2
Sufficient	5	12	11	9
Good	26	18	13	17
Very Good	11	11	16	14

Table 6. The collaborative learning method

	Module 1	Module 2	Module 3	Module 4
Not Useful	1	2	3	5
Useful	20	23	24	21
Very Useful	20	16	15	15
A waste of Time	1	1	0	1

Table 7. Feeling towards the progressing of distance learning activities

	Module 1	Module 2	Module 3	Module 4
Not Stimulated	0	3	2	2
No Changes	3	4	6	7
Stimulated	31	30	28	27
Very Stimulated	8	5	6	6

Table 8. The learning path (2 weeks/module)

	Module 1	Module 2	Module 3	Module 4
Slow	1	0	0	0
Good	25	23	23	24
Fast	12	12	8	5
Too fast	4	7	11	15

Table 9. Functionality/ies of the platform that need to be improved

	Module 1	Module 2	Module 3	Module 4
Documents	13	13	10	15
Forum	6	8	10	8
Users	3	1	2	2
Announcements	6	8	7	7
Student's papers	2	2	0	3
Course Description	8	5	5	6
None	0	13	14	15

Table 10. The added value of the on-line phase with respect to the traditional training at MAIB

	Module 1	Module 2	Module 3	Module 4
Time	18	13	16	13
Resources	12	17	20	17
Organization	13	15	16	13
Autonomy	25	25	26	24
Chances to save money	7	3	4	5
Exchange of information	17	11	14	17

Table 11. Identified difficulties or problems

	Module 1	Module 2	Module 3	Module 4
Isolation	10	11	15	15
Connection	20	21	24	21
Expenses	14	13	17	17
Experience	11	10	10	13
Material availability	12	12	14	15
Low Knowledge of Computer Tools	1	3	3	2
No problems	9	4	5	3

Some Comments

1) The analyzed sample for all the 4 modules was of 42 participants out of 47 (3 participants never sent their questionnaires due to technological problems).
2) The access to the study package (contents) and to learning activities was easy to medium almost to all participants, probably because of the easiness for use of the platform functionalities.

3) The educational material and learning activities proved to be interesting/very interesting to most of participants. This means that the quality of contents proposed and the organization of learning activities came up to expectations.
4) The quantity of study package was sufficient/good to most of participants.
5) Administrative (SARD) and pedagogical tutoring were both good/very good. This is a quite encouraging result thanks to the preparation work to on-line tutoring carried out in a special project at the MAIB in 2003. Indeed, the tutors were selected among the participants to this course.
6) The collaborative learning method was useful or very useful to 90% of participants. Of course, such an "impression" should be confirmed from the outcome of the learning tests made in progress and at the end of the courses.
7) The outcome of the participants' approach to on-line learning was encouraging. As a matter of fact, it was "stimulating" or very "stimulating" to 95% of participants although it was slightly lower for the last two modules, probably due to "physiological" exhaustion caused by excessive work load.
8) The "learning path" was good/fast in the first two modules and tended to be very fast in the last two modules. This result is justified by the overload work at the end of the period and the physical tiredness of participants.
9) The following platform functionalities were indicated by some participants as "improvable": "Documents", "Forum" and "Course description". The latter in particular seemed to be poor especially in the presentation of objectives, due to the lack of a list of contents of the courses, of the key words, of a glossary, etc. The platform seemed to be globally good to 17 participants.
10) A feeling of autonomy was the major positive aspect observed as compared to face-to-face learning during the on-line phase. This is probably related to the asynchronous system approach in carrying out the activities that allowed the learner better flexibility and freedom to work at his/her own pace and timing.
11) More than 50% of participants had some difficulties in connecting to the Internet because of local technological problems, strictly related to the other negative aspect relative to the cost of connection to the Internet that was rather high in some cases. Another problem raised by participants is the sense of isolation that increases especially towards the end of the course (from 20 to 40%). This common problem in distance learning typically occurs in the cases of transmissive "traditional" self-instruction. In our case, it should be rather attenuated since we adopt a form of "collaborative learning" where work is done in groups and with high levels of interactions and tutoring.

STATISTICAL ANALYSIS OF SOME RESULTS – ANALYSIS OF VARIANCE

The analysis of variance is a statistical technique used to assess the effect of one or more factors on the evolution of an experience over a given period. In our case, distance learning is the experience, the parameters measured are the connections to the platform and the postings in the discussion forums, replications are the days of activity per module, the factors considered are the modules and the groups (tutors).

Therefore, we have:
- 4 levels of variation of the module factor (4 modules);
- 6 levels of variation of the group/tutor factor (6 groups/tutors).

Then 24 combinations are possible (as reported in the following table) where M1, M2, M3, M4 are the 4 modules and G1, G2, G3, G4, G5, G6 the six groups/tutors.

Table 12. Possible interactions: Modules x Groups/Tutors

	G1	G2	G3	G4	G5	G6
M1	M1G1	M1G2	M1G3	M1G4	M1G5	M1G6
M2	M2G1	M2G2	M2G3	M2G4	M2G5	M2G6
M3	M3G1	M3G2	M3G3	M3G4	M3G5	M3G6
M4	M4G1	M4G2	M4G3	M4G4	M4G5	M4G6

Our analysis refers to the effect of 3 factors:
- Tutor
- Module
- Module-tutor interaction

Fisher (F) variable is given by the following formula:

$$F = \frac{mean\ square\ between\ the\ groups}{mean\ square} \qquad (1)$$

This variable expresses the degree of significance of the effect of the considered factor according to the probability of the threshold used (p). The threshold p is given in the Fisher tables as reported in all the books of general statistics.

It corresponds to the non-exceedance probability relative to variable F calculated by the following degrees of freedom for each factor:
- The effect is highly significant when p is lower than 0.01,
- The effect is significant when p is between 0.05 and 0.01, and
- The effect is not significant when p is greater than 0.05.

