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## The development of an at-home speech therapy program for adults with difficulties in memory, recall, and comprehension due to traumatic brain injury

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NORTHERN ILLINOIS UNIVERSITY

"The development of an at-home speech therapy program for adults with difficulties in memory, recall, and comprehension due to traumatic brain injury."

A Thesis Submitted to the

University Honors Program

In Partial Fulfillment of the

Requirements of the Baccalaureate Degree

With Upper Division Honors

Department of

Communicative Disorders

By

Katherine H. Myers

DeKalb, Illinois

May 9, 2009

University Honors Program

Capstone Approval Page

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The development of an at-home speech therapy program for adults with difficulties in memory, recall, and comprehension due to traumatic brain

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Faculty Supervisor (print or type):

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HONORS THESIS ABSTRACT  
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ABSTRACT (100 - 200 WORDS):

The purpose of this study was to develop an at-home therapy program for adults with difficulties in memory, recall, and comprehension due to traumatic brain injury. Research was conducted via observations on real clients during the fall semester of 2008 to get an idea of the deficits the clients had to inform the development of a therapy tool. Research was conducted on how well clients take what they've learned in the actual therapy session and apply it to their lives outside of the sessions. The tool developed was used in a small sample of clients and clinician/supervisor feedback indicated that the clients who used the therapy tool liked it. The clinician reported that there was a slight difference in the actual therapy sessions of a few of the

clients who used the tool, but it was hard to tell in the short time the clients were actually using the tool. Some of the clients did not have computers at home; however, they used the computer in the therapy room during their session in order to get more practice. The clinician also reported that clients really liked the layout of the tool and how it seemed designed to fit their needs. Clients needed more time to use the therapy tool in order to produce more significant results than were actually achieved.

This honors thesis is on "The development of an at-home speech therapy program for adults with difficulties in memory, recall, and comprehension due to traumatic brain injury." It was developed in response to a hypothesis that already exists in the profession that when patients leave the therapy session it is hard for them to apply what they learned there to their normal lives. This hypothesis has already been proven true by many researchers, one of which is discussed later. Based on this "common knowledge" in the field, this project involves the development of an at-home therapy program for clients to foster their generalization of therapy to the home environment. The home program was tailored to what the clients were doing in actual therapy with the speech-language pathologist. This is important because what a client learns in therapy is crucial to their functioning in everyday life (Lyon, 1992 p. 7). For example, if a person has letter recognition difficulties and the clinician focuses on this in therapy, the client needs to be able to take what he/she has learned and make that transition into everyday activities.

In the journal article *Communication Use and Participation in Life for Adults with Aphasia in Natural Settings: the Scope of the Problem* by Jon Lyon (1992), the author states that "with restored use of communication in the home, there is cause to believe that normalization of lives and lifestyles for patients and prime caregivers is more likely to follow." He also states, however, that "the bulk of rehabilitative effort, time, and focus today remains affixed on the initial components of treatment, that is, the repair or circumvention of disordered linguistic and communication dysfunctions in clinical settings." The Lyon article is written mainly about patients who had aphasia; however, the same idea could potentially apply to all aspects of therapy, whether it is speech therapy or physical therapy. The similarity is that all types of therapy tasks performed

with a clinician are done to help the client while he/she is in the therapy session and for the client to also apply it to his/her "real" life.

During the fall semester of 2008 this researcher conducted observations of actual speech-therapy sessions at an outpatient program that includes physical, occupational and speech therapy services. The program there is affiliated with the community hospital and many patients are referred to there for therapy, including physical therapy and occupational therapy, after they leave the hospital. These observations were very helpful to the development of the intervention protocol as they allowed the researcher to see the things that were being done in therapy.

Observations made included tasks to help with letter recognition, memory recall, critical thinking, and comprehension, to name a few. One of the clients had suffered a stroke and was having difficulties with letter recognition. The clinician would present him with a sheet of paper with the alphabet on it; the clinician would then point to each letter, starting with "A," and the client would try to name each letter. If the client showed difficulty with a letter, the clinician would cover the other letters so only the one letter was showing. If he still showed difficulty, the clinician would then say a word that started with that letter to give the client a cue to help him. Because he would be one of the clients participating in using the at-home therapy tool, a part of the tool was designed just for his needs.

