Hybrid learning for women and socially sensitive groups for the promotion of digital literacy

KAŁOΓIΑΝΝΑΚΙΣ ΜΙΧΑΗΛ
University of Crete, Science Department
GREECE

PΑΠΑΔΑΚΙΣ ΣΤΑΜΑΤΙΟΣ
Secondary School IT Teacher
Msc “Gender, New Forms of Education, New Forms of Employment and New Technologies in the Information Age”, University of the Aegean
GREECE

Abstract: - The main aim of the present research project, based on a case study, is the evaluation of 12 distant learning programs, materialized in certified educational centres in the prefecture of Heraklion in 2007, concerning the instruction of basic ICT (Information and Communication Technologies) skills to women and persons with special needs, regardless of their educational background. All programs were completed through a similar method of distant-learning (hybrid or blended learning). The duration of the programs was 100 hours, from which 30% was conducted via physical presence (seminar type “face to face” learning in the classroom) and 70% via distant-learning with an LMS (Learning Management System). One of the most important findings of the research is the apparent successful achievement of the basic educational targets, namely “digital literacy” and the learners' participation in the Information Society. The demand for faster knowledge integration, the learners’ lack of appropriate material and technical equipment and the inefficiency of the educational centres to respond to these needs are recorded as shortcomings of the observed programs.

Key-Words: - Hybrid Learning, Social Sensitive Groups, Evaluation

1 Introduction
The training of adults performs a great role in economical and social development of a state. Nevertheless, professional training of employees or unemployed individuals that is based on traditional forms of education often requires the commutation to educational centres, with all the assorted disadvantages, namely waste of time, transfer and living expenses, tiredness etc. These problems constitute basic suspending factors in regard to the upgrading of knowledge and skills for the workforce and, in extension, the updating of business and the fight against unemployment. An essential problem arises concerning those groups of the population with inherent difficulties in transporting to the traditional educational centres due to physical weakness, professional commitment, family obligations or distant residence.

Open and distant learning programs aimed at socially sensitive groups, are of great importance, due to the fact that people being part of those groups have to deal with and overcome too many difficulties starting with that of securing employment. Moreover even when occupied, they often face discrimination in the job market. As belonging to social sensitive groups are considered women, under-educated people, young people, those with disabilities, repatriated persons, refugees, immigrants, prisoners or ex-prisoners, adolescent outlaws, gypsies, former addicts, asylum seekers etc.

The present empirical research is concerned with the evaluation of a program that its fundamental objective is the development of basic knowledge of computer use for the general public through flexible procedures based on the comprehension and use of current ICT (Information and Communication Technologies) by women and disabled individuals (especially those with mobility problems), in combination with their integration or re-integration in the work market. The evaluation of each training program forms a necessary requirement for its continuous improvement, the adaptation to particular demands of the trainee but also the guarantee of its viability and effectiveness [1].
2 Theoretical context

Nowadays, the use of teleteaching has provided the convenience of different types of information (video, audio, text and hypertext) availability and dissemination thus contributing to the independence of the educational process from place, time and the one dimensional search, presentation and distribution of information and knowledge. Experience from educational practice with the use of ICT has proved that the simple broadcasting of audiovisual information and the achievement of direct interpersonal communication do not guarantee the effective achievement of the teaching goals [2].

The accomplishment of these goals can be effectively achieved if in combination with all the above mentioned elements there is use of suitable teaching and learning procedures which enable the trainee to actively participate in every part of the teaching process [3]. Current constructivist learning theories emphasize the suitable coordination of learning activities, the active and constructive nature of knowledge, as well as the interaction and the creative involvement of trainees in the educational procedure [4].

2.1 The educational method

The educational method used to materialize the case study distant learning program is the hybrid or blended learning that is to say a combination of traditional teaching methods (face to face learning via physical presence of the educator in the classroom) with synchronous or asynchronous models of distant learning based on the Internet technology [2]. The evaluation of such programs does not appear frequently in the Greek educational reality. As estimated, the adoption of Internet technologies for distant learning purposes makes possible the change of the way it is delivered and improves the interaction among participants in the educational process [5].