Analysis of Variance of the Tutor Factor (or Group)

Effect of the Tutor Factor on Connections

As from the data in the following table, the variations within the group are much lower than the variations between groups; therefore, F that expresses the ratio between mean squares is very high (19.88) and thus probability threshold is null, namely lower than 0.01. Accordingly, the tutor or group factor is highly significant.

Table 13. Effect of the tutor factor on connections

Source of variations	Sum of squares	Degrees of freedom	Mean squares	F	p
Between tutors (groups)	2530.082	5	506.016	19.882	0.000
Within tutors (groups)	8856.983	348	25.451		
Totals	11387.065	353			

We can thus state that the number of connections over the platform was strongly influenced by the composition of the groups and the attribution of tutors to each group.

Tutor's Effect on Postings in the Forums

Also in this case the result is highly significant (Table 14).

Table 14. Tutor's effect on postings in the forums

Source of variation	Sum of squares	Degrees of freedom	Mean squares	F	p
Between tutors (groups)	844.556	5	168.911	12.308	0.000
Within tutors (groups)	4775.695	348	13.723		
Totals	5620.251	353			

Therefore, the way groups are formed and the attribution of the tutor to each group strongly affected the number of postings in the discussion forums (though less than the connections over the platform F =12.3).

In fact, greater participation in the forums was observed in the groups especially homogeneous by language (all the French-speaking members as in group 2 or English speakers in groups 1 and 5) and by geographical position.

For example, group 2, formed by French-speaking North Africans supported by a subject-matter expert of the same origin and having adequate characteristics, was the one that most actively participated in the forum activities.

Conversely, participation was not so good for group 4, formed by participants of different origin and language, probably because of the heterogeneity of its members.

Analysis of Variance with 2 Factors (Module and Tutor)

Effect of the Two Factors on the Connections

The effect of the two factors on the number of connections to the platform is highly significant (*p* null). In particular, the group or tutor factor is much more significant than the module factor, whereas the interaction between the two factors is not significant. These results indicate that all the working groups logged on to the platform with no difference between the modules. In other words, there was no preference between the modules.

Table 15. Effect of the two factors (module and tutor) on the connections

Source of variation	Sum of squares	Degrees of freedom	Mean squares	F	*p*
Modules	486.77	3	162,25	6.81	0.00
Groups	2546.76	5	509,35	21.40	0.00
Interaction	548.31	15	36,55	1.53	0.094
Residual	7424.64	312	23,79		
Totals	11006.497	335			

Effect of the Two Factors on the Postings in the Forums

The data show that the module factor is hardly significant with respect to the effect of groups that, indeed, is highly significant. This indicates that the participants' behaviour in the discussion forums was the same in the different modules and they participated in the forums to the same extent.

The interaction between the two factors is not significant, so that the groups' participation in the forums was not affected by the modules.

Table 16. Effect of the two factors on the postings in the forums

Source of variation	Sum of Squares	Degrees of Freedom	Mean Squares	F	*p*
Modules	102.25	3	34.08	2.53	0.05
Groups	886.57	5	177.31	13.21	0.00
Interaction	311.78	15	20.78	1.54	0.08
Residual	4187.28	312	13.42		
Totals	5487.89	335			

The synthesis of the analysis of variance can be summarized as follows:
- An effect on the number of connections to the platform and on the postings in the discussion forums is observed when moving from one module to the other;
- An effect of the way groups are formed and the tutor is assigned is observed on both the number of connections and postings in the discussion forums;
- The participants are more influenced by the group formation than by the variation of the modules;
- There is no difference between the modules, and the groups treated all the modules in the same way.

QUANTITATIVE ANALYSIS OF THE PARTICIPATION IN TEACHING ACTIVITIES

Quantitative analysis requires a phase of collection, control and selection of data. This being established and following the operational programme, a period was identified, from January 31st 2005 through March 31st 2005, as being adequate for observation.
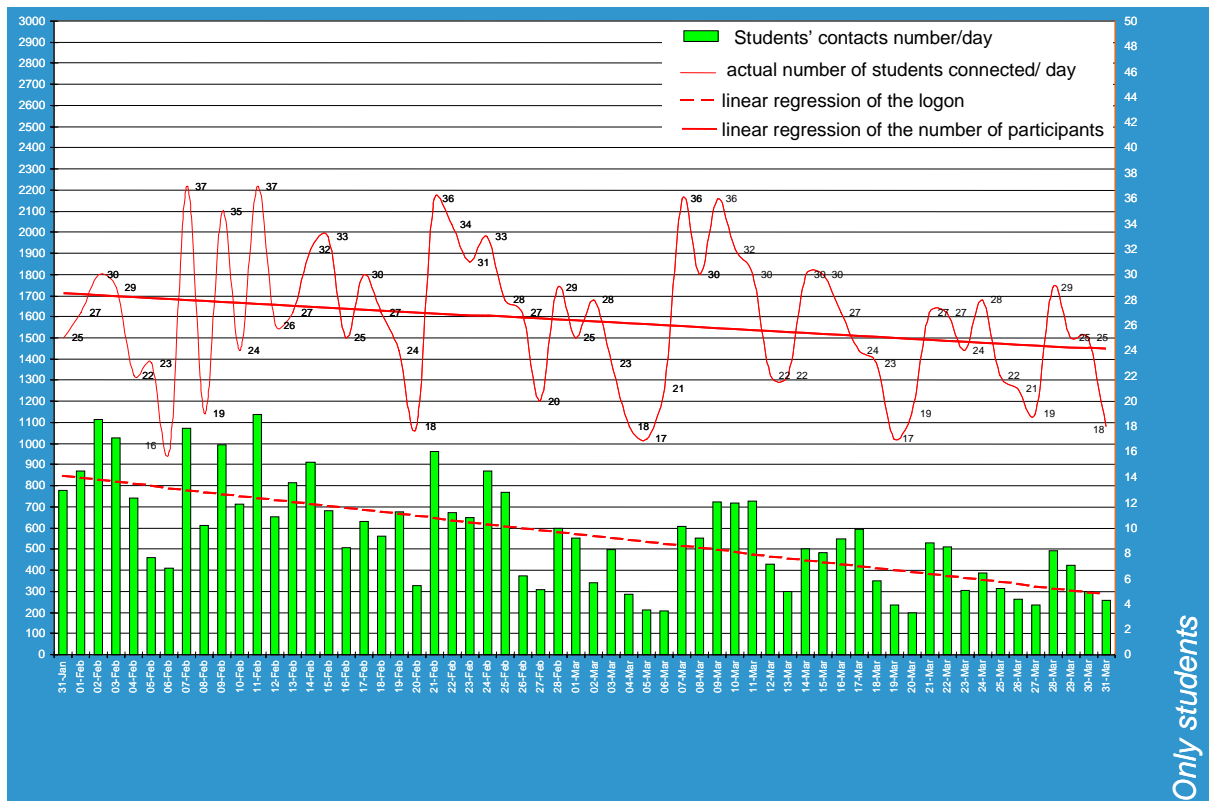
Fig. 3. Remote access from January 31st to March 31st

