



CP-PACK

Module 7

TRAINEE BOOKLET

Assistive Technology

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This training module is produced in the scope of CP-PACK project and in accordance with the Need Analysis Report derived from the results of the focus group interviews and questionnaires among parents and teachers of children with cerebral palsy. This is a theoretical training module, which is based on the international legal instruments regulating disabled people rights and on the main legal framework available in partners' countries. This training module should be used as a starting point on how to deal and understand applied law. This module is not and can not be understood as a legal counselling.

Chapter 1

Fundamentals of Assistive Technology

Learning Outcomes

Participants will acquire general knowledge about Assistive Technology (AT) and its different levels of classification, as well as awareness of the role of AT in several contexts and its connection to the Universal Design principles, especially in what concerns educational environments.

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Assistive Technology and CP

We can no longer deny the importance of technology in our lives. We have become so dependent on technology and tech products that we find it hard to live even a single day without it. We use technology in different forms, but when we think of it, we have to look at technology from different angles and consider all the new advancements, how our behaviors and lives are being conditioned for good and for bad, but especially consider how that same technology has been revolutionary in changing the overall lifestyle of people with incapacities.

Cerebral Palsy is one of the conditions that has most profited from technological development. From communication to mobility and not forgetting all the precious devices that help in daily activities, there is a world of opportunities that rely on assistive equipment as a solution for social inclusion and quality of life. That is why all professionals that deal with CP children and especially parents and users themselves should be well aware of the existent devices for each solution.

Definition(s) of AT

Assistive technology (AT) is a concept that refers to products and services that can help compensate functional limitations, facilitate independent living and enable disabled people realize their potential. While a great variety of products fit this description (e.g. a car to overcome my functional impairment of not being able to transport myself fast), it is commonly understood that “assistive technology refers to products and services for those needs that are specific to three groups: disabled persons, elderly persons and chronically ill persons. AT enables these people to participate more fully in daily life and supports their independent living “.

Assistive Technology (AT) is supposed to make life activities accessible to as many people as possible, through the most appropriate set of information/access technologies. Its devices are tools used to enhance the independent functioning of people who have physical limitations or cognitive impairments. They range from low-tech devices like simple pen holders to high tech devices, such as portable computer based communication systems, digital home technologies, environmental controls. This equipment covers a wide range of areas including communication., mobility, seating and positioning, sensory impairments and also daily living technology.

There are many “official” definitions of Assistive Technology:

- “Any product, instrument, equipment or technical system used by a disabled person, especially produced or generally available, preventing, compensation, relieving or neutralizing the impairment, disability or handicap”(ISO 9999)
- “The term assistive technology device means any item, piece of equipment or product system, whether acquired commercially, off-the-shelf, modified or customized, that is used to increase, maintain or improve functional capabilities of individuals with disabilities” (public law 100-407, the technical assistance to the States Act, USA)
- “Technology which can help compensate for functional limitation, facilitate independent living and which can enable disabled and older people to realize their potential.” (TIDE, Bride phase, synopses, 1994)
- “Assistive technology is the use of any device that will enable persons with disabilities to function to their maximum potential educationally, vocationally, socially and in daily living activities. This includes both low and high technology applications. Low technology refers to any apparatus that is either non-electronically based or simple battery operated items (e.g. adapted toys and tape recorders). High technology involves the use of sophisticated systems that are electronically-based (e.g. power wheelchairs and environmental control systems).”(Bristow & Pickering 1995)
- “Assistive technology is any piece of equipment or device that is used to increase the independence of individuals with disabilities. These items can be commercially available, modified or customized for the user” (North Carolina Assistive Technology Project)
- “Assistive technology – technology for more independent, productive and enjoyable living – can be simple or complex” (WATA)
- “Assistive technology, by definition, is any piece of equipment that is used to increase, maintain or improve the functional capabilities of a person with a disability.” (Pursuit)
- “An assistive product is any product (including devices, equipment, instruments, technology and software) especially produced or generally available, for

preventing, compensating, monitoring, relieving or neutralizing impairments, activity limitations and participation restrictions”.

