



Minnesota State University, Mankato
Cornerstone: A Collection of Scholarly
and Creative Works for Minnesota
State University, Mankato

All Graduate Theses, Dissertations, and Other
Capstone Projects

Graduate Theses, Dissertations, and Other
Capstone Projects

2020

Assessing Preferences for Montessori-Based Activities in Persons with Memory Impairment

Katelyn Danielle Smith
Minnesota State University, Mankato

Follow this and additional works at: <https://cornerstone.lib.mnsu.edu/etds>



Part of the [Clinical Psychology Commons](#), and the [Geropsychology Commons](#)

Recommended Citation

Smith, K. D. (2020). Assessing preferences for Montessori-based activities in persons with memory impairment [Master's thesis, Minnesota State University, Mankato]. Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University, Mankato. <https://cornerstone.lib.mnsu.edu/etds/1060/>

This Thesis is brought to you for free and open access by the Graduate Theses, Dissertations, and Other Capstone Projects at Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University, Mankato. It has been accepted for inclusion in All Graduate Theses, Dissertations, and Other Capstone Projects by an authorized administrator of Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University, Mankato.

**Assessing Preferences for Montessori-based Activities in Persons with Memory
Impairment**

By

Katelyn D. Smith

A Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

In

Clinical Psychology

Minnesota State University, Mankato

Mankato, Minnesota

May 3, 2020

Assessing Preferences for Montessori-based Activities in Persons with Memory Impairment

Katelyn D. Smith

This Master's thesis has been examined and approved by the following members of the student's committee.

Chairperson

Jeffrey Buchanan, Ph.D.

Committee Member

Angelica Aguirre, Ph.D.

Committee Member

Kevin Filter, Ph.D.

Acknowledgments

I am profoundly thankful for the support and guidance provided by my advisor, Dr. Jeff Buchanan. Throughout this process, he has provided me with sincere and constructive guidance along with endless encouragement.

I would like to thank the members of my thesis committee, Dr. Angelica Aguirre and Dr. Kevin Filter for taking time from their own projects and duties to review and provide feedback for my work. I would like to thank members of my research team, Paige Shoutz, Kaylee Enevold, and Maddison Hajek, for making data collection possible.

Lastly, I would like to thank my mother, my father, and my fiancé. I could not be who I am or where I am without you.

Table of Contents

<i>Introduction</i>	1
Background and Significance	1
Importance of Engagement	2
Distinguishing Preference.....	3
Matching Activities and Capabilities.....	4
The Montessori Approach.....	4
Literature review	5
<i>Method</i>	9
Participants and Settings	9
Materials	10
Dependent Variables	11
Interobserver Agreement	11
Procedures.....	11
<i>Results</i>	13
Ben	13
Stan	14
Figure 1	15

Figure 2 16

Figure 3 17

Discussion..... 18

Limitations and Future Directions 19

Conclusions..... 20

References..... 22

Abstract

The population of older adults in the U.S is continuously increasing. With this comes an increased number of individuals with Alzheimer's or other dementia related disease (ADRD), along with the need for quality care for these individuals. The use of activities to increase engagement has been shown to have a number of psychological benefits, especially when these activities are tailored to the abilities and preferences of the individual. However, individualizing activity programming is not always feasible for activity and care staff. The purpose of this study was to use a stimulus preference assessment to identify Montessori-based activities that persons with cognitive impairment can do independently. An engagement-based stimulus preference assessment was used to identify preferred activities for two older adults with ADRD with severe cognitive impairment. The most and least preferred items were validated by measuring length of time engaging in the materials. The results indicated both participants spent more time with the most preferred activity compared to the least preferred activity, as well as the ability to engage independently with the activity.

Assessing Preferences for Montessori-based Activities in Persons with Memory Impairment

Background and Significance

It has become widely publicized that the number of older adults in the U.S. is growing at a historic rate. Currently, individuals over the age of 65 make up nearly 10% of the population, and by 2020 older adults are expected to outnumber children under the age of five for the first time in recorded history (He et al., 2016). Due to medical advances decreasing mortality rates, and the Baby Boomer generation getting older, a large number of people are living longer. Along with this influx of older adults, there is an expected increase in the prevalence of mental and physical health disorders. Specifically, Alzheimer's disease and related diseases (ADRD) is one of the most permeating issues this population faces. Globally, there are 50 million individuals with ADRD and in the next ten years, this number is projected to reach 82 million (WHO, 2019). ADRDs are characterized as the rapid deterioration of multiple cognitive domains (APA, 2013). This manifests as a gradual decline in memory, language skills, behavioral repertoires, and motor functioning. As a neurodegenerative disease progresses, the severity of these deficits increases. For most, the ability to effectively communicate needs or preferences is lost, therein creating a challenge both for the individual and their caregivers. This necessitates a greater amount of support from mental health and medical professionals, including the investigation of empirically supported mechanisms of increasing access to preferred stimuli.

From a functionally analytic perspective, all behaviors serve a function and changes in behavior by individuals with ADRD are ways of communicating needs in lieu of a declining behavioral repertoire and the context of their environment (Fisher et al., 2008). Reduced abilities

result in reduced access to reinforcers (extinction), and variable novel behaviors can occur.

Consistent with this theory, Hancock et al. (2006) investigated unmet needs across two-hundred and thirty-eight individuals with ADRD living in residential facilities and found that unmet needs, such as social interaction and daytime activities, were associated with higher rates of behavioral problems. Partly in response to this information, the past few decades have witnessed what is known as a “Culture Change” in long-term care facilities (Grabowski et. al., 2014).

