Preliminary Evaluation of the TimeSlips Story-Telling Program on Descriptive Discourse Abilities in Older Adults with Dementia

Sabrina Loomis
Speech Language Pathology M.A. Candidate
Dementia

• Currently affects ~70% of nursing home residents
• Loss of cognitive abilities affecting various domains
  • Includes deficits in memory, executive functioning, language, visuospatial abilities, personality and behavior
• Severe enough to affect the ability to compensate and live independently
• Most common cause is Alzheimer's disease

Livingston et al., 2017; Cunningham et al., 2015
Language Abilities in People with Dementia

- Abilities decrease with disease progression
- Difficulties often lead to deficits in spoken discourse
  - Discourse = use of language in social context / language used for a specific purpose that is longer than a simple clause

Dipper & Pritchard, 2017
Discourse

• Various types:
  • Descriptive
  • Narrative
  • Personal
  • Procedural
  • Expository
  • Persuasive
  • Conversational

Dijkstra et al., 2004; Dipper & Pritchard, 2017
Dementia Intervention

• No cure for Alzheimer’s or other causes of dementia
• Early stages  → preserve or improve function and quality of life
• Later stages  → focus shifts to maintaining and facilitating meaningful interactions and quality of life

Phillips et al., 2010; Bahlke et al., 2010; Bourgeois, 2002
Dementia Intervention

- Interventions tend to be non-pharmacological and often behavioral
  - Includes various programs and activities
    - TimeSlips

Phillips et al., 2010
TimeSlips Program

- Creative story telling program
- Groups of people create a story based off a predetermined picture stimuli
- Failure free context
  - No wrong answers
- Facilitates discourse without enforcing traditional rules

Bahlke et al., 2010
TimeSlips Program

• Previous research
  • Little evidence evaluating the impact on language
  • Indicates improved quality of life
• It is possible that participating in this descriptive based program may positively impact discourse abilities

George & Houser, 2014; Phillips et al., 2010; Vigliotti et al., 2019
Primary Aim

• **Primary aim:** to examine if TimeSlips improves descriptive discourse abilities in older adults with mid-late stage dementia
Hypothesis

• We hypothesize that following 10 stories of TimeSlips there will be a gain in participants mean length of utterance (MLU), spoken utterances, correct information units (CIU), and improvements on a main concept analysis (MCA) in a descriptive discourse task.
Measures

- # of Utterances $\rightarrow$ utterances per task
- MLU $\rightarrow$ average length of utterances
- CIU $\rightarrow$ content and function words related to the stimuli
- MCA $\rightarrow$ identification of predetermined main concepts
A secondary aim is looking at the impact of TimeSlips on quality of life as measured by the Quality of Life in Alzheimer's Disease (QOL-AD)
Companion Study

• Assessing TimeSlips impact on narrative and personal discourse abilities
Discourse Comparisons

- Descriptive = Describing (picture description)
- Narrative = Telling of an event (Cinderella)
- Personal = Personal experiences
Hypotheses

• Descriptive > Narrative & Personal Discourse
Participants

• 7 total
  • 6 female, 1 male
  • Ages: 85-94
• All resided in a memory care unit in Newark, DE.
Pre-Treatment Assessment

- Approximately 20 minutes
- Administration of QOL-AD
- Descriptive discourse measures
  - Birthday Cake vs Cat in the Tree picture
- Narrative discourse measures
  - Cinderella story
- Personal discourse measures
  - Personally relevant story
Descriptive Discourse Measures

- Birthday Cake & Cat in the Tree picture stimuli
  - Black and white line drawn photos
  - Depict a story like scene

Nicholas and Brookshire, 1993
Prompt

• “I want you to look at this picture and tell me a story that has a beginning, middle and end”
• 3 days, 10 sessions
• Each story was ~15-30 minutes
• Facilitators were certified through TimeSlips website
• Norman Rockwell paintings
• Open group room
• Participants provided pictures stimuli and prompted with open ended questions
  • Ex: “Where do you think this takes place?”
Why Norman Rockwell Paintings?

