**Module 4: Innovation - focusing on improving Access and Assistive Devices**

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1. **Introduction**

The struggle for equal access and participation for disabled individuals has been ongoing for many years. The UN Convention on the Rights of Persons with Disabilities (UNCRPD) in 2008 was the first international treaty to explicitly address this issue. While there were some acknowledgments of the need for access in previous treaties, national laws, and building codes, it was the UNCRPD that established binding obligations for states and rights for disabled individuals. In the past, people with sensory impairments advocated for the use of Braille and Sign Language, but access provisions were often provided in segregated settings. The built environment, transportation, education, healthcare, and other aspects of daily life were not adapted for disabled individuals. The approach was often based on a medical model, which focused on rehabilitating disabled individuals to fit into a non-disabled world. This led to a loss of autonomy and separate voices for disabled people. However, disabled-led movements emerged, advocating for access, autonomy, and human rights.

In the last 50 years, the idea of universal design, where built environments, transport, and communication systems are barrier-free, gained support. Disabled people and Disabled People's Organisations (DPOs) embraced the social model of disability, which highlights the role of society in creating barriers. The UNCRPD and the Sustainable Development Goals (SDGs) incorporated these principles. However, the COVID-19 pandemic exposed the shortcomings in implementing these principles in our societies. DPOs worldwide had to advocate for signed announcements, accessible information, and support for mental health. While technology has offered some solutions, there is a need for comprehensive access and assistive technology provision. As we strive to "Build Back Better," it is crucial to prioritize access to prevent the loss of human potential and suffering among disabled individuals. The knowledge and tools to achieve this exist; it is time to put them into practice for the benefit of all.

1. **The Language the CDPF Uses**

The Commonwealth Disabled People's Forum (CDPF) chooses to refer to themselves as "disabled people" based on the social model of disability. In the past, disability was seen as a medical condition that caused individuals to be excluded from society. This approach, known as the medical or individual model of disability, focused on the person's impairment as the root cause of their exclusion. However, the social model recognizes that it is the barriers in the environment, attitudes, and organizations that disable people with impairments and perpetuate prejudice and discrimination.

Using the term "disabled people" emphasizes the understanding that disability is a result of societal barriers, rather than an inherent characteristic of the individual. It acknowledges that disabled individuals face common oppression and discrimination and unites them in their shared experiences. It empowers them to reclaim their identity and challenge societal norms. However, when discussing the UN Convention on the Rights of Persons with Disabilities, the term "people with disabilities" may be used.

1. **Access is a human rights principle and key-Article 9. Linked to Article 26-Rehabilitation, Article 20-Personal Mobility and Article 21-Freedom of Expression and Access to Information**

The module discusses the importance of accessibility as a human rights principle in the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). Accessibility refers to creating environments, services, and technologies that allow persons with disabilities to fully participate in society on an equal basis with others. The module emphasizes Article 9 of the UNCRPD, which focuses on ensuring access to the physical environment, transportation, information and communications, and other facilities and services open to the public.

According to Article 9, states parties must take appropriate measures to remove barriers and ensure equal access for persons with disabilities. This includes addressing physical, informational, and technological barriers, as well as negative attitudes in society. The module highlights that accessibility should be provided regardless of whether the facilities and services are owned by public or private entities. It also emphasizes the need for training stakeholders on accessibility issues and providing assistance and support services to facilitate accessibility.

The module further mentions specific provisions in the UNCRPD that reinforce the principle of accessibility, such as Article 20 on personal mobility, Article 21 on freedom of expression and access to information, Article 24 on education, and Article 29 on participation in political and public life. These articles highlight the importance of providing mobility aids, accessible information, and communication, as well as promoting the use of sign languages.

Additionally, the module discusses the twin-track approach in the UNCRPD, which involves both immediate reasonable accommodations and the long-term goal of universal design. Reasonable accommodations include individualized support and adjustments to ensure access for persons with disabilities.

The follow-up activities involve analyzing and creating a charter of the main human rights for disabled people regarding access (Articles 9, 19, 20, 21, 26), creating a diagram or map of the local area to identify access barriers and their solutions, and adding solutions such as ramps, lifts, signage, and assistive technologies to the map.

1. **Appreciate that Access to Independent Living is a vital right as outlined in Article 19**

Article 19 of the Convention on the Rights of Persons with Disabilities emphasizes the right of disabled individuals to live independently and be included in their communities. It states that they should have the same choices as others when it comes to where and with whom they live, and they should not be forced into specific living arrangements.

To ensure this right, certain measures should be taken, including:

a) Giving disabled people the opportunity to choose their place of residence and living arrangements, just like everyone else.

b) Providing access to a range of support services, such as personal assistance, in-home and community-based services, to help disabled individuals live independently and be included in their communities. This also helps prevent isolation or segregation.

c) Making sure that community services and facilities are equally available and responsive to the needs of persons with disabilities.