The platform manager daily monitored all the logons and the control of data with their overall trend. In the first two investigated months logons were as high as 46698 in number and it was important to know, for instance, the number of cumulated logons, the total number of participants, the daily logons (per student, tutor and teachers) the sections or the tools of the platform used, etc.

In the early days and at the initial stage of use, more than 1100 logons/day were counted for a participation of 30 to 37 students per day out of a total of 47, respectively on February 2 2005 and February 7 2005. In the course of the experience, we always kept track of the trend of participation in terms of logons and number of participants/day. The graph (Fig. 3) shows an almost constant trend line for daily logons and a physiologically decreasing line for the logons to the platform during the whole observation period (number of days = *nd*).

Platform Analysis and Activity, Supposed Technological Effectiveness

Interestingly, the platform activity didn't globally show a homogeneous trend. More generally, a sharp difference was observed between the first period of activity and the second. Table 1 reports for the 60 days (number of days, *nd*): the number of logons and the number of students (*ns*).

Table 17. Number of logons and number of students during the 60 days

Date	nc	ns	Date	nc	ns	Date	nc	ns	Date	nc	ns
31-Jen	778	25	15-Feb	679	33	02-Mar	341	28	17-Mar	595	24
01-Feb	870	27	16-Feb	506	25	03-Mar	497	23	18-Mar	349	23
02-Feb	1113	30	17-Feb	632	30	04-Mar	287	18	19-Mar	233	17
03-Feb	1027	29	18-Feb	562	27	05-Mar	213	17	20-Mar	197	19
04-Feb	742	22	19-Feb	676	24	06-Mar	209	21	21-Mar	530	27
05-Feb	461	23	20-Feb	326	18	07-Mar	607	36	22-Mar	511	27
06-Feb	411	16	21-Feb	963	36	08-Mar	551	30	23-Mar	304	24
07-Feb	1074	37	22-Feb	671	34	09-Mar	723	36	24-Mar	385	28
08-Feb	611	19	23-Feb	648	31	10-Mar	720	32	25-Mar	314	22
09-Feb	994	35	24-Feb	868	33	11-Mar	726	30	26-Mar	262	21
10-Feb	714	24	25-Feb	769	28	12-Mar	426	22	27-Mar	234	19
11-Feb	1138	37	26-Feb	372	27	13-Mar	301	22	28-Mar	491	29
12-Feb	653	26	27-Feb	307	20	14-Mar	501	30	29-Mar	425	25
13-Feb	816	27	28-Feb	598	29	15-Mar	483	30	30-Mar	297	25
14-Feb	911	32	01-Mar	554	25	16-Mar	547	27	31-Mar	259	18

If $\overline{F}cs = \sum_{i=1}^{nd} \dfrac{ns,i}{nc,i} \, K$ (2)

daily frequency of logons per student, and if we correlate the values expressed by the number of connections *nc* (blue bar diagram Fig. 2) with the number of students present in a day (*ns*) (red bar diagram); we calculate an average frequency $\overline{F}cs$ during the whole period of observation (*nd*).

$$\overline{F}cs = \dfrac{1}{\left(\sum_{i=1}^{nd} \dfrac{nc,i}{ns,i} \, K \right) / nd}$$ (3)

