

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



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



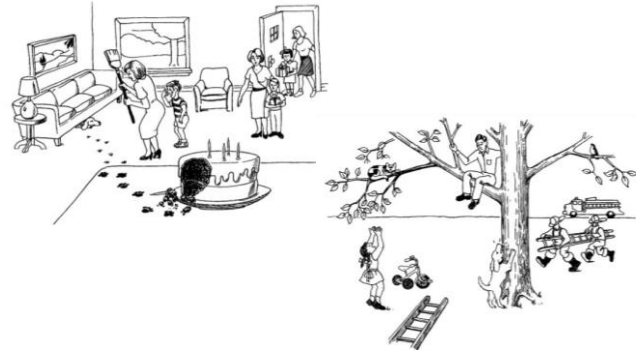
Pre and Post Testing

- 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.”

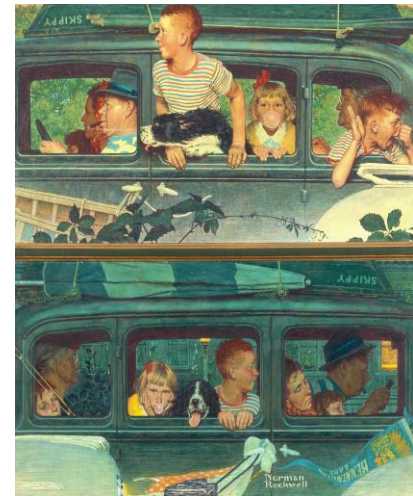


Personal Narrative

- “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



Norman Rockwell Paintings



Study Design

Pre-Testing



10-Story TimeSlips Intervention



Post-Testing



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

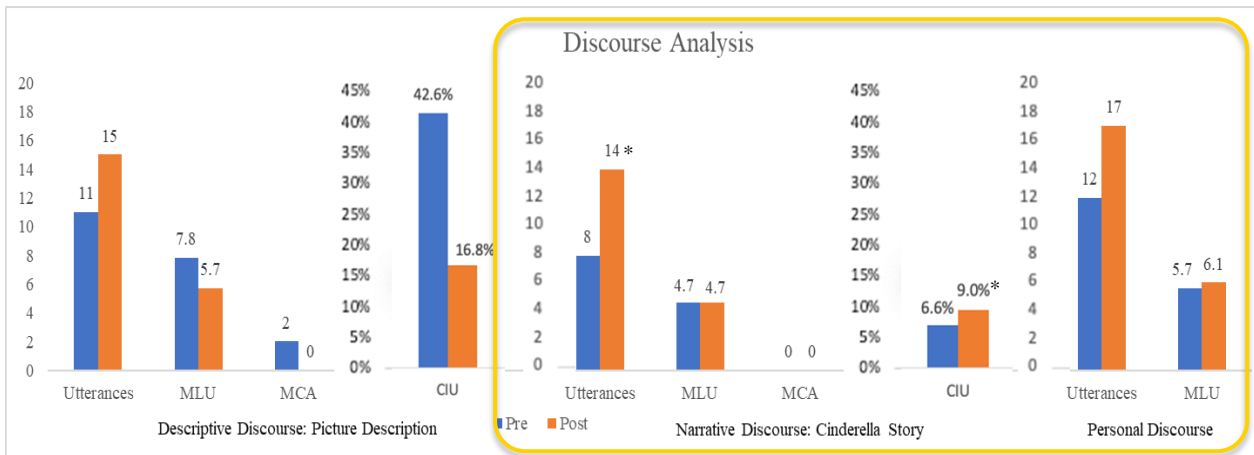
Data Analysis

- 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)
 - Intelligent, accurate, relevant, and informative regarding the content of the picture/story (Nicholas & Brookshire, 1993)
- Analyzed using the Wilcoxon signed rank test



