

International
Orientation & Mobility

Online Symposium

Date: January 26, 2018

Time: 2:45-3:45PM EST (World Clock)

Title: The Benefits of the Dakota Disk Cane Tip
with Special Populations

Presenter:

Paul Olson, Superintendent

North Dakota School for the Blind,

Certified Orientation and Mobility Specialist, North Dakota

Description: A general overview of the development of the Dakota Disk and its characteristics will be provided. The original intent of more effective travel in rural environments will be discussed and feedback from cane users and mobility specialists will be shared. The presentation will quickly move into the benefits that have been witnessed for children who are in the beginning stages of walking and using a cane with this cane tip. The intent of the presenter is to offer another tool to the practitioner for visually impaired children who are in this transition stage. Push toys and alternative mobility devices are often the first tools that are appropriate, but there are few options for cane tips that are appropriate for this stage other than a rolling ball tip. It is my objective to demonstrate the benefits of a disc shaped cane tip that will cover more surface area for the young traveler as well as allow for more success in detecting obstacles.

Having worked with dozens of children and adults over the years who have benefited from an alternative mobility device because of additional physical and cognitive challenges I have witnessed many individuals who continue to struggle. These devices are often awkward to use outside of their home setting because of size and difficulty in transporting them. The long white cane is the universal device that is the best choice for identification in community settings, but standard cane tips are often inadequate for special populations. The presenter will outline some of the benefits of the Dakota Disk for special populations. The goal is to provide enough information that the COMS can decide for themselves how they might utilize this cane accessory in their practice for the benefit of their students.

The Benefits of the Dakota Disk Cane Tip with Special Populations

**Paul Olson, Superintendent
North Dakota School for the Blind,
Certified Orientation and Mobility Specialist, North Dakota**

Slide 1, Who am I?

- Graduate of the dual TVI/O&M program at the University of Northern Colorado in 1991
- Adjunct faculty teaching O&M for UNC 1998-2000 (satellite program)
- Adjunct faculty teaching Principles of O&M at University of North Dakota 1996-2006
- Spent 22 years serving school districts across ND as well as providing adult services.
- A career highlight was development of the APH product “Treks.”
- Superintendent of NDVS/SB since 2013, but my heart is still in O&M

Slide 2, Why do we need yet another cane tip?

As a professional discipline we are still young. As technology evolves and changes our approach to teaching, we also need to test some of our traditional mindsets. I believe that the long cane will continue to be a valuable tool well into the future. Why would we believe that it cannot continue to evolve?

Not everything new and cool has to be electronic.

Slide 3, Introduction to the Dakota Disk



Figure 1 This is a video demonstration of Paul Olson using the Dakota Disk. He faces the camera, shows how the disk is attached to the cane and then walks on grass and gravel surfaces.

Slide 4, The Ambutech Connection

As the originator of this concept I approached Ambutech and shared my prototype in 2012. A series of professional prototypes were designed by Ambutech with continual feedback to enhance the function over time. Ambutech is well respected for willingness to listen to consumer feedback. This, in addition to the proximity of their headquarters in Winnipeg, Manitoba led me to them.

As the inventor and co-developer I would like to note that there has been no financial benefit for myself as the result of this product coming to market.



Figure 2 Amutech logo. Four open triangle pointing toward one another. Underneath, the words “Ambutech” and “Mobile way of life”.

Slide 5, Specifications

- Easy to attach and remove
- Durable
- Not too big
- Lightweight

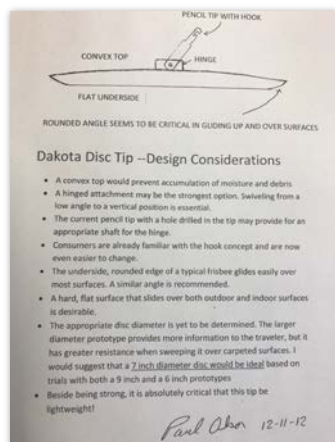


Figure 3 Picture of the Dakota Disk prototype drawing. Eight Design Considerations are listed below.

Slide 6, Design Considerations



Figure 4 A top view of a white Dakota Disk and a side view of another Dakota Disk that is red.

Slide 7, The Secret is in the Underside Curve



Figure 5 A single, white Dakota Disk attached to a long cane shaft

Slide 8, What is a long cane?

