INTEGRATED USE OF THE ICT THEORY AND METHODOLOGY IN THE CASE OF STUDENTS WITH DISABILITY

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ABSTRACT: *The central questions from which we started were:*
1: Can ICT help educate people with disabilities?
2: Does the educational mentorship of people with disabilities add value to society and increase the quality of life?
The key challenges were to identify:
P1: The News of ICT Issues - The Progress of New Technologies. But what does this mean for education systems and how do our children learn? But what does it mean especially for people with disabilities? To what extent do these people have access to an advanced education adapted to new information technologies?
P2. The educational mentor's awareness of people with disabilities - What is the current situation?
P3. ICT Use: What are the tools that we can use / ICT education methods?
P4. The educational mentality of people with disabilities (MEPD) - Are today's methods sufficient and to what extent are they included in current mass education?
We take steps to include teaching and learning methods as well as inclusion of people with disabilities, but we still think that there are still many people who are not willing to accept the change; however, there are not enough teachers ready and a change in level mentality is impetuous.

KEYWORDS: *ICT Methodology, disability, education; mentoring*
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1. INTRODUCTION

In order to study the relevance and usefulness of ICT in the field of education we started with the following questions: Can ICT help educate people with disabilities? Does the educational mentorship of people with disabilities add value to society and increase the quality of life?

2. THE NEWS OF ICT ISSUES - THE PROGRESS OF NEW

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TECHNOLOGIES.

Starting from Kickmeier-Rust, Hillemann, Albert (2011) [1], concerning the new millennium, which is accompanied by important technological developments: "we have become a very diverse, globalized, complex, real-time information-knowledge media and society learning, "we agree that" the progress made by the media and technology has been breath-taking over the last two decades, "and we have been faced with increasing the widespread use of home computers, the progress of the internet and how has revolutionized our society.

The same authors state that*"we have faced the spread of mobile phones and their evolution from the phone to the omnipresent computer and communication devices; we see the spread of mp3, computer games, TV shows. We have seen our world come close to changing bridges across continents and oceans from 56k wires to high-speed fibre high-fibre networks.* "

- But what does this mean for education systems and how do our children learn?
- But what does it mean especially for people with disabilities?
- To what extent do these people have access to an advanced education adapted to new information technologies?

3. THE EDUCATIONAL MENTOR'S AWARENESS OF PEOPLE WITH DISABILITIES - WHAT IS THE CURRENT SITUATION?

"We are responsible for putting our children with skills and experiences to survive in this world. Our students face many important emerging issues such as global warming, famine, poverty, health problems, a global population explosion, and other environmental and social problems " [1].

According to the statistical bulletin of the National Authorities of Disabled Persons, published on March 31, 2015, "the total number of persons with disabilities communicated to the National Authority for Disabled Persons within the Ministry of Labor, Family, Social Protection and the Elderly through the General Directorates for Social Assistance and the protection of the county and local children of the Bucharest municipalities were 744,499 persons. "97.7% (727.113 persons) are in the care of families and / or live independently (not institutionalized)" and only "2.3% (17.386 persons) are in the residential public institutions of social assistance for the disabled (institutionalized) adults "coordinated by the Ministry of Labor, Family, Social Protection and the Elderly through the National Authority for Disabled Persons".

We believe that in the current context, where the emphasis is placed on the development of the social economy, the educational mentoring of people with disabilities is dejected and needs to be followed and developed.

4. ICT USE: WHAT ARE THE TOOLS THAT WE CAN USE / ICT EDUCATION METHODS?

In the study *'A comparative review of contemporary e-learning solution. ICERI.",* Marques (2009) considers that: *"It is absolutely essential for teachers and teachers to*

become fluently functional in several tools for on-line e-learning tasks such as content creation, broadcasting, synchronization (in real time), and asynchronous communications with and among pupils, among others." [2]

In *"Accessibility in digital learning objects contents."* the authors considered that "*Computing environments have become powerful tools in formal education institutions in organizations and even more so in the self-regulated learning process. The expansion of e-learning technologies allows all digital media tools that follow to provide support systems such as AVAS, ITS, e-books, SHAEs, video lessons, etc.*[3].

There are issues that should be considered by teachers, by those who create the content of digital materials for distance learning, that these tools are accessible to all people, regardless of the accessibility of the individuals to whom they are addressed.

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The document „*The Reform Of Social Assistance System In Romania*" propose: "Introducing the Reference Social Indicator = connector to reference budgets; Reducing error and fraud; Targeting the social benefits for the poor; Integrating measures (packages of benefits +services); Simplifying administration: Single point of submission & single application form. [4]

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5. THE EDUCATIONAL MENTALITY OF PEOPLE WITH DISABILITIES (MEPD)

Are today's methods sufficient and to what extent are they included in current mass education?

