Remote Technical Assistance to strengthen professional and economic resilience of people in war crisis
A success case study by CIHEAM Bari

Luigi Sisto, Onofrio Lorusso, CIHEAM, Bari, Italy

ABSTRACT. As part of a project to support farmers and livestock farmers living in extremely vulnerable areas in Syria, professional online technical assistance was undertaken despite considerable limitations caused by serious emergency situations. A careful analysis of exogenous (e.g. social, economic and technological context) and endogenous factors (virtual communities, cognitive needs, motivation, expectations, etc.) has been the basis (diagnostics) for the appropriate methodological and technological choices. Given the context, this paper highlights the importance of solutions related to the major aspects of inclusive teaching, methodologies and technologies suitable for adult training courses. In conclusion, the analysis of the final evaluation data of one of the courses provided substantiates the effectiveness of this activity.

KEYWORDS: Inclusive learning environment, knowledge transfer, remote technical assistance, resilience, Syria

Foreword

RTA through the use of E-learning systems may be considered an efficient tool to carry out online support activities for communities in fragile and vulnerable areas where it is impossible to carry out actions in safe conditions as is the case for Syria. This tool is innovative in that it reduces distances and helps rural communities in Syria’s insecure areas to improve their agricultural production through information and technical assistance provided by experts who seek to respond to their needs or solve specific local problems via the internet.
Area of intervention

Bearing in mind these aspects, RTA was successfully applied by CIHEAM Bari within the framework of the programme Agricultural and Livestock support for Syrian People funded by DFID (UK – Department For International Development) and AICS (Italian Agency for Cooperation and Development). In addition to providing materials and means to improve agricultural and livestock production, some E-Learning courses were given on topics of interest to Syrian technicians, operators and farming communities. In particular, these courses were delivered in 4 locations as showed in Figure 1, each with about twenty participants, one in Turkey (Gaziantep) and 3 in an area to the North-East of Aleppo (Afrin, Al Atarib and Idlib).

Background

Socio-economic analysis

Syria has recently seen significant decreases in cereal production (especially wheat), caused first by disastrous drought and later by bloody conflicts. This country, mainly agricultural, produced food in such large quantities as to be exported to neighboring Arab countries. At present, unfortunately, given the conflict-ridden situation, agriculture is collapsing with resources that are now being depleted and with agricultural areas that continue to decline. In 2016 the country produced 1.5 million tons of wheat compared to 3.5 million of the previous years as reported by the FAO and WFP (World Food Programme) and confirmed by the United Nations Agency (Agriculture and Emergencies Section). Farming is currently difficult because it is extremely dangerous to work in the open field. Most of the land remains uncultivated and if it is sometimes sown, threshing and harvesting are dangerous operations. Climate change has a negative impact on this country with erratic and insufficient rainfall (average annual rainfall of 250 mm). Seeds and fertilizers are rather scarce; irrigation systems are often destroyed and unusable due to lack of maintenance, spare parts and fuel. Furthermore, the presence of mines in cultivated fields does not encourage agricultural activities. Also animal husbandry is declining due to the scarcity of forage and grazing land; one
third of cattle and 40% of sheep and goats have disappeared (FAO and WFP Report). However, data
collection is difficult and inaccurate; it is mainly based on interviews collected by local operators,
international missions, satellite photos and weather forecasts.
The number of inhabitants is unknown. Before the war, Syria had just over 22 million inhabitants.
According to the UN High Commissioner for refugees, in September 2016 there were 4.8 million
Syrian refugees abroad with more than one million in Lebanon and 2.7 million in Turkey; these
figures do not include all the migrants who died off the Mediterranean coasts and the approximately
400,000 civilians killed (UN estimate). At present, the population estimated by the FAO and WFP
averages 16 - 18 million inhabitants increasingly concentrated in urban areas seeking refuge and
support. Getting an income, in general, but especially for farmers and livestock farmers, is really a big
issue if we consider an unemployment rate of 50% (government data).

Cognitive analysis

In this context in general and in the areas of intervention of the project in particular, operators
of RTA activities have discussed its organization as a whole. Participants, communication modes
(info/training cycle), cognitive needs, learning modes and distances not only physical deserve due
consideration since they are functional variables of a complex system of knowledge management.
This attention is motivated by the results of preliminary investigations into technical, organisational
and language skills available on the spot, aimed at a more precise identification of cognitive needs.
Moreover, a survey was conducted to explore specific problems affecting typical crops and livestock
breeds at local level.