Individualized treatment and better meeting the needs of residents has become a central focus, with the overall goal of improvement in the quality of life. One way this was done was by implementing regularly scheduled activities. Increased engagement in daily activities is correlated with a better quality of life, as well as mental and physical health (Harowitz & Vanner, 2010).

Importance of Engagement

While many long-term care facilities boast a person-centered care approach and legislation requires the provision of activity programs, staff-to-resident ratios continue to make it difficult to provide individualized care and activities (Omnibus Budget Reconciliation Act, 1987; Harrington et al., 2016). Common activities seen in nursing homes include bingo, movie viewing, music events, art projects, card games, and current events. Unfortunately, individuals with ADRD may not have the ability to participate in these group-based activities due to their varied skill levels and declining abilities, resulting in missed opportunities for engagement and social interaction (Orsulic-Jeras et al., 2000; Jøranson et al. 2016). Voelkl et al., (1995) observed in one week that almost 40% of nursing home residents with severe cognitive impairment did not participate in any activities. Ice (2002) observed that even in a facility with high standard care and an activities department, residents spent more than half of their days alone in their rooms

doing little to nothing. Additionally, not all activities are enjoyed by the same people, and individual preference may contribute to levels of engagement as well. In all, complex and unique factors such as personal interests, mental and physical abilities, and availability of the activities may influence preference (Kracker et al., 2011).

Distinguishing Preference

While the importance of identifying preference has been established, persons with more severe dementia often lack the ability to explicitly communicate their needs, which can pose challenges for caregivers. Accordingly, a limited but continuously growing body of literature has demonstrated that stimulus preference assessments are an effective and efficient means of identifying preference for older adults with ADRD. Stimulus preference assessments (SPA) provide the opportunity of choice for an individual with limited verbal and cognitive abilities by measuring objective selection or engagement (Fisher, 1992). In turn, these stimuli can be incorporated into care plans, oftentimes as an antecedent intervention designed to prevent disruptive behaviors (Buchanan & Fisher, 2002; Feliciano et al., 2009). Studies utilizing SPAs with individuals with ADRD have successfully identified preferred activities, increased engagement, and produced positive behavioral changes (LeBlanc et al., 2006; Feliciano et al., 2009). While trial and error methods or indirect interviews can be conducted, these are not the most effective or accurate means for identifying preferences. Mesman et al. (2011) investigated the accuracy of staff and family identified preferred activities and found no positive correlations between SPA rankings and family and staff rankings. When working with a population of individuals that experience a gradual loss in independence, there is inherent value in increasing the ability to choose.

Matching Activities and Capabilities

In addition to preference, research has revealed there are multiple benefits to modifying activities to the unique abilities and skills level of persons with ADRD. Often, activities are viewed as being meaningless or juvenile (Camp, 1999). Along with increased engagement in pleasurable activities, matching activities to an individual's unique capabilities can decrease challenging behaviors such as agitation and disruptive vocalizations as well as reduce apathy (Buettner et al., 2006; Gitlen et al., 2008). While the reduction of challenging behaviors is beneficial to both caregivers and individuals exhibiting them, it should remain a priority to select activities that are not only pleasurable, but promote the maintenance of existing abilities (Fisher, 2008). That is to say, we may be doing this population a disservice by focusing all of our energy on decreasing behaviors (challenging or not) when their behavioral repertoire is continuously diminishing.

The Montessori Approach

Malone and Camp (2007) describe that, in the early 20th century, Maria Montessori developed the Montessori system in response to the misconception that some children were unteachable. Montessori understood that individuals do not always learn in the same ways or at the same rates, and by adapting the environment individuals would be able to learn (Malone & Camp, 2007). Using the same constructive approach, the Myers Research Institute adapted these principles to the needs of older adults with ADRD (Malone & Camp, 2007). The authors add that Montessori-based Dementia Programming (MBPD) activities are designed to engage individuals based on their individual skill level, as well as their personal interests. These activities have since been prepared in multiple manuals in order to systematically incorporate these activities into the

lives of individuals with ADRD, particularly in long-term care settings (Camp, 1999; Camp et al., 2006).

There are a few notable features that exemplify MBPD. First, is the activities include the use of personally relevant, age-appropriate materials. Everyday materials can have reminiscent qualities that make an activity more enjoyable (Jarrott, 2008). Secondly, activities begin with a demonstration. By demonstrating the activity, individuals can understand how an activity is performed and that it can be done (Camp, 1999). A third feature of MBPD is that independence is encouraged. The goal is increasing or maintaining skill level, and this cannot be accomplished unless individuals are given the opportunity to perform a task on their own (Camp, 1999). Finally, these activities are provided with extensions that allow activities to be performed at higher or lower skill levels, as well as new ways to practice the same skill at the same level to encourage maintenance (Camp, 1999).

Literature review

Mahendra et al. (2006) determined in their systematic review of MBPD that, though relatively limited, the existing literature is promising and supports the utility of this approach. Judge et al. (2000) hoped to build upon the literature by investigating the effects of both individual and group based MBPD activities compared to regularly scheduled activities on four types of engagement. Eleven individuals with ADRD were assigned to either the treatment (n=9) or the control group (n=10). Those in the intervention group participated in MBPD activities twice a day, in the morning and afternoon; at the same time, those in the control group participated in regularly scheduled activities (e.g. watching a movie or playing cards). An engagement scale was developed to assess constructive engagement, defined as motor activity in response to the activity; passive engagement, defined as listening or looking in response to the

activity; non-engagement, defined as sleeping, looking away, or motor behavior in response to something else; and self-engagement, defined as motor behavior exhibited when the activity was not present or the individual chose not to participate. Observations took place at baseline as well as four and eight months after baseline. During baseline, all participants engaged in regularly scheduled activities. At eight months, the intervention group participated in both regular and MBPD activities. The results revealed that those in the MBPD group exhibited more constructive engagement and less passive engagement compared to the control group.