Technological Literacy

Although there is a long history of efforts to help persons with disabilities by using either technologies available to the general population as well as technologies designed solely for use by people with disabilities (Blackhurst & Edyburn, 2000) , the past 20 years have seen an unparalleled interest in the use of instructional and assistive technologies. This is mainly due to digital revolution and to the development of technological literacy that led to mass production of equipment.

ABLEDATA, for example, maintains a database that includes names and descriptions of thousands of devices intended to enhance the learning and/or life functioning of persons with disabilities. Nevertheless, along with a clear unprecedented growth in the development of high-tech devices over the past years, there has been also a renewed appreciation for low-tech aids and considerable refinement in procedures to assess students for technological needs. That has a lot to do with questions like price, availability, ease of use and lack of capacity to provide a good network of services to help children in post-acquisition periods. Besides there is always a real danger of getting sophisticated material that will be obsolete in a short period of time.

Classification

When it comes to inventorying, there is no end in listing all assistive devices. Catalogues and databases such as Handynet or Abledata, for example, may contain information on more than 25.000 products. Such a list is perhaps too much extensive for newcomers in the field of assistive technology, but can be of great help for parents, teachers or technicians that deal with CP children and need a reference.

Therefore, classification and grouping of the many products is necessary to reduce this amount of devices to broad categories and it help us understand the scope of functionality of each one of them. We are however faced with a myriad of alternative ways of grouping assistive technology. Most of these grouping frameworks are not exhaustive nor have mutually exclusive categories.

The most known and formal classification of assistive technology is the ISO9999 international classification or its European standard CEN29999 .

The ISO 9999 is a three-level classification system that clusters AT products round “CLASSES” (e.g. mobility, communication, recreation, etc.), then round “SUBCLASSES” (e.g. within class “mobility”: powered wheelchairs, cars adaptations, etc.), eventually round “DIVISIONS” (e.g. within subclass “powered wheelchairs”: electric motor-driven wheelchair with manual steering, electric motor-driven wheelchair with powered steering, etc.). Each ISO 9999 classification item has a numerical code: for

instance, item “electric motor-driven wheelchair with powered steering” has the code 12.23.06, where the first two digits stand for Class 12 “mobility”, the following two digits stand for subclass 12.23 “powered wheelchairs” and the last two digits stand for this specific division.

But we can also classify assistive technology by broad categories of impairments: visual impairments, auditive impairments, cognitive, mobility, It all depends on the purposes we have in mind. Within each category, one could again classify AT in those increasing the remaining capacity, those replacing the lost capacity by another capacity and a rest category, for example. Such an approach is also suggested by the HEART line E studies (Azevedo et al. 1993, Azevedo et al. 1994a) and this is the one we have adopted in this course module for its simplicity and efficiency, considering the public we are addressing. It suggests to classify AT into four groups:

- Communication;
- Mobility;
- Manipulation;
- Orientation.

Although there is no single unique, optimal way of grouping AT, we should also not forget that from the end-users “perspective”, classifications are not so relevant. Users do not really bother to which group the AT they need belongs, as long as they get it and can use it. Hence, within our material, we should strike the right balance between an analytic, classifying approach and a user-oriented more holistic approach.

Universal Design

As we will see, AT aims to fill the gap between what the user is “capable of” and what the environment requires from him. We can therefore think that, instead of making a positive discrimination enhancing the capacity of the person, we could also work to build a barrier-free environment where everybody could access everything, on a universal design perspective.

“Universal design is the design of products and environments to be useable by all people to the greatest extent possible, without the need for adaptation or specialised design”

Inclusive Design or Universal Design is a set of concerns, knowledge, methodologies and practices aimed at the design of spaces, products and services, used with efficacy, safety and comfort for as many people as possible, regardless of their abilities. UDe naturally tends to be inclusive and non-discriminatory, resulting in improved ergonomics for all and It doesn’t necessarily lead to additional costs for the benefit of a minority.