### **Development of the Home Program**

The therapy tool was created using a PowerPoint presentation format. Because some clients do have letter recognition difficulties or issues with reading after a stroke or a TBI, every slide in the presentation was equipped with audio. The clients could either

read the information for themselves, if they were able, or they could click on the sound icon in the bottom right-hand corner of the slide to hear a recording of all the text from that slide. The first few slides of the presentation were instructions on how to use the presentation and a few words of encouragement. . It was also stated that the presentation was supposed to be used as another therapy tool to go along with what the client was doing with a clinician, not as a substitute for actual therapy with a licensed speech-language pathologist. .

The first section of the presentation contained letter recognition. The letters were chosen at random-there was no specific pattern to how the letters were included in each question. For example, the first question states: "Pick the letter you think is the letter: B." To eliminate the client just looking at the "B" and matching it to one of the choices, the client had to listen to the reading of the "B" question in order to hear what letter they were required to pick.. The client could listen to the question as many times as they needed to by clicking on the sound icon. Then the client had to choose from letter options of "T," "B," and "M." Clicking on any of the letters brought up a text box next to the correct letter that said "This is the correct choice." The first four slides in section one had only three choices of letters to choose from. This gave the clients a chance to "ease into" the therapy, and consequently feel less pressure if they picked the wrong letter.

After the first four questions, the fifth and sixth questions had four choices of letters to choose from. Questions seven and eight had five choices of letters to choose from. The point of the last four questions was to make it a little more challenging for the client.. None of the letters were used as choices more than three times-this... was done so the clients would have a wider variety of letters on which they had to focus.



In section two of the presentation, the questions contained sequences of words. This section combined letter recognition with word recognition. The first two questions in this section had two groupings of two words each. For example, the first question said, "Pick this set of words: (Cat and Mouse). The clients, again, had to listen to the audio of the question to find out what the words would be. After hearing the audio, the client then had to choose which group of words had been read aloud. The second section was the same as the first section with the letters, but definitely more challenging because there were actual words used. The last two questions in this section had three groupings of three words each.

Section three was the most challenging in the whole intervention. The clients were first presented with a set of three numbers to remember: 4, 7, and 1. The next part of section three included a short story. The short story was a fictional story written specifically for the purpose of this therapy tool. It was important to devise a story that the client had no prior experience with. The clients had to read the story, either by reading the text on the screen or by listening to it being read aloud. Clients were then asked to answer three questions pertaining to the story. The client could click at the end of each question to have a text box pop up with the correct answer. If clients were struggling or needed to refer back to the story, all they had to do was go back one slide. This section of the tool incorporated memory recall along with comprehension. After they answered all of the questions about the story, the next slide asked the clients what the three numbers were that they had been asked to remember before reading the story. This was the conclusion of the presentation.

Along with the PowerPoint presentation therapy tool, the clients were also given a packet of papers that included things like words searches, sudoku puzzles, and a sheet of paper with the alphabet printed on it. The list of letters was for use with section one of the therapy presentation. The puzzles were to help with critical thinking skills, and also just for a little bit of fun. The reason a critical thinking tool was included was because critical thinking can be seen as consisting of two main ideas: 1) a set of information and belief generating and processing skills, and 2) the habit, based on intellectual commitment, of using those skills to guide behavior (Scriven & Paul, 1987). The behavior that would need to be guided would depend on the disability of each individual client. For example, if a client had poor memory recall then his/her behavior would need guidance from memory recall tasks to improve overall memory ability.

## **Results**

For purposes of this study and client ease in providing feedback, feedback was solicited by the clients' clinician. In addition to gathering client feedback, the clinician gave feedback from her point of view, as well. The clinician reported that client feedback was very positive. Some of the things said were "I liked the ability to practice outside of the treatment session ... it was made right for me—exactly what I needed." The same client suggested changing the fonts and sizes of the letters in section one so it would be a little more challenging like as in the therapy session. He even asked if he could have more of those kinds of things. He did pass onto the clinician that he thought the word section was hard and went a little too fast for him. The clinician did say that even though this client did the therapy presentation everyday, he did not even try to attempt the story section. He said that he would just get focused on one question only to get distracted

because the next question was being asked. He also said that while it was nice that he could hear the questions repeated again, there was not enough time in between each question. The clinician said that it was hard to tell a huge difference with this client from pre-to-post using this tool because she did not feel like there was a significant enough amount of time elapsed.

