

Electronic Non Formal Education: A Case Study of Tehran Municipality

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Abstract

Considering the emergence of brand-new educational needs, non-formal education as a prerequisite of a knowledge-based society is increasingly going popular among nations in view of its continual nature. However, life-long learning as a key concept of the modern education system stands clearly at odds with traditional learning in every way of philosophy, objectives, strategies and policy-making. This research aims to compare the efficiency of electronic non formal education with that of other types of education for Tehran Municipality employees in 2009.

This quasi-experimental study is an instrumental-developmental research based on a pre-test/post-test plan for two groups. The sample of this research consists of (N= 114) voluntary people from the permanent employees of municipality. The non-electronic learning group was provided with a pamphlet on verbal communication and four sessions and the other group trained electronically. The data-gathering instrument was a researcher's questionnaire. The data gathered was analyzed through both descriptive and inferential statistical techniques using SPSS V.11 software. Findings suggest that both electronic and non-electronic methods have been effective in learning but electronic education would be more effective in citizenship and non formal education. Therefore, the electronic (web-based) method is recommended as an effective method, for designing and delivering some topics of non formal education programs for citizenships.

Key words: verbal communication education, non formal education, citizenship education, e-learning, Tehran Municipality.

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Introduction

Considering education and literacy as the backbone of technology, cultural dynamism and the overall development of nations (Ebrahim Zadeh; 2007, p. 4), education improvement has always been a main concern for practitioners. Rossi (2005, quoted from UNESCO 2004) suggests four main concepts i.e. education, science, culture and communication fueling the development of a nation. Technological advance which rendered societies more complex, made governments have a new look at education and revise their approaches towards it. The 21st century, marked by increasing availability of information and its progressive significance in daily life, is the cradle to concepts 'information society' and 'knowledge-based society' which connote the necessity of replacing old concepts with modern ones such as 'life-long' or 'continual' learning.

Modern concepts shed light upon the shortcomings of formal education and as a result, researchers and policy-makers turned to other methods of learning. Rogers (2003) for example states that formal education systems by themselves cannot meet the needs of modern societies and auxiliary non formal systems are bound to be taken into account. Dempsey (2004) argues that formal education is no more able to catch up with the accelerating changes of the globe.

To study the capacities of non formal education in serving modern education needs, there must be a comprehensive definition of it at hand, based on which a comparison with the capacities of formal learning would be possible. UNESCO (2008) defines non formal education as an organized learning activity, carried out outside formal educational network which is devised on its own or as part of a given activity for learning or other purposes. To many experts, non formal education is the one which is able to satisfy peoples' learning needs on a life-long basis thanks to staying outside formal education domain and considerable flexibility for skipping hierarchical barriers and limitations. Walter (1999, p.216) views non formal education as one outside formal schooling system which primarily servers adults for continuation of their learning, does not result in an educational degree and government is not bound to support. Rogers's (1996, p. 3) precise comparative work on formal and non formal education makes the particulars of the latter more salient (Table 1).

Table 1: The comparison between formal and non formal education (Rogers, 1996)

Items	Formal education	Non formal education
Target group	*mainly young *universal *compulsory *selective *full time	*mainly adults *those interested *voluntary *open *part time
Time scale	*primary activity of *participants *separate from life	*secondary activity of *participants *integrated with life
Relevance	*in special institutions *in sole purpose buildings	*in the community *in all kinds of settings
Programmed	*run by professionals *excludes large parts of life	*participatory *excludes nothing
Curriculum	*one kind of education for all *set curriculum *compartmentalized *subject-centered *controlled by teacher	*education to meet learner defined needs *open curriculum *integrated *problem-centered *controlled by learners
Methods	*teacher-centered *mainly written *conformist	*learner-centered *much is oral *promotes independence
Objectives	*set by teachers *competitive *individualist *future	*set by learners *collaborative *collective *present
Orientation	*hierarchical	*egalitarian
Relationships	*terminal at each stage	*continuing
Validation	*validated by education *profession	*validated by learners