Even if sometimes, the costs of development and initial production can be higher, they will however, benefit not only a minority, but the entire population, increasing the productivity of all, preventing misuse and risks of prolonged discomfort, and avoid accidents. Consequently, in the medium and long term, it can turn out to be an increase in productivity and a better life for all.

Suggested Readings

- ISO 9999:2011: http://www.iso.org/iso/catalogue_detail.htm?csnumber=50982
- MPT (Matching Persons and Technology): <http://matchingpersonandtechnology.com/index.html>
- HEART classification - The Centre for Cerebral Palsy
- MOUNT LAWLEY WESTERN AUSTRALIA: http://www.tccp.com.au/Pages~CP_Tech_-_Assistive_Technology
- Classification and terminology of assistive products: <http://cirrie.buffalo.edu/encyclopedia/en/article/265/>
- The Seven Principles of Universal Design: <http://www.udll.com/media-room/articles/the-seven-principles-of-universal-design/>
- Center for Universal Design: <http://www.ncsu.edu/project/design-projects/udi/>
- Universal Design for Learning: <http://www.cast.org/>
- National Centre on Universal Design for Learning: <http://www.udlcenter.org/>
- Designing Everyone In: http://www.data.org.uk/index.php?Itemid=320&id=246&option=com_content&task=view
- Inclusive Design Research Center: <http://idrc.ocad.ca/index.php/resources>

Chapter 2

Human Components

Learning Outcomes

Participants will acknowledge concepts of disability, impairment and disadvantage, under social models and under the perspective of International Classification of Functionality and World Health Organization.

Participants will also be aware of the several factors that interfere in the choice of AT devices.

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This chapter relates to the need of understanding the human being with and without disabilities, and adequately integrate the technical solutions provided by assistive technology with the needs the human beings have, when facing an “adverse” environment.

Disability issues

Considering the new paradigm of disability developed in the new ICF model launched by WHO 2001, disablement is a “situation” that affects an individual in case a gap exists between individual capabilities and environmental factors and this gap restricts the quality of life and hinders full exploitation of individuals potential in society.

According to the World Health Organization (1980) should be understood as (in health):

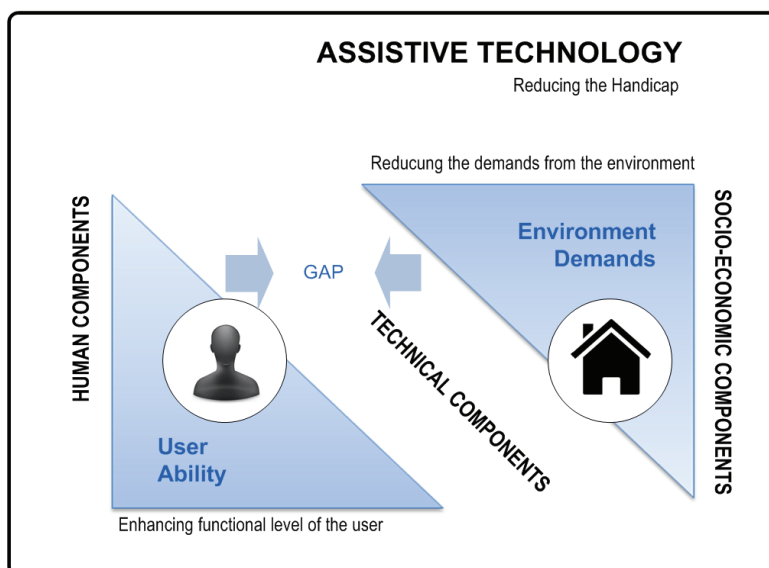
“Impairment” means any loss or alteration of a structure or function of a psychological, physiological or anatomical. These losses or changes may be temporary or permanent, representing the manifestation of a disease state, reflecting, in principle, disruption to organic.

“Disability” restriction or lack of ability to perform an activity within the framework and limits considered normal for humans. It is characterized by excesses or deficiencies in behavior or performance of an activity that is common or normal, usually deriving from a disability.

“Handicap” is a social condition of the injury suffered by a given individual, resulting from an impairment or a disability that limits or prevents the performance of an

activity considered normal for that individual, taking into account age, sex and the factors the same socio-cultural. It represents the social expression of a disability or incapacity, by reflecting the impact (cultural, social, economic and environmental) caused by them.