The intersection of the red curve (2) with the white straight line (3), gives a trend below the average and then another one definitely above.
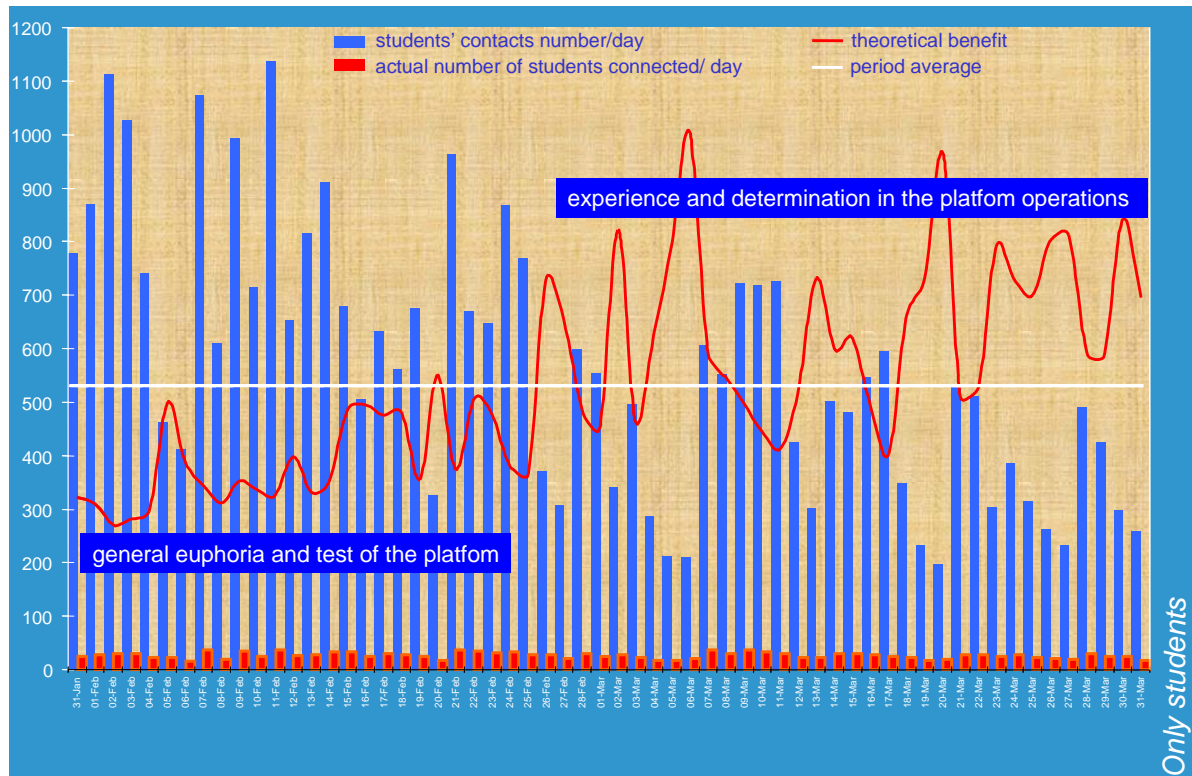

Fig. 4. Global platform activities

Based on that we can analytically state that an early period of **general enthusiasm and euphoric behaviour** was followed by another one characterized by a **more conscious and determined** attitude in platform operations.

Analysis on the Use of the Main Platform Tools, Forum Function

Logons to the platform highlight that users prefer to use some tools rather than others. The forum activity concerned about half the whole traffic originating from distance learning. In fact, as much as 50% of the forum activity is found to consist of 40% for "view", (consultation only) and 10% for "reply" (active participation through the reaction to the discussion topics). The "documents" section corresponds to 34% for the use of educational documents.

The "chat" (communication tool) only represents 5%, probably due to objective difficulties of users to log on the computer at the same time. "Announcements" activity was good and supported by administrative and technical tutoring through various communications. The rarely used "description" and "users" tools are at the bottom of the list, with only 2%.
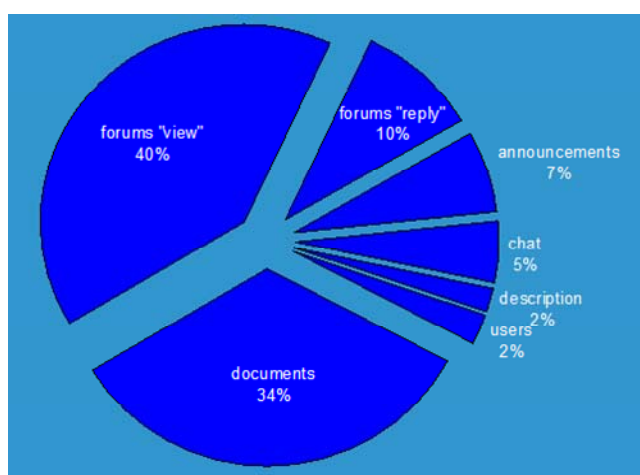

Fig. 5. Logons' distribution by tools

The teaching method conveys the use of some tasks more than others, thus strongly affecting the platform activities. An observed value as high as 50% for the forum is justified by the adoption of collaborative exchange as teaching method, equally so for the 34% value observed in the use of "documents" for sharing the study material in digital format.

In the forum section, it is worthy analysing the activity in the working period based on the subdivision into 4 modules as from the course schedule. For the purpose of the analysis, it is of interest to notice the pattern relative only to participation through reply by answer, i.e. active participation, in the discussion forums.

Fig. 6. Example of active participation in the discussion forms

By determining a frequency, an average pattern can be established (Fig. 7).

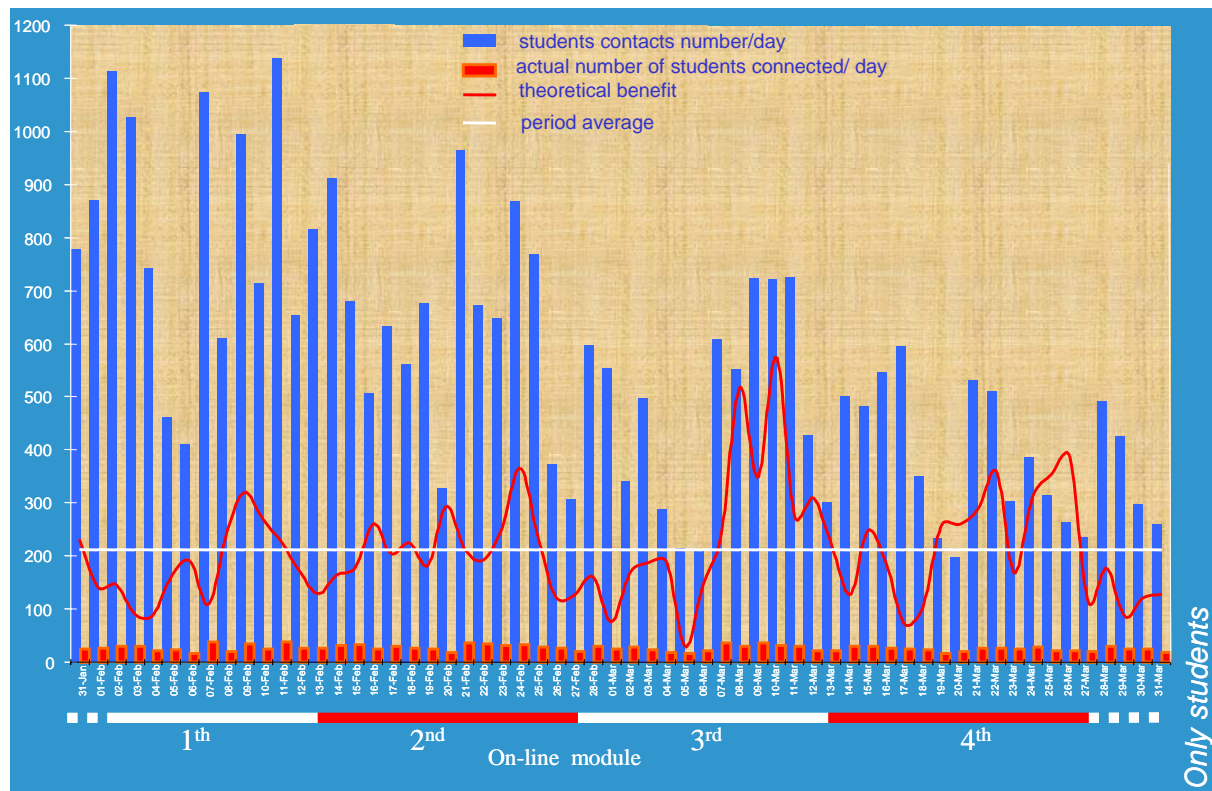Fig. 7. Forum: use of "reply"