Living independently doesn't mean doing everything by oneself. It recognizes that society operates on interdependence, where people support each other in various ways. For example, most people go to professionals to get their hair cut instead of doing it themselves. Similarly, disabled individuals rely on support from others in different aspects of their lives. The key is to have the right support, choice, and control to live more independently.

Disabled people have identified twelve essential elements, known as the 12 Pillars of Independent Living, that they believe are necessary for everyone to live independently. These pillars include accessible information, sufficient income, accessible health and social care services, a fully accessible transportation system, equal access to the environment, provision of assistive devices and equipment, availability of accessible and adapted housing, adequate personal assistance, inclusive education and training, equal employment opportunities, access to independent advocacy and self-advocacy, and availability of peer counseling.

Furthermore, access to digital technology has also been recognized as a crucial requirement for independence in today's world.

1. **Know the various reasonable accommodations to maximize access to environment, information and transport in Low and Middle Income situations.**

Assistive devices and technologies are tools designed to help individuals improve their functioning, maintain independence, and participate fully in society. They can range from wheelchairs and prostheses to hearing aids and specialized computer software. These devices not only enhance well-being but also prevent further health complications.

It is important to plan for the provision of assistive technology based on accurate data about the needs of individuals requiring these products. However, many countries lack reliable information in this regard. Global estimates suggest that approximately 0.5% of the population need prosthetic or orthotic devices, 1% need wheelchairs, and 3% require hearing aids. Unfortunately, following the implementation of the Convention on the Rights of Persons with Disabilities (CRPD), it was found that only a small percentage of those in need actually had access to assistive products. For example, it was estimated that only 5-15% of individuals requiring these devices had access to them, and only 3% of those who could benefit from hearing aids actually possessed one.

In response to this issue, the 71st World Health Assembly adopted a resolution aimed at improving access to assistive technology. The resolution urges member states to enhance access by implementing policies and programs within universal health and social services coverage. It also emphasizes the importance of training human resources in the field of assistive products, conducting research and development for improved product designs, fostering international and regional collaboration, and collecting population-based data on health and long-term care needs.

Evidence from developing countries indicates a significant unmet need for assistive devices. In a survey of 10 countries conducted around 2013, it was found that, on average, 68% of persons with disabilities who required assistive devices did not have access to them. The percentage ranged from 33% in Chile to 82% in Lesotho. Other Commonwealth countries also demonstrated high percentages of unmet needs: Malawi (82%), Zambia (81%), Cameroon (78%), Mozambique (78%), Sri Lanka (64%), and Botswana (45%).

**Barriers**

Achieving universal coverage of assistive technology faces several barriers, including lack of awareness, governance, services, products, accessibility, human resources, affordability, and economic resources. Many people with disabilities and their families have limited knowledge about assistive products and where to obtain them. Policy-makers and decision-makers often lack awareness of assistive technology and its potential benefits. Services for assistive technology are scarce and often located far from those in need. There is a limited supply of safe and effective assistive products in terms of quantity, variety, and sizes. Inaccessible transportation and facilities further hinder access to assistive technology services. Additionally, there is a lack of properly trained personnel skilled in manufacturing, adapting products, and delivering services. High costs of assistive products and services, including taxes and duties, pose significant barriers. Data from several countries show that people often stop using assistive devices due to cost or lack of effectiveness.

**To address these challenges, the following steps are recommended:**

1) Formulate policies and laws that support the development, production, distribution, and servicing of assistive products. Incorporate provision of assistive technology into existing or new legislation, strategies, and policies related to education, employment, and health.

2) Ensure that assistive products are available and affordable for persons with disabilities, including through grants and financial support.

3) Encourage research and development of assistive technology by providing financial incentives. Involve persons with disabilities and their organizations in the design of assistive products and programs.

4) Enhance the knowledge and capacities of persons with disabilities, their families, government officials, and service providers regarding assistive technology. Ensure that they have access to information about available assistive products and schemes.

5) Invest in creating an environment that optimizes the benefits of assistive technology. Accessibility is crucial, as certain assistive products require a supportive environment to be effectively used. Measures such as ramps and wide doorways can facilitate wheelchair use, while hearing loops can benefit hearing aid users. Consider user preferences and expectations to ensure the effectiveness of assistive products.

6) Monitor the unmet needs for assistive technology to identify and address gaps. Research on population-level needs, policies, service provision models, implementation, and cost-effectiveness is necessary. Regular monitoring of progress and barriers will help improve access to assistive products.

**WHO prioritize 50 key assistive devices**

In 2013, the World Health Organization (WHO) identified 50 priority assistive products that are essential for improving the functioning and independence of individuals with disabilities. These products were selected based on widespread need and their impact on people's lives. The aim was to provide a model for Member States to develop their own national priority assistive products list, taking into account local needs and available resources with the assistance of Disabled People's Organizations (DPOs). This initiative also led to the establishment of the Global Cooperation on Assistive Technology (GATE).

Assistive technology refers to the application of knowledge and skills related to assistive products, which include devices, equipment, instruments, and software. These products have the primary purpose of maintaining or improving an individual's functioning and independence while promoting their well-being. They can also help prevent impairments and secondary health conditions.