Another issue I ran into was the fact that some of the clients did not have personal computers at home. Short of them going to the local library or to somewhere else where there was a computer they could use, the PowerPoint presentation would not work for them. This program is supposed to be something they integrate into their normal lives- if they have to go out of their way to find a computer where they can use it, it seems a safe bet that they will not put forth the effort to do it. Because of this, the clinician decided to incorporate this tool into the therapy sessions with some of her clients. The clients did it on the computer themselves, and the clinician only helped when she was really needed.

The clinician said she also received very good feedback from these clients. Some of the things said were, "That was easy to use. It knew what to do. Even though I do not have a computer, I could use this almost like my VCR.." Another client said, "I would like to use this at home, but I do not have a computer. How can I work on the same things at home?" A third client said, "The directions were great. I also knew I could skip them when I did them a second time." The clinician passed along a great suggestion to this researcher from a client who suffered a head injury. The client suggested adding music to the background because it would make it a lot harder for him and he needs that..

## **Discussion**

There were several obstacles and challenges presented in the conduct of this project.. The time constraints related to clinician, client and researcher schedules were at time insurmountable. This project would clearly have benefitted from the chance to conduct more client-based interaction other than the observations. A positive aspect was the ability to have the clinician observe if the clients were showing any differences (either bad or good) during their therapy sessions as a result of this tool.. An experienced clinician, she was a keen observer-she has been engaged in the profession for close to 20 years.

## **Conclusion and Recommendations**

In hindsight, I should have either allowed more time between each question I asked, or created a separate slide for each question so the narration could be split into three parts instead of combined into one. I am also currently looking into a way for those without computers to be able to have the same tool to use at home. An interactive DVD may work instead of having to utilize a personal computer.

## **Personal Reflection**

I would like to continue to work with these clients and definitely incorporate their great suggestions into the presentation. I feel that this was a very rewarding experience because I received a lot of positive feedback, and it made me feel like I did something important in helping these clients with their therapy. When I write my master's thesis I would like to be able to continue work on this project..

## Works Cited

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## Sudoku #1

2		5			7			6
4			9	6			2	
				8			4	5
9	8			7	4			
5	7		8		2		6	9
			6	3			5	7
7	5			2				
	6			5	1			2
3			4			5		8

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Fill in the blank squares so that each row, each column and each 3-by-3 block contain all of the digits 1 thru 9.

If you use logic you can solve the puzzle without guesswork.

Need a little help? The hints page shows a logical order to solve the puzzle. Use it to identify the next square you should solve. Or use the answers page if you really get stuck.

Free Printable Word Search Puzzles

Summer

Find and circle all of the summer words that are hidden in the grid.  
The remaining letters spell an additional summer item.

J U N E S T S S S S Y K S E U L 8 M  
 U S M E A U Y E O U H I K I N G S A  
 S M W E E A N L U 8 N W A S E Y R E  
 U T W I R R S G I C A 8 L N A R E R  
 N S H V M T C C L T E A U O T V L C  
 T Y U G I M Y S E A O 8 I R S S K E  
 A G L C I C I R N N S L R R N O N C  
 N R E U L F M N A U O S E A R G I I  
 O E A E J E R S G H S W E A 8 J R C  
 S E O A L 8 R E L L O R O S R I P R  
 C N A O F L O G T L T 8 T E E T S E  
 H G N I H S I F F A E O A E E A H C  
 O R C A M P I N G T W T H 8 Z O C C  
 O A C I N C I P A W A S P S E 8 A O  
 L S F L I E S K M O S Q U I T O E S  
 T S U G U A S I L L A 8 E S A B 8 O  
 G N I N E O R A G S U N S H I N E N