The students' number of contacts (*nc*) was correlated to the number of "replies" (*nfr*), made during the whole reference period.

If we consider: $\overline{\overline{F}}cfr = \sum_{i=1}^{nd} \frac{nc,i}{nfr,i} \; K$ (4)

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and calculate an average frequency: $\overline{F}cfr = \dfrac{1}{\left(\sum_{i=1}^{nd} \dfrac{nfr,i}{nc,i} \, K \right) / nd}$ (5)

From the graphical intersection of the straight line (5) with the red curve (4) a particularly positive swinging pattern is evident at the end of each module. An anomalous peak is apparent at the end of the 3rd module, but it is justified in that period by a particularly challenging forum and information exchange activity.

The Operational Phases of the Project, Quantitative Analysis per Course

We now move from general observations to the different phases in which all the various actors of training did participate.

Due to teaching scheduling, and after a period of face-to-face lectures, the course continued to be delivered on-line and subdivided into more specific fields of interest and, more exactly, into 6 working groups distributed as follows (Fig. 8).
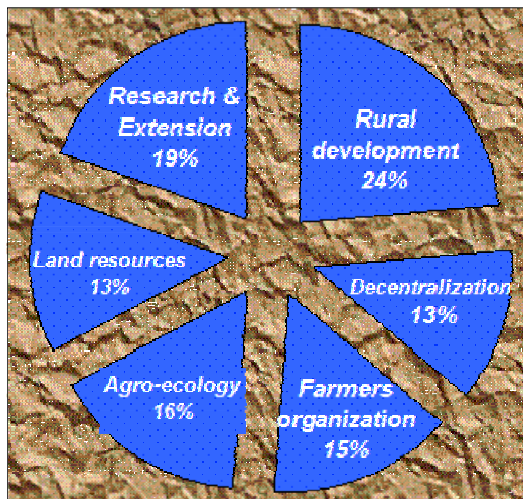
Fig. 8. Fields of interest and their subdivision

The circular chart illustrates the percentage values relative to the averages obtained from the number of contacts/number of participants' ratio.

The following table shows that the ratio of the number of logons per course to the number of participants respectively involved, equals to a ratio that is not directly proportional to the number of the components per group.

Table 18. Data used for the global analysis

Course	Participants /course	Contacts /course	Contacts /participant	Forum reply /course	Average forum reply /participant
Rural development	8	7975	997	351	44
Decentralization	9	4759	529	175	20
Farmers' organization	12	7519	627	168	14
Agro-ecology	14	9602	686	286	20
Land resources	11	6172	561	273	25
Research & extension	13	10671	821	354	27
	67	46698			

From the subdivision per course and knowing the logons per each group, we easily obtain the average value of contacts per participants (students, on-line tutors) for a total number of 67

participants (Table 18). Interestingly, the group of "Rural development", with a number of 8 participants, got an average participation value of 24% (Fig. 8).

In the same table (Table 18) other factors are important for quantitative evaluation. Looking at the existing correlation between the values of the "forum-reply/course" column and the "forum-reply/participants" column, the good work performed by the "Rural development" group stands out. This group of only 8 participants, obtained remarkable results in terms of participation in the forum and it gave a good contribution both at the group level and individually with a good per capita average (Fig. 8).

The determination of an average (Fig. 9) resulting from the ratio of the number of participants to the number of logons, highlighted the working groups that mostly benefited from this technology. However, other non-technological parameters (language, geographic area, etc.) globally affect the value of average participation.