From the above table, non formal education could be defined as a continual, voluntary, learner-oriented, participatory type of education which is related to adults' interests and needs with no dependence on a formal location and calls for the independence of the learner based on a present-time approach and a learner-driven validity. For the above definition to happen, however, there had to be conditions beyond the time and place limitations of traditional classes in formal education but in view of the lack of such conditions in the past century, non formal education did not gain much attention. The 21st century giving

birth to the revolution of Information and Communication Technology evolved both formal and non formal education. Dighe et al (2009) argue that many professionals view e-learning as the focal apparatus of non formal education (Thompson & Kersitkis, 2005; Van dek Blok, 2004; Yalkin et al, 2002) with many others seeing it as the alchemy which makes continual education possible. For Atashak (2008, p. 1) life-long learning, as a key revision to the understanding of education, is basically of an non formal nature because it is not only at odds with but contrary to traditional education in philosophy, objectives, strategies and policies.

How could e-learning transform education? To answer this question, first we need a definition of e-learning which includes the role of Information and Communication Technology. According to Elliott Masie, e-learning is 'the use of technology to design, deliver, select, administer, support and extend learning' (Sinnnet, 2002, p. 62-63).

OECD (2005) defines e-learning as application of electronic means of info communication (internet for example) for knowledge purposes. Mayer (2005) views it as an active intelligent learning which has a pivotal role in the establishment of IT cultural patterns while transforming educational systems. Civico (2006) defines e-learning as the application of internet software to create an online setting for learning. This insures that teachers and students in different locations can communicate with each other 24hours/7days in a week. So accessing to knowledge and learning is possible anytime and anywhere. E-learning has changed all the methods of teaching-learning process with its capabilities and benefits and caused to increase quality of education.

E-learning, based on the above definitions (OECD, 2005; Mayer, 2005; Civico, 2006) holds unique characteristics which may well serve to enhance knowledge qualitatively. As Clark (1995) has argued that delivery media (such as computers or distance learning) are relatively inconsequential in affecting learning outcomes, compared to more powerful influences such as individual differences and instructional methods. Selver Ruzgar (2004) stated that Information and Communication Technology is potentially a powerful means for expanding learning opportunities of both formal and informal type. It

obviously has the capacity of detachment from time and place; so, for developing countries it is a potential for further availability of quality education (p:92). Carter (2005) concludes that application of IT in education will help access resources at any time; reduce execution expenditures, repeat teachings without limitation, match learning process with learners' understanding pace, access to supplementary resources for interested learners; update resources online and provide equal learning opportunities.

In Iran, however, it seems that IT usage is confined only to knowledge transmission in formal learning context, as well as in bureaucracy and some other limited fields; whereas UNESCO and nations across the world have consensus on IT as the main context of non formal education. The ability to continue to learn throughout the life course is seen as a pre-requisite to the development and sustainability of knowledge economies as countries, corporations and communities require workers and citizens with flexible, 'just-in-time' skills, competencies and knowledge. In particular, this need for diverse and accessible learning opportunities has drawn policymakers towards the use of ICT as an educational delivery mechanism par excellence for the twenty-first century (Selwyn et al, 2003, p. 4). An EU (2008) recent report states that conventional systems of formal education by themselves are incapable of meeting the challenges imposed to a modern society and need to be supplemented by electronic non formal based systems as to make the learning continual for the members of society. Benton Foundation (1996) writes in a report that integrating IT into non formal education would pave the way for wider range of choices with lower expenditures; more access to learning facilities; enhanced knowledge resources and more precise choice of interest. Taylor (2000) viewing 'realization of knowledge' as the main objective of learning argues that e-learning makes more provision for it and thus, leads to deeper learning. Doubler et al (2003) and Jeris (2002) also support empowerment and deepness of learning, discussion with questioning and answering in adult learning. Moreover LSC DELG (2002, p. 1) stated that new approaches provide small 'chunks' of learning, delivered using high-quality, well-designed materials, which make effective use of sound and pictures, as well as text. They are available to the learner at times and places—such as home or workplace—convenient to them. Learners can be

well supported by a mixture of staff with an appropriate spread of expertise, and by opportunities for learners to work with each other. Finally Selwyn et al (2003, p.5) found that e-learning can provide easier access for adults to the materials and interesting subjects of their required and this inspires modern experts to embrace e-learning as a dependable way of increasing efficiency in adult learning.

