Software Promoted Interaction in Speech-Language Therapy

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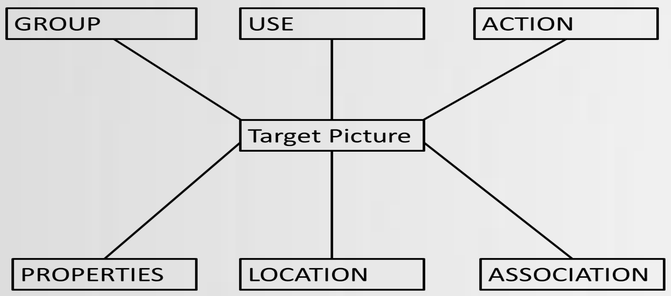
Speech Language Therapy

- Speech language therapy is the process of rehabilitating individuals whom have had strokes or brain injury and must relearn to speak.
- Speech-Language Pathologists (SLP's) are the professionals who work rehabilitating them.

Semantic Feature Analysis

- Semantic Feature Analysis is a speech-language treatment frequently used by SLP's.
- Images of familiar objects are presented to patients who are then asked to name the item. Associative questions about the image help to elicit the target word.

SEMANTIC FEATURE ANALYSIS CHART



- Execution involves arranging note cards on a table between the SLP and the patient

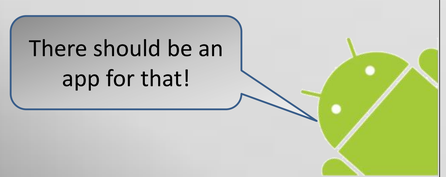
The focus of this treatment is the interaction that takes place between the clinician and the patient

Benefits-

- Flexible
- Adaptive
- Visualization

Drawbacks-

- Preparation and set-up
- Must record data during exercise
- SLP cannot focus completely on patient.



Software Promoted Interaction

- Based on the model of Single-Display Groupware - multiple users collaborate using a single shared display.
- Use software to actively:
  - facilitate communication between participants
  - encourage and improve interpersonal interaction
  - enhance and enrich the relationship between participants

Design Philosophy

- Model the interaction without adding distractions.
- Simulate the exercise accurately and electronically.
- Do not replace the therapist role with software, but instead, support the interaction by removing therapist overhead.

Software can encourage person-to-person interaction over interaction with a device.

Approach

- Input (Touch Screen)
  This supports shared interaction by providing individual access to the interface.
- Portability
  Using a shared mobile device may encourage transfer of control between the participants.
- Orientation of Participants
  Positioning of persons involved in the interaction is of vital importance. We want to enable multiple positions to better support the interaction taking place.

Design Questions

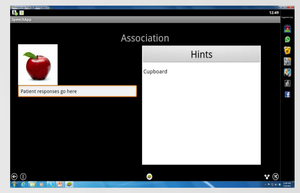
- Is there a difference in the patient's involvement using the app over traditional methods?
- Would the app increase a patient's interaction during session?
- How can the app support the interaction taking place.

Goals of the Software

1. We want to model the interaction between SLP and patient during the Semantic Feature Analysis using software.
2. We want to augment SLP resources to allow them to focus on the interaction with the patient.
   - We must provide a means to manage the SLP's overhead including preparation and set up.
   - We must provide access to important information during session. This includes image support, hints, and data collection and recall.

Application Features

- ***Multiple images*** of an object may increase probability of exercise success.
- ***Recording*** and ***Recalling*** patient responses and hints



- ***Touch screen*** makes using the app easy for patients with challenged motor abilities.

Ongoing Research Study

We have designed a research study to evaluate the use of this app in actual therapy sessions. It is our goal to learn the benefits and disadvantages of our software design, and how well our software supports the interaction associated with speech language therapy. Specific objectives include:

- From the perspective of the clinician, can we identify benefits to using an electronic application of Semantic Feature Analysis versus the traditional activity?
- From the perspective of the clinician, can we identify benefits to using a tablet-based app to implement Semantic Feature Analysis?
- From the perspective of the patient, can we identify benefits to using an electronic application of Semantic Feature Analysis versus the traditional activity?
- From the perspective of the patient, can we identify benefits to using a tablet-based app to implement Semantic Feature Analysis?