$$\sum_{i=1}^{6} \frac{nc,i}{np,i} / 6$$

Rural development   Decentralization   Farmers organization   Agro-ecology   Land resource   Research & Extension
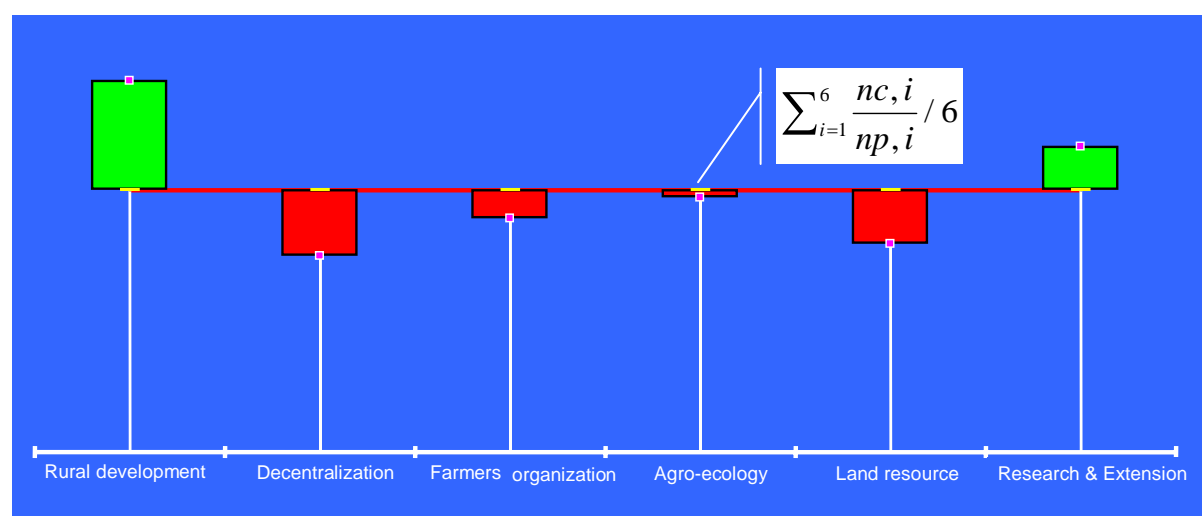
Fig. 9. Benefit – contacts per number of participants

The participation in the forums and in reply in particular was an important factor that raised lively interest and that mostly contributed to the quantitative observation. The various postings performed one of the major "tasks" of the project: collaborative exchange. Through the simple "forum reply" it was possible to compare, group by group, the activity generated by all the actors of the platform (students, tutors, platform administrators, instructors). Special attention was paid to students' participation only. The graph shows some deviation marked by the corresponding observations (+;–) or (=) obtained by extracting the students' activity only from the activity of the whole working group and during the whole on-line period (Fig. 10).

Only students

course	forum reply
Rural development	260
Decentralization	126
Farmers organization	119
Agro-ecology	209
Land resource	200
Research&Extension	260

+/- deviation

	Rural development	Decentralization	Far. Otrganiza	Agro-ecology	land resource	Research&Extention
avg reply / student	52	21	17	19	25	26
number of students	5	6	7	11	8	10

Fig. 10. Reply use per person and deviation

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QUALITATIVE ANALYSIS

Qualitative assessment of our experience was essentially based on "effective" participation in the training activities and, in particular, the capacity of applying the pedagogical "Collaborative Learning" method was considered. This method is associated to a group work. The students' class is subdivided into several groups of 4-10 members, where each member studies individually but equally shares the critical discussion of contents with the other members of the group. It differs from the "Cooperative Learning" method where the members of the group share the work and each one studies his/her part for a common project that is subsequently assembled.
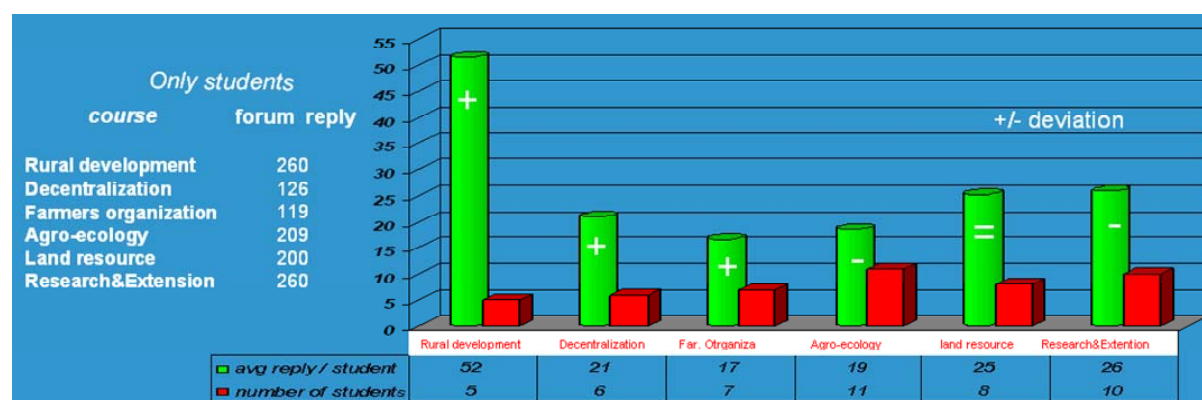
In our case, at the beginning of each weekly module, the on-line tutors, upon suggestion by the professors of each topic, propose an in-depth discussion on the subject covered in the "FORUM" area of the MAIB e-learning platform.

In these discussion forums each participant had to produce a comment or a question relative to the subject of study and reply to at least one comment or a question proposed by any colleague of the same group.

This work was performed in addition to the routine study activities and the execution of technical assignments that, as previously said, are not analysed here.

The following tables report the results of the discussion activities in the forums of each group.

Table 19. Results of the discussion activities of the agro-ecology forum

Student	Module 1		Module 2		Module 3	Module 4		
	Comts*	Replies	Comts	Replies	Comts	Replies	Comts	
1	1	3	0	1	5	1	0	
2	1	1	1	0	0	0	0	
3	0	6	1	0	0	0	0	
4	2	0	1	0	1	1	0	
5	3	0	1	2	8	3	0	
6	1	1	0	0	0	0	0	
7	0	0	1	0	1	0	0	
8	0	0	1	0	0	0	0	
9	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	
Totals	8	11	6	3	15	5	0	48

* = comments

Table 20. Results of the discussion activities of the land resource conservation forum

Student	Module 1		Module 2		Module 3		Module 4		
	Comts*	Replies	Comts	Replies	Comts		Replies	Comts	
12	1	1	1	2	3	2	2	1	
13	1	1	1	2	2	2	0	0	
14	2	2	2	2	3	2	5	2	
15	3	4	2	1	3	3	2	3	
16	0	0	1	1	3	2	1	0	
17	0	1	1	0	2	0	2	0	
18	1	2	4	3	3	3	4	1	
19	1	3	1	1	3	2	4	3	
Totals	9	14	13	12	22	16	20	10	116