Besides, it is considered true that hybrid learning can be in some cases more effective in comparison to the model of full distant teaching and the totally traditional education, since the learners in such programs (hybrid learning) achieve the same or even better learning results in comparison to the traditional way of teaching. Moreover, learners appear to be more satisfied by this combinatory educational approach [6]. The verification of this fact is in the scope of the current research project.

The program under evaluation enables learners to develop and acquire abilities such as the use of word processing, spreadsheets, presentations, databases, internet browsing and e-mail use. Generally, hybrid learning does not aim to compare traditional types of education to activities on line, but on the contrary, to complement them efficiently exploiting usefully the positive aspects of both teaching approaches [2].

Hybrid learning appears to be an interesting educational model because it enables current educational organizations to perform a step by step adaptation of the participants from the traditional educational experience to the electronic teaching so that this change can be gradually manageable as well as understandable. There is a group of factors involved in the teaching process namely: a) the learner’s profile b) the teaching object’s nature c) the teaching aims d) the teaching procedure (lecture, cooperative teaching, individualized teaching etc) as well as e) the educational distant learning method used to materialize mixed training via distant training [6], [2].

2.2 Distance learning to social sensitive groups

Many researchers have examined cases of distant learning applications for social sensitive groups. Particularly, enough of them have been involved with the evaluation of such programs [7], [8], [9], [10], [11]. More generally, in designing open and distant learning programs the tension is to focus on one social sensitive group at a time [7], [9], [10], [11] since each group has different features as well as different teaching needs. According to the point of views of participants the disabled group seems to have greater need for distant learning due to the difficulty in commuting than the unemployment group aged 45-64 who would not easily attend such a training due to the lack of familiarity with the ICT [9], [12].

Hegarty [13] claims that distant learning programs have a lot to offer to disabled individuals and Ommerdon [12] complements that distant learning to social sensitive groups provides them with the possibility of a successful access to education [13]. Furst & Dittmann [14] are focusing on the opportunities offered by open learning programs to adult women interested in continuing their instruction. According to Panda [15] women’s invigoration was among other actions essential in distant learning programs in India, in the scope of a research project on one of the biggest open and distant learning system in the world. Furthermore, Grace [16] maintains that in Australia new technology programs contributed in the invigoration of women in rural communities as the disabled
especially avail themselves from distant learning programs with the use of ICT [16].

2.3 Aim of distant learning program
The purpose of the studied program was the instruction of unemployed women and people with special needs (mostly handicapped). The main aim of this program was dealing with the so called “digital gap” and the acquisition of basic skills in the use of ICT from learners, the improvement of their adapting ability in the environment created by technology, the increase of female occupation, occupation of disabled as well as the prevention of unemployment.

In the framework of the present project, asynchronous distant learning was materialized through a completed system, the LMS (Learning Management System). The platform of asynchronous distant learning used was Moodle, an internationally open source platform. The duration of the programs was 100 hours from which 30% was conducted via physical presence, corresponding to 30 hours “face to face” seminar like learning in the classroom, and 70% of distant learning, corresponding to 70 hours of distant learning. The total teaching was materialized during May - December 2007 in certified Adult Training Centers named KEK in the prefecture of Heraklion. All the instructors of traditional education had been certified from EKEPIS (National Accreditation Centre for Continuing Vocational Training).

3 Methodological context
The basic methodological tools used in the presented case study research constituted of (a) semi directional interviews for the reinforcement of the quality specifications of the research, (b) a proper structured in two parts anonymous questionnaire addressed to the participants of the program. To analyse the quantitative results of the research we will apply the descriptive and inductive statistics through the use of the statistics package SPSS-13.0.

The first part of the questionnaire is composed of 10 questions regarding mostly the personal details of the participants and explored their basic attendance reasons, their intentions for future training as well as their knowledge around ICT before and after attending the program. For the evaluation of the distant learning program, after the fulfilment of two semi directional interviews we concluded at four basic evaluation levels, which are presented in 22 positions in the 2nd part of the questionnaire based on a five level Likert scale (1=disagree completely, 2=disagree, 3= do not agree nor disagree, 4= agree, 5= agree completely):

(a) Pedagogical level, which refers to the entire criterion regarding the educational process with basic characteristic the support of different teaching methods and the way that new knowledge is presented.
(b) Organizing level, this refers to the elements concerning the abilities of technological facilities (equipment, classrooms) and the effective administration of those facilities in the boundary of the studied program.
(c) Social-Cultural level, which studies how much the offered program, could be incorporated in the overall cultural and social development of the participants.
(d) Economical level, referring to the level of profitability of use of hybrid learning opposed to traditional education.