As to this cooperation project in Syria, CIHEAM Bari, relying on its consolidated skills in distance
learning and E-learning gained thanks to several project experiences, has proposed a transmissive
cognitive approach, opting for the f2f (face to face) mode. The organisation in virtual classrooms and
translation into Arabic have been important social and learning support components. In addition to
these courses, online evaluation tests and thematic webinars were organised. Figure 2 reports the

Figure 2. Knowledge flow
knowledge flow in the case study under review.

**Technological analysis**

ICTs (Information and Communication Technologies) certainly represent a bridge in support of the diffusion and transfer of knowledge, its development for the professional upgrading of participants who live in vulnerable or marginalized areas. According to some local operators, the telematics infrastructure in the area of intervention is inefficient. In addition, the GSM network (Global System for Mobile communications) does not work better, with frequent and insurmountable problems linked mainly to electricity supply. As we can observe in the picture below, despite an inappropriate terrestrial telematics network, satellite coverage is good.

![Satellite coverage by Lamit company- Internet Two way via Satellite](image)

Figure 3. Satellite coverage by Lamit company- Internet Two way via Satellite

The latter has proved indispensable for the delivery of video lessons in multicasting mode through Internet services with optimal performance, in terms of band width. The technical operational investigation was confirmed by Skype calls sessions already carried out in the project area. The successful outcome of video-sessions recorded through a web-meeting application (WebEx © Cisco) and simultaneously delivered from the transmitting station (CIHEAM Bari) to different receiving stations (e.g. offices, consortia, associations) has allowed the participation of many beneficiaries. In addition, we can observe in the image below, that the use of instant messaging systems (e.g. whatsapp©WhatsApp Inc.) enabled
immediate communication on mobile phones in the event of last-minute reorganisations that unexpectedly occurred during the war.

Figure 4. Transmitting and receiving, one or more, stations

Finally, access to a combined Learning Management System (LMS © Claroline) (CIHEAM Bari e-learning platform) allowed the deferred use of previously recorded on-line material and documentation to complement the video-learnings or webinars produced. The same platform allowed important interactive retrievals through online discussion in forums dedicated to the main topics; its aim was to answer any questions posed by beneficiaries to experts in the field. Finally, due learning tests were carried out through online evaluation tests.

Inclusive Learning Environment (ILE)

An important study on the sense of belonging explains that Inclusive Learning Environment is an ideal environment to facilitate inclusive learning (Tisdell, 1995). Strategies for approaching the Inclusive Learning Environment consist of a series of planned actions that fulfil the central role of learning, paying attention to individual needs and capable of building education paths linked to the cultural, and existential values of beneficiaries. In this respect, training must therefore be provided to ensure that:

- it is a peculiar social resource
- proper assessments are adopted in order to integrate incomplete knowledge
- it is a lifelong learning process

According to Tisdell, it is essential:

- to take into account the diversity of participants in the same learning activity
- to adhere to the institutional frameworks in which participants work and live
- to meet the changing needs of a society that is increasingly diversified

Examples of student diversity include: language, culture, origin, social background and technological
knowledge, which are generally critical aspects of inclusion. Moreover, the contexts in which training must be carried out may exhibit particularly difficult situations conducive to marginalization which may be worsened by events that modify the socio-economic and environmental conditions, as in the current case of Syria. CIHEAM Bari, which has always been engaged in the training of students from different countries of the Southern Mediterranean, has gained considerable experience in this regard. In order to overcome the critical aspects of inclusion, it applies some principles of cognitive ergonomics as in this case study. Cognitive ergonomics is the branch of ergonomics dealing with the interaction between men and the tools for processing and handling information, by studying the cognitive processes involved (perception, attention, memory, thinking, language, emotions) and suggesting solutions to improve such tools. It also considers that priority should be given to the training needs of adults already included in a working context such as in this case. In this respect, it seems legitimate to refer to a paper which reinforces the validity of inclusive teaching for adults (Knowles, 1996); it highlights some particularly interesting prerogatives such as the need to know, greater experience, experimentation of know-how and problem solving. This is the case of adult trainees with strong learning motivations to meet the basic needs for their survival and resilience. Finally, we must not forget an essential action, envisaged by CIHEAM Bari in our case study, in favor of inclusive training, i. e. the tutoring-translation of courses. This topic is discussed in detail in the following chapter.