Focus on benefits of using IT in non formal education has resulted in encouraging organizations to use this method. In a survey of organizations in the American Society of Training and Development's benchmarking service, the percentage of companies using technology-delivered training increased from 8% in 1999 to 24% in 2003, and more than half of the technology-based courses in 2003 were delivered online (Sugrue & Kim, 2004). Finally, in a recent survey the majority of learning executives anticipated increasing use of online platforms to deliver higher education to their employees (Trierweller & Rivera, 2005).

However, to work out an e-learning system some prerequisites have to be provided beforehand. Clark (2004) cites online connections, high-speed phone connections, technical support, well-designed contents based on standards and multimedia attractions, promotion of participation in e-learning, and computer literacy as requirements of e-learning. Similarly, Carter (2005, p. 24-27) counts factors of Information literacy, telecommunication infrastructure for online learning, and easy public access to IT as basis for e-learning.

Electronic non formal education has a wide range of application, including citizenship education. Currently, both formal and non formal educations see citizens at their focal point of responsibility to make them more aware. Citizenship education on different aspects would pave the way for active social participation, increased knowledge of social rights, social responsibility, respecting social norms, and better interpersonal and social associations (Esfandyari, 2008, p.6).

Citizenship education covers a large variety of knowledge, skills, and attitudes including communication skills. Correia (2002) asserts that a learning society needs active knowledgeable citizens who naturally need a bunch of specific skills, from reading and writing to communicating information and knowledge. To Boyd (2007) also,

Citizenship education is the most applied kind which underlines life skills particularly interpersonal communication capabilities. It is inferred from Correia (2002) and Boyd (2007) that communication skills are a main concern of citizenship education. This would be understood much better considering the fact that modern man as a social being lives in the Communication Era where doing without relevant skills is somehow very difficult if not impossible. Kline (2005) supports the significant status of communication skills saying that out of a ten minutes time, one spends 7 minutes in communication, thereof, 45 percent in listening, 30 percent in speaking, 15 percent in reading and 10 percent in writing. Dostal (2007) believes that verbal skills have a main role in interpersonal communication. Listening and speaking skills are a part of the most basic communication skills and play an important role in success of personal, occupational and social communication. Learning these skills like the other important skills is acquired and needed to be taught and practiced.

However effective speaking and listening skills allocate more than 75 percent of our communicative time and have special importance but unfortunately these two skills have never had any place in our formal or non formal education. Not only in effective communicative skill learning but totally, education in our country is confined to limited trainings like presentation of short printed subjects in the shape of informing brochures for example learning for safety against earthquake, installation of learning billboards in relation with correct use of water or suggestions for reducing air pollution or a few short TV animations or stereotyped messages from radio and television about addiction to drugs or observation of driving rules and correct way to use gas and ...etc and in the perfect form there are short time courses in academies with booklet and some sessions for verbal debugging that is a novel and newfound phenomenon in organizations and institutes. However use of above ways can be counted in as a step forward, but in organized and schematized education, types of education and the skills that are required for a citizen haven't had important usage and even they have never been noticed. But this point should be considered that an emphasis solely on technological infrastructure and the ICT-assisted provision of learning is unlikely to fully overcome the social, economic, cultural and political factors

which also shape adult education. The limitations of ICTs are now beginning to be recognized as 'e-learning' policies and initiatives are implemented. In order to develop a better understanding of the key issues underlying the future effective application of ICTs to different forms of adult education, we need to perceive educational benefits of ICT and the emerging limitations.

However Selwyn et al (2003, p. 99), after checking researches and studies in this case concluded that they can't dominate all existing social, economical or political and cultural difficulties of non formal adult education with only relying on the available facilities in e-learning.

This requires more research and identifying the effectiveness, limits and capabilities of this method for non formal education. Given the evidence that WBI is effective, more organizations and institutions will be able to justify the expenditures necessary to adopt it. If evidence suggests that it is not as effective as the existing delivery media, organizations and institutions may be more cautious about replacing traditional delivery media with WBI, or develop more effective online training methods. Finally, if WBI is effective under some conditions and not others, organizations and institutions that place training online can use the results of this study to identify optimal conditions for learning.