Group Changes





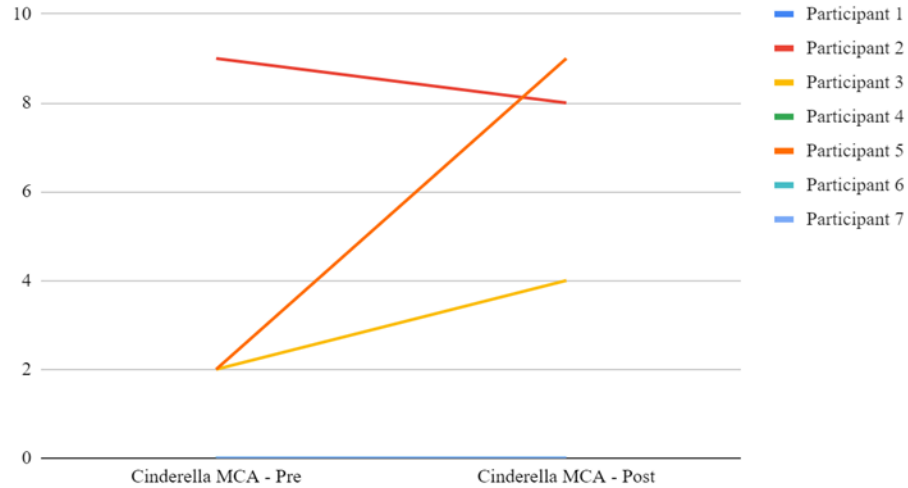
<u>Domain</u>	<u>Pre-Intervention</u>	<u>Post-Intervention</u>	<u>Wilcoxon Z</u>	<u>P-value</u>
MLU (Cinderella)	4.67	4.68	-.676	0.499
MLU (Personal Story)	5.82	6.14	-1.14	0.310
# of Utterances (Cinderella)	8	14	-1.992	0.046*
# of Utterances (Personal Story)	12	17	-1.183	0.237
MCA (Cinderella)	0	0	-1.069	0.285
CIU (Cinderella)	6.60%	8.99%	-2.201	0.028*