A total of 208 individuals participated in the presented pilot research which represented the 90.4% of the sample of 230 people that took part in the learning programs. In further analysis, 260 people had been chosen to participate in 13 distant learning programs in Heraklion Prefecture of the island of Crete. However for several reasons 30 people (11.5%) left during the program while from the remaining 208 people, 206 (99%) were women while only 2 learners were men (1%).

All the participants in the research were unemployed while up to 9 adults (4.3%), 2 men and 7 women, were with special needs. Concerning the education-level, the majority consisted of high school graduates (72 persons 34.6%), 39 graduates of Institutes of Professional Training (IEK) (18.8%), 22 graduates of Technological Educational Institutes TEI (10.9%) and 52 University graduates (25%). From the rest of the learners 4 were primary school graduates (1.9%), 9 junior High school graduates (4.3%) while 10 were post-graduate degree holders or of a PhD diploma (4.8%). Its also typical that the majority of the sample, 151 adults (72.6%) had not attended another similar type of traditional training in the past. Additionally only 18 people (8.7%) of the sample had attended another distant training program in the limits of formal or non formal education while a relevant high percentage (73.1%) had non attended any other education of ICT.

4 Results
The use of ICTs is changing the shape of learning arrangements and increases the need to produce learning materials. Actual blended learning would
involve students learning through experiencing variation in aspects of what is their object of study. Blended learning can be defined or conceptualized as any combination of a wide variety of technology/media integrated into conventional, face-to-face classroom activities.

The results of the research relevant to the residence area as well as the age of the participants are indicated in table 1 from which it becomes clear that the majority of the sample resides in urban areas (76.0%) and belongs the age category of 18-25 (49.5%).

<table>
<thead>
<tr>
<th>Residence</th>
<th>Percent (%)</th>
<th>Age Group</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban (Heraklion)</td>
<td>76,0</td>
<td>18-25</td>
<td>49.5</td>
</tr>
<tr>
<td>Demi-urban</td>
<td>16,8</td>
<td>26-35</td>
<td>32.2</td>
</tr>
<tr>
<td>Rural</td>
<td>7.2</td>
<td>36-45</td>
<td>16.3</td>
</tr>
<tr>
<td></td>
<td>46 &gt;</td>
<td></td>
<td>1.9</td>
</tr>
</tbody>
</table>

Table 1: Sample frequencies of residence and age group

According to the participants the primary reasons for attending this hybrid learning program were their desire for acquisition or improvement of knowledge in ICT (74.5%), the chance of obtaining certified knowledge in computers and in ICT generally (43.3%) as well as the following certification of the seminar (39.4%). The latter demonstrates the formalistic approach the participants take towards the educational process examined in this case study. Finally, in the first part of the questionnaire the elements of the following table 2 are also presented, the kind of program that the participants would like to attend in a future further education as well as their intention to withdraw from the examined program at the ICT at a specific time.

<table>
<thead>
<tr>
<th>Preferences for a future program</th>
<th>Percent (%)</th>
<th>Intention for withdrawing the program</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor presence</td>
<td>37,0</td>
<td>Yes</td>
<td>87.5</td>
</tr>
<tr>
<td>Hybrid learning</td>
<td>51,9</td>
<td>No</td>
<td>12.5</td>
</tr>
<tr>
<td>Exclusively distant learning</td>
<td>9.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None of the above</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Sample frequencies relevant to the preferred future type of certification and the likelihood of abandoning the program.

It is also worth mentioning that the basic reasons for which the participants would possibly withdraw during the program are characterized mostly technical, as lack of ownership of personal computers and/or Internet connection. As a result the learners had to visit friendly or relative houses or the Adult Training Centres’ (KEK) facilities to fulfil the distant learning education, thus revoking the flexibility of a hybrid-learning program. An important reason that could lead to withdrawal from the program was the unreliability of different distance learning environments that where utilised. Specifically the participants stated that the confronted major malfunctions concerning the perkiest time of web use, which affected them with anxiety symptoms, agitation, frustration and exasperation.

