

## Chapter 1. Introduction

### Montessori-Based Activities for Persons with Dementia:

#### Effects on Engagement and Affect

According to the National Alzheimer's Association, there are over 1,500 special care units with more than 50,000 residents with dementia in the United States (Buettner, 1999). The 2000 progress report on Alzheimer's disease (AD) (National Institute on Aging, 2000) reports that approximately 360,000 new cases of AD will occur each year, and that this number will continue to grow. It is also estimated that of those aged 85 and over, nearly half suffer from some form of dementia. AD is the most common form of dementia and accounts for about four of the eight million Americans suffering from dementia. As the prevalence of dementia increases, a growing number of families turn to nursing homes and adult day services (ADS) for respite care. There is great concern about the appropriateness and availability of activities for participants in these programs. Inactivity or inappropriate activities can lead to boredom (Buettner, 1999) and problematic behavior, including agitation and aggression (Buettner, Lundegren, Lago, Farrell & Smith, 1996). Aspects of inappropriate activities include infantilization, developmentally inappropriate tasks that are too difficult or easy, and activities that generally lack meaning and motivation for the older adult.

Atchley's continuity theory of adaptation to aging (1993) emphasizes the importance of matching meaningful activities to the individual's past experiences and preferences, thus preserving one's internal framework, meaning the individual's concept of self, personal goals or belief systems, as well as the external continuity, meaning life style, network of social relationships, and activity profile (Atchley, 1999). Although Atchley's theory was applied to normal aging, it has direct implications for older adults with dementia as well because the disease process makes it difficult to maintain internal and external continuity. Research on

leisure activities for older adults emphasizes the link between balanced, meaningful leisure activities, and morale or life satisfaction in later life (Cutler Riddick, 1985; Kelly, Steinkamp, & Kelly, 1986; Mancini & Orthner, 1982). In addition, the literature recognizes that cognitively impaired persons need to specifically be addressed and encouraged to stay engaged in activities that promote social interactions and maintain physical, emotional, and cognitive abilities (Howe, 1988; Voelkl, Fries, & Galecki, 1995). As persons with dementia decline in their abilities, they gradually lose their ability to control and decide upon meaningful ways to occupy their time, which is key to adaptation and continuity of leisure activities in later life (McPherson, 1991).

People live with the diagnosis of Alzheimer's disease or related dementias for years. Although there is no cure for the disease, behavioral treatments can improve patients' quality of life (Bowlby Sifton, 2000; Kitwood, 1997; Kitwood & Bredin, 1992). Kitwood's theory of personhood in dementia (1992) underscores the importance of placing an emphasis on the person and takes a holistic approach towards dementia care. Increased engagement in meaningful and appropriate activities is valuable for people with dementia as it improves their mood, reduces inappropriate behaviors, and provides a feeling of success and worthiness (Teri & Logsdon, 1991; Zgola, 1999). The purpose of the study is to examine the engagement (type of engagement and the time the individual is engaged) and affect of small groups of individuals with dementia during Montessori-based activities compared with the same individuals' affect and engagement when involved in regularly scheduled activities at the Virginia Tech Adult Day Service.

Principles of the Montessori philosophy have been adapted as interventions for persons with dementia and have proven successful in actively involving persons with dementia and improving their levels of functioning at different settings such as ADS programs and nursing homes (Vance & Camp, 1995). Orsulic-Jeras and colleagues (2000) examined the effect that

Montessori-based activities had on 16 long-term care residents with advanced dementia. Their research incorporated individual Montessori-based activities as well as task groups where all the individuals work towards completing a common task. Evaluation involved the use of a measurement scale of engagement and the Apparent Affect Rating Scale (AARS; Lawton, Van Haitsma, & Klapper, 1996) to assess the affect of the individuals during the activity. Results showed that Montessori-based activities elicit positive engagement and affect in the sample as compared to the engagement and affect during non-Montessori activities.