So considering electronic non formal education that is a new matter in whole of the world specially in Iran and using this method in citizenship education, particularly in the case of verbal communication skills that haven't had any past, the aim of this study was to compare the effectiveness of electronic and non electronic methods in non formal education of verbal communication for the staff in two municipal centers in Tehran.

Methods

This study is an instrumental-developmental research that is done using the quasi-experimental method on the basis of rationalistic approach, and is prospective and decision oriented. Community of this research includes official applicant staff from two organization centers of information communication technology in Tehran municipality and is planning and studying center of Tehran in July, 2010 (N=500). At the beginning a proper bulk of sample has been defined with referring

to Morgan's chart and a notice informing about the course was placed in the entry of Tehran municipal. Afterwards, by getting permission from experienced authorities and showing official permissions for doing this research in ICT organization of Tehran municipality, planning and studying center of Tehran and with coordinating executive managers, an introduction meeting took place in ICT center of Tehran municipality with presence of 180 registered persons that were divided by the systematic random sampling method to two groups of electronic and non electronic. The inclusion criteria were access to the Internet and having the necessary skills to use it, as reported by the subjects. Data were collected via two questionnaires drawn up by the researchers concerning demographic information and knowledge about verbal communication. The demographic questionnaire included 16 questions: 8 questions about age, gender, marital status, monthly income, field of study, job experience and educational level that both groups (electronic and non electronic) answered and 8 questions about level of English ability, language knowledge, usage of the Internet (daily), Internet access, most internet usage issues, main language usage on the Internet, e-mail availability, computer usage skills, and experience on web-based courses that only electronic groups had to complete. The knowledge questionnaire consisted of 20 multiple choice questions about effective listening and speaking skills. Correct answers scored 1 and incorrect or no-response answers scored 0. The total score of knowledge ranged from 0 to 20.

The content and face validity of the knowledge questionnaire were established by a panel of experts in the field of Behavioral Science Department. The reliability of the questionnaire was determined by Cronbach's alpha. (Cronach's alpha=0.75).

All the subjects completed the knowledge questionnaire and this grade was the first grade or pre-test. Afterwards both groups participated in a 2-hour workshop about the importance of effective communication and the goals of this course. Finally, printed subjects were given to non electronic group 5 sessions. The participants were able to actively participate in the emerging discussions and ask their questions about the course materials and also make their class notes during the lecture. Before starting the online-course, a 1-day workshop about using online-programs and how to enter and work with the online system and chat rooms was held for the electronic

group. Participants were allowed to access the educational content for 2 months and study it at their own pace any time. In order to have interactions between the tutor and learners, and between the learners themselves, a chat room and bulletins for adding news and supplementary subjects and generation of dynamic content for synchronous and asynchronous discussion was designed. E-mailing, telephone, and boards were also used for answering questions. It's necessary to say that the web site had good facilities like vocal, graphical, animation, text of subjects and short tests at the end of each learning subject with answering feedback, supplementary subjects and key words for each topic. Besides, for online interaction, special hours of day, 10 AM till 12 AM had been chosen so that the staff was able to exchange information with the tutor and other students. Their web site address is: <http://elearning.tehran.ir>.

After 2 months, an exam was given for both groups, the score of which was considered as the result for a post-test or a final exam. Data was analyzed using SPSS software version 11. Descriptive statistics involving tables of frequencies, percentages and appropriate summary statistics were used to assess the employees' knowledge in both groups in verbal communication. The independent T test was used to compare the means of knowledge in the pre- and post tests between groups. The paired T test was used to compare the means of knowledge in the pre- and post tests within groups. The independent t tests and Chi-square analysis were used to compare the two groups regarding demographic characteristics.

Results

The average age of subjects was 39.38 years in the web-based group (electronic) and 39.91 years in the non-electronical group. Most of them (54.4%, n=31), in the web-based group were females and (52.6%, n=30) in the non electronic group were males. Most of the subjects in both groups were married, had B.A., had been working for one to four years and their monthly income were 500,000 – 800,000 Tomans. Most of them (38.6%, n=22) in the web-based group graduated in human sciences and engineering and in non-electronically group (56.1%, n=32) in human sciences. There were no statistical differences between two groups with respect to demographic characteristics (table 2).