In a similar study, Orsulic-Jeras et al. (2000) examined the effects of MBPD activities on different types of engagement for sixteen individuals with ADRD. Participants served as their own controls, participating in both regularly scheduled activities and MBPD. MBPD activities occurred in both individual and group formats twice a week for 15 to 30 minutes. Regular activities ranged from large group to individual and involved activities such as trivia and movies or puzzles and one-on-one visits, respectively. Similar to Judge et al. (2000), engagement was measured as constructive, passive, non-engagement, or self-engagement; however, affect was also measured in this study. Affect was categorized by pleasure, anxiety/fear, and anger/sadness. Observations took place at baseline, as well as three and six months after baseline. The results showed that when participating in MBPD activities, participants demonstrated more constructive and less passive engagement, while engagement during regular activities did not change significantly from baseline to six months. Higher pleasure scores and lower anxiety scores were seen during MBPD activities, however, these scores reduced from the three-month to the six-month observation in both conditions.

Another study utilized MBPD activities in small parallel groups and observed levels of social interaction and different types of engagement (Jarrott et al., 2008). Ten individuals with

ADRD were divided into three groups and each group was delivered one MBPD activity a week for 10 weeks. These individuals served as their own control, as they continued to participate in regularly scheduled activities. The term “parallel” meant that, though the activities were done in groups, each individual was given their own materials and worked at their own pace. The purpose of the parallel groups was to reflect typical staff-to-resident ratios found in long-term care facilities. Like Orsulic-Jeras et al. (2000), affect and engagement were measured. Observations took place during the first two weeks, around the fifth week, and the final week. Constructive engagement was significantly higher while non-engagement and self-engagement was significantly lower during MBPD activities; however, passive engagement did not differ significantly between conditions. Additionally, though no significant differences in affect were found, the large effect sizes for depression ($d = .91$) and interest ($d = .86$) suggest the clinical utility of MBPD activities.

Lastly, Giroux et al. (2010) investigated the effects of MBPD activities on affect, behavior, and engagement in fourteen individuals with ADRD living in a nursing home for veterans. Using a quasi-experimental design, participants were compared to themselves during MBPD activities, regularly scheduled activities, and without any activity. MBPD had no specific structure, other than each individual was given their own activities. Regularly scheduled activities included music activities, group games, and bingo. In the inactivity condition, participants were alone either in their room or somewhere on the unit with no involvement in any activity. Conditions were separated by two-week periods. Affect was measured via direct observation and video recording, as well as through a participant rating scale delivered after the activity. Participant mood, disruptive behavior, participation, and the intensity of stimulation required to stimulate participation were measured by video recording. While no statistical

differences in mood were found between the regular and MBPD activities, the results indicated higher overall participation, higher active participation and significantly longer times spent with the MBPD activities. MBPD also demonstrated significantly higher (more positive) ratings of affect.

While this review of literature is not exhaustive, it is a good example of the empirical evidence available today that demonstrates the effects of MBPD activities compared to activities commonly seen in long-term care. Overall, MBPD is a method of increasing engagement that provides the possibility of skill maintenance and reminiscence while increasing positive affect. When compared to regular activities, MBPD activities resulted in more engagement, as well as longer periods of time engaged. Camp (1999) urges caregivers to allow individuals to select the MBPD activities whenever possible; yet, to date, no research has demonstrated the use of stimulus preference assessments to identify preferred MBPD activities among individuals with limited communicative abilities.

Additionally, though a key component of MBPD is independent functioning, one-on-one activity planning is not feasible for many long-term care facilities (Jarrott et al., 2008). One reason being staffing ratios and time constraints make giving all residents individualized attention incredibly challenging (Abbott et al., 2016; Engle et al., 2017). Voelkl et al. (1995) found that across 89 long-term care facilities, the average time activity staff had per resident was 12 minutes a week. Another reason is that residents' time engaging in activities varies for a multitude of personal and environmental reasons (Voelkl et al., 1995). Thus the goal of the present study was to (a) add to the growing body of literature investigating the utility of stimulus preference assessments with individuals with ADRD, and (b) identify and validate MBPD activities that individuals will engage in with minimal assistance or aid from staff.

Method

Participants and Settings

Five individuals with a diagnosis of dementia with mild to severe cognitive impairment were recruited from three long-term living facilities in southern Minnesota. Consent was obtained from the participants' guardian, and assent was obtained from the participants before data collection began. Demographic information was obtained from staff records at the respective facilities, or from the participants' guardian. Inclusion criteria for this study included: a diagnosis of dementia and a Brief Interview of Mental Status (BIMS) score below 12, indicating moderate to severe cognitive impairment. Three participants did not participate in the preference assessment due to refusal, excessive sleepiness, and nonengagement resulting in two participants completing the study. These participants were given pseudonyms to maintain confidentiality.

Ben was an 87-year-old white male with a BIMS score of 3. Ben lived at a long-term care facility for veterans, in a locked memory care unit. Staff reported that Ben attended group and staff-assisted activities, but rarely engaged in activities independently. Ben's spouse indicated that Ben had begun packing items and removing photos from the walls when left alone in his room.

Stan was a 71-year-old white male with a BIMS score of 0. Stan lived in a memory care facility. Staff reported that Stan had difficulty attending to most group or individual activities. Sessions were conducted at their respective facility, in either a small conference room or a small sitting area with tables and chairs. All sessions were recorded with pencil and paper, and were conducted at relatively the same time of day. This study was approved by the University's Institutional Review Board.