The 50 chosen assistive products cover a wide range of needs and include items such as alarm signallers, audio players with DAISY capability, communication boards/cards, hearing aids, walking frames, wheelchairs (both manual and electric), and many more.

Unfortunately, despite the importance of these assistive devices, only 1 in 10 disabled individuals who need them currently have access. This lack of access limits opportunities for participation in society, including accessing education, employment, and maintaining independent living for older individuals. Ensuring access to assistive technology is crucial for meeting the needs of today's populations and promoting public health.

**Screen Readers**

Screen readers are essential assistive technology for individuals who are blind or visually impaired. They are software applications that convert text and image content on a screen into speech, allowing users to hear the information through earphones or speakers. Screen readers enable equal access and use of technology for people with visual impairments, illiteracy, or learning disabilities.

Screen readers work closely with the computer's operating system and provide information about icons, menus, dialogue boxes, files, and folders. They are compatible with various applications such as web browsers, word processors, email programs, and more.

There are several popular screen readers available for different operating systems. For Microsoft Windows, options include Microsoft Narrator, NVDA (free and open-source), JAWS, and ZoomText (commercial). Apple devices like macOS, iOS, and tvOS have the built-in VoiceOver screen reader, while Android devices offer Talkback and ChromeVox. Linux and Unix-like systems have free and open-source screen readers like Orca and Speakup.

Screen readers have made technology more accessible and inclusive. They enable individuals to interact with computers, smartphones, and other devices by converting written text into spoken words or even creating MP3 files. Some screen readers don't require installation and can be used on public computers with sound available.

The inclusion of text-to-speech functionality as standard software on computers and smartphones reflects the principles of Universal Design, aiming to make technology usable by as many people as possible.

**The Marrakesh Treaty and Copywrite**

The Marrakesh Treaty, signed in 2013, is an international agreement that focuses on the right to read for blind and visually impaired individuals as well as people with print disabilities. Administered by the World Intellectual Property Organization (WIPO), the treaty aims to facilitate the production and transfer of specially adapted books for these individuals. It establishes mandatory limitations and exceptions in copyright laws to enable easier access to reading materials.

Governments need to ratify the treaty and amend their copyright laws to incorporate its provisions. This enables people with print disabilities to access books and other reading materials at their convenience. To assist countries in implementing the Marrakesh Treaty, the World Blind Union (WBU) has published a guide called "Facilitating Access to Books for Print-Disabled Individuals."

The guide, written by experts in copyright law and international human rights, provides a comprehensive analysis of the treaty's key provisions. It offers legal and policy recommendations for incorporating these provisions into national legal systems. The guide serves as a valuable resource for governments, disability rights organizations, and individuals advocating for the ratification and implementation of the Marrakesh Treaty.

The WBU guide is available for purchase on the Oxford University Press (OUP) website. However, an open access copy is also available on the website, allowing print-disabled individuals, including WBU members, to access an online version of the guide. This resource is important in promoting accessibility and making printed materials available to disabled individuals.

1. **Examples of how innovators, DPOs and universities, businesses and governments can link up for a win-win access situation and the economic benefits.**

Improving access and supply of assistive devices can be achieved through various approaches, including the following:

1. Universal Design: Universal design involves designing products, environments, programs, and services to be usable by all people, without the need for adaptation or specialized design. It aims to ensure equitable use, flexibility of use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, and appropriate size and space for approach and use.

2. Equitable Use: Designs should be useful and marketable to people with diverse abilities, without segregation or stigmatization. Safety and security should be equally available to all users.

3. Flexibility of Use: Designs should accommodate a wide range of individual preferences and abilities, offering choices such as right or left-handed use and allowing for different levels of accuracy and pace.

4. Simple and Intuitive Use: Designs should be easy to understand, regardless of the user's experience, knowledge, language skills, or concentration level. They should consider user expectations, literacy levels, and language differences, and provide prompts and feedback.

5. Perceptible Information: Designs should effectively communicate information to users, regardless of ambient conditions or sensory abilities. Multiple ways of presenting information should be used, and compatibility with different devices or techniques used by people with sensory disabilities should be ensured.

6. Tolerance for Error: Designs should minimize hazards and the adverse consequences of accidental or unintended actions. Commonly used elements should be accessible, hazardous elements should be removed or shielded, warnings and fail-safe features should be provided, and user concentration should be encouraged where needed.

7. Low Physical Effort: Designs should enable efficient and comfortable use with minimal fatigue. Users should be able to maintain a neutral body position, operating forces should be reasonable, repetitive actions should be minimized, and sustained physical effort should be reduced.

8. Size and Space for Approach and Use: Designs should provide appropriate size and space for approach, reach, manipulation, and use, considering users' body size, posture, and mobility. Clear line of sight, comfortable reach, accommodation of variations in hand and grip size, and adequate space for assistive devices or personal assistance should be ensured.

By embracing these principles and incorporating universal design, the access and supply of assistive devices can be improved, promoting inclusivity and equal participation for people with disabilities.