Assistive Technologies can bridge such gap as “environmental factors” that contribute to generate or overcome disablement. AT devices are, most of the time real “facilitators” towards activity and participation, either enhancing the functional level of the user, or reducing the demands from the environment.

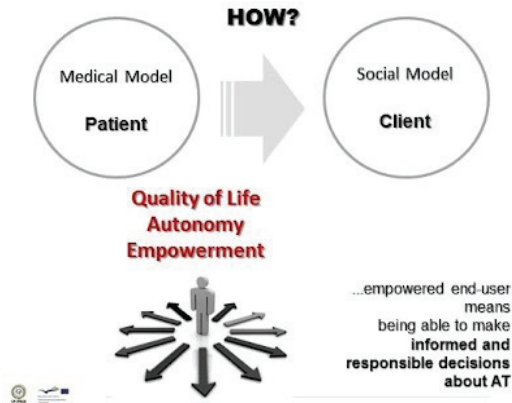


But we must also take in consideration that, sometimes AT can also be a barrier instead of a facilitator. The prescription of sophisticated equipment can be useless if the user is not well informed about its characteristics and how it works. At the same time, even very useful devices can quickly get obsolete and bring new barriers. A good follow-up service and continuous support is essential to the success of any AT program.

Quality of Life, autonomy and empowerment

The paradigm change from a medical model to a social model brought new light to the role of the user himself when choosing technical aid. Autonomy is a key word and all efforts must be made to empower end-users to make conscious and informed choices about what he/she thinks is best. This is perhaps not a relevant point when we consider most of the situations of cerebral palsy is this project, but it still is an important issue to follow.

Autonomy does not mean you do not depend on others to help accomplish tasks or reach your goals. Having autonomy is not about being able to do stuff all by yourself but having the power to decide what happens next in your life. Or even more specifically, it's about having the *perceived* power to do so, and that what is called "empowerment"



Contexts and Environmental variables

As we have seen International Classification of Functionality puts the notions of 'health' and 'disability' in a new light. It acknowledges that every human being can experience a decrement in health and thereby experience some degree of disability. Disability is not something that only happens to a minority of humanity.

The ICF thus 'mainstreams' the experience of disability and recognizes it as a universal human experience and by shifting the focus from cause to impact it places all health conditions on an equal footing allowing them to be compared using a common metric – the ruler of health and disability.

Furthermore ICF takes into account the social aspects of disability and does not see disability only as a 'medical' or 'biological' dysfunction. By including contextual factors, in which environmental factors are listed, ICF allows to records the impact of the environment on the person's functioning.¹

This is important when it comes to analyzing needs and formulating goals for our kids: sometimes it can be easier to interfere with the environment, than with the child.

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1 <http://www.who.int/classifications/icf/en/> WHO

Assessment and Selection Process

Prescribing an AT device may not be an easy task. If the child goes to school, Assistive Technology (AT) should be considered for every child who has an Individualized Education Plan (IEP). The need for assistive technology is based on the question “What IEP goals are the student having difficulty meeting that assistive technology might assist?” The more specific the team can be in answering that question, the better an evaluator can be prepared when conducting an assistive technology evaluation.

According to Zabala, Reed, & Korsten, (1999)² when considering a student’s need for assistive technology these quality indicators are important:

the IEP team has the knowledge and skills to make informed decisions;

- a continuum of AT devices and services is explored;
- IEP team uses good team process to make decisions;
- decisions are made based on IEP goals and objectives;
- team decisions are made in compliance with federal and state statutes;

determination of need is based on data about student, environments, tasks and tools; and decisions and supporting data are documented.