Types of communication and tutor mediation

Communication in a virtual classroom, or receiving station as in our case study, can be both synchronous and asynchronous. The first one imposes connections at the same time (on air) while the second one does not place online time constraints. It is important, however, to consider the role of the tutor which is crucial in all the steps of the learning process. In our instance, the tutor was also an interpreter with social and organizational tasks, and language support (Arabic, English, Italian). The role played by the tutor is therefore strategic especially in conditions such as in Syria. Several publications highlight the importance of the tutor. According to Guillaume (2009), the functions of tutoring are as follows:

- Social: to welcome, introduce oneself, remember objectives, animate and control communication
- Supportive to communication: suggest communication rules, present the system and propose resources, advise on the choice of communication tools, help solve technical problems
- Supportive to disciplines: provide resources, answer questions on the content, urge resource sharing
- Supportive to methodology: help in working methods, tasks organization, provide moral and emotional support if needed, promote collaboration and communication among students
- Regulation and metacognition: spur tasks and follow a logbook, help learners follow their learning path, encourage decisions of regulation in the learning process, analyze and self-regulate the tutoring practice
- Analysis and evaluation: analyze the students’ behavior and produce reports (monitoring). Communicate evaluation criteria, encourage self-assessment and provide feedback to students, contribute to evaluating the training device, communicate the final evaluation to the student

Activities and results

As previously described, RTA activity has practically developed by providing short courses or individual online seminars on topics related to priority cognitive problems and needs highlighted by a preliminary survey carried out at the recipient sites. Therefore, these were not “pre-packaged” academic courses or seminars.

In fact, the contents of each session were the result of a preliminary discussion-agreement between the experts of the subject (teachers) and the technicians working on site (project managers) who, knowing the local reality through direct experience, were able to guide the teachers in dealing with the essential and most important aspects and topics to solve the concrete problems raised by the beneficiaries. In some cases it was agreed to continue some seminars after the first session-meeting useful to understand and identify the main topics to be discussed directly with local operators.

The choice of lecturers was oriented towards experts on specific topics who had already had training experiences in similar contexts. Courses of English language, tutoring, associations and beekeeping were provided, as well as seminars on some wheat and olive diseases and zoo technical topics to improve dairy products (yogurt).

Particularly interesting were the results of a pilot course of beekeeping for a total of 12 hours to 35 beneficiaries (of whom 2 bee keepers) resident in the premises of the 4 recipient offices (Gaziantep, Afrin, Atarib, Idleb).

At the end of the course, participants were invited to take an assessment test to obtain a certificate of participation in the course (successfully passed by 34 candidates). A questionnaire was administered to beneficiaries to evaluate the most significant elements of the course (Customer satisfaction); the results are shown below and their analysis provides useful indications to evaluate the effectiveness of the adopted system. The elements taken into consideration for the said evaluation are: the lecturer; b) the tutor, and c) the methodology adopted. Pertaining to the lecturer, the following aspects were evaluated: teaching skills, interaction with students, organization of lectures, clearness and quality of presentations, completeness and quality of the teaching material, practical activities and effectiveness of the course materials on the e-learning platform. About the tutor, the following parameters were taken into account: professional behaviour, personal relationships, fairness, facilitation in students-lecturer relationship and his role as guide. As to the methodology, the following was evaluated: punctuality in the start of lessons, appropriateness of time duration of on-line lectures, course organization and effectiveness of e-learning platform. Each parameter has been evaluated following 4 levels of the Likert scale: Fair (F), Good (G), Very Good (VG) and Excellent (E).
Evaluation of the lecturers

<table>
<thead>
<tr>
<th>EVALUATION OF THE LECTURER</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Fair</td>
</tr>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Very Good</td>
</tr>
<tr>
<td>Excellent</td>
</tr>
</tbody>
</table>

Figure 5. Final questionnaire - evaluation of the lecturers table and chart (%)

Figure 5 shows the percentage data of the evaluations of the 7 parameters considered for the lecturer. The highest values of VG+E (68%) refer to the interaction with students; the highest value of E (19%) refers to the organization of lectures. The maximum value of F (11%) refers to the completeness and quality of the study materials.

Evaluation of the tutor

<table>
<thead>
<tr>
<th>EVALUATION OF THE TUTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Fair</td>
</tr>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Very Good</td>
</tr>
<tr>
<td>Excellent</td>
</tr>
</tbody>
</table>

Figure 6. Final questionnaire - evaluation of the tutor table and chart (%)

As far as the Tutor evaluation is concerned, the results are reported in Figure 6. In this case, the highest values of VG+E (62%) concern impartiality and the maximum value of E (16%) refers to the facilitation of relations between students and lecturer.
Evaluation of the methodology of distance learning

<table>
<thead>
<tr>
<th>EVALUATION OF THE METHODOLOGY OF DISTANCE LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Fair</td>
</tr>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Very Good</td>
</tr>
<tr>
<td>Excellent</td>
</tr>
</tbody>
</table>

Figure 7. Final questionnaire - evaluation of the methodology of Distance Learning table and chart (%)

Figure 7 shows the evaluations of the distance learning methodology adopted. It can be seen that the maximum values of VG+E (60%) refer to the effectiveness of the E-Learning platform. While the highest value of E (16%) is related to the punctuality for the start of lessons. The highest value of F (19%) refers to the appropriateness of the duration of online lessons.