Materials

Brief Interview of Mental Status (BIMS)

The BIMS assesses the cognitive domains of memory and orientation (Chodosh et al., 2008). The BIMS includes seven items and scores range from 0 to 15. A score of 15 to 13 indicates intact cognition, 8 to 12 indicates moderately impaired cognition, and 7 to 0 indicates severely impaired cognition. Individuals scoring below a 12 were eligible for this study.

Montessori-Based Activities

Eight Montessori-based activities were chosen from Montessori activity manuals and used to assess preference (Camp, 1999; Camp et al., 2006). These activities are developed for persons with dementia with the aim of utilizing remaining abilities and maximizing engagement. For example, the volume one manual includes a section titled Fine Motor activities, the first activity of which involves stringing beads onto cord (Camp, 1999). Extensions are provided that increase or decrease the difficulty of the activity (i.e., vertical programming) as well as giving new ways to practice the same skill (i.e., horizontal programming). This activity provides an opportunity to practice fine motor skills, hand-eye coordination, and gives an individual the opportunity to demonstrate an area of independence by completing a task on their own. Another example is the pillow stuff-n-fluff activity in the volume two manual (Camp, 2006). This involves stuffing pillow fluff into an empty pillowcase to create a pillow, and then fluffing the pillow. This activity is intended to hand-eye coordination and gross motor skills, while also practicing the self-care skill of fluffing your pillow.

The activities included in this study were: a puzzle, pillow stuff n' fluff, organizing rubber band colors, ice cube/cotton ball, photo album, stenciling, beading, and matching lids.

Dependent Variables

Engagement

Engagement in activities was operationally defined as touching or manipulating the materials. Researchers recorded the duration of engagement in seconds during the preference assessment trials and the validation procedure.

Interobserver Agreement

Interobserver agreement (IOA) data were recorded during 20% of the preference assessments and 64% of validation sessions. Secondary observers were trained by the primary observer by reviewing the protocol and behavior definition, modeling the scoring procedures, and allowing the secondary observers to practice the scoring procedure. Observations were conducted during sessions, and observers were positioned on opposite sides of the room behind the participant to minimize intrusion on the session. Total IOA was calculated at 94.3% for the preference assessments and 99.8% for the validation procedure.

Procedures

Once consent was obtained, the researcher assessed the degree of cognitive impairment by administering the BIMS. The researcher then carried out the remainder of the study in two phases:

Stimulus Preference Assessment. An engagement-based stimulus preference assessment procedure was conducted that combined elements of free operant and paired stimulus preference assessment (Roane et al, 1998; Fisher et al., 1992). The preference assessment was used to determine preferences among eight Montessori activities. When the preference assessment began, the researcher invited the participant to engage in activities that were brought for them. If the participant agreed, the preference assessment began. Two activities were used during each

trial, with one being placed to the left of the participant and one placed on the right side of the participant. Activities were placed roughly two feet apart. The researcher described and demonstrated how each activity could be done, and then asked the participant to engage in the activity they prefer. The participant was given 30 seconds to try the activities. A second experimenter, located out of the participants sight, recorded the amount of time the participant engaged in each activity during the 30-second interval. After 30 seconds, the two activities were removed, followed by the presentation of a new pair of activities, and the procedure was repeated. This continued until every combination of activities were presented, totaling 28 pairings. Activities were presented equally on both left and right sides to prevent biases based on positioning of the activities. Two preference assessments were conducted with each participant, resulting in a rank-ordered list based on the amount of time the participant spent engaging with each activity. Based on these rankings, the most and least preferred items to be used in the validation sessions were identified.

Validation Assessment. The purpose of the validation procedure was to demonstrate that the preference assessment was successful at identifying an activity in which the individual would spend more time engaging. During the validation procedure, the participant was presented either the most- or least-preferred activity from the stimulus preference assessment. Prior to starting the validation session, the researcher described and demonstrated the activity as was done during the preference assessment. The researcher then invited the participant to engage in the activity as long as they would like, moved to another part of the room, and recorded the duration of engagement in the activity. When the participant was no longer engaging in the activity for 5 consecutive seconds, the activity was removed. A 5-minute break was given, and then the same procedures were conducted with the remaining activity. The order in which activities were

presented was determined by flipping a coin. Originally, six sessions were to be completed with each participant; however, seven sessions were ultimately completed for both participants. During the fourth session with Ben, he completed his least preferred activity very quickly. To ensure Ben did not spend less time with the least preferred activity due to it being simpler, the activity was extended using the Montessori Manual by adding more pillows for Ben to make (Camp et al., 2006). Stan showed nonengagement for one or both activities during multiple sessions, so the researcher felt it was necessary to extend data collection in order to get a clearer picture of Stan's engagement.

Results

Ben

Stimulus Preference Assessment. The results of Ben's stimulus preference assessment were as follows in order of most to least preferred: puzzle, stencil, matching lids, beading, ice cube/cotton ball, rubber bands, photo album, and pillow stuff-n-fluff (see in Figure 1). Ben spent more total time engaged with the puzzle and the least time engaged with the pillow activity.

Validation Procedure. Data are presented as mean number of seconds engaged per presentation (see in Figure 2). Ben spent more time engaged in the most preferred activity ($M=2003.57$ seconds) than the least preferred activity ($M=494.71$ seconds). After the eight presentation, the least preferred activity was extended by having the participant stuff different sizes of pillows (Camp et al., 2006). Ben continued to spend more time engaged in the most preferred activity ($M=2471.33$ seconds) than the least preferred activity ($M=926.33$ seconds). The Nonoverlap of All Pairs (NAP) statistic was used to calculate effect size (Parker & Vannest, 2009). This statistic provides a more precise and less biased estimate of treatment effects than visual analysis. NAP was 86%, indicating a moderate effect size. These results indicate the

engagement-based stimulus preference assessment was moderately effective at identifying least and most preferred activities for Ben and that the most-preferred activity produced greater engagement.