Anatol France states, *"We all live in the sun, but not all of us have the same horizon."* - Inclusive education implies that children with disabilities and those with no problems should learn together in appropriate educational institutions, the arguments coming from the documents: *"The Convention UN Convention on the Rights of the Child "(1989)," United Nations Standard Rules for Equal Opportunities for Persons with Disabilities "(1993),*" *UNESCO Declaration in Salamanca "," Framework for Action in Special Needs Education* " etc.), which militates for the rights of children with disabilities in Inclusion, Participation, Dignity and a Distinctive Voice, with implications for the evolution of pedagogical practice.

We take steps to include teaching and learning methods as well as inclusion of people with disabilities, but we still think that there are still many people who are not willing to

accept the change, but there are not enough teachers ready and a change in level mentality is impetuous.

6. ICT SUPPORT BY DISABILITY CATEGORIES

A broad spectrum of disabilities can be addressed through ICT means, to facilitate learning for people with disabilities.

Disability categories that can be supported by ICT are:

a) *locomotor or neurological deficiencies that affect the locomotion:* lack or impossibility of using the upper or lower limbs;

b) *sensory deficiencies*: blindness, - complete or partial lack of vision and deafness, - lack or poor functioning of the hearing organs

c) *mental and intellectual*: agoraphobia, autism; low understanding ability; learning difficulties (reading deficiencies, writing deficiencies, mathematics learning deficiencies.)

Support applications are part of the so-called *assistive technology*, along with hardware devices that allow access and work with computing technology. Assistive technology is a concept that describes the devices, equipment and services that reduce or cancel the difficulties faced by people with disabilities. Many assistive technologies are provided through computer technology or ICT, and materialize in the form of computer controlled devices, computer access devices, or applications that support the current activities of people with disabilities.

7. GOOD PRACTICES RESULTING FROM THE APPLICATION OF ICT AND MEPD IN CONCRETE EDUCATIONAL CONTEXTS

7.1. Computer-assisted training

The elaboration of didactic materials adapted to the people with disabilities can be realized by IT experts and / or by the teachers. The use of IT tools for curricular adaptation involves a computer expertise that can range from elementary notions to advanced use of complex IT tools**.** Following the deployment of ICT, several positive and negative aspects, broken down by Intel Corporation.

Advantages of computer-assisted training are:

- Activates and maximizes training, develops an effective individual work style adapted to the rhythm of people with disabilities;
- Reverse connection at the highest level;
- Ensure a high retention for the knowledge formulated;
- Disadvantages of computer-assisted training
- Students get tired quickly;
- It serves education and less education and creates big gaps in the pupils' training;
- Specialists teams, multiplication machines are required for software development;
- Involves large expenses;
- Schools are under-equipped.

7.2. Cooperative learning

Improving the cooperative learning of people with special needs concluded that "*Cooperative learning has become one of the most researched of all new teaching strategies in recent years";* [5].

In addition to the traditional approaches to teaching, pupils work together instead of competing with each other individually. Group composition and group formation can have complex effects on the success of collaborative learning. Assigning student roles is a way to encourage positive interdependence, interaction and group processing, are among the key working groups in groups [6].

About the experiential learning Chan (2011) considers learning as the most practical and effective form of the learning process, because it gives meaning to what is learned in the classroom. By participating in real life activities, the learning experience is much more active. The effect tends to be long lasting, focusing on stimulating senses, experience and reflection, creating a meaningful learning experience [7].

Information technologies for mental and intellectual disabilities are focused on providing methods and means for creating / transforming the teaching content, in order to make it easier to understand and assimilate.

7.3. Projects / ideas to pursue their own occupational concerns in inclusive education

Generations have changed, the teacher's right attitude is to adapt to new requirements. The quality of teaching can only increase if some mentality changes, through the continuous learning of all those involved in the teaching process, whether we are talking about pupils, teachers, parents or organizations interested in the field of education, especially in inclusive education.

Let's not forget that there has been a technological explosion in recent years, which inevitably leads to change. Current generations are more and more avid of knowledge, they want to know at all times what will happen in the future. If at the university level, each teacher uses the computer or internet in the teaching process, there are still major deficiencies in pre-university education. [8]

8. *ICT SOLUTIONS* FOR THE CONSTRUCTION / ADAPTATION OF TEACHING MATERIAL FOR PEOPLE WITH INTELLECTUAL DIFFICULTIES OF UNDERSTANDING AND LEARNING.

