

The Future Is Now

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Vic Gladstone in an article in the ASHA Leader in 2001 entitled "Tapping into Technology" wrote "Imagine a future when patients log on to cyber speech and hearing clinics from the comfort of their homes and receive diagnostic and treatment services for their communication disorder from technologically savvy audiologists and speech/language pathologists. Sound unlikely? Feel scary? Seem revolutionary?" Perhaps you are not responding "yes" as quickly as you might have after the 3 presentations that have preceded mine. My response to these questions when I read the article was "Yes, it is scary and revolutionary, but not unlikely. I have lived in that future for 8 years.

In this presentation I want to describe the telepractice that I have been engaged in with the Institute of Cognitive Prosthetics in collaboration with Dr. Elliot Cole. I will describe the components of the ICP second generation telepractice system, explain how our program differs from conventional modes of telepractice, and finally, note some of the limitations of conventional therapy that this generation of telepractice avoids and some of the advantages that this system has over conventional approaches.

I will begin with a brief tape of part of a session with a client . She is a high functioning client with solvent encephalopathy which occurred following toxic exposure when her home was being remodeled. She is sitting in her family room at a table on which the system is placed. She has 2 computer screens in front of her. One is dedicated to video conferencing, and the other is used like a regular computer monitor, where she sees her work. The therapist shares the workspace on this second monitor. The therapist can see this second monitor, shares the workspace, and can use the keyboard as well as the mouse. I can use the mouse to point to things we are talking about.

The patient begins by talking about her progress and the importance of this program in her life. I began by re-evaluating her , then she reviewed her schedule. In this tape, the computer monitors are white and flickering. Her monitors, however, are normal. Here is an example of what she is seeing: . Me, on the left monitor; the daily schedule on the right monitor.

SHOW TAPE

1. Now let's consider the specific components of the ICP second generation telepractice system:

The tape shows what we call Second Generation Telepractice; the first generation is just videoconferencing. This system includes the patient's computer, videoconferencing, sharing the patient's computer during a session, cognitive assistive technology and software, collaboration between therapists, patients and computer scientist, and the use of empowering technology for both the patient and the therapist.

All cognitive assistive technology, or software, is customized to match the patient's base level of competencies and is then modified as the patient improves. Customization can be accomplished in a matter of minutes, and it is practical to make changes every day as long as the patient can tolerate these changes. Initially, the software has only features needed that day; as the patient's capabilities increase, more features are added.

Current software programs include the customized word processor, a scheduling program for daily scheduling including details, reminders, a check off system and a "To Do" list, a Study Notes program for use in academic coursework, the CellMinder telephone cueing system, and the Menu Planner. ICP computer scientists have also developed personalized electronic photo albums, which can be augmented by a audio, and a movie album. These programs can be combined to be an electronic memory log. This handout includes descriptions and output from some of these customized programs.

2. This mode of telepractice differs from more conventional modes of telepractice.

First of all, all of the work I have done with patients has been from my home; telepractice can be done by small practices. Unfortunately, I was unable during the time that I worked in the hospital setting to convince my managers of the benefits to be derived from incorporating this technology into the services that were being offered by the hospital. My clients have noted that it is comforting to know that I am in my home as they are in theirs.

Second, patients feel an ownership of the products of the session as well as an ownership of the tools that they are using because, in fact, the tools have been developed out of their expressed need for them.

The ICP Cell Minder was designed for a patient with severe short term memory

deficit. Although she typed up her schedule, printed it out and carried it with her, she still found that she was forgetting what activity was next and forgetting to look at the schedule. Now when she makes out her schedule, she types a reminder that she is to be called on her cell phone a designated number of minutes prior to the appointment; she is called and thus freed from the anxiety of wondering what to do next.

The computer scientists also designed a Study Notes program that enables a college student to store terms and their definitions for a specific academic course. This program allows the client to access the definition in printed form or to have the computer read the definition to her. She benefits by having both written and aural presentations of the material as input for learning.

Third, by sharing the computer desktop, both the client and therapist can type into the computer. The therapist can point out to the client where a change is needed or where there is an overlap in the schedule.

