Global Science Research Journals

ISSN: 2449-061X Vol. 4 (7), pp. 315-320, November, 2016

http://www.globalscienceresearchjournals.org/

Global Journal of Educational Foundation

Full Length Research Paper

Improving the visual impaired students' computer Skills at the social development centers in Amman, Jordan

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Accepted 2 November, 2016

The purpose of this study was to investigate the effect of technical workshops in improving visual impaired students' computer skills, the study sample consisted of (15 male and female students enrolled in the social development centers in Amman in the first semester of the academic year (2016/2017) and between the ages (10-17 years) with a mean of (14.18) years, and a standard deviation of (79.1). the researcher chose the sample purposefully, they were randomly assigned to two experimental and control groups, the experimental group which consisted of two sections (one for males and one for females) studied using technology for improving computer skills, The control group which consisted of two sections (one for males and one for females) studied through using the traditional way. Results of the Study indicated that there were statistically significant differences at the level of significance (α=0.05) on the school note List in favor of the experimental group, and the results showed no statistically significant fundamental differences at the level of significance (α=0.05) due to the variables of the study: (gender , teaching strategy).

Key words: Computer skills, visual impaired students, Technical workshops

INTRODUCTION

Twenty first century encounters an era of severe competition and rapid progress in technology andbusiness requirements where these fast developments reflected on the education system in terms of itsrole, philosophy, curriculum and methods, forcing the academic in the field of education to renew anddeveloping the educational system to keep pace with recent advancements and progress to conform andinvest them (Alhelah, 1999)., "Jensen" included in his study that technology facilitate the way foremergence of a new model of learning, which changed or about to change, our way of thinking, ourlives as well as our ways of learning (Jensen, 1998)

Additionally, this new educational model includes recognition of principles of the brain formeaningful learning and organization of education according to those principles in the brain (Caine&Caine, 1994). The most important element is growing evidence that our brains are functioning inholistic and coherent way. Although there are several brain cells with specific functions such as: Thinking, emotions, physical health, our interactions with others, and even the time and environment inwhich they learn where these cells are not separate in the brain, but they are all processed at the sametime , which affects how our learning and what we learn (Caine & Caine, 1997). We have identified all of the “Ken” and “Ken “as they indicated in their study that there are twelve principle of this theory” asthese principles have been modified several times to match with the brain advanced and sophisticatedresearches results where it last modification was in (2002), where he organized in the form of thewheel (Caine & Caine, 2002) Among the principles that are contained in this theory are as follows:

- Finding an Instinctive Sense by Modality where the individual seeks hard in order to getthe meaning of his experience, which includes questions, objectives, and

this, can be donethrough the creation of linkages between the previous and subsequent experiences.

- Evolutionary Learning: Searching about the subsequent learning builds on previous one as webuild on prior knowledge and expanding; besides it also interprets new experiences and ideas inlight of what we have experienced in advance, or we came to understand it (Salty .2003).

Students described as blind or visually impaired have diverse needs even though they share a common trait of some degree of vision loss. Any student who has limited access to visual information will experience difficulties in any number of daily activities. From an educational perspective, the degree of vision loss is only one of several aspects for consideration in assessment and program planning. These students display varying cognitive abilities, levels of independence and physical agility, and May or may not have additional disabilities. Because visual impairment and blindness are low-incidence disabilities, a student with vision loss may be the only student with this disability in his or her school or community. Intervention for students who are blind or visually impaired is based on the degree to which they can access, incorporate and respond to sensory information.(Pugh and Erin, 1999)

Without vision, students cannot access information beyond those things that they can touch or hear. Without this information, students are unable to organize their environment or develop concepts that are important in understanding connections in their world. Students who are blind or visually impaired need to access information through direct experiences and hands-on, tactile exploration facilitated by qualified professionals who can address these unique needs. (National Coalition of Vision Health, 2003)

Statement of the problem

The use of computer is of great importance to the development of basic cognitive skills of visual impaired students when they receive Good training, and if the coach found a good teacher training Computer use modern technique of learning techniques, this leads to a reduction of the effort by him to repeat information to the students, and offer to them many of the various teaching methods that teacher can diversify and benefit from it.

And because planning and education using a computer is an effective tool, especially for students with visual impairment, plus it can be individualized and the frequency and organization Education using a computer by offering the educational material.Therefore, a researcher in the current study seeks to answer the Study question: What is the effect of using workshops in improving computer skills in children with visual impairment?

Purpose of the Study

The purpose of this study is to investigate the effect of using technical workshops in improving computer skills among visual impaired students

Questions of the study

1. Is there a fundamental difference between the performance of the experimental and control groups in computer skills, as measured by the instruments of the study among the visually impaired students?
2. Is there an interaction between gender and training program type in the performance of visually impaired students in computer skills?

Procedural Definition of Terms

E-courses: an intensive e-content and the integration of multimedia, which has no limits as it extends to the presence of Links to all sources of knowledge on the not concurrent Web site.

It is alsodefined as "educational materials which are essential part on the e-learning environment and it includes a variety of methods used to explain the lessons and information that can be brought with the consolidation of the network of Interactive multimedia elements ".