In fact, the process of selecting AT is a complex one that must take into consideration several kinds of opinions from a multidisciplinary team. Assessment is always a team work and involves a collaborative interaction among four groups:

1. The user
2. The persons around him/her who support and interact with him/her on a daily bases, including families members, friends, educators, therapists, doctors, and employers,
3. The assistive technology specialists who have knowledge of many tools and who facilitates a collaborative decision making process and
4. The developers of assistive tools

Suggested Readings

- International Classification of Functioning, Disability and Health (ICF): <http://www.who.int/classifications/icf/en/>
- Classification and terminology of assistive products: <http://cirrie.buffalo.edu/encyclopedia/en/article/265/>
- Special Needs Technology Assessment Resource Support Team (START): <http://www.nsnet.org/start/>
- SETT Framework: http://www2.edc.org/ncip/workshops/sett/SETT_Framework.html

2 Zabala, J.S., & Korsten, J.E. (1999). Assistive Technology Implementation and Evaluation Plan Summary. Making a measurable difference with Assistive Technology: Evaluating the Effectiveness of Assistive Technology. <http://sweb.uky.edu/~jszaba0/ZabalalmpSummary.pdf>

Chapter 3

Technical Components

Learning Outcomes

Participants will evaluate the potential of several equipments in the field of communication and show some proficiency in incorporating them in a functional selection process for a CP child. They will learn several software adaptation strategies for usability and accessibility to the PC as well as free hardware and software solutions for physical accessibility to information and communication Technology and to help in reading and writing processes.

In the area of mobility it is expected that they recognize the most significant equipment for CP children and demonstrate proficiency in selecting the most adequate solution for different environments considering also the importance of architectural accessibility and some technical solutions available, as well as the main modalities and characteristics of adapted sports suitable for CP.

Participants will also recognize practical solutions for daily activity with CP children, available in the market, in areas like feeding, dressing, housekeeping, and domestic solutions and environmental control strategies. It is also expected that they can recognize the most suitable educational and recreational solutions for their children/pupils

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The technical components sub module focus on a more instrumental area, in which parents and teachers are supposed to “build” together possible solutions to help compensate disabilities and contribute to inclusion. The framework adopted has been the one of HEART Line E which, as we have seen distributes functional competences by 4 areas.

AT for Communication

Communication is the ability to generate, emit, receive and understand messages, interacting with other individuals at presence or at a distance, in a particular social context. Communication skills play a critical role in the process of developing and maintaining social relationships, learning to live in community, and general satisfaction of almost all human needs.

Using alternative methods (AAC) and taking advantage of the (not so new) digital technology we can help CP children to overcome communication disabilities and open way to literacy.

We can define Alternative and Augmentative Communication (AAC) as an integrated set of techniques, aids, strategies and skills that a person with severe communicative incapacity uses to communicate as alternative methods to supplement or replace speech or writing.

These individuals with severe communication impairment, unable to use speech to communicate, develop, most of the times, their own strategies to interact with others but they often use specific techniques to fulfil their communication needs: pictures with words or symbols, systems with voice output , etc., being however noted that a help for communication is not in itself a communication system, but one component of that same system.

With children with severe neuromotor dysfunction and inability to use speech as their primary means of communication, the situation becomes even more complex, affecting the processes of teaching and learning. The frequent inability of children with severe neuromotor dysfunction to achieve similar experiences to those of other children the same age groups lead sometimes to very negative and frustrating experiences, and to the adoption of an attitude of passivity and withdrawal.

Intervention strategies that involve the use of systematic Augmentative Communication Support of Assistive Technology, allow these children active participation that will influence greatly the process of acquiring new knowledge and get meaningful experiences. This is the fundamental role of Assistive Technology which, when used early, will allow greater autonomy and participation in school activities that give access to any educational curriculum.

The Augmentative Communication emerges as a powerful tool in the development of literacy for this type of population, allowing it to an active participation in literacy events, not only communicating and interacting, but also writing, producing and interpreting written language.