*Indicates a statistically significant difference

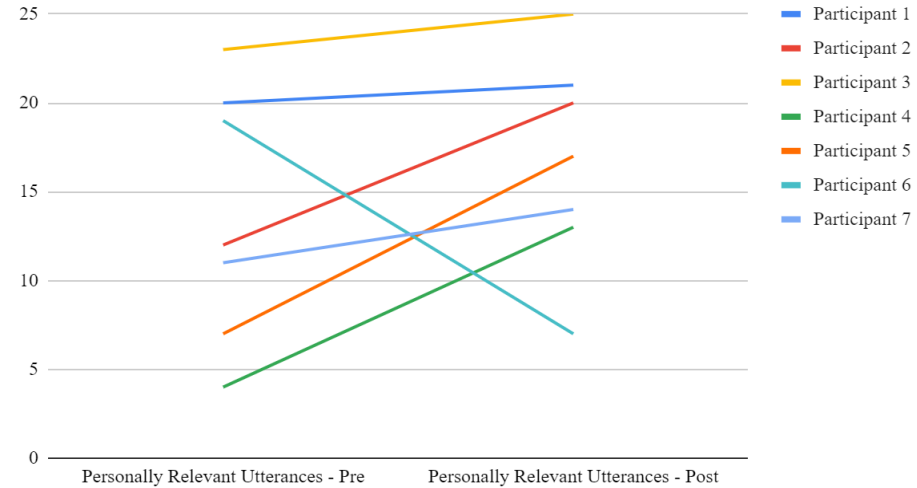
Individual Changes



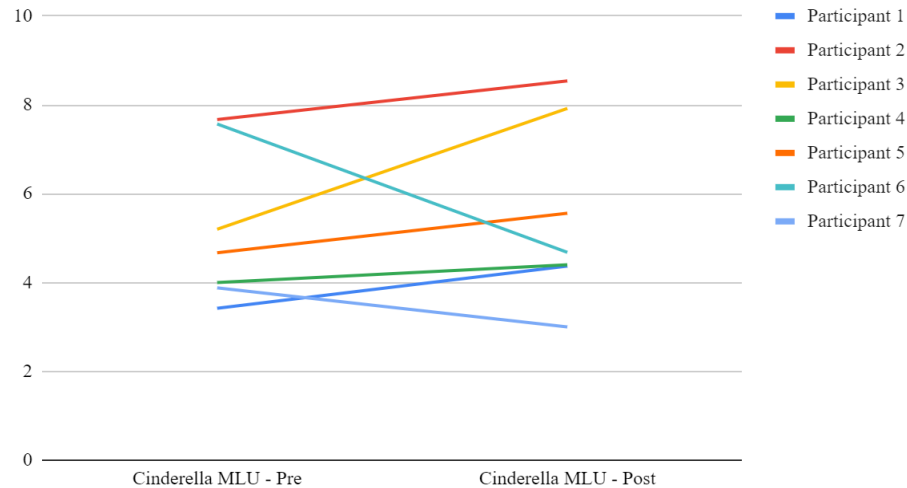
Cinderella MCA Scores



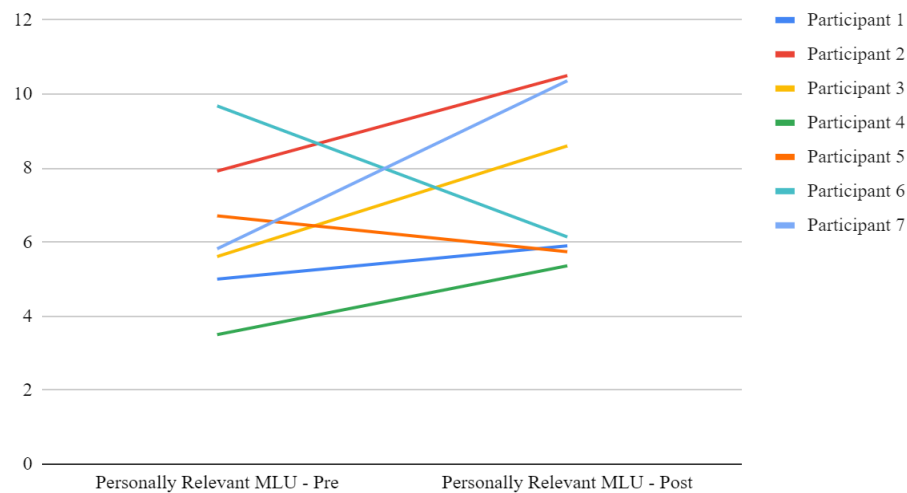
Utterances in Personally Relevant Story



MLU of Cinderella Story



MLU of Personally Relevant Story



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

- Alzheimer's Association. (2009). 10 early signs and symptoms of Alzheimer's. Retrieved from https://alz.org/alzheimers-dementia/10_signs
- Alzheimer's Association: 2019 alzheimer's disease facts and figures. (2019). *Alzheimer's & Dementia*, 15(3), 321-387. doi:10.1016/j.jalz.2019.01.010
- Bahlke, L., Pericolosi, S., & Lehman, M. (2010). Use of TimeSlips to Improve Communication in Persons with Moderate–Late Stage Dementia. *Journal of Aging, Humanities, and the Art*, 4, 390–405. doi:10.1080/19325614.2010.535239
- Chapman, S. B., Ulatowska, H. K., Kristin, K., Johnson, J. K., & McIntire, D. D. (1995).
- Discourse in early alzheimer's disease versus normal advanced aging. *American Journal of Speech-Language Pathology*, 4(4), 124-129. doi:10.1044/1058-0360.0404.124
- Cooper, P. (1990). Discourse Production and Normal Aging: Performance on Oral Picture Description Tasks. *Journal of Gerontology: Psychological Sciences*, 45(5), 210–214.
- Davis Basting, A. (2009). TimeSlips Storytelling Kit. UWM Center on Age & Community.
- Dijkstra, K., Bourgeois, M., Allen, R., & Burgio, L. (2004). Conversational coherence: discourse analysis of older adults with and without dementia. *Journal of Neurolinguistics*, 17, 263–283.
- Fritsch, T., Kwak, J., Grant, S., Lang, J., Montgomery, R., & Basting, A. (2009). Impact of TimeSlips, a Creative Expression Intervention Program, on Nursing Home Residents with Dementia and their Caregivers. *The Gerontologist*. doi:10.1093/geront/gnp008
- George, D., & Houser, W. (2014). “‘I’m a Storyteller!’”: Exploring the Benefits of TimeSlips Creative Expression Program at a Nursing Home. *American Journal of Alzheimer's Disease & Other Dementias*, 29(8), 678–684. doi:10.1177/1533317514539725
- George, D., Stuckey, H., Dillon, C., & Whitehead, M. (2011). Impact of Participation in TimeSlips, a Creative Group-Based Storytelling Program, on Medical Student Attitudes Toward Persons with Dementia: A Qualitative Study. *The Gerontologist*, 51(5), 699–703. doi:10.1093/geront/gnr035
- Goodglass, H., Kaplan, E., & Barresi, B. (2000). Boston Diagnostic Aphasia Examination – Third Edition. Pearson.
- Logsdon, R., Gibbons, L., McCurry, S., & Teri, L. (1996). Quality of Life in Alzheimer's Disease. Mapi Research Trust.