And it is defined procedurally as educational content supported by elements of educational multimedia and interactive capabilities are communicating with distance learning with visual impaired students at the higher education.

Visual Impairment:

Total blindness is the inability to tell light from dark, or the total inability to see. Visual impairment or low vision is a severe reduction in vision that cannot be corrected with standard glasses or contact lenses and reduces a person's ability to function at certain or all tasks. Legal blindness (which is actually a severe visual impairment) refers to a best corrected central vision of 20/200 or worse in the better eye or a visual acuity of better than 20/200 but with a visual field no greater than 20° (e.g., side vision that is so reduced that it appears as if the person is looking through a tunnel).

LITERATURE REVIEW

E-learning has become a hot research topic in recent years. Usability of e-learning systems and objects is a primary focus of research in this field. E-learning users can vary significantly regarding differences in learning strategies, know-how, experience, motivation to learn, user age and ability. If appropriately designed and implemented, e-learning systems are more effective and useful than classroom learning (Debevc & Bele, 2008). However, interactive learning is still difficult for persons with disabilities such as visual impaired who use assistive technologies. Various studies focus on the usability of e-learning systems and some also include a general discussion on accessibility, but to our knowledge only a few focus on totally blind persons (especially considering

collaborative tools) and on visual impaired students. In (Ardito et al., 2005) the authors outlined a methodology for the rigorous evaluation of e-learning applications, but accessibility for disabled students is not analyzed. Sloan et al. proposed a holistic approach to treating accessibility. They believe that the goal of universal accessibility on the Web is inappropriate, and that instead it is necessary to explore multiple routes to equivalent experience (Sloan et al., 2006). Furthermore, Zacharias critically examined the usability of e-learning applications and proposed the student's intrinsic motivation to learn as a new usability measure (Zacharias, 2006). Developing a usability evaluation method based on a questionnaire, he carried out two large empirical studies showing the reliability of this approach. As Kelly et al. argued, rather than demanding that an individual learning resource be universally accessible, it is the learning outcome that needs to can be accessible (Kelly et al., 2005). Based on user profiles, metadata and dynamic connection to resources, the user's experience can be customized to match his/her abilities. Then an appropriate design is crucial for improving the accessibility and usability of e-learning Systems (Kelly et al., 2005). All disabilities should be considered when designing e-learning applications. Leporini and Buzzi have discussed accessibility issues for e-learning systems (such as Learning Management Systems environments) and they have proposed empirical principles for designers developing e-learning applications in order to simplify interaction for a blind student or teacher (Leporini & Buzzi, 2007). E-learning environments should be friendly and easy to use. Furthermore, the educational material should be suitable for the abilities and skills of any user, so the same information should be provided through multiple channels, i.e. visual, auditory, and tactile. De Marsico et al. defined methodological guidelines involving users with disabilities as well as pedagogical experts in the development process, believing that input from different know-how could enrich the quality of e-learning applications and provide a more satisfying learning experience (De Marsico et al., 2006). They also include two examples of building and providing Learning Objects accessible respectively to visually- and hearing-impaired students. Rodriguez et al. described a project for improving the e-learning experience for the visually impaired, based on ethno methodology and taking into account psychosocial issues, the user context and experience (Rodriguez et al., 2006). Next they created different Learning Object formats suitable for the blind, including DAISY (Digital Accessible Information System). Within the framework of a project aimed at providing an accessible e-learning platform for disabled and adult learners, Santos et al. (Santos et al., 2007) illustrated a methodology for developing standard-based accessible courses using two-step evaluations. However, for the totally blind more specific UI features are necessary than those in this study, such as providing a page overview, full control of interface elements and easy and rapid navigation via keyboard.

Some Arab and foreign studies, which tend to know the reality of the challenges facing the design and activation of the electronic courses such as the Study of Azad Ali and Scott Mensch (2008) which offered a range of issues and challenges facing the content of e-courses on the Web, where the study introduced the paradigm by faculty members at the School of business at the University of Indiana in the design of courses of the E-Learning and it explained educational design and technical educational content on the Web principles.

The study of Hassan Alebatta (2007) which aimed to develop a proposed model for the design of educational courses via the Internet, where the study offered a range of designs used by the designers of online education with the presentation of the stages and characteristics of each design, the study concluded to develop a proposal for learning courses based on website design.

A study presented by Omwenga, Waema, (2005) showed how to develop e-content and place it in the interactive templates according to a clear model for the design of the study where the study was applied to adherents students of the e-learning programs in the School of Computer and Information in Kenya, where one of the courses was designed by using three different models. The study concluded that the integrated design has a positive effect on the achievement of these students and their attitudes about e-learning.

The study of Mustafa Jawdat (2003) aimed to build a system to offer courses via the Internet and its impact on students' attitudes toward learning built on networks where the study offered a range of design models and educational standards and related technical standards. The study concluded that the good design of electronic learning environment has a positive effect on the attitudes of students toward learning based on networks.

DESIGN AND METHODOLOGY

Sample of the Study

The sample of the study consisted of (15 male and female students enrolled in the social development centers in Amman in the first semester of the academic year (2016/2017) and between the ages (10-17 years) with a mean of (14.18) years, and a standard deviation of (79.1).