Stan

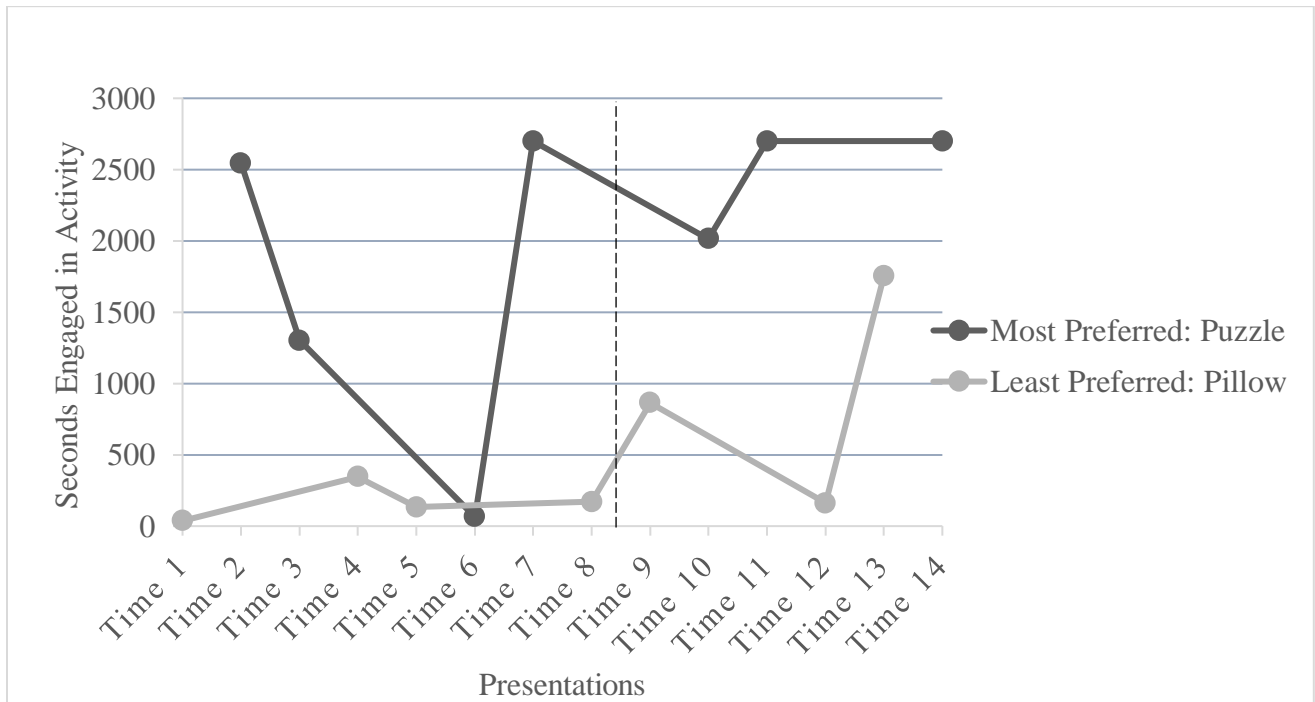
Stimulus Preference Assessment. The results of Stan's stimulus preference assessment were as follows in order of most to least preferred: photo album, stencil, pillow stuff-n-fluff, puzzle, matching lids, beading, rubber bands, and ice cube/cotton ball (see in Figure 1. Stan spent more total time engaged with the photo album and the least time engaged with the ice cube/cotton ball.

Validation Procedure. Stan spent more time engaged in the most preferred activity ($M=216.14$ seconds) than the least preferred activity ($M=29.71$ seconds; see Figure 3). NAP was 66%, indicating a moderate effect size. These results indicate the engagement-based stimulus preference assessment was moderately effective at identifying least and most preferred activities for Ben and that the most-preferred activity produced greater engagement.

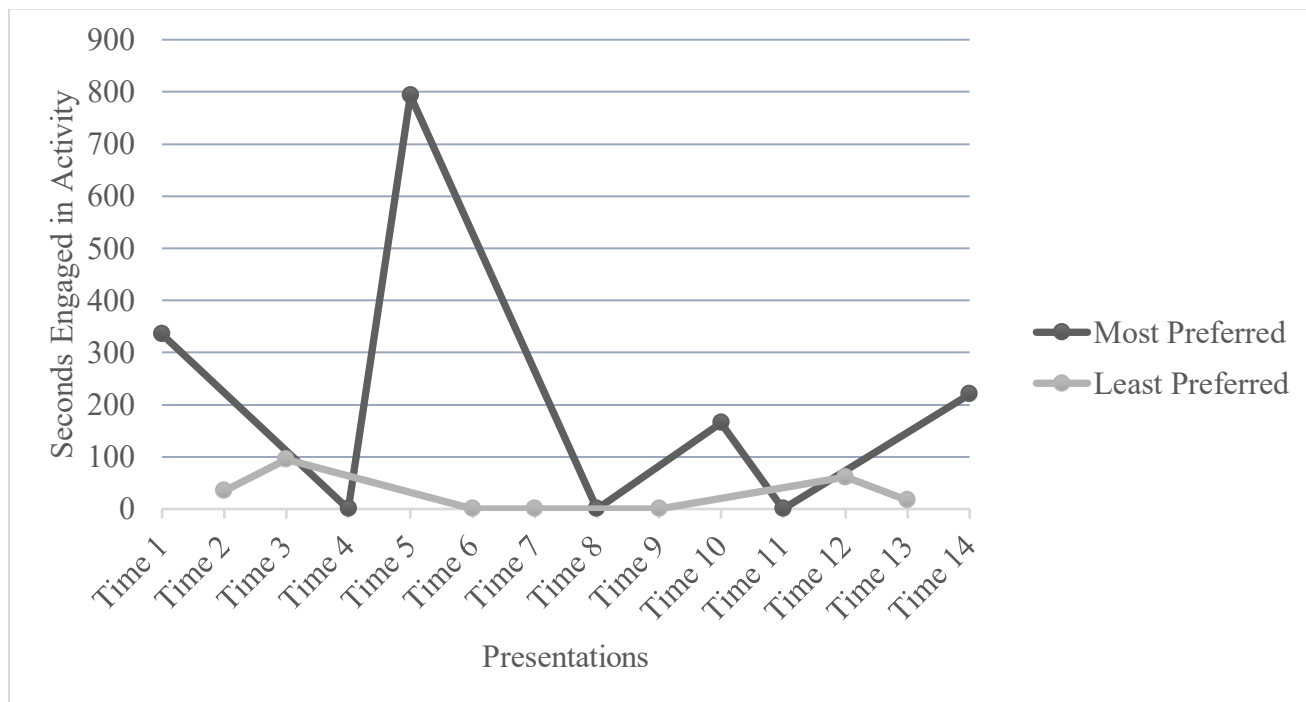
Figure 1*Total Engagement in MBPD Activities*