Fourth, another difference that I am aware of, having worked in every clinical setting, is a more rapid rate of improvement in most clients. The woman in the video began working with ICP therapists 2 months ago. At that time she could not create a list that would help her to get her 2 children ready to start school. She needed to be prompted during several sessions to include items such as getting new shoes for the children, getting school supplies, buying items for school lunches, etc.

This week, barely 2 months later, she requested a graphic that would help her to organize the growing requests she was getting (for a specific higher-level functional activity). She had listed, on her own, 12 components that she needed to track. Another client with a severe short-term memory problem has used the Study Note software to review a basic text in athletic training and take qualifying exams to prove that she could return to school; she is using it now to complete her senior year in the athletic training program--all in the course of 12 months. This client had been discharged by her occupational therapist 3 years earlier as having reached her plateau because she could not remember the day and date from one session to the next.

Fifth, our program also differs, I believe, in terms of our approach to evaluating the patient. We are look for the strengths that still remain in the patient who has suffered significant trauma. Prosthetic software then becomes a compensatory strategy. Almost all of our patients have run the gamut of traditional therapy--intensive inpatient and outpatient rehabilitation programs from which they are discharged usually with a poor prognosis. They come to us feeling that they have reached a dead end, yet they know that they have unfulfilled hopes and they are aware that they have untapped resources. Our task in the evaluation process is to

discover what these hopes and resources are and to design the assistive computer technology that will enable the patient to use those resources to realize those hopes.

Finally, to do telepractice with this kind of technology, one needs to see the advantages of technology, but one does not need to be a "techie." Note that I am not using Power Point for this presentation. It is not a matter of how many toys and features you have or can create yourself, how many bells and whistles you order on your computer, it is a matter of knowing how to use the features that are developed for you as creatively as you can, and more than that, when the computers crash, to know that you can dig into the reservoir of your own experience as a therapist and create a session that is still beneficial to the client and rewarding to you.

3. Lastly, let's consider some of the limitations of conventional therapy that this generation of telepractice avoids and some of the advantages that this system has over conventional approaches.

- a. The limitations of in-office and in-clinic therapy avoided by this generation of telepractice are:
 - some clients' discomfort with the therapeutic setting and their inability to identify with the clinical setting.
 - some clients' inability to take into the home environment those tools that have been introduced and worked with in the therapeutic setting.
- b. The advantages of this delivery system over in-office and in-clinic therapy are
 - The therapist can follow the client from one setting to another so that the treatment flows uninterrupted with the client's changing needs. . One client has been seen via telepractice in her home in PA, in her apartment on the campus of a state college in PA, and in her apartment on the campus of a university in West Virginia
 - Clients can be at their desks and be organized before, during, and after the treatment session, so that carry-over and generalization opportunities are immediate.

CONCLUSION

I would be remiss if I did not acknowledge that we face many challenges as we travel this new frontier of therapy delivery systems. I firmly believe that the challenges of interstate licensing, protecting patients' confidentiality, and maintaining standards of informed consent and liability can be addressed through the licensing and accrediting bodies that currently exist. Problems do exist with third party compensation, and the professional bodies are aware of this and have begun to address this issue. My experience with the system's cost-effectiveness and the

efficiency and efficacy of this treatment modality strengthen my resolve to work to address these challenges.

While preparing this presentation, I received the following e-mail message from one of my clients. She has worked with our system for a year. She is 4 years post TBI incurred as a result of a MVA accident. She is completing her senior year at the university where she began studying 7 years ago. She still has a severe short-term memory deficit. She compensates for it by using the customized software programs I have described. All the preparation for the project described in this e-mail was done via telepractice sessions over the past 2 weeks.

Dear Sunny,

I was the 7th volunteer to give my oral presentation on "Heat, Ultrasound, and Stretching" today. I did great! I don't have the grade, but the teacher gave me written comments. All of them were good. He said the note cards, interesting facts, & limitations of the study were very good. He also felt it was good info. to apply to [the professional area].. Thanks for your help, & now let's get ready to work on the =Concussion paper and presentation that are due Nov.15.

Love, [the client's name].