Table 2: demographic characteristics of electronic and non electronic

Social items training methods		Non-electronic	Electronic
Age	mean	39.91	39.38
Gender	Male	(52.6)30	(45.6)26
	Female	(47.4)27	(54.4)31
Marital status	Single	(35.1)20	(31.6)18
	Married	(64.9)37	(68.4)39
Educational level	Diploma	(12.3)7	(21.1)12
	Ba	(75.4)43	(38.6)22
	Ms	(10.5)6	(21.1)12
	PhD	(1.8)1	-----
Field of study	Technical-Engineering	(29.8)17	(38.6)22
	Basic science	(8.8)5	(15.8)9
	Human science	(56.1)32	(38.6)22
	Medicine science	(3.5)2	(1.8)1
	Agricultural science	(1.8)1	(5.3)3
Job experience	1-4 years	(33.3)19	(38.6)22
	4 – 8 years	(21.1)12	(19.3)11
	8-12 years	(10.5)6	(12.3)7
	12-16 years	(8.8)5	(12.3)7
	Above 16 years	(26.3)15	(17.5)10
Monthly income	Up to 500000	(36.8)21	(40.4)23
	Up to 800000	(54.4)31	(49.1)28
	More than one million	(8.8)5	(10.5)6

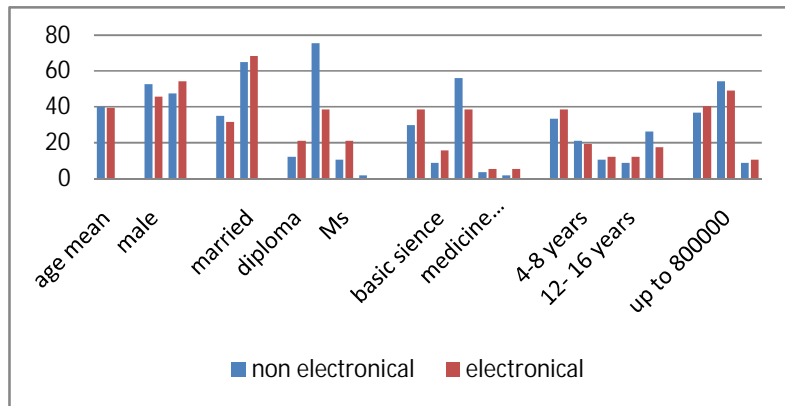


Chart 1: demographic characteristics of individual identification in both groups

In the web-based group more than 66% of trainees (about 66.7%, n=38) evaluated their English knowledge as moderate, less than half of them (49.1%, n=28) reported that they spent more than 2 hours on the Internet (daily), (61.4%,n=35) connected to the Internet both at home and workplace, (47.4%, n=27) reported the most usage of the Internet was educational-scientific, most of them (38.6%, n=22) used both English and Persian languages on the Internet, more than half of them (66.7%, n=38) checked their e-mail daily and (54.4%, n=31) evaluated their computer skills as moderate. Most of them (59.6%, n=34) had no experience in web-based courses (Table 3).

Table 3: demographic characteristics of people who were trained by electronical method (in terms of social items)

Social item	Demographic characteristics
Level of English language knowledge	Beginner (26.3)15
	Intermediate (66.7)38
	Advanced (7)4
Usage of Internet (daily)	Less than one hour (17.5)10
	Between 1 – 2 hours (26.3)15
	More than 2 hours (49.1)28
Internet access	Days in the week (7)4
	At work (38.6)22
	At work & home (61.4)35
Most internet usage subject	News – politics (40.4)23
	Education-Science (47.4)27
	Entertainment (5.3)3
Most language usage on the internet	Sports – news (7)4
	Only Persian (28.1)16
	English – Persian (33.3)19
e-mail availability	Persian – English (38.6)22
	Only English ----
	Daily (66.7)38
Computer skilled base	Weekly (31.6)18
	Monthly (1.8)1
	Less than 3 skills (beginner) (19.3)11
Experience on web-based courses	Between 3-5 skills (intermediate) (54.4)31
	All 7 skills (26.3)15
	None (59.6)34
	One course (19.3)11
	2 courses and more (21.1)12