In this module we will have a bird's eye view on:

- Aided and unaided communication systems: SPC, PECS, Bliss, Makaton, etc
- Low-tech devices and high-tech dynamic communication boards
- Speech output: recorded and synthetic speech
- Selection techniques: direct, scanning, encoding
- Rate enhancement and prediction techniques
- Hearing aids and Voice amplifiers

Access to PC

Nowadays, assistive technology products are often chosen specifically to accommodate the disability, or multiple disabilities, so that an individual can effectively access a computer. PC operability is crucial as it is also critical that the assistive technology be compatible with the operating system and other software. AT can include products such as a different type of pointing devices to use instead of a mouse, or a system equipped with a Braille display and screen reader. Not all users with accessibility needs require assistive technology products but, in the case of CP, there are a number of technical solutions that have been proved to be efficient, which we have divided in the following areas:

- control interfaces (switches, joystick, track ball)
- alternative keyboards (expanded, reduced) and keyboard emulation
- mice and mouse emulation and eye-gaze solutions (Tobii, Camera Mouse, Head-Dev, Trekker, etc)
- Touch screens, head-pointers, mouth-sticks
- Tablets and smartphones (iPad)

Because assistive technology cannot be added to just any computer—it must be compatible with the computer’s operating system and additional software products—it is important that the school selects software that is accessible and compatible with assistive technology.

Virtual accessibility is also important and teachers and parents must be aware of the so many configuration options of the several operating systems existing in schools and at home, even when it comes to using open source software. Accessibility options for Windows Xp and 7 can be easily found on the web. Apple also includes assistive technology in its products as standard features — at no additional cost. For example, iPhone, iPad, iPod, and OS X include screen magnification and VoiceOver, a screen-access technology, for the blind and visually impaired. To assist those with cognitive and learning disabilities, every Mac includes an alternative, simplified user interface that rewards exploration and learning. And, for those who find it difficult to use a mouse, every Mac computer includes Mouse Keys, Slow Keys, and Sticky Keys, which adapt the computer to the user’s needs and capabilities.

Reading and Writing

Also related to communication processes, reading and writing has always played an important role in a CP child’s education. This is especially important for those children with severe multiple disabilities since literacy represents their best hope for participation in the broader society.

Participation requires communication and for the severely speech impaired, communication requires either written language or the use of communication devices that take the place of human speech, devices most frequently requiring a literate user (Blackstone & Cassatt-James, 1988; Koppenhaver, Coleman, Kalman, & Yoder, 1991).³

In this area we will be considering inexpensive, yet effective low tech solutions for writing like wrist splints, clip boards, positioning pads or velcro tabs used to keep them in place,

Also important can be separate applications for PC, like word prediction software, for example, that reduces the number of keystrokes an individual has to make.⁴ Ebooks, online reading, OCR, vice recognition and prediction and many other technical options will also be under the scope of this part of the module.

Suggested Readings

- Makaton - <http://www.makaton.fr/>
- Meyer-Johnson - <http://www.mayer-johnson.com/>
- Arasaac - <http://www.catedu.es/arasaac/>
- Words Plus - <http://www.words-plus.com/website/products/hand/mmaccs.htm>
- Pecs - <http://www.pecs.org.uk/general/what.htm>
- Proloquo2go - <http://www.proloquo2go.com/>
- Grid 2 - <http://www.sensorysoftware.com/>
- Prices - <http://www.spectronicsinoz.com/product/mayer-johnson-pcs-deluxe>
- Tobii - <http://www.tobii.com/en/assistive-technology/north-america/products/hardware/>
- Brain Control http://www.youtube.com/watch?v=kXY50lg773M&feature=player_embedded%20-%20!
- Muscle-Computer - <http://www.youtube.com/watch?v=R1agrUM4KYs>
- PC Accessibility - http://www.cliik.com.br/cliik_01.html - prodcomp
- Boardmakershare -
- Dasher - <http://www.inference.phy.cam.ac.uk/dasher/portuguese/>
- Camera Mouse - <http://cameramouse.org/>

3 Blackstone, S. W., & Cassatt-James, E. L. (1988). Augmentative communication. In N. J. Lass, L. V. McReynolds, J. L. Northern, & D. E. Yoder (Eds.), *Handbook of speech-language pathology and audiology* (pp. 986-1013). Toronto: B. C. Decker.

4 A word prediction program displays a list of words based on the letters that have already been typed. The typist saves keystrokes by selecting the correct word rather than typing the remaining letters.