While researchers agree on the importance of activity programs that are developmentally appropriate, such activity programs do not seem to be the norm, as many programs have inappropriate environments and care options and insufficient levels of scheduled activities (Buettner et al., 1996; Camp, 1999; Salari & Rich, 2001; Small et al., 1997). Incorporating therapeutic models that emphasize occupation (i.e., activity) and well-being may contribute to the quality and effectiveness of care to individuals with AD and their caregivers (Coppola, 1998). The Montessori-based method for persons with dementia has been effective in promoting positive engagement and affect usually in a one-on-one setting. However, lack of staffing is a major problem in many facilities (Beck, Ortigara, Mercer, & Shue, 1999), and applying individually based activities may be an unrealistic goal for most facilities. There is a need to consider the effectiveness of the method and philosophy in a small parallel group setting, which not only addresses practical limitations of personnel but may also promote the opportunity for social interactions and a feeling of group belonging among participants.

## Chapter 2. Review of the Literature

Developing appropriate activity programs and providing quality care in terms of activities for persons with dementia is essential for a successful program. Atchley's continuity theory (Atchley, 1993,1999), research on leisure of older adults (Cutler Riddick, 1985; Kelly et al.,

1986; Lawton, 1985; McPherson, 1991; Pruchno & Rose, 2002), and Kitwood's philosophy of personhood in dementia (Kitwood & Bredin, 1992) provide valuable insight to approaching this challenge. Understanding the need for purposeful activity will enable professionals to analyze tasks given to persons with dementia so that they match their needs and past experiences. The review of the literature will focus on the theoretical basis of the study; it will describe the value of activities and leisure in well older adults and the principles of activities for older adults in dementia care settings. An emphasis will be made on implementing Montessori-based activities for persons with dementia and the uniqueness of the proposed study to the field of therapeutic activities for persons with dementia.

Hasselkus (1998) studied staff experiences of occupation in day care programs of people with dementia, creating a model of staff's experience. I will incorporate this model as a frame of reference to my study of applying Montessori-based activities to persons with dementia (see Appendix A). The model consists of three phases: (1) the meeting of the minds; (2) engagement in occupation; and (3) relative well-being. This model was clinically interpreted by Coppola (1998), who suggested that the model serves as a guideline for practitioners and staff or caregivers to improve the care for persons with AD. The model emphasizes the centrality of activities in dementia care and the well-being of the participant as the outcome of the occupation. Further expansion on the components of Hasselkus's model will be included in the methods section.

### *Theoretical Base*

A number of theories have been developed to explain the relationship between activity and aging; activity theory and continuity theory have been popular theories of successful aging and adaptation to aging respectively. Activity has a dominant role in the care for persons with AD (Magliocco, 1997), and many ADS programs and nursing homes focus on the activity

model. Thus, it is essential to examine the relationship between activity and well being of older adults (Chang & Dodder, 1984). The leisure science research has attempted to address this issue for cognitively intact older adults.

### *Leisure Activities in Old Age*

Kaplan (1975) defined leisure as a mental state of mind, a subjective phenomenon, suggesting that any activity or experience may be viewed as leisure if the individual perceives it to be. Steinkamp and Kelly (1987) emphasized the role of leisure activities in providing means for social bonding and personal meaning of older individuals as characterized by individual choice. The role of leisure in older age is not merely filling time, rather, leisure is perceived as “a life domain along with work, family and community” (Kelly et al., 1986, p. 531). Research indicates that individuals tend to pursue leisure activities that require familiar skills based on their past experiences, supporting the contribution of continuity in leisure to psychological benefits for older adults. Leisure pursuits also offer companionship, which may have declined as a result of retiring from employment (Howe, 1988).

The potential of leisure activities to benefit as physical, mental, and social well-being seem to occur across the life span. However, following retirement, the advantages of leisure are radically reduced for some individuals because they have too much “free time” (McPherson, 1991). Thus, possessing more free time does not mean improvement in life satisfaction; rather, it is the way that one is able to fill this time meaningfully and in a diversified way that contributes to life satisfaction (Zuzanek & Boss, 1988). Cutler Riddick (1985) found leisure activities to be the strongest predictor of life satisfaction of both males and females aged 65 and over; other studies found life satisfaction to be strongly associated with level of leisure activity (Kelly et al., 1986). Thus, there is general agreement in the leisure literature regarding the positive effect that leisure has on older adults’ life satisfaction and morale. Mancini and Orthner (1982) described

components of leisure lifestyle including time, activities, preferences, and competence, emphasizing the importance of shaping one's time in a way that develops a sense of future, which then influences higher involvement in leisure activities. They emphasized the importance of ongoing education of older adults about leisure opportunities, which may help individuals shape and diversify their free time.