8.1. Cognitive Cognitive maps (mind maps).

The method of cognitive maps is regarded as an alternative for the education of the future, with important perspectives of application in the educational-formative process of people with special instructional-cognitive requirements.

Software tools for creating Cognitive Cognitive maps:

- Freemind (http://freemind.sourceforge.net/wiki/index.php/Main_Pag)
- Spider Scribe
- Mindomo (http://www.mindomo.com/))
- iMaindMap (http://thinkbuzan.com/shop/)
- Min42, (http://min42.com/)
- Extension Google Chrome (http://goo.gl/xzGcQ)

8.2. Explanatory videos.

In the case of people with cognitive or learning disabilities, the impact of these audio-video technologies can be even greater, because through visual exemplification, any textual content presented is enriched and explained.

Software tools for creating / editing video clips:

- Stroome (http://www.stroome.com);
- Pixorial (http://www.pixorial.com/#liberate);
- ViewBix (www.viewbix.com);
- Overstream (www.overstream.net)
- YouTubeEditor (www.youtube.com/editor)
- WeVideo (www.wevideo.com)
- Magisto(www.magisto.com)
- CommonCraft (www.commoncraft.com).

9. ICT APPLICATIONS AND SERVICES FOR THE BLIND

Visually impaired people have limited opportunities to access printed materials, the Braille method is the most famous method of access, but a small percentage of blind people can read Braille. but in recent years there has been a spread of audio recordings. These methods need to be adapted and updated today.

The prices of personal computers, accessible and the Internet have generated an increase in access to written materials of blind people. Today with a personal computer, an easily available technology, and a web browser, information and training resources are no longer limited to visually impaired people, due to dedicated applications that have been developed to compensate for this type of disability.

For people with significant visual impairments or complete blindness, the *"screen reader*" utility is used that converts the original visual material into a text, including contextual information.

Examples of screen readers:

- Freedom Scientific JAWS, Window Eyes from GW Micro,
- ThunderStorm from http://Screenreader.net;
- Microsoft - Windows XP- Narrator.

By hearing, the blind person will be able to access the information through "text to speech" (TTS) conversion software that reads the text from a text document and pronounces it. The most popular TTS applications are:

- Thunder (http://www.webbie.org.uk//thunder)
- NVDA Screen Reader (http://www.nvaccess.org/about/corporate-info).
- Webbie (http://www.webbie.org.uk/).

9. ICT APPLICATIONS AND SERVICES FOR PEOPLE WITH LOCOMOTOR DEFICIENCIES

The virtual keyboard is an application offered by the manufacturers of operating systems (Microsoft, Apple, Linux, Android), as well as by other software manufacturers,

for the people who have locomotor or neurological deficiencies, that do not allow the use of a common keyboard.

- Free Virtual Keyboard application (www.freevirtualkeyboard.com);
- Hot Keyboard Virtual
- The Dwell Clicker2 product from Sensory Software LTD runs on Windows and is free (for people who cannot use their fingers)

10. CONCLUSIONS

1. ICT can help educate people with disabilities

Education for special requirements:

- Requires curricular adaptation,
- Involves differentiated training strategies by selecting the teaching didactic content, structuring the didactic material, presenting the didactic material, standard and evaluation methods;
- Requests additional and specialized human resources
- Requires additional pedagogical resources: teaching material and organization of physical and virtual space.

We, if involved, will take into account:

- *Human resources*: the pupils' particularities (the level of training, the deficiency or disability that influences the rhythm of learning, the style of learning, interests, inclinations, needs) and the competences of the teacher (scientific training, teaching style, persuasion, openness to learning continuous, etc);
- *Material resources*: rigorous selection and analysis of information, choice of examples, applications, themes, means of learning by setting up multimedia for lessons, etc.;
- *The place of the lesson* (class, cabinet, laboratory, workshop) and the time allocated to the lesson.
- *The main IT solutions* for the construction / adaptation of teaching material for people with intellectual difficulties of understanding and learning, are: Conceptual graphs; Cognitive Cognitive maps (mind maps); Explanatory videos; Story teller environment; Conversational robots for training; Collaborative learning environments; Brainstorming applications.
- *S*pecific methodologies for creating web pages for people with disabilities.

2. The educational mentorship of people with disabilities add value to society and increase the quality of life.

Educational inclusion implies the shift from focusing on subjects who face learning difficulties to focusing on the nature of these difficulties and the causes that cause them: the cultural environment, the policies and practices of educational institutions.

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