Study Tools

Two tools were designed in the current study, and these tools are:

Technical workshops and the school observation checklist of the Computer skills, the following is a detailed view of what has been done in designing the study tools.

First: The technical workshops

The technical workshops sessions based on theoretical frameworks that addressed basic computer skills, principles, and stages, as well as to take into account social, cognitive and motor and psychological characteristics for visual impaired students.

Second, school observation checklist of the computer skills:

To achieve the objectives of the study observation checklist was prepared by researchers to measure the level of computer skills to students with visual disabilities by the teacher at the school, where he composed school observation for computer skills to students with visual disabilities in the finalization of the (20) List paragraph describes the skill in terms of the degree of availability from the point of view of teachers in school, and the number of alternatives for each skill four in addition to instruction and personal data page, and the teachers were asked to put signal (□) in the appropriate box located in the answer sheet to respond appropriately to each question.

Statistical treatments

To answer questions and hypotheses of the study, the statistical packages for Social Sciences (SPSS) was used to calculate means and Standard deviations , and test \ associated variance analysis (Ancova)

RESULTS OF THE STUDY

This study aimed to investigate the effect of a technical workshops in the development of computer skills among visual impaired students, and to answer the first hypothesis, which states: "There were no statistically significant differences at the level of significance (α= 0.05) between the average scores of visual impaired students in the experimental and control groups in computer skills.

Means, standard deviations especially to improve the computer skills of visual impaired students with pre and post response, according to the variables of the study (teaching strategy and gender) and interactive variable between them (teaching strategy × gender), so as in Table 1.

Table 1: Means and standard deviations for improving computer skills visual impaired students for the pre and posttests, according to the variables of the study (teaching strategy and gender)

Teaching strategy	Gender	Computer skills Technical workshops		Computer skills Regular Program	
		Mean	Standard deviation	Mean	Standard deviation
Regular	Male	3.733	2.22	4.667	1.59
	female	5.067	1.22	5.667	1.63
	Total	4.400	1.89	5.167	1.66
Technical workshops	Male	3.133	2.17	8.533	1.36
	female	4.267	1.28	8.733	1.28
	total	3.700	1.84	8.633	1.30
Total	Male	3.433	2.18	6.600	2.44
	female	4.667	1.30	7.200	2.12

As noted from Table 1, there is a virtual difference between arithmetic means for improving computer skills among visual impaired students for posterior response according to the variables of the study (teaching strategy and gender) and interactive variable between them (teaching strategy and gender), and to determine for the benefit of students of any of the two groups was the basic difference, the justified two means for improving computer skills among visual impaired students has been calculated to posterior respond according to the variable of the study (teaching method), so as in the Table 2.

Table 2: Justified means and its own standard errors to improve the computer skills of visual impaired students to post respond according to the variable of the study (teaching strategy)

Teaching strategy	mean	Standard error
Normal	4.959	0.19
Technical workshops	8.841	0.19

As shown in Table 2, that the essential difference was in favor of the students of the experimental group where the arithmetic mean was (8.841) compared to the students from the control group who received the usual way of teaching where the arithmetic mean was (4.959)

To answer the second hypothesis, which states that: There is no interaction between the used training program and gender) in the performance of visual impaired students in computer skills as measured with a tool of the study. In order to verify the substantial virtual difference mentioned above in Table (1); associated variation analysis of the arithmetic means for improving computer skills among visual impaired students to posterior respond was performed after neutralizing the arithmetic averages for improving computer skills in visual impaired students to tribal respond according to the study variables (teaching strategy and gender) and interactive variable between them (teaching strategy × gender) and that, as in Table 3

Table 3: Results of accompanying variance analysis on the arithmetic means for improving computer skills among visual impaired students for post response according to the variables of the study (teaching strategy and gender)

Source of variance	Sum of squares	Df	Mean of squares	Calculated F	Statistical significance	Operation significance
Computer skills	62.935	1	62.935	59.273	0.000	51.87%
Ordinary	217.141	1	217.141	204.506	0.000	78.81%
Gender	0.233	1	0.233	0.219	0.642	0.40%
Teaching strategy*gender	1.739	1	1.739	1.638	0.206	2.89%
Error	58.398	55	1.062			
Total	309.400	59				

As shown in Table 3 the existence of a fundamental difference in the significance level (0.05 = α) between the two means to improve the computer skills of visual impaired students to posterior respond attributed to the teaching strategy variable, as can be seen from Table 3, the absence of a fundamental difference at the significance level (0.05 = α) between the arithmetic averages for improving computer skills of students with visual impairment to posterior respond due to the variables of the study: (gender, interactive variable (teaching strategy × gender)).

RECOMMENDATIONS

In light of the foregoing analysis resulting from the current search the researchers provide some of the recommendations, which may have a benefit for visual impaired students and those who are working with them, namely:

1. Conduct studies on the impact of individual educational plan enhanced computer on other categories of persons with special needs.
2. Preparation of workshops for those working in the field of education of visual impaired students in the e-learning to develop computer skills to students.
3. Target other variables other than those listed in the search

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