Most of the literature regarding leisure in later life deals with cognitively intact aging adults, usually in community-based settings. How is the case different when considering leisure activities among institutionalized older adults in nursing homes and older adults that suffer cognitive impairments? Voelkl and colleagues (1995) attempted to examine nursing home residents' actual involvement in activity programs, specifically the association between personal characteristics and activity participation patterns. They suggested that residents whose cognitive status was intact, borderline intact, or very severe were engaged in lower levels of activity participation than those with mild to severe cognitive declines. Thus, those at the extremes of cognitive function were the least engaged in activities. One explanation given was that the cognitively intact individuals were able to decide whether to participate in activities and were able to pursue and initiate their own agendas. Conversely, the very severely cognitively impaired experience great amounts of unoccupied time and are unable to fill that time in a meaningful way without external assistance. Nearly 40% of individuals with severe cognitive impairment did not participate in any activity during one week. This may be due to lack of specialized activity intervention needed to engage these individuals, thereby meeting their interests, needs, and abilities. Such low percentages of participation among the very severely impaired persons were also occurred because the patients 13% of them who were comatose were included in the analysis (Voelkl et al., 1995). Mild to severely cognitively impaired patients, on the other hand, benefited from externally structured scheduled activities and where more apt to

join when given the opportunity by staff. These findings support the importance of activity/leisure activities in settings of persons with dementia and help explain the benefits of these activities for cognitively impaired patients in terms of social belonging and maintaining competencies, social relationships, and skills.

### *Continuity Theory*

Atchley introduced continuity theory in 1989 as a theory of successful aging. It suggests that optimal aging is characterized by the ability to adapt to changes by preserving long-term behaviors and thoughts; this may be accomplished by maintaining both internal and external continuity. External continuity refers to the “remembered structure of physical and social environments” (Atchley, 1993, p. 12), meaning that a person is relatively persistent in the structure of relationships and behaviors over the life course (roles, activities, habits). This might also be a way of compensating for the effects of aging, as a person will usually rely on past experience and practice when confronting new relations or expectations (Atchley, 1993). Internal continuity refers to continuing in psychological aspects of the personality such as temperament and affect. It also includes constructs of identity, concept of self, and self-esteem that tend to be resilient throughout the life course. There is a basic motivation of the individual towards internal continuity as it provides a secure and predictable basis for the individual in terms of mastery and competence, self esteem, maintenance of social interactions, and support (Atchley, 1989; Atchley 1993; Atchley, 1999).

There are many implications of continuity theory in relation to activities. Atchley (1993) described the middle-aged individual as possessing great resources in the form of competencies in different areas that have been reformed and invested in over time. An individual has activities, settings, and skills that are preferred and valued more than others, and the goal is to match the activity to the person’s past experiences and preferences. According to Atchley (1989), people

with AD and related disorders are usually unable to use their memory in order to experience internal continuity and continuity of identity, thus they may experience frustration and lack of orientation of self and the environment, which may also lead to unpredictability of behaviors. Researchers have emphasized the value of activity programs that employ activities that are meaningful to individuals with dementia (Buettner, 1998; Trombly, 1995; Vance et al., 1996).

The cognitive, linguistic, and sensorial decline of persons with dementia is a major obstacle to successfully completing or engaging in an activity (Vance et al., 1996). Persons with AD are often not able to use their memory to recall events, thus, finding personal meaning in activities may require the assistance of the caregivers or significant others. Personal knowledge of the participants and their background lead to choosing specific activities for the current study that were perceived to be meaningful and enjoyable and challenging for the participants. Thus, the chosen Montessori activities serve as a link to participants' past experiences, skills, and leisure activities. Presenting meaningful activities that are familiar to most persons with dementia may facilitate the emotional memory (the memory of "how" things are done), maintain the use of past skills, and facilitate participation in future activities. Therefore, it is essential to assess the meaningfulness of activities to persons with dementia.