- Accessibility in Apple Products - <http://www.apple.com/accessibility/>
- Accessibility in Microsoft Products - <http://www.microsoft.com/enable/products/default.aspx>
- Assistive Technology Eye Tracking Mouse - <http://www.youtube.com/watch?v=UMeaoR2Kpc>
- Open Source Special Access to PC Software - <http://www.oatsoft.org/Software/SpecialAccessToWindows>
- Cerebral Palsy & Assistive Technology Devices | eHow.com http://www.ehow.com/facts_5593018_cerebral-palsy-assistive-technology-devices.html#ixzz23cBwR2hf

AT for Mobility

Mobility is an individual's ability to execute distinctive activities associated with moving oneself within the environment. Mobility refers also to the possibility to use environment facilities like adequately adapted public and private transports.

Within this area we will be considering, among others, the following items: manual mobility that includes the use of manual wheelchairs, sticks, crutches, walkers, bicycles and tricycles, transport chairs and manual hoists and transfer aids. Powered mobility, including powered wheelchairs, scooters, carts, mopeds, powered aids for lifting and transfer, interfaces for wheelchair control, robotic arms for wheelchairs

Attention will also be given to all aspects of private transportation (including special controls for driving, special seats, ramps and platforms) and public transportation (like adaptation of public vehicles, ramps, platforms and lifts) existing in most countries

Accessibility

Outdoor and indoor access aids are also a vital area for social inclusion and adaptation of CP children and home adaptations can make a difference in their quality of life. Ambient Assisted Living catalogues can provide good solutions whenever we are to consider autonomy and empowerment of children with disabilities. Other aspects of accessibility and mobility are to be considered, namely components of seating and positioning systems, cushions and pressure management, orthotics and prosthetics aids, etc

Adapted Sports

Sporting activities have also been used for rehabilitation and recreation and are increasingly being used as treatment complementing the conventional methods of physiotherapy.⁵ They help to develop strength, coordination, and endurance, but

5 Promoting the Participation of People with Disabilities in Physical Activity and Sport in Ireland October 2005. Frances Hannon - Senior Researcher NDA

also to regain self-esteem, promoting the development of positive mental attitudes and achieve social reintegration. They are also a good opportunity to establish social contact and human interaction.

Sports like Boccia, Goalball, athletics, can be a good opportunity for personal and social development.

Suggested Readings

- Assistive Technology Devices for Kids | eHow.co.uk -
- http://www.ehow.co.uk/info_8315500_assistive-technology-devices-kids.html#ixzz1jpSPMteT
- Neatech Chair Models: <http://www.neatech.it/index.php>
- Apple - Empowering Disabled Apple Users: <http://atmac.org/>
- Home Solutions: <http://www.escadafacil.pt/index.htm>
- Handy - Occasion: <http://mashable.com/2011/10/05/tech-disabled/>
- iBot: <http://www.youtube.com/watch?v=xK5uAeEV7tI>

AT for Manipulation

Manipulation is the individual's ability to control physical environment and as an output of the activities performed by persons with disabilities. This also refers to the ability to regulate control mechanisms using any tool, independently of the part of the body used.

Although this an area in the scope of occupational therapy, it is also important that teachers and parents know about the existence of many devices that can make their life easier, even if it means only an extra time for themselves. Therefore, and from point of view of assistive technology, the items under manipulation include activities of daily life like:

- self care (hygiene; incontinence; sexuality; clothing),
- Housekeeping (cooking; cleaning),
- Safety (alarm and signalling devices, environmental control units),
- User control interfaces (voice recognition, ultrasound, switches),
- Robotics (desktop robots, page turners, feeding robots...) etc.
- Recreation (aids for games, exercise, sports, photography, smoking, adapted toys)
- Musical instruments and handicraft tools for sport and recreation

References

- Ambient Assisted Living - <http://www.aalforum.eu/>
- Neater Eater - <http://www.youtube.com/watch?v=RVjU3jKHAc>

AT for Orientation

Orientation is the individual's ability to locate oneself in relation to the dimensions of time and space. It represents also the individual's ability to receive stimulus coming from several sensorial inputs (sight, hearing, smell, touch), assimilate those inputs and provide the adequate answer (output).