Ben		Stan	
Item	Total Seconds Engaged	Item	Total Seconds Engaged
Puzzle	360	Photo Album	215
Stencil	330	Stencil	195
Matching lids	250	Pillow stuff-n-fluff	162
Beading	217	Puzzle	153
Ice cube/cotton ball	180	Matching lids	116
Rubber bands	176	Beading	102
Photo album	133	Rubber bands	76
Pillow stuff-n-fluff	121	Ice cube/cotton ball	43

Note. This table details the ranked order of MBPD activities by seconds engaged.

Figure 2.*Ben's Validation Procedure*

Note. Results of Ben's validation of the stimulus preference assessment

Figure 3*Stan's Validation Procedure*

Note. Results of Stan's validation of the stimulus preference assessment.

Discussion

This study used an engagement-based stimulus preference assessment to identify most and least preferred Montessori-based activities for two older adults with severe cognitive impairment. The stimulus preference assessment produced a distinct rank-ordered list of preferences for each participant, with some activities clearly preferred over others. During the validation procedures, both Ben and Stan spent substantially more time engaged with their most preferred activity compared to their least preferred activity. Moreover, both demonstrated that they were able to engage in these activities independently once the activities were set up and demonstrated to them.

Ben spent nearly 4 times the amount of time independently engaging in the most preferred activity than the least preferred activity (approximately 33 minutes and 9 minutes respectively). Identifying a meaningful activity for Ben that utilizes his existing abilities and that he will engage in independently for over 30 minutes has clinical importance. After data collection concluded, the puzzle activity was incorporated into Ben's care plan and the activity was set up for him during his alone time. The difference in engagement for the most and least preferred activities was not as extensive for Stan (approximately 3.5 minutes and 30 seconds, respectively). Stan's level of engagement varied throughout the validation, at one session spending as much as 15 minutes on his most preferred activity, while in others not engaging at all. Though the NAP calculation indicated a moderately meaningful difference in engagement, 3.5 minutes admittedly may not be a clinically meaningful amount of time.

Anecdotally, staff and family were pleased to have an enjoyable activity that could be incorporated into the participants' care plan, and equally surprised that they were able to engage in activities without assistance or attention. This study demonstrated the importance of

continuing to provide the opportunity for choice for individuals with ADRD, especially as they lose independence in other aspects of their environment. Similar to previous studies, preferred activities were successfully identified through the use of a stimulus preference assessment (LeBlanc et al., 2006; Feliciano et al., 2009). Lastly, this study demonstrated that individuals with ADRD can engage in MBPD activities with little assistance or supervision from staff. This would be especially beneficial for facilities that wish to increase resident engagement but have limited staff to conduct individualized activities.

Limitations and Future Directions

Though the findings were promising, this study is not without its limitations. First, the sample included two participants, and replications are needed before conclusions about generalizability can be made. Second, many limitations were related to discrepancies in engagement. Five individuals were recruited; however, three were unable to complete a preference assessment. One participant experienced excessive sleepiness and was not able to stay conscious during the presentations. The second participant complained of pain, difficulty with vision, and refused to engage in activities by repeating statements such as “I’m not good at things like that anymore.” The third participant never engaged in any activities presented, and staff reported she had experienced a severe recent decline that seriously limited her physical mobility (e.g. ability to reach for and engage in the activities). There are multiple complex factors that contribute to engagement in activities other than just preference and ability, such as the environment in which the activities are held, medications, and comorbid physical health issues (Voelkl, 1995). It is also possible that the eight activities included in the preference assessment were not preferable, resulting in no engagement. It’s possible that different activities would result in more engagement for these individuals. Future studies could use a larger number

of MBPD activities in the preference assessment to increase the possibility of identifying preferred activities.

Third, during the preference assessment, the 30-second timer began once the researcher demonstrated both activities and stepped away. It is possible that some individuals need more than 30 seconds to process the information being delivered and engage in the activities. Future studies should control for engagement by starting the timer once engagement begins or lengthening the amount of time given to engage. Future studies may also investigate the use of a free operant preference assessment, wherein individuals are given five minutes to contact all activities at their leisure (Roane et al., 1998). Fourth, it cannot be said whether the MBPD activities are more preferred than regularly scheduled activities. Though the goal of this study was to identify preference in MBPD activities, this study did not compare engagement to other activities being done in their facilities. Future studies should determine preference in typical activities and MBPD activities. This would be especially important when determining if facilities should switch regularly scheduled activities for MBPD activities.