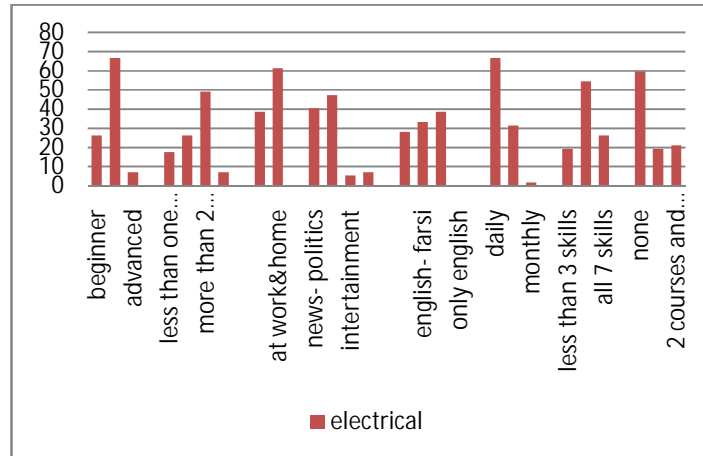


Chart 2: demographic characteristics of people who were trained by electronic method (in terms of social items)

The results show that there was a significant difference between the pre-test and post-test ($\text{Sig}=0 < \alpha=0.05$) in each group. Besides, independent T-test shows that there was a significant difference between the groups in post test scores ($\text{Sig}=0.001 < \alpha=0.05$) in the knowledge test.

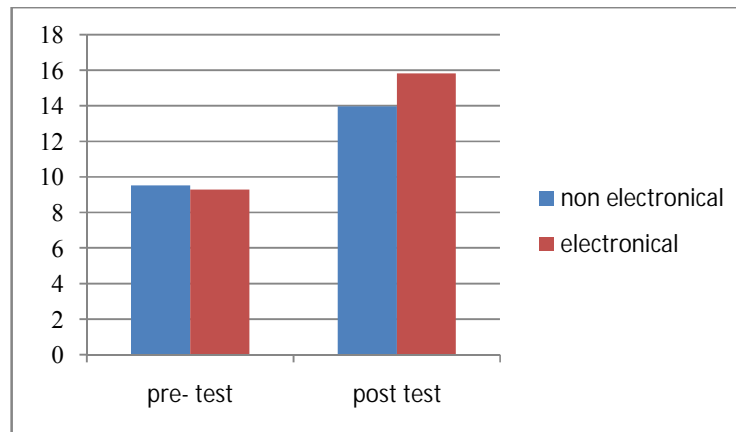


Chart 3: Pre-test and post-test mean scores of knowledge for the electronic and non electronic group.

This means that both methods (electronic and non electronic) were efficient in promoting the trainees' knowledge about verbal communication skills. The means and deviation of knowledge gain was 13.98 ± 3.18 in non electronic group and 15.81 ± 2.75 in the web-based (electronic) group.

There was a signification difference between electronic and non-electronic methods of training. Using the independent T test ($p=0.001 < \alpha$, $\alpha=0.05$) it seems that electronic method is more effective than the non electronic one. In both groups, there was a significant relationship between the field of education and scores of knowledge. It means that the trainees who educate engineering got fewer scores than others. Besides, our result showed that there was a significant relationship between the usage of the Internet (daily) and scores of knowledge in the electronic group.

Discussion

The aim of this study was to compare the effectiveness of non electronic and electronic non formal education methods in increasing employees' knowledge about verbal communication skills. Results suggest that the knowledge of the employees in both methods increased, but the electronic method was more effective than non electronic. It seems that the benefits of e-learning in education can be one of the possible reasons for this result. Kahn (2001) stated that Web-Based Instruction (WBI) also makes possible learning experiences that are open, flexible, and distributed, providing opportunities for engaging, interactive, and efficient instruction. E-learning courses provide a learner with an opportunity to continue their education or pursue personal and career development without a rigid schedule of assignments and class meetings. The online format offers the student a great deal of flexibility in terms of the time they study, how they study, and how quickly they cover and master the material (Mangan, 2001, p. 30-36).