Conclusions

The analysis of the results obtained from the evaluation questionnaire on the beekeeping course (customer satisfaction) enabled to understand which aspects were most appreciated and which instead aroused shortcomings and limitations. The objective of this evaluation is therefore to try to improve the methodology and choices adopted, considering the useful aspects of cognitive ergonomics in order to achieve a desired Inclusive Learning Environment (ILE).

As far as the lecturer is concerned, it is clear that the ability to interact with students has been appreciated above all. In particular, the lecturers tried to talk with the participants in order to understand directly the real problems and issues to solve.

Fragmented knowledge was integrated and tacit knowledge (education mediation) was intercepted. In many cases, practical field tests suggested online by the lecturer were carried out, which made it possible to resolve some problems quickly. As a result, this approach was applied methodically throughout the course and significantly improved the organisation of lessons.

With regard to the evaluation of the tutor, who has played a strategic role in the system, his impartiality in the relations with the beneficiaries of the 4 different target venues of the course was very welcome. The Arabic-speaking person in charge was able to communicate equally with all the recipients of the course, despite a certain lack of homogeneity in cultural levels.

He was also able to interpret the concepts and objectives of communication exchanges well, facilitating effectively the relations between lecturer and students.
All the most appreciated aspects can be included among the most important strategies of inclusive adult learning. In this instance a fair interaction with the target audience is fundamental, making them feel at ease and active players of the training process.

The methodology applied deserves attention since the effectiveness of the E-learning platform adopted has been greatly appreciated. It has allowed all the actors of the learning process to benefit not only from useful tools but also from a collaborative environment where they can ask questions and post any comments in the discussion for each course (Inclusive Learning Environment).

This choice has been particularly significant for the emotional aspects of the beneficiaries; an environment has been set up with useful learning tools to facilitate even the shy or potentially marginalized participant in order to find favorable conditions for an active participation in the learning process (cognitive ergonomics).

Moreover, participants appreciated the fact that training sessions were planned outside the working hours; their end was also scheduled before sunset to avoid possible curfew risks.

The duration of online lessons (about 2 hours per lesson) did not obtain a good evaluation. Probably because too long sessions (over 60-80 minutes) cause a physiological decrease of attention and cognitive capacity.

In conclusion, the results of the final evaluation of the expectations and level of satisfaction expressed by the recipients of the course shown in Figure 8 have been taken into consideration.

**Expectations and satisfaction**

<table>
<thead>
<tr>
<th>EXPECTATIONS AND SATISFACTION</th>
<th>%</th>
<th>Benefit of contents for your curriculum/profession</th>
<th>Level of satisfaction with the skills improvement expectations</th>
<th>Compatibility of the study with the work commitments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>41</td>
<td>54</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Very Good</td>
<td>46</td>
<td>32</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>14</td>
<td>11</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 8. Final questionnaire – expectations and satisfaction table and chart (%)*

The participants commented on the benefits of the contents studied for their professional curriculum, the level of satisfaction with the expected improvement of skills and the compatibility of the topics studied with respect to work commitments. In general, all aspects considered were positively evaluated in particular for the benefits stemming from the training experience for their curricula/professional activities (VG+E= 60%).

This result shows that, although adult, the prevailing interest of beneficiaries was the improvement of their professional profile (CV), typical of young people. But this choice must be understood above all having in mind their future activity beyond the end of the programme (July 2018). In fact, the hope is that the state of war in Syria will come to an end as soon as possible in order to allow a rapid social and economic recovery of the country, using human resources capable of adequately supporting this action.
## General References

Forti Marina (2016), *La guerra in Siria vista dai campi di grano*  
https://www.internazionale.it/notizie/marina-forti/2016/12/15/siria-fame-guerra

Guillaume Nelly (2009), *Un modèle d’Animation: vision synthétique des fonctions tutorales*, “Tutorales: la revue de t@d, la communauté de pratique des tutors à distance”, V.2, pp.7-17


Lorusso Onofrio, Sisto Luigi and Slimani Mohamed (2011), *Effects of the tutor and of the recovery period on exchange dynamics in the “Forums” of an e-learning course*, “Formamente”, V. VI, N. 1-2, pp. 249-268  
https://formamente.guideassociation.org/category/issues/20111-2/