Atchley's continuity theory attempts to include not just the quantity of activity, but also the quality of activity (Bowlby, 1993). The goal and mission of preserving internal and external continuity, thus, cannot be on the shoulders of the individual with dementia; rather it is the responsibility of the surrounding environment, caregivers, and staff to do so, as elaborated in the next section regarding Tom Kitwood's perception of "personhood" in dementia.

### *The Theory of Personhood and Well-being in Dementia*

Tom Kitwood, a British social psychologist, has had a major influence in bringing the "person" in dementia to the center of care rather than concentrating on the disease (Woods,



1999), thus challenging the notion of complete loss of self in dementia that was prevalent in dementia care (Downs, 1997). In 1992 Kitwood and Bredin described the need for a theory of dementia care that would provide awareness of the dementing process along with the personal psychological processes, and a sense of value to caregivers in addition to guiding practice. The basis of such a theory is the recognition of personhood in dementia, meaning that, despite the lack of competencies and the gradual decline in abilities, people with dementia can still experience relative well being. Kitwood defined personhood regardless of the individual's capabilities; it is created in the social relationships around the person with dementia (Woods, 1999). Fostering "personhood" is essential to a person-centered care approach in dementia care, and the responsibility to foster "personhood" is on those who are cognitively intact; the person with dementia needs others in order to sustain personhood (Downs, 1997; Kitwood & Bredin, 1992) and internal continuity. Thus, the importance of providing meaningful, familiar activities is illustrated. Kitwood suggested that creating an environment in which the person with dementia feels social confidence could actually slow the rate of neuropathological decline in addition to improving the individual's quality of life (Kitwood & Bredin, 1992; Woods, 1999).

Theory supports the value of activities and occupation for persons with dementia. Atchley's continuity theory serves as a general guide, emphasizing the value of providing meaningful activities for the "normal" aging adults, including meaningful leisure activities. It can be extended to the case of persons with dementia as well, by focusing on activities that may elicit the "procedural memory" of individuals. The leisure sciences field of old age supports the association between participating in meaningful leisure activities and life satisfaction. Research has extensively considered the role of leisure activities and time use for healthy older adults (Cutler Riddick, 1985; Lawton, Moss, & Fulcomer, 1987; Mancini, & Orthner, 1982; McPherson, 1991). Pruchno and Rose (2002) extended this work by examining the use of time

by frail older adults in different care setting (i.e., nursing home, assisted living, home health). They noted that nursing home residents spend less time watching T.V. and more time in recreational activities than individuals living in their own homes. They also suggested there was an important link between the way in which time was used and quality of life in long-term care settings. In the field of dementia care, many studies emphasize the importance of activity programs and the effects of specific activities on the individuals' well being. These are discussed in the next section.

### *Value of Activities*

#### *Activities for Older Adults*

Activities may be broadly defined as all the interactions in which the resident in a nursing home or the participant in an ADS program engages. The activity program should be based on the past interests and life styles of residents/participants and their current needs. Activities providing opportunities for maintaining physical, emotional, mental, and social stimulation are the basis for establishing and maintaining quality of life of elders (Allen, 1982; Macholl Kaufmann, 1994).

The field of occupational therapy emphasizes two dimensions of occupation: purpose and meaning to the person who engages in it (Bowlby Sifton, 2000; Fisher, 1998). Meaning refers to the personal significance of the activity to the individual and provides motivation, while purpose has to do with the participant's intentional goal or reason for doing the activity. Thus, purposefulness helps organize the performance of the individual (Fisher, 1998; Trombly, 1995). An example given by Trombly (1995) is a recently retired individual trying to organize his or her life by incorporating (setting up and implementing) various purposeful occupations. Occupation is important and valued for all human beings. As Wilcock (1993) argued, occupation fulfills basic human needs essential for survival. She suggested in her theory of human need for

occupation (1993), that humans are occupational beings and need to use their time in a purposeful way; this need is innate and relates to health and survival.