Lastly, it is possible that some activities take less time to complete than others. While we attempted to control for this by modifying the task with extensions, future studies should assess the difficulty and average time to complete the activities when comparing them in terms of an engagement-based preference assessment.

Conclusions

In summary, empirical evidence supports that increased engagement contributes to quality of life, which is a primary goal of both the culture change seen in long-term care and MBPD. By identifying activities based on preference and individual ability, longer time spent engaging may be possible. Research has shown that increased engagement contributes to quality

of life, which is a primary goal of both the culture change seen in long-term care and MBPD.

This study demonstrates the utility of stimulus preference assessments and MBPD activities with individuals with ADRD with severe cognitive impairment.

References

- Abbott, K. M., Heid, A. R., & Van Haitisma, K. (2016). "We can't provide season tickets to the opera": Staff perceptions of providing preference-based, person-centered care. *Clinical Gerontologist: The Journal of Aging and Mental Health*, 39(3), 190-209.
doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1080/07317115.2016.1151968>
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders. Fifth Edition*. Arlington, VA: American Psychiatric Association; 2013.
- Buchanan, J. A., & Fisher, J. E. (2002). Functional assessment and noncontingent reinforcement in the treatment of disruptive vocalization in elderly dementia patients. *Journal of Applied Behavior Analysis*, 35(1), 99-103. Retrieved from
<http://ezproxy.mnsu.edu/login?url=https://search-proquest-com.ezproxy.mnsu.edu/docview/71580975?accountid=12259>
- Buettner, L. L., Fitzsimmons, S., & Atav, A. S. (2006). Predicting outcomes of therapeutic recreation interventions for older adults with dementia and behavioral symptoms. *Therapeutic Recreation Journal*, 40(1), 33-47. Retrieved from
<http://ezproxy.mnsu.edu/login?url=https://search-proquest-com.ezproxy.mnsu.edu/docview/218630282?accountid=12259>
- Camp, C. J. (1999). *Montessori-based activities for persons with dementia: volume 1*. Beachwood, OH: Menorah Park Press.
- Camp, C. J., Schneider, N., Orsulic-Jeras, S., Mattern, J., McGowan, A., Antenucci, V. M., Malone, M. L., & Gorzelle, G. J. (2006) *Montessori-based activities for persons with dementia: volume 2*. Beachwood, OH: Menorah Park Press.

Chodosh, J., Edelen, M. O., Buchanan, J. L., Yosef, J. A., Ouslander, J. G., Berlowitz, D. R., . . .

Saliba, D. (2008). Nursing home assessment of cognitive impairment: Development and testing of a brief instrument of mental status. *Journal of the American Geriatrics Society*, 56(11), 2069-2075. doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1111/j.1532-5415.2008.01944.x>

Engle, R. L., Tyler, D. A., Gormley, K. E., Afable, M. K., Curyto, K., Adjognon, O. L., . . .

Sullivan, J. L. (2017). Identifying barriers to culture change: A qualitative analysis of the obstacles to delivering resident-centered care. *Psychological Services*, 14(3), 316-326. doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1037/ser0000169>

Feliciano, L., Steers, M. E., Elite-Marcandonatou, A., McLane, M., & Arean, P. A. (2009).

Applications of preference assessment procedures in depression and agitation management in elders with dementia. *Clinical Gerontologist*, 32(3), 239-259. doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1080/07317110902895226>

Fisher, W., Piazza, C. C., Bowman, L. G., Hagopian, L. P., Owens, J. C., & Slevin, I. (1992). A

comparison of two approaches for identifying reinforcers for persons with severe and profound disabilities. *Journal of applied behavior analysis*, 25(2), 491-498. <https://doi.org/10.1901/jaba.1992.25-491>

Fisher, J. E., Drossel, C., Ferguson, K., Cherup, S., & Sylvester, M. (2008). Treating persons with dementia in context. In D. Gallagher-Thompson, A. M. Steffen & L. W. Thompson (Eds.), *Handbook of behavioral and cognitive therapies with older adults; handbook of behavioral and cognitive therapies with older adults* (pp. 200-218, Chapter xxxiv, 347 Pages) Springer Science + Business Media, New York, NY.

doi:http://dx.doi.org.ezproxy.mnsu.edu/10.1007/978-0-387-72007-4_13 Retrieved from

<http://ezproxy.mnsu.edu/login?url=https://search-proquest-com.ezproxy.mnsu.edu/docview/621870914?accountid=12259>

- Giroux, D., Robichaud, L., & Paradis, M. (2010). Using the Montessori approach for a clientele with cognitive impairments: A quasi-experimental study design. *The International Journal of Aging & Human Development*, 71(1), 23-41. doi:<http://dx.doi.org/10.2190/AG.71.1.b>
- Gitlin, L. N., Winter, L., Burke, J., Chernett, N., Dennis, M. P., & Hauck, W. W. (2008). Tailored activities to manage neuropsychiatric behaviors in persons with dementia and reduce caregiver burden: A randomized pilot study. *The American Journal of Geriatric Psychiatry : Official Journal of the American Association for Geriatric Psychiatry*, 16(3), 229-239. doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1097/JGP.0b013e318160da72>
- Grabowski, D. C., O'Malley, A. J., Afendulis, C. C., Caudry, D. J., Elliot, A., & Zimmerman, S. (2014). Culture change and nursing home quality of care. *The Gerontologist*, 54, S35-S45. doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1093/geront/gnt143>
- Hancock, G. A., Woods, B., Challis, D., & Orrell, M. (2006). The needs of older people with dementia in residential care. *International Journal of Geriatric Psychiatry*, 21(1), 43-49. doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1002/gps.1421>
- Harrington, C., Schnelle, J. F., McGregor, M., & Simmons, S. F. (2016). The Need for Higher Minimum Staffing Standards in U.S. Nursing Homes. *Health services insights*, 9, 13–19. <https://doi.org/10.4137/HSLS38994>
- Horowitz, B. P., & Vanner, E. (2010). Relationships among active engagement in life activities and quality of life for assisted-living residents. *Journal of Housing for the Elderly*, 24(2), 130-150. doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1080/02763891003757056>