Items within the orientation area are, for example orientation & navigation systems which include orientation and mobility aids, sonic guides.

But this area we also include cognitive orientation and cognition like aids for memory compensation, aids for supporting time and space notions or, in a broader sense all kinds of educational material and didactic software the help compensating cognitive disabilities.

Orientation & navigation systems

Orientation and mobility aids, sonic guides, adaptations of the environment

Cognition: Aids for memory compensation, aids for supporting time and space notions, Educational Software

Suggested Readings

- Trekker System : <http://www.youtube.com/watch?v=gsTZqKGtkyl>
- Animation: <http://goanimate.com/>
- Mindmapping: <http://www.mindmapping.com/>
- Podcasting : <http://vocaroo.com/>
- Virtual reality: http://www.vrlogic.com/html/head_mounted_displays.html
- Wiki: <http://www.wikispaces.com/>
- Zaid Learning: <http://zaidlearn.blogspot.com/2008/04/free-learning-tool-for-every-learning.html>

Chapter 4

Socio-Economic Components

Learning Outcomes

Participants will be able to search for information related to AT funding in their own country and demonstrate skills in defining their plan of acquisition, based on the information provided by national or international databases.

They will also be able to evaluate the state of art of assistive technology, market trends and evolution at a European level.

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Choice factors

Providing AT devices is a complex process that involves the child/user, but also family members, caregivers, friends and fellow students. The process of acquisition or funding is different from country to country, depending on national legislation but there is a European trend towards a common database coordinated by EASTIN.⁶

Professionals are aware of all the interaction needed with the social context, how the provision of an assistive device will affect the persons interacting with the child with CP. Assessing the utility of an assistive device should include training of the people who are helping the user with the assistive device. As a consequence, family members, friends, caregivers, fellow students, co-workers, etc., are a critical part of the user's support. Peers acceptance is always an important source of encouragement for device use.

Professionals must be trained to be fully aware of these important aspects when developing or providing assistive devices. Under this area we will also include every item related with the knowledge of available resources to the user, that is knowledge of advantages and disadvantages of different service delivery models, knowledge of the role, constraints, and perspective of manufacturers, distributors and suppliers. Among others, we consider the following: Actors/Service Delivery - Standards/Testing - Legal/Economic

6 European Assistive Technology Information Network

Service delivery

It is important that all agents (and especially the parents) are well aware of all legislation related to the provision of AT and know where to consult it. Internet can be of great value and a good source of information.

This kind of information include all procedures for getting or funding AT, depending on the country. Welfare authorities are usually receptive to funding programs and it is very important that parents know where to find information.

Negotiating terms with AT providers and suppliers is also an important issue and sometimes the most difficult one. There is a myriad of similar equipment and the choice is not always easy.

Information resources

Information is power. The internet provides a wide range of resources on assistive technology, from introductory fact sheets and training materials to in-depth discussion of best practices and emerging research. other information items nay include:

- Databases on AT, officially approved and financed
- Catalogues, magazines and other publications regarding technical aspects of the devices
- Exhibitions and information events on the latest developments
- Information centres for choice help
- Professional supports for choice of AT
- Other sources of information related to evolution of AT policies at international level, cost analysis for AT, outcome analysis for AT or even market trends

Suggested Readings

- <http://www.eastin.eu/pt-PT/searches/products/index>
- <http://www.vlibank.be/>
- <http://www.handicat.com/>
- <http://www.dlf-data.org.uk/>
- <http://www.hmi-basen.dk/r0x.asp?ldbid=1>
- <http://www.rehadat.de/eastin.htm>
- <http://portale.siva.it/>
- Resna: <http://resna.org/>
- SNOW: <http://snow.idrc.ocad.ca/>

- WATI: <http://www.wati.org/>
- Unesco: <http://www.unesco.org/new/en/education/themes/strengthening-education-systems/inclusive-education/>
- EASTIN: <http://www.eastin.eu/en-GB/searches/products/index>

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