The positive effects of appropriate activity programs on the well-being and function of persons with dementia (whether in ADS programs or in long-term care) have been supported by research (Macholl Kaufmann, 1994). In 1987, the federal government added regulations to nursing homes that emphasize the importance and impact of activities on the quality of life of older adults. The regulation requires institutions to “provide an ongoing program of activities designed to meet...the interests and the physical, mental and psychosocial well-being of each resident” (American Health Care Association as cited by Macholl Kaufmann, 1994, p. 316). Studies have shown that providing meaningful activities to older adults according to their abilities can reduce wandering, agitation, and the use of chemical restraints (Buettner, 1999; Macholl Kaufmann, 1994).

#### *Activities in Dementia Care*

The ability to use time efficiently and meaningfully is thought to be a skill acquired in early life and utilized throughout the life cycle (McPherson, 1985). McPherson (1985) and Zuzanek and Boss (1988) argued that adaptation to retirement, for instance, does not pose the problem of possessing too much free time; rather, it is the inability of individuals to manage time usefully, meaningfully, and in a diversified way that seems to be the problem. This may be especially true considering the characteristics of AD (i.e., the lack of initiation, lack of orientation to time and place, and difficulties in decision making).

Theory and research support the important role of occupying a great deal of free time with diverse and meaningful activities, which plays a central part in the care and quality of life of persons with AD (Mace, 1987; Zgola, 1999; Zuzanek & Boss, 1988). Thus, the activity program should not just be “busy work” but rather should enable the individual the opportunity to do

things that promote a sense of self-dignity, that one enjoyed doing in the past, and that add to one's personal value (Zgola, 1999). Increased appropriate and enjoyable activities are valuable for people with dementia as they improve the individuals' mood, reduce inappropriate behaviors, and provide a feeling of success and worthiness (Teri & Logsdon, 1991; Zgola, 1999).

Appropriate activities are activities that individuals enjoy, that are proper developmentally, that maintain or restore dignity, and that meet the individuals' level of functioning (Teri & Logsdon, 1991; Zgola, 1987)

Studies have shown the importance of stimulation and activity for people with dementia. The nature of AD is that of gradual decline in physical and cognitive functioning, including deficits in initiation, planning, and problem solving. Such a progressive decline limits the individual's ability to be involved in meaningful and rewarding activities that the individual enjoys and contributes to feelings of worthlessness, dependency, and fear (Bowlby Sifton, 2000; Logsdon & Teri, 1997; Zgola, 1999).

It is important to identify pleasant activities (enjoyable, and appropriate to the individual's functioning level) for persons with dementia, although doing so may be challenging. Teri and Logsdon (1991) developed the Pleasant Events Schedule-AD (PES-AD), which is an inventory designed to help caregivers identify events that are pleasant and appropriate for persons with AD. This scale was developed based on previous pleasant event schedules designed for the general adult population and for elderly adults. The scale includes 53 events that are rated on three parameters: frequency, availability, and pleasure/enjoyability.

Hasselkus (1998) found a connection between occupation (activities) of persons with dementia in ADS environments and their relative well-being. Indicators of well-being include eye contact and smiling, the amount of time the person spends attending an activity, and reminiscence remarks. Furthermore, there is a strong association between lack of meaningful

activities and presence of depression and decrease in cognitive function (Logsdon & Teri, 1997; Teri & Logsdon, 1991) and between large amounts of unoccupied time and boredom and behavior problems among dementia patients (Buettner et al., 1996).

Particularly problematic in the contexts of dementia care is the infantilization of older adults. Specifically, infantile activities (referred to as activities that would be found in schools or child care such as toys or other child entertaining materials) along with inappropriate staff behavior, lack of autonomy and privacy for the participants, and inappropriate environmental setting all negatively affect the social interactions of the participants (Salari & Rich, 2001). Such an environment may serve as a self-fulfilling prophecy as a result of low expectations from staff; participants exhibit childlike behavioral responses such as withdrawal, sleeping in their seats, and reduced social interactions with peers. This process of infantilization is found to reduce autonomy and dignity of individuals with dementia, consequently having a negative effect on the individual's identity, self-efficacy, and self-concept (Salari & Rich, 2001). Furthermore, Salari and Rich (2001) identified a relationship between social and environmental infantilization in ADS programs and its effect on social interaction of the participants with their peers. Participants who took part in an ADS program situated in a previous elementary school, who were exposed to social and environmental infantilization, were found to be withdrawn and uncommunicative with peers and staff.