- |          |             |               |              |
|----------|-------------|---------------|--------------|
| ANTS     | FISHING     | JULY          | SUNBURN      |
| AUGUST   | FLIES       | JUNE          | SUNGLASSES   |
| BARBECUE | FLOWERS     | MOSQUITOES    | SUNSCREEN    |
| BASEBALL | GARDENING   | NO SCHOOL     | SUNSHINE     |
| BEACH    | GOLF        | PICNIC        | SUNTAN       |
| BEES     | GREEN GRASS | ROLLER BLADES | SWEAT        |
| BICYCLE  | HAT         | SANDALS       | SWIMMING     |
| BLUE SKY | HIKING      | SKATEBOARD    | U V RAYS     |
| BOATING  | HOLIDAYS    | SOCCER        | WASPS        |
| BREEZE   | HOT         | SOLSTICE      | WATER FIGHTS |
| CAMPING  | ICE CREAM   | SPRINKLERS    | WATERMELON   |

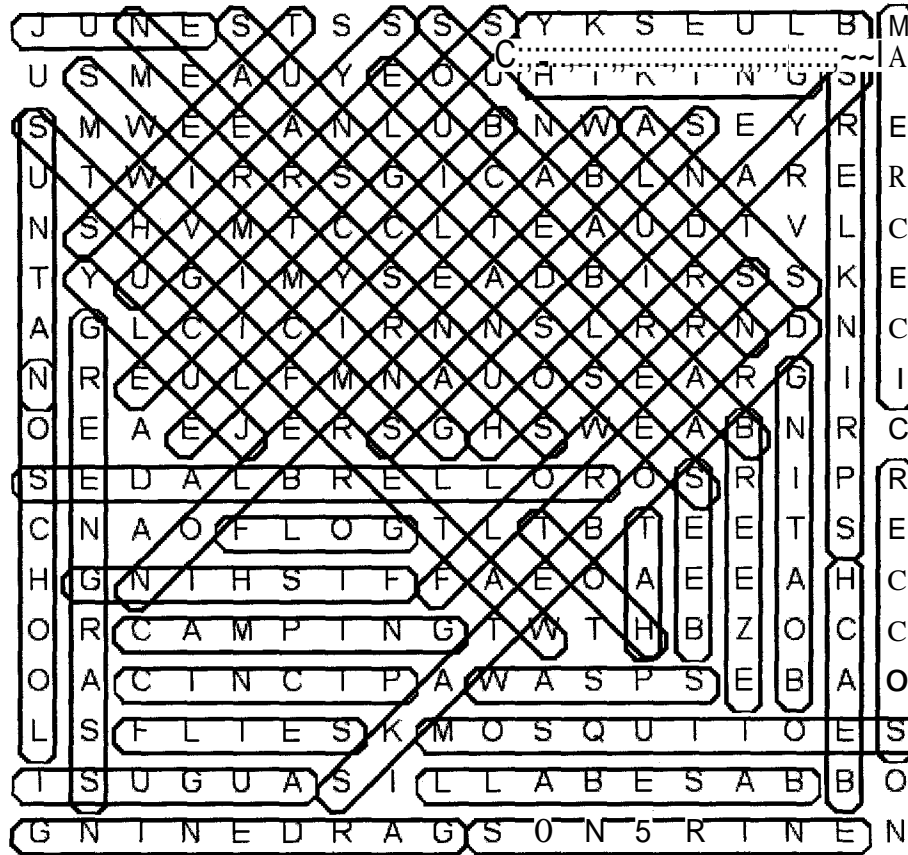
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**Free Printable Word Search Puzzles**

**Summer**

This is the solution to the puzzle located [here](#).