Another reason may be that ICT can offer a diverse range of learning opportunities for non formal education objectives. As Selwyn (2003) explained, ICTs have been welcome widely as having the potential to increase access to learning for youth and adults, by helping to overcome barriers such as those of cost, time or space (page 3). E-learning is a relatively new tool with the potential to radically improve

participation and achievement rates in education. Through e-learning we have the opportunity to provide universal access to high quality, relevant training and education (De Freitas, 2002, p. 4).

Our results are consistent with those of some studies and findings are the same. A study by Schutte (1997) showed that instruction provided online can result in improved performance (p. 7). Indeed, Dills and Romiszowski (1997) have identified more than 40 instructional paradigms seeking to advance and improve the online learning experiences beyond the conventional classroom. Sitzmann et al (2006) stated that, in general, the results indicate web-based instruction to be 6% more effective than class room instruction for teaching declarative knowledge.

Numerous researches have tried to compare electronic and none electronic methods in formal education which reported different results from this research.

Arbaugh (2000), Karen et al (2003, p. 351), Caywood (2003), Mac fall (2005), Cahill et al (2007), Khatooni et al (2008), and Dolan (2008) found that both methods were equally effective and even in some studies (White, 1999) the effectiveness of learning in traditional method was more than e-learning because the students in the face-to-face course held more positive perceptions about the instructor and overall course quality. Tero (1999) believes that despite introducing new, powerful and modern learning instruments, learning by traditional method in the classrooms and workrooms in the format of teacher and student, yet has the maximum effect.

One of the reasons for different results in learning outcome may derive from mal-designed courses and lack of specifications and standards that on-line courses required. Unfortunately many of researchers paid no attention to the quality of electronic courses in their studies and in many cases, printed materials were exactly changed to electronic courses without concerning aesthetic features, standard designing and interaction, then these subjects or courses have been named electronic courses only because of presenting them trough the web. Many experts know the necessity of proper designing of electronic courses as a guarantee for effective learning. Wisher and Olson (2003), after reviewing accomplished researches within the years 1996 till 2002 in more than 500 reports related to comparison between electronic and traditional courses, came to the conclusion that

if electronic courses become well-designed and well-organized, the learning will be more effective using non electronic methods. Oblinger (2005) also says that whenever the required factors in this kind of learning, like proper technical facilities, infra structures, and rich and interactive content are ready then it can be expected to have more effectiveness and usage in e-learning comparing to other learning methods. Moreover, Kraiger (2006) after many studies concluded that the effectiveness of online courses were more than traditional methods. And the main reason of this result was the student-centered strategy or proper arrangement and design of the given content in electronic method.

Tallent-Runnels, Sitzmann, Kraiger, Stewart and Wisner (2006) in separate studies that were more about non-formal education, investigated the effectiveness of e-learning and obtained similar results with this survey. Sitzman et al (2006), following the use of 96 accomplished researches, gained this result that when the web-based and classroom versions of the course used the same instructional methods (e.g., lecture, discussion), there was no significant difference in trainee learning across the two media, but applying electronic method accompanied with continuous feedback by the teacher, was 19 percent more effective than traditional methods. Tallent-Runnels also achieved the same result after analyzing 76 surveys on the effectiveness of electronic method. The researchers also agreed that the design and implementation of WBI have a large impact on learning outcomes. Students in well-designed and carefully implemented web-based courses learned significantly more than students in web-based courses that were not carefully planned.

Another reason for different results in learning outcome may come from generalizing results of researches on formal to non formal education. Non formal education is different from formal education in essence and objectives. In non formal education, voluntary learners are almost adults with high motivation for learning. Beamish et al (2002) say that: 'Adult learning theory states that adult learners prefer having a high degree of control in learning situations. Computer-based training gives them that control by allowing them to choose the amount of time spent on the task, practice time, and study time (Harp, Taylor and Satzinger, 1998). Also Borstorff and Gilley (2003) stated

that the common barriers for adult learners have always been time and distance. Electronic learning offers opportunities for people and companies to overcome those barriers, create an environment conducive to training when and where it is suitable to the user. The advantages in cost effectiveness of e-learning are significant.

