
B13: Innovative Ideas and Solutions for Assistive Technology

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Learning objectives:

Upon completion of the session, participants will be able to:

1. Describe the basic process for designing, building, and modifying assistive technology (AT) devices based on client needs, as well as, identify simple tricks and inexpensive materials that can be used.
2. Discuss examples of modified AT devices and how these devices were developed; as well as, how the devices improved the client's ability to explore and socialize.
3. Identify resources that inspire ideas and innovation for new AT projects.

Session description:

This session will discuss various types of assistive technology (AT), and innovative solutions to design, build, or modify adaptive equipment based on client needs. We will identify the process to get started on developing your own AT device. We will also identify the basic tools, materials, and tricks that can be used to produce life-changing, inexpensive AT solutions.

We will explore how AT designs and modifications have been developed on some previous projects. Some AT equipment that will be discussed include hand trikes, power wheelchair go-karts, motorized rocking chairs, scooters, rockers, and exercise and sports equipment. The purpose of the new or modified device will be discussed, as well as, the thought process behind design and choice of material used. We will also explore how small changes or modification on an already manufactured product can tremendously help a client with customized function and comfort. Additionally, we will discuss how you can create an AT device from readily available materials, that is low cost, and have both fun and functional use.

Assistive technology does not have to be boring! Studies have shown that when AT devices had fun, colourful, innovative designs, more social interaction

occurred (3). Not only can AT devices make physical and social activities easier, they allow individuals to become more independent and to interact with their environment through exploration. For children, this is incredibly important, as early exploration and socialization directly impacts physical and cognitive functions (1,2,3,4). AT devices can be developed for various activities that allow people of all ages and physical ability to participate in a more independent, interactive, and exploratory fashion. We will provide insight as to where you can gain inspiration for your own AT projects and working with the client to identify their needs and goals to a more independent and active lifestyle. We will provide various international resources that you can explore on your own.

Content references:

1. Anderson DI, Campos JJ, Witherington DC, et al. The role of locomotion in psychological development. *Frontiers in Psychology*. 2013;4:440.
2. Henderson S, Skelton H, Rosenbaum P. Assistive devices for children with functional impairments; impact on child and caregiver function. *Developmental Medicine & Child Neurology*. 2008;50(2):89-98.
3. Huang H, Ragonesi C, Galloway JC, Stoner T, Terry L, James C. Modified toy cars for mobility and socialization: case report of a child with cerebral palsy. *Pediatric Physical Therapy*. 2014;26(1):76-84.
4. Samuel L, Schreiber M, Lobo M, Pritchard B, George L, Galloway JC. Real-world performance: physical activity, play, and object related behaviours of toddlers with and without disabilities. *Pediatric Physical Therapy*. 2015;27(4):433-441