* = comments

Table 21. Results of the discussion activities of the research and extension forum

Student	Module 1		Module 2		Module 3		Module 4		
	Comts*	Replies	Comts	Replies	Comts		Replies	Comts	
20	0	3	0	1	0	4	0	3	
21	1	1	1	4	1	5	0	3	
22	0	5	0	4	0	8	0	0	
23	0	0	0	1	0	1	0	2	
24	0	5	0	6	1	7	1	3	
25	0	2	0	2	0	1	0	1	
26	1	3	0	1	0	2	0	0	
27	0	1	1	1	1	3	0	0	
28	0	6	0	5	0	5	0	1	
29	0	2	0	2	0	1	0	1	
Totals	2	28	2	27	3	37	1	14	114

* = comments

Table 22. Results of the discussion activities of the decentralization forum

Student	Module 1		Module 2		Module 3		Module 4		
	Comts*	Replies	Comts	Replies	Comts		Replies	Comts	
30	0	1	1	0	0	0	1	1	
31	1	1	1	1	1	2	0	3	
32	0	0	1	0	0	0	0	0	
33	0	0	0	1	0	0	0	0	
34	1	0	0	0	0	1	0	1	
35	0	0	0	2	0	2	0	2	
Totals	2	2	3	4	1	5	1	7	25

* = comments

Table 23. Results of the discussion activities of the farmers' organization forum

Student	Module 1		Module 2		Module 3		Module 4		
	Comts*	Replies	Comts	Replies	Comts		Replies	Comts	
36	1	2							
37	3	3							
38	1	1							
39	0	2							
40	0	4							
41	0	1							
42	1	2							
Totals	6	15							21

* = comments

Table 24. Results of the discussion activities of the rural development forum

Student	Module 1		Module 2		Module 3		Module 4		
	Comts*	Replies	Comts	Replies	Comts		Replies	Comts	
43	2	6	1	9	2	7	1	3	
44	3	6	2	5	1	6	1	4	
45	0	0	0	1	0	0	0	0	
46	3	3	3	7	1	5	0	2	
47	0	0	1	2	1	6	0	2	
Totals	8	15	7	24	5	24	2	11	96

* = comments

Apart from the individual behaviour, each group showed a quite diversified pattern of postings.

The Agro-ecology group had a good start in the first module, a notable decline in the second, a good recovery in the third and, finally, was completely absent in the last.

The Land Resources Conservation group showed a rather constant pattern during the whole period with rather high values of postings per module.

The same as for the Research and Extension and Decentralization groups; the latter showed much lower values, and both showed some decline at the end.

The Rural Development groups showed some hesitation at the beginning, a good pattern in the two subsequent modules and a notable drop in the last one.

Finally, the Farmers' Organization group only activated a general forum for the whole period with rather scarce global results.

Conversely, the summarized data are given in the following table.

Table 25. Results of the discussion activities per forum

	Total Postings	Effective Postings	Number of Students	Total Average	Effective Average	Total Deviation	Effective Deviation
Rural Development	260	96	5	52	19.2	+ 27.03	+ 10.63
Decentralization	126	25	6	21	4.16	- 3.97	- 4.41
Farmers' Organization	119	21	7	17	3	- 7.97	- 5.57
Agroecology	209	48	11	19	4.36	- 5.97	- 4.57
Land Resources Conservation	200	116	8	25	14.5	+ 0.03	+ 5.93
Research and Extension	260	114	10	26	11.4	+ 1.03	+ 2.83
Totals/Means	1174	420	47	24.97	8.93		

The first column reports the names of the 6 groups referred to the topic covered.
The second column gives the total number of postings in the "forum" area.
The third column gives the number of "effective" postings, namely, relative to the subject of study.
The fourth column reports the number of students or participants per group.
The fifth column gives the average values of total postings.
The sixth column gives the average values of effective postings.
The seventh column gives the deviations of the total average values from the general total average value (4th value of the last row).
The eighth column gives the deviations of effective average values with respect to the general effective average value (5th value of the last row).

CONCLUSIONS

Our analysis is rather simple but significant to have a representative idea of the investigated activity.

Especially the "effective" deviation values are the most interesting and significant indicators to evaluate the active participation of each single group.

These indicators show optimal quantitative and qualitative performance of the Rural Development group - as previously pointed out in the quantitative analysis, and a good participation of the Land Resources Conservation and Research and Extension groups.

The Land Resources Conservation group exhibited sufficient quantitative participation and good qualitative performance, whereas the Research and Extension group maintained a relatively constant and reasonable behaviour in both quantity and quality.

Unfortunately, participatory behaviour was, on average, poor in the 3 remaining groups.
Finally, out of all the participants, approximately 50% correctly applied the suggested "Collaborative Learning" method and effectively participated in the activities.

Considering that this was proposed as a "distant" method addressed to students of different nationalities mostly belonging to developing countries, we can certainly state that the obtained results are quite reassuring.

In fact, the average statistical data of effective participation in the distance learning activity at the international level are equal to about 30-40 %.

Moreover, in our case, one should not forget a quite important aspect: cultural, religious, linguistic and social "diversity" of students of our courses makes the equalizing and homogenization work of the groups quite demanding.

Accordingly, as from the obtained results, the experience was quite positive and the proposed method is certainly effective and innovatory. The MAIB will go on adopting the "Collaborative Learning" method in the next distance learning projects and activities.