While researchers agree on the importance of appropriate and meaningful activities, research indicates that such activities do not seem to be the norm. Many programs have inappropriate environments and care options along with inadequate activity programs (Buettner et al., 1996; Camp, 1999; Small et al., 1997). Furthermore, these social and environmental contexts impinge on life satisfaction and the way older adults spend their days (Pruchno & Rose,

2002). Incorporating therapeutic models that emphasize occupation (activity) and well-being may contribute to the quality and effectiveness of care to persons with AD (Coppola, 1998).

### *Principles of Activities for Persons with Dementia*

#### *Goal of Activities*

The main objectives in engaging persons with AD in meaningful activities, are to let them experience success that may enhance self-esteem, dignity, comfort, immediate enjoyment, personal challenge, and restoration of roles and social interactions (Bowlby Sifton, 2000; Mace, 1987). These objectives are similar to the benefits of leisure activities in the normal aging population. Such goals pose a great challenge to staff and family members of persons with dementia due to the characteristics of the progressive disease and decline in physical, cognitive, and linguistic abilities. The current study adopted Bowlby Sifton's identified goals of activities for persons with dementia, which are consonant with the leisure literature and continuity and personhood theories.

#### *Maximizing the Functional Abilities of Persons with AD*

According to Bowlby Sifton (2000), "Engagement in occupation is engagement in life itself" (p. 13). This quote illustrates the fundamental importance of occupation in an individual's life and that occupation refers to everything we do throughout the day. Bowlby Sifton (2000) recognized the importance of engagement in occupation (activity) among people with AD and related dementias. Engagement can be facilitated among persons with dementia by utilizing their remaining abilities, as there is a gradual decline in physical and cognitive function. Continuing to use existing abilities slows decline and may enhance functional performance (Bowlby Sifton, 2000). Social skills, for instance, even in the form of greeting, shaking hands, or socializing in groups, are relatively automatic responses and can compensate for other losses such as memory

or language. While a person with dementia might not recognize a visitor, if the visitor shakes his or her hand, the person is addressed as an adult and is able to preserve dignity and cover for memory loss in social situations.

Procedural memory, or remembering “how” things are done, is the most basic memory. Using familiar cues associated with activities helps trigger this kind of memory, especially with structured daily routines and continuity of familiar lifestyle. For instance, handing a sweater to a person with AD will encourage the procedural memory of putting it on; or when in the right environment, handing a rake to person that used to work in the garden will trigger raking of the leaves.

Although people with dementia have problems expressing their emotions, there is an agreement that they have the ability to feel a variety of emotions just like any other person of any health status or age. Using their emotional skills they expose their desires to significant others (Bowlby Sifton, 2000; Lawton, Haitsma, & Perkinson, 2000). Emotional memory is the memory of the feeling of an event. The person may not remember the cookout on the 4<sup>th</sup> of July but the feeling of the enjoyment of being surrounded by loving family members is there. Enhancing positive emotional memory of activities can facilitate future participation in them. Involvement in a meaningful activity provides a non-verbal opportunity for emotional expression of the patient, which is important to acknowledge when verbal communication diminishes.

Sensorimotor activities also serve to preserve remaining abilities among persons with AD. Sensory stimulation can enhance pleasure and functional responses since sensory awareness is relatively unaffected by AD. Motor function is relatively intact in the first stages of the disease, and motor activities that enhance movement and physical health are highly valued. Functional activities that promote motor activity include sweeping, raking, dancing, or any other common movement.

Activities such as reminiscence groups take advantage of long-term memory, which typically remains intact late into a dementing illness, while short-term memory usually declines early on in the disease (Bowlby, 1993; Bowlby Sifton, 2000). The use of external cues helps bypass the struggle of initiation and retrieval of information, while enabling the individual to succeed in expressing his or her opinion, and in the developmental task of life review, promoting a sense of identity and personal orientation.