- He, W., Goodkind, D., & Kowal, P. (2016). An aging world: 2015. Retrieved from <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p95-16-1.pdf>
- Hebert, L. E., Weuve, J., Scherr, P. A., & Evans, D. A. (2013). Alzheimer disease in the united states (2010-2050) estimated using the 2010 census. *Neurology*, 80(19):1778-1783. doi:10.1212/WNL.0b013e31828726f5
- Ice, G. H. (2002). Daily life in a nursing home: Has it changed in 25 years? *Journal of Aging Studies*, 16(4), 345-359. doi:http://dx.doi.org.ezproxy.mnsu.edu/10.1016/S0890-4065(02)00069-5
- Jarrott, S. E., Gozali, T., & Gigliotti, C. M. (2008). Montessori programming for persons with dementia in the group setting: An analysis of engagement and affect. *Dementia: The International Journal of Social Research and Practice*, 7(1), 109-125. doi:http://dx.doi.org/10.1177/1471301207085370
- Jøranson, N., Pedersen, I., Rokstad, A. M. M., Aamodt, G., Olsen, C., & Ihlebæk, C. (2016). Group activity with paro in nursing homes: Systematic investigation of behaviors in participants. *International Psychogeriatrics*, 28(8), 1345-1354. doi:http://dx.doi.org.ezproxy.mnsu.edu/10.1017/S1041610216000120
- Judge, K. S., Camp, C. J., & Orsulic-Jeras, S. (2000). Use of Montessori-based activities for clients with dementia in adult day care: Effects on engagement. *American Journal of Alzheimer's Disease*, 15(1), 42-46. <https://doi.org/10.1177/153331750001500105>
- Kracker, J., Kearns, K., Kier, F. J., & Christensen, K. A. (2011). Activity preferences and satisfaction among older adults in a veteran's administration long-term care facility.

Clinical Gerontologist: The Journal of Aging and Mental Health, 34,103–

116.<http://dx.doi.org/10.1080/07317115.2011.539522>

LeBlanc, L. A., Cherup, S. M., Feliciano, L., & Sidener, T. M. (2006). Using choice-making opportunities to increase activity engagement in individuals with dementia. *American Journal of Alzheimer's Disease and Other Dementias*, 21(5), 318-325. Retrieved from <http://ezproxy.mnsu.edu/login?url=https://search-proquest-com.ezproxy.mnsu.edu/docview/68987308?accountid=12259>

Mahendra, N., Hopper, T., Bayles, K. A., Azuma, T., Cleary, S., Kim, E., & Boyle, M. (2006). Evidence-based practice recommendations for working with individuals with dementia: Montessori-based interventions. *Journal of Medical Speech-Language Pathology*, 14(1), xv-xxv. Retrieved from <http://ezproxy.mnsu.edu/login?url=https://search.proquest.com/docview/621173900?accountid=12259>

Malone, M. L., & Camp, C. J. (2007). Montessori-based dementia programming®: Providing tools for engagement. *Dementia: The International Journal of Social Research and Practice*, 6(1), 150-157.
doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1177/1471301207079099>

Mesman, G. R., Buchanan, J. A., Husfeldt, J. D., & Berg, T. M. (2011). Identifying preferences in persons with dementia: Systematic preference testing vs. caregiver and family member report. *Clinical Gerontologist*, 34,154–
159.<http://dx.doi.org/10.1080/07317115.2011.539516>

Omnibus Budget Reconciliation Act of 1987, Pub. L. No. 100-203.

- Orsulic-Jeras, S., Judge, K. S., & Camp, C. J. (2000). Montessori-based activities for long-term care residents with advanced dementia: Effects on engagement and affect. *The Gerontologist*, 40(1), 107-111.
doi:<http://dx.doi.org.ezproxy.mnsu.edu/10.1093/geront/40.1.107>
- Parker, R. I., & Vannest, K. (2009). An improved effect size for single-case research: nonoverlap of all pairs. *Behavior Therapy*, 40, 357–367. doi:[10.1016/j.beth.2008.10.006](https://doi.org/10.1016/j.beth.2008.10.006).
- Roane, H. S., Vollmer, T. R., Ringdahl, J. E., & Marcus, B. A. (1998). Evaluation of a brief stimulus preference assessment. *Journal of Applied Behavior Analysis*, 31(4), 605-620.
Retrieved from <http://ezproxy.mnsu.edu/login?url=https://search-proquest-com.ezproxy.mnsu.edu/docview/69139146?accountid=12259>
- Stevenson, D. G., & Gifford, D. R. (2009). Is nursing home regulation a barrier to resident-centered care? *Journal of the American Geriatrics Society*, 57(1), 183- 185.
- Voelkl, J.E., Fries, B.E., & Galecki, A.T. (1995). Predictors of nursing home residents' participation in activity programs. *The Gerontologist*, 35, 44–51.
- World Health Organizaiton. (2019, September 19). *Dementia*. <https://www.who.int/news-room/fact-sheets/detail/dementia>