It is a sensing tool

With a limited sense of sight or no sight at all a person must augment his or her sensory experience in order to have enough information to plan and move safely. With appropriate training in orientation and the opportunity to select tools to that convey a certain threshold of tactual information about obstacles, surfaces textures and grade, many people are very successful as visually impaired pedestrians both indoors and outdoors. The physical characteristics of the cane tip are a crucial component of this sensing tool known as the long cane.



Figure 6 The image shows a person walking from the knees down. A long cane with a pencil tip touches the ground in front of the walker.

Slide 9, What are the limitations of cane tips?

- 1.
- 2.
- 3.

Every cane and every tip design has limitations. With every limitation there are also potential benefits

Slide 10, Just Starting Out



Figure 7 A 4 year old boy holds a cane with two hands and is standing in a living room in front of a throw rug. The cane has a Dakota Disk attached.

Slide 11, On the move...head up...smooth sailing!



Figure 8 Image of a young child using a cane with a Dakota disk in a carpeted hallway. An adult is standing directly behind the child.

Slide 12, Potential Benefits for Young Cane Users

- 1.
- 2.
- 3.

What other benefits can you think of?

Slide 13, Playgrounds often have soft surfaces.

The disk shaped tip tends to glide over gravel, wood chips, rubber chips, etc.



Figure 9 This is a video of a girl using a cane with a Dakota Disk on a playground. She moves across the gravel surface area to a swing.

Slide 14, Alternative Mobility Devices Awesome Tools with their own Limitations

Preschool Children



Figure 10 A preschool boy pushes a rectangular alternative mobility device made out of pvc plastic. An adult walks alongside.

Older Students with Additional Challenges



Figure 11 An older student pushed an alternative mobility device with wheels on the bottom. Only the lower portion of the student's legs are visible.

Slide 15, What are some of the limitations of AMDs?

- 1.
- 2.
- 3.

Slide 16

For individuals with physical conditions that affect motor control of the hand/arm as well as gait and balance deficits, there are several potential benefits of using the Dakota Disk:

1. Requires less effort to maintain an adequate arc
2. The surface area covered is increased making detection of changes more likely
3. Uncomfortable and destabilizing recoil of lodged cane tips is less likely
4. Detection of drop-offs is enhanced

Although these are claims based on my observations and feedback from a relatively small number of users, I am very confident that formal study will support these outcomes in the future.

Slide 17, For Individuals with Gait and Balance Challenges



Figure 12 The image is of a young man walking across the grass in front of his home using a cane with a Dakota Disk.

Slide 18, The Original Intent: Winter Snow & Ice Conditions



Figure 13 This video shows a Dakota Disk tip on a cane moving side to side over a snow covered surface.

Slide 19, Results of the 2016 Australia Survey

- Dr. Desirée Gallimore is the Psychologist / Academic Manager Guide Dogs NSW/ACT, Australia. She is also the editor of the International Journal of Orientation and Mobility. She surveyed O&M Specialists in Australia who had received complimentary Dakota Disks at a conference
- There were 11 respondents
- 10 of 11 highly recommended the Dakota Disk.



Figure 14 A picture of the continent of Australia.

Slide 20, Survey Results:

- 8 male/3 female
- Ages: Under 17 = 2, 40-59 = 5, 60+ = 4
- Years using long cane: 1-4 years = 3, 5-10 years = 2, 11+ years = 6
- Surfaces on which the disk was used: Sand, Grass, Gravel, dirt, Concrete, Stairs
- Positive Comments: Easier than Bandu Basher, detects rocks and grass very easily, snagged less on objects.
- Negative Comments: very noisy on roads, concrete and wooden floors, can fill with water, not as sensitive on some surfaces,
- This the only semi-formal survey that has occurred at this time. I extend my appreciation to Dr. Desiree Gallimore with Guide Dogs NSW/ACT for sharing this information. I am hopeful that more formal research will be conducted in the United States with an emphasis on the potential benefits for special populations of people with visual impairment.

Slide 21,

I would not contend that this tip choice is necessary or desirable for every preschooler learning to use a cane or better than an AMD for individuals that have additional challenges. I do believe it does fit into a continuum of appropriate options. It may be the best option at a given point in time for an individual.

IT IS ALL ABOUT OPTIONS

Slide 22, What else would you like to know?



Figure 15 The image is of a chalkboard with the large letters Q&A written in the center

Texas School for the Blind & Visually Impaired Outreach Programs



Figure 16 TSBVI logo



This project is supported by the U.S. Department of Education, Special Education Program (OSEP). Opinions expressed here are the authors and do not necessarily represent the position of the Department of Education.

Figure 17 IDEAs That Work logo and OSEP disclaimer