Preliminary Evaluation of the TimeSlips Intervention to Improve the Narrative Discourse Abilities of Older Adults with Dementia

Kacey Bodden, pursuing M.A., CF-SLP
Advisors: Matthew Cohen, Ph.D. & Alyssa Lanzi, Ph.D., CCC-SLP
Dementia

• The loss of cognitive abilities overwhelms the ability to compensate and interferes with independent living

13.8 million people age 65 and older are projected to have Alzheimer's dementia by 2050.

1 in 3 seniors dies with Alzheimer's or another dementia.
Discourse Cohesion

• Discourse: the way in which language is used
• Discourse Cohesion: a general cognitive concept related to the listener’s ability to derive meaning from the discourse
• Discourse of people with dementia
  – Vague, repetitive language, less cohesive, disruptive topic shifts
TimeSlips

• Aims to improve the lives of PWD through an interesting and stimulating activity
• A semi-structured activity that involves group storytelling based on a picture

https://www.timeslips.org/
Hypothesis

• After a 10-story intervention with TimeSlips, participants would improve in their discourse abilities, as measured by mean length of utterance (MLU), utterances per sample, main concept analysis (MCA) score, and percentage of correct information units (CIUs).
• Primary focus: descriptive discourse abilities
• **Exploratory focus: narrative and personal discourse abilities**
Participants

- Location: memory care unit within a nursing home in Newark, DE
- 6 women, 1 man
- Ages 85 – 94 years old
- Presence of dementia in these individuals was supported by their living situation as a diagnosis of dementia is required for residence in the memory care unit
Pre and Post Testing

• Quality of Life in Alzheimer’s Disease interview
• Language sample:

Description of the “Cat in Tree” and “Birthday Cake” Pictures
• “Tell me a story that has a beginning, middle, and end”

Retell of the Cinderella Story from Memory
• “Can you tell me the story of Cinderella? Try to remember any details as you can.”

Personal Narrative
• “Can you tell me a story about something important that happened in your life?”
  • The best trip you ever took
  • Your favorite holiday as a child
  • A happy childhood memory

http://clipart-library.com/
https://www.shopdisney.com
drawingoutideas.com
Norman Rockwell Paintings
Study Design

Pre-Testing

10-Story TimeSlips Intervention

Post-Testing

https://www.timeslips.org/
https://www.vectorstock.com/
http://clipart-library.com/
https://www.shopdisney.com
https://drawingoutideas.com
He’s a Mormon
He’s got people taking care of their clothes
Mother and children
They’re greeting this guy
He’s just coming
Wherever the Mormons hang out
It looks like the gentleman is coming home from the war
It could be a military man on furlough
They’re smiling about it
He’s just wearing his sneakers
Probably have a party to welcome the soldier home from the war
Probably after WWII
Maybe he’s afraid to talk to anybody
When you said about the war, I felt it
I felt a shake
If you look inside the clothesline, look at the faces
They’re waving hi at the soldier who was coming home
They were doing the clothes
He’s got his duffle bag
He’s got his rifle, combat boots, maybe another military outfit

Homecoming for Robert

He's a Mormon
He's got people taking care of their clothes
Mother and children
They're greeting this guy
He's just coming
Wherever the Mormons hang out
It looks like the gentleman is coming home from the war
It could be a military man on furlough
They're smiling about it
He's just wearing his sneakers
Probably have a party to welcome the soldier home from the war
Probably after WWII
Maybe he's afraid to talk to anybody
When you said about the war, I felt it
I felt a shake
If you look inside the clothesline, look at the faces
They're waving hi at the soldier who was coming home
They were doing the clothes
He's got his duffle bag
He's got his rifle, combat boots, maybe another military outfit
Data Analysis

• Transcribed through the Systematic Analysis of Language Transcripts (SALT) program

• Assessed for:
  – Mean length of utterance (MLU)
    • Average number of morphemes per utterance
  – Utterances per sample
  – Main concept analysis (MCA) score
    • The presence, accuracy, and completeness of essential information in discourse (Nicholas & Brookshire, 1993)
  – Percentage of correct information units (CIUs)
    • Intelligible, accurate, relevant, and informative regarding the content of the picture/story (Nicholas & Brookshire, 1993)

• Analyzed using the Wilcoxon signed rank test
Group Changes
<table>
<thead>
<tr>
<th>Domain</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
<th>Wilcoxon Z</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLU (Cinderella)</td>
<td>4.67</td>
<td>4.68</td>
<td>-.676</td>
<td>0.499</td>
</tr>
<tr>
<td>MLU (Personal Story)</td>
<td>5.82</td>
<td>6.14</td>
<td>-1.14</td>
<td>0.310</td>
</tr>
<tr>
<td># of Utterances (Cinderella)</td>
<td>8</td>
<td>14</td>
<td>-1.992</td>
<td>0.046*</td>
</tr>
<tr>
<td># of Utterances (Personal Story)</td>
<td>12</td>
<td>17</td>
<td>-1.183</td>
<td>0.237</td>
</tr>
<tr>
<td>MCA (Cinderella)</td>
<td>0</td>
<td>0</td>
<td>-1.069</td>
<td>0.285</td>
</tr>
<tr>
<td>CIU (Cinderella)</td>
<td>6.60%</td>
<td>8.99%</td>
<td>-2.201</td>
<td>0.028*</td>
</tr>
</tbody>
</table>

*Indicates a statistically significant difference
Individual Changes
Hypothesis

• After a 10-story intervention with TimeSlips, participants would improve in their discourse abilities, as measured by mean length of utterance (MLU), utterances per sample, main concept analysis (MCA) score, and percentage of correct information units (CIUs).
• Primary focus: descriptive discourse abilities
• Exploratory focus: narrative and personal discourse abilities
Main Findings

• Consistent with Hypothesis
  – Group medians increased for 4 out of 6 language-based outcome measures that were assessed in the Cinderella story retell
    • Statistically significant increase: number of utterances and percentage of CIUs
• Inconsistent with Hypothesis
  – No change in picture description discourse from pre- to post-testing
    • Loomis, 2020
Limitations

• No control group or condition
• No known dosage for therapeutic effect
• Possible practice effect
• Picture stimuli was not similar to Norman Rockwell paintings
• Small sample size
• Relative lack of information on participant demographics and medical history
Conclusion

• Only CIUs and utterance length of the Cinderella story retell improved by a statistically significant amount, suggesting that participants’ ability to focus on relevant pieces of story information may have improved
  – However, cannot be strongly attributed to the intervention because of a lack of control group

• Attention, interest, engagement, discourse abilities improved more than was reflected by the mixed and modest findings
References


*DUNLEER.
References


Any Questions?