- Commonly used in research
- Contextually rich
- Often represent an era that is salient to this population

Chapman et al., 1995
An example of a Norman Rockwell painting used.

Participants created a story based off this stimuli and named it, “The Day at the Zoo”.
Post Treatment Assessment

- Same process as pre-treatment
- Picture stimuli were counterbalanced
Pre-testing

1. QOL-AD
2. Descriptive Discourse Task
3. Narrative Discourse Task
4. Personal Discourse Task

Post-testing

1. QOL-AD
2. Descriptive Discourse Task
3. Narrative Discourse Task
4. Personal Discourse Task

https://www.timeslips.org/about
The discourse samples during the pre and post treatment assessments were audio recorded, transcribed and coded. Discourse samples were coded for:

- Mean Length of Utterance (MLU)
- # of Utterances
- Main Concepts
- Correct Information Units
- Additional Prompts
Study Aim

• Changes in:
  • # of utterances
  • MLU
  • CIU
  • MCA
  • QOL
• Compared to companion study
Results

- Researchers compared scores from pre and post testing
  - MLU
  - # of Utterances
  - Main Concept Analysis Scores
  - Correct Information Units
  - Additional Prompts
  - QOL-AD scores
- Analyzed scores using the Wilcoxon signed rank test
## Results

### Group Statistical Changes

<table>
<thead>
<tr>
<th>Domain</th>
<th>Pre-Intervention Median</th>
<th>Post-Intervention Median</th>
<th>Wilcoxon Z</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>QOL-AD totals</td>
<td>38</td>
<td>35</td>
<td>-.944</td>
<td>.345</td>
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<tr>
<td>MLU picture stimuli</td>
<td>7.8</td>
<td>5.67</td>
<td>-1.183</td>
<td>.237</td>
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<tr>
<td>Utterances picture stimuli</td>
<td>11</td>
<td>15</td>
<td>-1.362</td>
<td>.173</td>
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<tr>
<td>MCA picture stimuli</td>
<td>2</td>
<td>0</td>
<td>-1.095</td>
<td>.273</td>
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<tr>
<td>CIU picture stimuli</td>
<td>47.6%</td>
<td>16.82%</td>
<td>-1.859</td>
<td>.063</td>
</tr>
<tr>
<td>Prompts picture stimuli</td>
<td>3</td>
<td>8</td>
<td>-.850</td>
<td>.395</td>
</tr>
</tbody>
</table>
Results

• No significant changes in any of the dependent measures
  • MLU
  • Number of Utterances
  • Main Concept Analysis
  • Correct Information Units
  • Prompting
  • Quality of Life
Narrative Discourse Changes

- Cinderella Task
  - Increase in spoken utterances
  - Increase in correct information units
Results
Descriptive Discourse
In Summary

• Results → TimeSlips was not effective in improving dependent measures in descriptive discourse task
• Companion study showed improvement in 2 measures for the narrative discourse task
• Against hypotheses, the narrative discourse scores yielded statistically significant improvements where descriptive discourse did not
Possible Explanations

• Difference in picture stimuli
  • Assessment vs treatment picture stimuli
• Practice effect
  • Counterbalanced picture stimuli vs a consistent fairytale
Possible Explanations

- Unreliable results
  - Due to a small sample
- Dosage
  - Sufficient to improve narrative discourse but not descriptive
- Variation in prompts
  - Assessments vs Program
Possible Explanations

• Quality of life measures
  • Various measures, qualitative measures
• Participant engagement
• TimeSlips has no impact on descriptive discourse
  • Population, program, structure
Lastly

• Although not displayed in long term measures, participants appeared to really enjoy TimeSlips in the moment and as a break from normal daily activities!
Questions?
References


• Bourgeois, M. S. (2002). “Where is my wife and when am I going home?” the challenge of communicating with persons with dementia. *Alzheimer’s Care Today, 3*(2), 132-144.


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- Richardson, J. D. & Dalton, S. G. (2015). Main concepts for three different discourse tasks in a large non-clinical sample. *Aphasiology, 30*(1), 45-73
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