Being active and doing things is a basic human need that helps people define who they are and fills much of their day (Bowlby Sifton, 2000; Zgola, 1987). Persons with AD, who gradually lose most of their abilities to plan, initiate, or carry out activities, suddenly experience a great amount of unoccupied time, which may have negative behavioral or emotional implications (Mace, 1987). It is believed that even in severe stages of the disease, people still have the basic human need to do things. Activities should be designed so that they reinforce the strengths and the abilities a person possesses rather than magnify inadequacy of losses. In other words, it is important that activities enable a positive experience and foster success while reducing the possibility of failure (Mace, 1987; Zgola, 1999). Research supports guidelines for facilitating such activities.

#### *Focus on Process Versus End Product*

Bowlby Sifton (2000) emphasizes the importance of the process of engaging in an activity rather than the outcome of the activity (as does the Montessori philosophy), suggesting that the focus should always be on the person's needs and responses to the activity and not the activity itself. This includes the use of continuing abilities mentioned before, facilitating the use of procedural memory in daily routines, helping in initiation of activities, and providing cues that are appropriate to the need of the individual (verbal, demonstration, physical guidance). The



“present moment” is defined as the most important moment since persons with AD often cannot foresee the future and, due to memory deficits, cannot recall the past (Bowlby Sifton, 2000).

### *Appropriateness of Activities*

As mentioned before, all activities must have a purpose or a meaning of which the person engaged in them is aware. Furthermore, engagement must be voluntary and enjoyable to the individual (Mace, 1987; Zgola, 1999). Choosing activities that are developmentally appropriate is a major challenge for professionals. The declines in cognitive and motor skills form a gap between the appropriateness of activities and the abilities to successfully complete them. Childish activities as well as complex activities have the potential of threatening the person’s already vulnerable image of self and compromising dignity (Mace, 1987; Salari & Rich, 2001; Zgola, 1999). Furthermore, an individual’s involvement in activities influences the way that others treat the person (Salari & Rich, 2001; Zgola, 1999). For example, implementing childish activities with adults will likely contribute to staff treating adults in a childish manner. The use of developmentally and age-appropriate activity supports the individual’s dignity as an adult and promotes success. Modifying tasks to meet the individual’s functional skills is a method used to elicit engagement and success and is known as task analysis and adaptation.

### *Task Analysis and Adaptation*

There are two assumptions from the occupational therapy field (Llorens, 1986) that can be applied to the care of people with dementia. First, administration of tasks, activities, and occupations in a skillful manner engenders behaviors from which one can infer the individual’s sensory perception, sensory integration, and emotional, cognitive, and motor performance. Second, these tasks, activities, and occupations can, according to Llorens, “facilitate, inhibit or motivate behavior that is adaptive relative to the life roles of individuals” (1986, p.105). The process of task analysis and adaptation has implications when attempting to facilitate positive

interactions through the use of therapeutic activities. By analyzing the task and the individual's reaction in the process of the activity, a therapist is able to modify activities to the individual's skills and needs, thereby fostering success.

The uniqueness of the occupational therapy profession when dealing with cognitively impaired people is the focus on what Allen (1982) described as, "voluntary motor actions [that] provide a functional view of behavior that is observed during the performance of a task" (p. 732). The information gained by observing an individual perform a task is applied through task analysis. Thus, task analysis can be defined as breaking down an activity to fundamental properties; this system of knowledge (the process of dissecting the activity into components) guides the therapist in the selection and modification of tasks according to the person's needs (Allen, 1982; Kremer, Nelson, & Duncombe, 1984; Mosey, 1981). The goal of using activities and analyzing tasks is to provide the individual with the opportunity to use his or her functional skills, thus enhancing chances for success and habilitation (Allen, 1982). Daily activities are composed of many stages that people often take for granted, however, persons with AD typically lose the ability to sequence the stages and thus are unable to perform the task (Zgola, 1987; Bowlby Sifton, 2000). Analysis of the task, that is breaking it into steps and providing the right cues, possesses the potential for several important benefits. It may facilitate involvement and success in the activity by the persons with dementia, it may support internal and external continuity of the individual as suggested by Atchley's continuity theory, and, finally, task analysis may provide caregivers with a better opportunity to promote personhood as defined by Kitwood (1982). Sometimes the task or the environment the individual with dementia faces requires adaptation to facilitate success, such as using finger foods when utensils can no longer be used. Providing a range of choices, which contribute to personal control, and allowing time for processing and response, contributes to adult autonomy and dignity (Bowlby Sifton, 2000).