References

- Mackenzie, C., Brady, M., Norrie, J., & Poedjianto, N. (2007). Picture description in neurologically normal adults: Concepts and topic coherence. *Aphasiology*, 21(3–4), 340–354. <https://doi.org/10.1080/02687030600911419>
- Macwhinney, B., Fromm, D., Forbes, M., & Holland, A. (2011). AphasiaBank: Methods for Studying Discourse. *Aphasiology*, 25(11), 1286–1307. <https://doi.org/10.1080/02687038.2011.589893>
- Mentis, M., Briggs-Whittaker, J., & Gramigna, G. D. (1995). Discourse Topic Management in Senile Dementia of the Alzheimer's Type. *Journal of Speech, Language, and Hearing Research*, 38(5), 1054–1066. <https://doi.org/10.1044/jshr.3805.1054>
- Miller, J. & Iglesias, A. (2012). Systematic Analysis of Language Transcripts (SALT), Research Version 2012 [Computer Software]. Middleton, WI: SALT Software, LLC.
- Nicholas, L., & Brookshire, R. (1993). A System for Quantifying the Informativeness and Efficiency of the Connected Speech of Adults With Aphasia. *Journal of Speech and Hearing Research*, 36, 338–350.
- Our Story. (2019). Retrieved from www.timeslips.org
- Phillips, L., Reid-Amdt, S., & Pak, Y. (2010). Effects of a Creative Expression Intervention on Emotions, Communication, and Quality of Life in Persons with Dementia. *Nursing Research*, 59(6), 417–425.
- 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.
- Ripich, D. N., & Terrell, B. Y. (1988). Patterns of Discourse Cohesion and Coherence in Alzheimer's Disease. *Journal of Speech and Hearing Disorders*, 53(1), 8–15. <https://doi.org/10.1044/jshd.5301.08>
- Swinnen, A., de Medeiros, K. (2017). “Play” and People Living With Dementia: A Humanities-Based Inquiry of TimeSlips and the Alzheimer's Poetry Project. *The Gerontologist*, 58(2), 261–269. [doi:10.1093/geront/gnw196](https://doi.org/10.1093/geront/gnw196)
- Tomoeda, C. K., & Bayles, K. A. (1993). Longitudinal effects of Alzheimer disease on discourse production. *Alzheimer Disease and Associated Disorders*, 7, 223–236.
- Vigliotti, A., Chinchilli, V., & George, D. (2018). Evaluating the Benefits of the TimeSlips Creative Storytelling Program for Persons with Varying Degrees of Dementia Severity. *American Journal of Alzheimer's Disease & Other Dementia*, 34(3), 163–170. [doi:10.1177/1533317518802427](https://doi.org/10.1177/1533317518802427)
- Voronin, A. N., & Kochkina, O. M. (2017). Discourse abilities in the structure of intelligence. *Psychology in Russia: State of the Art*, 10(3), 93–106. <https://doi.org/10.11621/pir.2017.0306>



**THANK
YOU! ♥**



Any
Questions?