Another important reason for abandoning referred to the organizing of the training program from the Adult Training Centres (KEK). For example, while the relevant announcements estimated that the programs could be completed in between 35 up to 90 days, KEK chose to complete the training within 35 days with preference to detach their resources (PC labs, trainers) for further seminars. The trainees pointed out the rapid pace of the seminars as well as the many daily hours they had to use the Internet as the potential reasons of one’s withdrawal from the seminar. These reasons push forward the occasional way that such programs are often materialized. Though they are very well organized while planned, in practice they are materialized unsystematically.

Wyer et al. [17] report that while planning open and distant education programs, one should be aware of the particularities of the people they are addressed to as well as the social economic and cultural level of the job market. For that connection it is necessary to explore the characteristics and the particular needs of each training team, their psychosocial support as well as the trainer’s education and experience in being prepared to deal with problems that might arise.

Reporting the results of the research for the 2nd part of the questionnaire, 4 subscales were created, each one of them investigating the tendencies of the participants in one of the 4 basic evaluation levels (pedagogical, organized, social-cultural, economical) of the training program. Cronbach’s reliability coefficient of the balancing scale a=.90 was appreciated as highly satisfying in terms of coherence of the received answers.

After having studied the descriptive indicators of the following table 3, we noticed that the participants have developed a positive attitude
towards the learning program they have attended to (Average = 82.1) as well as towards the advantages offered by distant learning relevant to their personal and social financial development. More specifically, after appreciating the allocated sizes from the sub scales that we created we can assume that from all 4 dimensions for the further education, the trainees of sub scale 4 (Average = 7.9), which quantifies the financial aspect, appeared to have the most positive attitude.

As a result, the materialization of programs that combine distant learning and traditional learning is on the one hand a financially advantageous solution and on the other hand, it enables them to find or to improve their post in the near future.

### Table 3: Descriptive indicators of the evaluation scale for the hybrid-learning program.

<table>
<thead>
<tr>
<th>Description</th>
<th>22 elements</th>
<th>Sub-scale 1</th>
<th>Sub-scale 2</th>
<th>Sub-scale 3</th>
<th>Sub-scale 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>208</td>
<td>208</td>
<td>208</td>
<td>208</td>
<td>208</td>
</tr>
<tr>
<td>Mean</td>
<td>82.1</td>
<td>32.6</td>
<td>22.4</td>
<td>19.2</td>
<td>7.9</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.8</td>
<td>4.2</td>
<td>3.5</td>
<td>2.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Minimum</td>
<td>41</td>
<td>19</td>
<td>8</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Maximum</td>
<td>109</td>
<td>44</td>
<td>30</td>
<td>25</td>
<td>10</td>
</tr>
</tbody>
</table>

It should be pointed out that the lowest performance (Average = 22.4) was noted at the second sub scale, which referred to the organizational part of the program, bringing to light the weaknesses of KEK that had undertaken the program as well as the external partners who had materialized and administrated the on-line learning environment. More specifically, the learners confronted the greatest difficulties when dealing with the management of digital educational material, the lack of ‘friendliness’ and of reliability of the teaching environment as well as when dealing with the suffocating, as they described it, schedule during which the program was materialized. The average rates of the first and third sub scales (32.6 and 19.2) that were mentioned in the other two evaluation levels (pedagogical and socio-cultural), confirmed the general positive attitude of the participants towards the innovative learning program of ICT that they attended.

### 5 Additional statistic analysis

In the context of the additional statistical analysis we examined the effect of the physical condition of individuals (with special needs or not) that participated in the evaluation of the program to their attitudes towards the program. From the application of the correlation factor Pearson’s r to data from the total scale of the 22 elements of the 2nd part of the questionnaire it becomes clear that there is no connection between the attitude of learners towards the program they attended and their physical condition \( [r(208)=0.01, \text{n.s.}] \). Equally, from the application of the same criterion (Pearson r) was established that there is no connection between the age \( [r(208)=0.05, \text{n.s.}] \) and the attitude of learners towards the program they attended.