ANNEX 1: COURSES' TABLE

Course Title	Rural development Fr	Decentralization En/Fr	Farmers organization En	Agro-ecology En	Land resource conservation En	Research & extension En
Course expert	O. Bessaoud IAMM	J. Bonnal FAO	B. Seiffert FAO	C. Vazzana Univ. of Florence	A. Hamdy, CIHEAM Bari	W. Critchley Int. Centre for Coop. Amsterdam
IAMB referent	P.Pugliese	A. Antonelli	P. Pugliese, A. Antonelli &L. Lamberti	J. Calabrese	V. Sardo	L. Lamberti
Online Course Tutor	Ali Berk	Mohamed Slimani	Djamila Ziane	Souhila Aouali	Ehab Abdal Rahman	Halima Itani
Albania (2)		Flovian Musta	Alba Beqiri			
Algeria (1)	Ahmed Steit					
B & H (1)			Miljan Bojovic			
Egypt (5)				Mohamed Elwardani	Amany Hammam	Gamal Elshaarawy Khaled Farghali Mohamed El sayes
Georgia (1)		George Badrishvili				
Iran (1)					Saeid Yousef Kalafi	
Lebanon (4)		Joelle Mefleh	Sandra Fahd		Georges Antoun And Milad Riachy	
Libya (2)					Mahmoud Eswayah	Mabrouk Elsharief
Macedonia (4)			Nikoloski Ivica Daniela Miteva	Iva Milenkovic		Viktor Janev
Morocco (3)	Zineb Tamehmacht Lahcen Ahouate Sidatt Mohamed	Elayadi Mkharbech				
Mauritania (1)						
Palestine (4)				Mohammed Bassalat	Nidal Kilani	Hazar Barham Oday Aljabari
S & M (6)			Milorad Plavsic Sanja Milikic	Ljiljana Kuzmanovic Sonja Vucic Vera Vukosavljevic		Natasa Vojinovic
Syria (3)				Encherah Al Ahmar Samar Hassan	Ghada Ahmad	
Tunisia (5)	Ouertani Mohamed	Hajra Chatti Khairi Meddeb		Sadreddine Beji		Afifa Mekni
Turkey (4)				Vildan Bozkurt Bayran Ozdemir	Sema Kale	Ozlem Arslan
Total	5	6	7	11	8	10

ANNEX 2: STUDENT'S ENQUIRY

This questionnaire is aimed at monitoring your feeling after the online experience and to be able to compare your expectations with the results which will be obtained both during and at the end of the course.

Each participant has to fill in the questionnaire (by clicking on the selected box with the left botton of the mouse and filling it with a colour) and send it to Luigi Sisto (l.sisto@iamb.it) at the end of each module.

1. The access to the "didactic package" is:
☐ Easy   ☐ Fairly easy   ☐ Difficult   ☐ Very difficult

2. The didactic materials and the learning activities are:
☐ Not interesting   ☐ Fairly interesting   ☐ Interesting   ☐ Very Interesting

3. The didactic materials (content, assignments, resources) are:
☐ Not sufficient   ☐ Sufficient   ☐ Very much   ☐ Too much

4. The "SARD Tutor" assistance is:
☐ Not sufficient   ☐ Sufficient   ☐ Very good   ☐ Excellent

5. The "Course Tutur" assistance is:
☐ Not sufficient   ☐ Sufficient   ☐ Very good   ☐ Excellent

6. The Collaborative Learning method is:
☐ Waste of time   ☐ Not useful   ☐ Useful   ☐ Very useful

7. In progressing Distance Learning activities I feel:
☐ Not stimulated   ☐ No changes   ☐ Stimulated   ☐ Very stimulated

8. The learning path (time /module) seems:
☐ Slow   ☐ Fairly-paced   ☐ Fast-paced   ☐ Too fast-paced

9. What functionality/ies of the platform need improvement?
☐ Documents   ☐ Forum   ☐ Users   ☐ Announcements
☐ Student papers   ☐ Course Description

10. In comparison with the traditional training at MAI-B, the online phase allows you to have:	11. What are the difficulties or problems:
 - More time - More resources - Better organization - More autonomy - Better cost-effective management - More exchange of info - Others (to precise): ……	- Isolation - Connection - Expenses - Lack of experience - Material availability - Low knowledge of computer tools - Others (to precise): ……

12. Additional comments on the "online" phase: ………………………………………………………

CIHEAM

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INTERNATIONAL CENTRE FOR ADVANCED MEDITERRANEAN AGRONOMIC STUDIES

Distance Learning Experience within the "Training Course Addressed to Operators of Sustainable Agriculture Development in Mediterranean Climate Countries": Analysis of Results

This action concerned the implementation of advanced training course on Sustainable Agriculture through distance learning.

The course was organized by CIHEAM, International Centre for Advanced Mediterranean Agronomic Studies through the CIHEAM-Bari Institute, within the framework of specific institutional support activities by the Italian Cooperation (Ministry of Foreign Affairs) to combat poverty in Southern countries.

The objective of the course was to provide participants with update multi-disciplinary knowledge to effectively contribute to implementing sustainable agriculture development programs in their countries also within the framework of plans and actions to combat poverty.

Participants were forty-seven fellowship holders coming from Southern Mediterranean countries, and selected among officers of the Ministries of Agriculture and Managers of professional organizations of the agricultural sector.

The course length was 7 months (December 2004 through June 2005). It included an initial residential period of about 2 months at the Mediterranean Agronomic Institute of Bari (MAIB), a period "at a distance" of about 4 months during which participants returned to their countries to continue the experience "on-line", and finally the third residential "follow-up" period of about 1 month.

This BLENDED SYSTEM, blending a "face-to-face" period with a "distance" one, had already proved to be quite effective, both in terms of learning and psycho-social approach, in a previous experience developed by MAIB.

The beneficiary countries of this action were: Albania, Algeria, Bosnia Herzegovina, Egypt, Lebanon, Macedonia, Morocco, Palestine, Serbia Montenegro, Syria, Tunisia and Turkey and some countries (Georgia, Iran, Libya and Mauritania) indicated by the Italian Cooperation.

Priority was given to those countries where Country Programs of the Italian Cooperation are already working, those where actions specifically addressed to combat poverty or where complementarities and synergies with training of local officials of the agricultural sectors are possible.

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