The E-based Pedagogy for People with Disabilities

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ABSTRACT

This paper concerns with the application of e-based education methodology for people with disabilities targeting to empower them. Instead of the classic educational support such as extended time to take exams, a reader and/or scribe to assist with exams and note taking services, we suggest the use of new pedagogy-the science of educations integrating the state-of-the art. In this paper, we introduce the definition of disabilities for the people who does not fully understand what they means, first, and then possible implementing tools which can empower them with accomplishments. Most of the research in the field of pedagogy has tended to concentrate on the behavioral aspects of instructional sciences. Therefore we would like to point out that we concentrate on the aspects of instructional science particularly related with people with disabilities.

Keywords: *Disabilities, pedagogy, inclusion, HCI, E-Learning, M-Learning,*

1. INTRODUCTION

Combining disability and information technology is not a recent concernments, of course. Use of computers and persons with disabilities now expands back nearly twenty years. The development of Information Technology has profound impact on every dimension of our society. Many companies have changed their way of doing businesses so much that their production, recruiting, training, marketing, and customer supporting methods are changed due to advance of information technology. It is highly likely that these advances of IT will reduce inequalities in the use and application of information that currently arise through geographical restrictions, age, and physical circumstances. This is particularly true in the case of people with disabilities, who can hope to increase their capacity for communication and information gathering, fostering independence and participation in main steam society and improving their quality of life through use of Internet Especially, the science of education has played a very important role in the society driven by inclusion with disabilities. In today's information age of when it is more important then ever before to have knowledge of a wide variety of subjects besides your field of specialization.

Education is a complex process, and has numerous aims that it seeks to fulfill. Substantial work and subsequent improvements have been achieved in deciding the exact objectives of education. Most of the research in the field of pedagogy has tended to concentrate on the behavioral aspects of instructional sciences. Therefore we would like to point out that we concentrate on the aspects of instructional science particularly related with people with disabilities.

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2. UNDERSTADING DISABILITIES

2.1 People with Disabilities

There are many people with disabilities who desire to access the Internet but do not have the appropriate technology or support. Under 10% of people with visually impaired are Internet users today[1]. The use of cellular phones however has shown an increasing number of users with hearing impairments. In general divide among users with disabilities is widespread and oppressive. To slowly and effectively relieve this current situation, relative organizations have begun to develop more assistive technology and accessible web sites. However there are many individuals with disabilities who use IT for their equality of opportunity, freedom of choice, independent living and full participation in the society. As mobile users, people with disabilities did a big contribution to industry and society. For example, people with hearing impaired use cellular phone every day, any time. They use e-mail systems as a chatting tool. For the people with visually impaired, they use cellular phone with video camera as a navigator. A professional guide or a family member can tell the person with visually impaired, where he or she is, what he or she can select at the shop, by watching the video image shot that sent by the visually impaired person. Using this kind of cellular phone, people with visually impaired can achieve more freedom because they can obtain support form people even at remote site, This is a quite new way to use a cellular phone that developers have not expected. People with disabilities will cut the edge in new technology by their needs. And these idea or experience will

contribute to all people.

2.2 Adapted Physical Education

The term adapted physical education originated in the USA in 1952, when the American Association for Health, Physical Education, and Recreation (AAHPERD, now the AAHPERD), published a definition and guidelines physical education as a recommended school subject for students who could not safely or successfully participate in vigorous, general physical education programs[2]. This first definition implied instruction in separate classrooms, which was consistent with the special education practices of the day. The underlying assumption was that the population to be served by adapted physical education was special education students or school-aged individuals with disabilities (then called handicaps). Subsequently, in the USA, numerous research studies were presented to law-making bodies and to professionals indicating that special education children were not receiving physical education in many schools. As part of the advocacy movement to make the research data known, members of the Joseph P. Kennedy family began various initiatives for promoting interest and commitment (e.g., awareness speeches to conference groups, 1965; establishment of a national unit within AAHPER, 1965; enactment of laws funding university-based professional preparation in physical education and recreation for persons with disabilities, 1967 and 1975; the founding of Special Olympics in 1968). For descriptions of these initiatives, see Sherrill (1988; 2004), DePauw & Gavron (1995), and Stein (2004). Through these and other efforts, adapted physical education experienced a tremendous growth spurt, becoming almost entirely special education physical education (often called special physical education) and largely funded by special education rather than physical education or general education money. In most schools, the nature of adapted physical education changed and children with activity limitations in general physical education received little attention.

Today the term adapted physical education is primarily used in the USA, Asia, and by some countries when referring specifically to school-based instructional adapted physical education. From the 1970s onward, however, the broader, umbrella term adapted physical activity gained popularity internationally as many professionals sought to emphasize lifespan services, self-actualization, and empowerment for persons with disabilities[3].

2.3 Inclusion

Inclusive education means that all students in a school, regardless of their strengths or weaknesses in any area, become part of the school community. They are included in the feeling of belonging among other students, teachers, and support staff. The federal Individuals with Disabilities Education Act (IDEA) and its 1997 amendments make it clear that schools have a duty to educate children with disabilities in general education classrooms[4].