Besides, it is also suggested that learning with ICT leads to a more reflective, 'deeper' learning and more empowered and democratic discussion amongst adult learners (Doubler et al. 2003, Jeris 2002).

Considering these features, we can say that e-learning (with well-designed courses) can be more effective in non formal education than formal education in terms of learning outcome. This suggests that some topics in non formal education (especially in citizenship education) can be effectively taught via web-based courses.

But we must know that with an emphasis solely on technological infrastructure and the ICT-assisted provision of learning, it is unlikely to fully overcome the social, economic, cultural and political factors which also shape adult education. For achieving success in implementing electronic non formal education, we must know the requirements and limitations. As Selwyn et al (2003) stated, the limitations of ICTs are now beginning to be recognized as 'e-learning' policies and initiatives are implemented.

Another finding was that nearly most of the employees in each group had poor knowledge of verbal communication skills in the pre-test, which shows that there is a need to improve the verbal communication knowledge in the citizenship curriculum and to deliver ongoing education in the field of verbal communication to employees. Nearly most of the trainees in each group had poor knowledge of verbal communication in the pre-test, which shows that there is a need to improve the verbal communication content in the citizenship curriculum and to deliver continuous training of verbal communication to employees in their workplace.

Another finding was that there was significant relationship between field of education and scores of knowledge. The learners who majored in engineering got fewer scores than those majored in other fields. It seems that people who majored in technical-engineering fields had an instrumental and convergent mind that couldn't communicate with our subjects (which were merely humanistic and processing issues). In support of this idea, Kolb, by explaining various learning styles, stated

that people with a converging learning style can solve problems and will use their knowledge to find solutions to practical issues. They prefer technical tasks, and are less concerned with people and interpersonal aspects. People with a converging learning style are best at finding practical uses for ideas and theories. They can solve problems and make decisions by finding solutions to questions and problems. People with a converging learning style are more attracted to technical tasks and problems than social or interpersonal issues. It seems that we must consider learning styles in choosing subjects and designing electronic courses for specific population.

Furthermore, another finding was that there was a significant correlation ($\text{Sig}=0.027 < \alpha=0.05$) between the Internet usage rate and mean of knowledge score. This is further supported by Fariborzi et al (2009, pp.4184-4189) who found, in a survey on 482 subjects, that generally two independent variables significantly contribute to the effectiveness of web-based computer courses and have relationship with it, including: the hours that students spent on computer and learning experiences in using the Web. Over time, instructional designers may make more informed decisions about how to structure web-based environments to ensure greater learning. Accordingly, it is important to identify variables that influence the effectiveness of WBI courses like fields of education or the Internet usage rate.

There is now an increasing demand for learning from younger, more-educated generations as well as from employers who require higher skilled and literate workforces. As we concluded in this research and other researches, Information and Communication Technology can obviously be helpful in effective learning in non formal education and in so doing the prerequisites already mentioned must be provided. Policies must allow—indeed encourage—experimentation by those who introduce the use of new technologies into distance learning. There is a series of domains of knowledge in technology and adult education which need to be developed—political knowledge, practical knowledge and academic/research knowledge. Moreover these findings can be helpful in recommending other aspects of citizenship education like decision making, critical thinking, and so on in both public and private organizations. These results may be useful in conducting other non formal courses like in-

service training. Policymakers and practitioners, providers and consumers of 'e-learning' may also benefit from these results for developing deeper and more sophisticated understandings of ICT and adult education. Finally, this research can be a completed pattern and modality for other web-based courses in citizenship or non formal education. One of the key considerations to bear in mind here is the appropriate use of ICT-based learning. The application of ICT in non formal education must be considered if all necessary infrastructures and requirement exist. Further research should focus on the factors that contribute to optimal web-based learning like blended learning. Future studies should also examine the benefits of web-based method in teaching other topics in non formal education. Indeed, more researches in the field of the quality of adult learning are recommended. There is a need for a research to reconsider why people engage and do not engage with adult education—ICT based or not.

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