Extended abstract

Individuals with severe physical disabilities often face multiple barriers to communication and meaningful interactions with their peers and their environment\(^1\). Our lab strives to create novel access technologies (AT) that will allow individuals with complex physical disabilities to communicate and participate more fully in their everyday lives.

Our primary goal is to provide each of our clients with an AT solution that is satisfactory, efficient, and effective\(^2\). We also aim to reduce or prevent technology abandonment in order to improve long-term outcomes. In light of these goals, we have developed a comprehensive AT development and training protocol\(^3,4\) involving not only the client, but also their family and communication partners, including teachers and clinicians. Although the protocol is structured, it is flexible enough to allow for customized technology, individualized goals, and diverse environments that are unique to each client.

In our presentation, we will describe the challenges that we faced in applying this complex protocol to real-life situations and share the strategies that we developed to mitigate those challenges. We will also discuss our successes and opportunities for improvement.

Our protocol starts with an initial assessment and evaluation of the client and their current AT (if any), leading to the design and development of a new AT that is customized to their needs and motor abilities. Delivery of the AT is immediately followed by regular training sessions for the client over the course of 10-20 weeks, working progressively towards more independent and functional use of the device. Typically, many clients start out learning to master simple cause and effect, with a common goal being the indication of needs or preferences through the use of scanning on a computer or a tablet. For clients who are in school, several weeks of integration in the school setting are also included, as is training of the client’s teachers and other educational staff. Finally, parents, caregivers, and family members are given workshops to improve their level of comfort and understanding of the AT to support the client’s continued use of the device. The client’s clinicians, such as occupational therapists and speech language pathologists, are invited and encouraged to provide guidance and advice regarding the client’s clinical needs, and are welcome to take part in the training if they wish. Following the completion of training, arrangements are made with the client and their family and caregivers to allow for maintenance of the AT as needed in the future.

The description above reflects the ideal scenario, but often the protocol does not proceed so smoothly. We have identified a number of challenges in implementing the protocol, related to:

- Scheduling. It may be difficult to keep the planned schedule when the client and their caregivers are already facing a heavy burden of doctors’ appointments and other activities that take up a significant amount of time.
- Expertise in communication disorders. Our multidisciplinary team consists of clinical engineers and health care researchers, but we do not have formal training in aspects of occupational therapy and speech pathology that may be relevant to our clients.

- Location. Many of our clients are located in remote settings and we rely on videoconferencing to assess and train them on the AT. This introduces a number of issues, from not being able to physically manipulate a malfunctioning device to not being able to provide certain types of prompting (such as physical prompting).

- Client age. The protocol was initially developed and successfully piloted in a classroom setting with school-aged children. It has since been expanded to offer the same opportunities for learning and independent communication to adults with similar disabilities. Many of the tools and activities originally used with the protocol were designed for and appeal to children’s interests and sensibilities, but not necessarily to those of adults.

In response to these challenges, we have come up with a number of strategies to mitigate the difficulties, including but not limited to:

- Flexibility. We prioritize flexible scheduling to accommodate clients’ abilities to attend regular sessions.

- Consultation with experts. We have partnered with local providers such as occupational therapists and speech language pathologists to provide guidance for certain clients, when their needs exceed our level of knowledge.

- Incorporating a wide variety of tools and online resources, including creating our own. As much as possible, we look for games and other activities that can be customized to appeal to the interests and goals of each individual client. We use our technical expertise to build games and choice-making activities, for example, that adults may find more motivating than child-focused tools.

- Customization at every possible level, from AT design to communication goals. Related to the previous point, we try to ensure that the activities we present to the client are motivating and appeal to their own personal interests and abilities. This involves detailed discussion with the clients themselves as well as their caregivers and family members, rather than a “one size fits all” approach.

We will present real-life examples of these challenges and strategies, in an informal case-study format. We hope to show how the challenges have presented themselves in both expected and unexpected ways, and the progress our clients have made in spite of these challenges. We will also highlight areas that remain in need of improvement, such as the transition from the formal structured protocol to everyday use of the AT, and a need for increased interaction with clinicians. We intend for our presentation to provide ideas and solutions for attendees working with similar populations.

The authors disclose they have no financial or other interest in objects or entities mentioned in this paper.

References


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Program Planner/Instructional Personnel’s Name: Leslie Ordal

Course Title: Lessons learned from applying a comprehensive assistive technology delivery and training protocol

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Signature: Leslie Ordal

Date: 29-Oct-2015

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Program Planner/Instructional Personnel’s Name: Fanny Hoté

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Program Planner/Instructional Personnel’s Name: Tom Chau

Course Title: Lessons learned from applying a comprehensive assistive technology delivery and training protocol

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