We also study the connection between the residence location as well as the educational level and the attitudes of the participants towards the training program, we chose to use the One Way Anova criterion. From the application of this criterion concerning the residence location, it was established that the result was statistically important \( [F(2,205)=2.86, p=0.01] \) which shows that the residence location affects their attitude towards the program. Since the result is statistically important we proceeded in retrospect comparisons (the Scheffe method was chosen) to find out among which average couple there was a statistically considerable difference. However, since the Scheffe criterion is very conservative and it didn’t provide us with a statistically important difference, we applied the LSD (Least Significant Difference) criterion as well. Utilising the obtained result from the application of this criterion there was ascertained that the participants residing in an urban area developed a more positive attitude towards the program in comparison to those residing in semi-urban or rural areas.

Similar results came out from the effect of the educational background on the attitude of the participants and the results were statistically important \( [F(6,201)=1.97, p=0.01] \) which proves that the educational level also influences that attitude of the participants towards the program. In suchlike way, from the results of the LSD criterion it was proved that the higher the study-level of participants, the more positive the attitude towards the learning program was. This conclusion is especially essential for the organization and materialization of such programs in the future.

It was also examined how much the effect of attending a more general learning program or attending a distant learning program as well as attending a program in the past relevant to ICT, influenced the attitude of the participants towards the hybrid program of our research. The averages and the standard deviation of the two groups (yes/no) as well as the results of the uncorrelated t-
test for independent samples in each one of the two
cases are presented on tables 4, 5 and 6 that follow.

As it was established, the attendance of some
general learning program in the past, as well as the
attendance of some distant leaning program or
related to ICT, didn’t affect the attitude of
participants towards the hybrid program they
attended.

In order to evaluate whether the participants
considered that their knowledge in ICT was
improved after having attended the learning
program, we applied the correlated t-test for
dependent samples. From the application of this
criterion it was found out that the result was
statistically important \[ t(207) = -18.38, p<.001 \].
Conclusively, we can argue that learners consider
that their knowledge was improved after attending
the program.

6 Conclusions - Perspectives

The current Information Society programs promote
a society of cohesion and social incorporation thus
also the special care for the inclusion of sensitive
groups of the population should be a primary and
constant priority. Especially, since these learning
programs are designed for individuals with special
needs, the role of distant teaching seems to be even
more important because these individuals should be
taught in an environment which is as less limiting as
possible. Distance education provides a significant
contribution to individuals from socially sensitive
groups in receiving the appropriate knowledge in
order to respond to the high demands of the modern
society.

In the scope of the present study we examined
whether the attendance to a hybrid learning program
contributed to the improvement of knowledge and
skills of the participants in ICT’s and on the other
hand whether it helped them develop and reinforce
their attitudes towards ICT’s. An important number
of participants revealed positive attitude towards
ICT’s, evaluating positively their participation to
the specific programs. Also almost all of them
declared that their knowledge on ICT was improved
while attending the program.

About 61% percentage of the participants wishes to
take part in a hybrid learning program or only
distant learning in the near future. On top of that, the
fact that the attitudes of the participants are not
influenced from their previous experience in training
programs, adds special importance to the
materialisation effort of similar endeavours at
geographically distant or underprivileged areas in
the near future.

However, despite the positive aspects of the
programs mentioned, it should also be noticed that
the attitudes and points of view of the participants in
this research are of a special interest, as they
perceive that open and distant learning does not
offer participating possibilities to individuals who
don’t possess the necessary technological equipment
and that the issues mentioned concern mostly the
need for acquisition of technological equipment, familiarity and use of ICT and generally the positive attitude towards learning through the ICT. It is important to continue this research, on a larger scale and through different research methods, in order to further evaluate these hybrid learning programs for women and persons with special needs.

Furthermore, learners raise issues concerning the updating and adaptation of the learning process to their needs and also their need for achievement of necessary skills. For this reason the acquisition of training and information is essential to these groups with special needs. In such programs general strengthening actions should be included and provided in parallel or precede training in order to facilitate participants’ introduction or incorporation in society and avoid the danger of having them kept on the fringe of society. It is important for the near future that a fair amount of research is performed prior to the application of open and distant learning programs for socially sensitive groups. Such research should aim to examine the familiarity to as well as the usability of ICT for the socially sensitive groups and generally for the general population.

References