There has been being many efforts for general education teachers, special education teachers, parents, and school staff to help provide some answers about how inclusive education can be accomplished. Resources for making accommodations are included as well as links to other web sites and resource lists for learning more about inclusive education.

3. ACCESSIBILITIES IN INFORMATION TECHNOLOGY

Accessibility in information technology means both physical access to equipment in sufficient quantity, in appropriate places, at convenient times, and the operational suitability of hardware and software for any potential user. In this sense, large population of people, particularly the disable and the elderly, are excluded from IT use on these accessibility criteria. The issues of traditional HCI discipline of the usability for different users, tasks, and work environments matter once the accessibility is met. Accessibility can also be defined in terms of quality in use in products and services. To provide quality in use, a product or service needs to provide both physical and cognitive accessibility for the intended users. Physical accessibility implies the provision of the physical means through which all potential users will be able to operate the product or the service. Cognitive accessibility means meeting the cognitive needs of the users[5].

For people with disabilities, accessibility to IT is a necessary condition for true empowerment since it is almost impossible to do anything related to information for them without it. It means there should be a way for disabled people to use internet, to send e-mails, to talk using cellular phones, and to do something on the computers or PDA. World Wide Web, for example, has become the killer application that everyone on the work or study depends heavily on it every single day. It has become indispensable tool these days that it is now an integral part of information society. It is an invaluable tool for both information receivers and providers. If you are a person with disability, the web is just as important to you as your able-bodied friend or co-worker. You want use services, products, and information online just like them. However, most web sites are filled with images, table, frames, and multimedia and these sites are hard to read and explore for user with disabilities. Accessibility issues rise right here. Where accessibility is concerned in the information environment, there are distinct advantages for able-bodied people over people with disabilities. Very common web tasks such as reading, searching and purchasing are often difficult, or impossible for people with disability to perform just because the web sites are hard or impossible to access for them.

4. EDUCATIONAL REQUIREMENTS FOR ACCESSIBILITIES

IT education for people with disabilities is essential in that it provides actual chance to access and utilize the technologies. People with disabilities can be benefited from education by qualified teachers in acquiring knowledge of accessible features in IT that are hidden or hard to find in design. Learning might be the most important issue for empowerment of people with

disabilities since education can provide skills and knowledge required for accessing information. It cannot be enough to address the importance of special education for the people with disabilities.

At the same time, educational provision providers should be educated about accessibilities. There are lots of webs and product designers that are willing to change design to accommodate people with disabilities to be able to use their provisions and web sites, but do not know how to do it. So we need to remind general public of accessibilities and universal access to make this information society more sharing.

With education of general public, provision of accessibility and technological consideration such as universal design can be widely spread and generally accepted even before the mandatory regulations and laws are imposed upon them. With education of government policy builders and legislators, they would understand that equal access to information these days are as important and necessary as building infrastructure for e-government. In fact, in advance of government, educational organizations should understand that provision of universal access for people with disabilities and educating them are not that hard and fearful things to do. With education of general public, standards for information technologies an be achieved and agreed upon to meet demands from provision providers, and users of all capabilities.

5. VARIOUS WAY OF ASSISTING PEOPLE WITH DIABILITIES

5.1 Human Assistance

Depending on the type and severity of their disability, the capacity of persons with disabilities to operate device caries widely, necessitating individual human assistance tailored to each person's disability, particularly in the early ages. Although some private enterprises have been involved in addressing these needs on a commercial bases, in most cases such activities rely in the efforts of computer volunteers, Volunteer support organizations are however faced with a shortage of labor and the problem of improving staff skills and knowledge. These problems are particularly acute when one considers that the support and guidance of people with disabilities requires not only assistance in operating IT equipment itself, but also the skills and competencies needed to provide guidance tailored to the type and severity of each disability. Such skills and knowledge are lacking among those who direct computer volunteers. Consequently, while there is a need to work quickly to develop competent directors, we should also almost certainly consider involving specialists, including rehabilitation engineers and staffs for the disabled. Of course, the specialists should be employed to assist the people with disabilities, but the number of volunteers for people with disabilities is on the rise.

5.2 Schooling

The use of computers and other information technology has been making inroads into education for children with disabilities, not only in developing the skills needed to put information to work, but also in overcoming disabilities and as a supplementary method of assisting students in coursework and other forms of study. Such use of information technology is extremely effective for children with disabilities as in later life they overcome the many difficulties associated with their disabilities, gain independence, and participate in mainstream society.

To end this, we should revise the curriculum for schools for the blind, deaf, and disabled and make coursework on information compulsory at schools for them. In addition to this, we should create a new optional course in information for the upper-school divisions of schools for the mentally disabled. And other improvements to the curriculum should be introduced with an eye to future developments in IT.