- |          |             |               |              |
|----------|-------------|---------------|--------------|
| ANTS     | FISHING     | JULY          | SUNBURN      |
| AUGUST   | FLIES       | JUNE          | SUNGLASSES   |
| BARBECUE | FLOWERS     | MOSQUITOES    | SUNSCREEN    |
| BASEBALL | GARDENING   | NO SCHOOL     | SUNSHINE     |
| BEACH    | GOLF        | PICNIC        | SUNTAN       |
| BEES     | GREEN GRASS | ROLLER BLADES | SWEAT        |
| BICYCLE  | HAT         | SANDALS       | SWIMMING     |
| BLUE SKY | HIKING      | SKATEBOARD    | UV RAYS      |
| BOATING  | HOLIDAYS    | SOCCER        | WASPS        |
| BREEZE   | HOT         | SOLSTICE      | WATER FIGHTS |
| CAMPING  | ICE CREAM   | SPRINKLERS    | WATERMELON   |

The hidden message is: SUMMER VACATION

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## Free Printable Word Search Puzzles

## The Beach

Find and circle all of the beach words that are hidden in the grid.  
The remaining letters spell an additional beach word.

```

T R I H S T S T O W E L S E
Y K S E S U A T S A G L E R
A S V U R I I O O N A A O
S A E F ~ ~ U F R S I I S C H
W U I S S S A R O N L Y H S
W N N M S O C R A G I E S A
G A I S S A I R N T A L A E
P W T F H F L O E O S L L S
S I R E T I K G C E O O L E
H U E W R C N A N E N V S A
S A O R L I F E G U A R O G
T O T E E F E R A S S N L U
O E S W I M M I N G P A I L
L L E H S A E S O U O L C L

```

BARE FEET	SAILING	SURFBOARD
BEACH BALL	SAND	SURFING
BOAT	SEAGULL	SWIMMING
CLOUDS	SEASHELL	SWIMSUIT
DRIFTWOOD	SEASHORE	T SHIRT
HAT	SKY	TOWEL
KITE	STARFISH	VOLLEYBALL
LIFEGUARD	SUNGLASSES	WADING
OCEAN	SUNSCREEN	WATER
PAIL	SUNSHINE	WAVES
PIER		

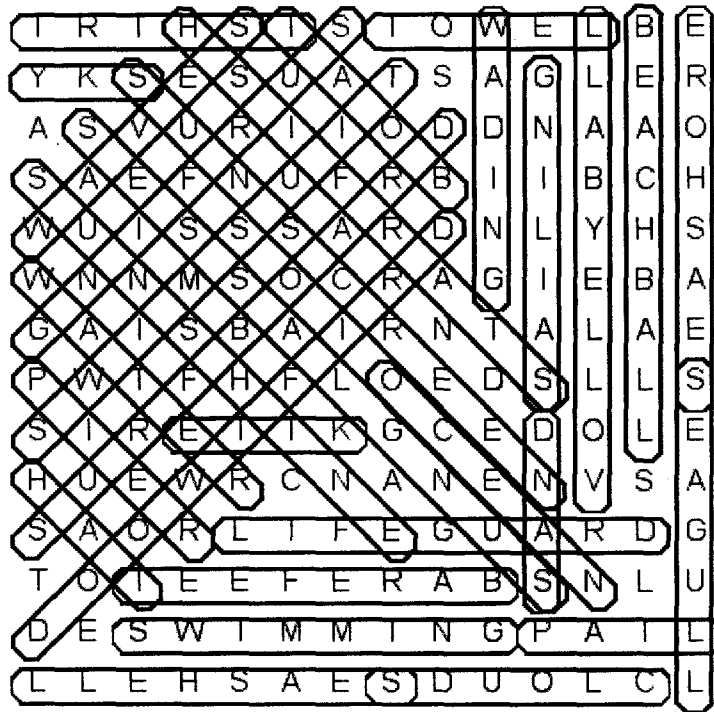
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**Free Printable Word Search Puzzles**

**The Beach**

This is the solution to the puzzle located [here](#).



- |            |            |            |
|------------|------------|------------|
| BARE FEET  | SAILING    | SURFBOARD  |
| BEACH BALL | SAND       | SURFING    |
| BOAT       | SEAGULL    | SWIMMING   |
| CLOUDS     | SEASHELL   | SWIMSUIT   |
| DRIFTWOOD  | SEASHORE   | T SHIRT    |
| HAT        | SKY        | TOWEL      |
| KITE       | STARFISH   | VOLLEYBALL |
| LIFEGUARD  | SUNGLASSES | WADING     |
| OCEAN      | SUNSCREEN  | WATER      |
| PAIL       | SUNSHINE   | WAVES      |
| PIER       |            |            |

The hidden message is: SANDCASTLE

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