6. E-BASED EDUCATION FOR PEOPLE WITH DISABILITIES

6.1. E-learning for People with Disabilities

E-learning as we know it has been around for ten years or so. During that time, it has emerged from being a radical idea the effectiveness of which was yet to be proven to something that is widely regarded as mainstream. It's the core to numerous business plans and a service offered by most colleges and universities. And now, e-learning is evolving with the World Wide Web as a whole and it's changing to a degree significant enough to warrant a new name E-learning is defined as the design, construction and control of educational training through the internet or intranet [6]. The strongest point would be the opportunities possibilities to be received educations if Personal Computer and CD-ROM could be used without limited times. Recently, e-learning has been improved in both quantitatively and qualitatively. In the recent past, great number of e-learning platforms has been introduced into the market [7]. When we think of learning content today, we probably think of a learning object. Originating in the world of computer-based delivery (CBT) systems, learning objects were depicted as being like lego blocks or atoms, little bits of content that could be put together or organized. Standards bodies have refined the concept of learning objects into a rigorous form and have provided specifications on how to sequence and organize these bits of content into courses and package them for delivery as though they were books or training manuals. Today, e-learning mainly takes the form of online courses.

The automatic access to the technology does not imply accessibility of the technology. "Accessible" and "accessibilities" have to be distinguished from the "access" since this identifies with the availability of hardware, software and infrastructure. "Accessibility" indicates, instead, if and as the technology can be used from the final customer with disabilities for any people with disabilities the characteristic is the impossibility for him to adapt himself to environment an object out of it. So every object has to be adaptable to every people and any technologies have to be used with any peripherals. In order to respond to people's with disabilities needing tools and contents for e-learning have to be designed

preserving any characteristics as follows[8].

- Every tools for e-learning have to cross the first barrier represented from the access to the environment, to the emplacement and the successive obstacle to the contents of the e-learning represented from accessibility of the interface
- Every step in to use of e-learning platform has to by repayable on different ways and interfaces (also assistive ones) and the first rule is to reduce number of interaction requested to the user for every step (at least one- step – one interaction).
- According to contemporary laws or rules with different directives (an example is seen in next paragraph) developer has to choose more restrictive ones.
- Environment have to be auto-sense in the way that every people's feedback is used to reduce mistake in interfaces and contents
- Time to serve has to be reduced to the minimum and at the some time users has perception that no time rules are imposed by system. In this case people with disabilities have more long time necessary to access contents.

6.2 M-learning for People with Disabilities

M-learning is integration of mobile and learning. m-learning employs utilize small, portable computing devices such as mobile devices or wireless devices. These computing devices may include: smartphones, personal digital assistants (PDAs) and similar handheld devices. There is some debate on the inclusion of tablet and laptop computers. Often, wireless two-way internet connection is assumed as an integral component. Therefore m-learning provides people with the opportunity to access information where it would previously have been impossible, which means it is not limited to time and location. The devices that are used to access mobile networks are relatively inexpensive compared to desktop or laptop computers[9].

In the short space of time between 1995 and 2000 e-learning became the state of the art for the use of technology in education. Many predicted that it was the final solution for corporate training and university programs alike. But by 2000 wired telephones and wired computers were beginning to be replaced by wireless ones. This has important didactic dimensions as it frees the learner, who may have spent much of his or her working day in front of a wired computer, from studying in front of a computer screen too. Although there is much evidence from e-learning research of the interactive value of emailing, the validity of typed interactions for learning purposes can be questioned when compared with spoken interaction[10]. In most cases, if all user needs are considered in the design phase, equipment and services will be usable by most people. The requirements that mobile communication systems for disabled and older people should met can be classified under the following categories[11]:

- Personal communication: One of the most important needs of people with restricted movement is personal communication. People with severe motor restrictions can experiment serious difficulties to use wired telephones. These difficulties are mainly due to the need of reaching its position in a limited period of time to be able receive a call, and the frequent inadequate location that can make wired telephones hard to use. Thus, for these users mobile technology enhances their chances of personal communication avoiding the previous restrictions to some places and some times in the day.
- Social integration. Access to education: In the last years wired telephones have granted access to formation and job opportunities through *telematic* services, such as tele-working or tele-education. These services have contributed to social inclusion and autonomy of many users with disabilities. But, in very isolated regions, where standard telephones are not available, mobile telephones are the only way to reach services that contribute to socialization. Even if the access to these services does not need structural modifications, the prices charged to people using them should especially be considered and subsided, to promote their social integration and to avoid the discrimination of people living in these disfavored regions.

7. CONCLUSION

E-based pedagogy assisted by information Technology promises to contribute significantly in allowing people with disabilities to achieve independence as a full member of society and enjoy a secure and affluent life in any region of the country.

The revolution in information technology sees new advances literally every day, with the use and application of IT in carious aspects of society, the economy, and culture changing dramatically day by day. Given these conditions, it is necessary that organizations related to education firmly resolve to create no new barriers to the participation of people with disabilities in society while making further efforts toward the creation of an environment in which all people every where cam readily access information technology. In this endeavor it will be important when planning and designing new systems and equipment to assume from the start that the users will include people with disabilities, to make all necessary allowances, and especially to pay sufficient attention to the opinions of disable people themselves.

Efforts to allow people with disabilities to partake equally of the benefits of IT must not stop within a single era. National efforts are essential if we are to respond quickly and effectively to raped changes in IT. It is to be hoped that continuous efforts by people with same mind strive to invent new pedagogy for people with disabilities.

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