Allen (1982) described six cognitive levels ranging from profound disability to normal that describe functional units of behavior that may limit task performance. For people with cognitive impairment, the therapist considers the individual's limitations and uses task analysis to change the task procedure so that participation will enable the individual to experience success and independence. Allen's cognitive model addresses each cognitive level with task analysis that guides the therapist in selecting and designing activities that match the individual's ability. For example, the first or lowest level of cognitive functioning is reflexive; the participants are described as unable to focus attention and screen out external stimuli, there is no imitation observed and the patients do not seem to be aware of people or objects in the external environment. At the fourth level of cognitive functioning, patients are able to focus attention to complete a task, and actions can be imitated one scheme at a time, though errors are not corrected, and so on until the sixth level where the participants are able to visualize images before motor actions, they are competent in problem solving, and can imitate the therapist when he/she is no longer present.

The current literature on care for persons with AD and related dementias emphasizes the personal approach to the individual (Kitwood, 1987; Zgola, 1999). As the decline of abilities (cognitive and motor) varies among patients in different stages of the disease, individually planned and tailored activities are the most likely to meet the personal needs, interests, and abilities of an individual. Small group approaches are also possible, thus providing an opportunity for peer socialization while at the same time freeing up staff to facilitate personal interventions and adaptations. Although small group activities can be effective, they also present challenges due to the considerable variance in abilities and interest of individuals at different stages of the disease who possess different backgrounds and personalities. A single activity director cannot be responsible for facilitating all of a program's activities, thus, an appropriate

model is that of the team approach employed at many special care units, where responsibility for facilitating activities is shared by multiple staff members (Buettner, 1998).

*Development of activities.* One of the challenges in facilitating activity programs for people with dementia is that there is no underlying theoretical model to guide selection and development of activities (Camp, 1999; Vance et al., 1996). A “first in last out” theoretical model (Nolen, 1988) suggests that the sequence of cognitive losses in the progression of dementia occurs in reverse developmental order from which they are acquired in childhood. For example, a child learns to recognize his or her image in the mirror at 12 to 24 months. This ability is lost in the very final stages of the disease when a person no longer recognizes his or her own image. An understanding of these cognitive developmental sequences can serve as a general guide for developing interventions that are developmentally appropriate and may help in goal setting for dementia care programs (Nolen, 1988; Vance et al., 1996). Another approach that provides guidance to interventions at a variety of individual levels is the educational philosophy of Maria Montessori (Bender-Dreher, 1997; Vance et al., 1996).

#### *Montessori-Based Activities for People with Dementia*

The original purpose of the Montessori teaching method is to train children for independence and improvement of skills in activities of daily living, language, math and social skills, decision-making, science, and maintaining the environment. The main goal is to treat children with dignity and respect by providing them with an environment and the meaningful activities that suit their personal needs (Camp, 1999; Vance et al., 1996).

Principles of the Montessori philosophy have been adapted to suit persons with dementia as well. Montessori-based activities as interventions for persons with dementia have been initiated and proven successful in engaging individuals and improving levels of function (Vance et al., 1996, citing Vance & Camp, 1995). Additional research utilizing Montessori-based

activities with persons with dementia (in ADS and special care units) showed that older adults with dementia could serve as mentors and teachers of preschool children during an intergenerational Montessori program (Camp et al., 1997). Levels of observed engagement were higher during the intergenerational (IG) program as compared to observations of the older adults early in the morning and before the IG activity. Judge, Camp, and Orsulic-Jeras (2000) found significantly higher levels of constructive engagement (motor or verbal behavior in response to an activity) than during regular scheduled activities of persons with dementia in adult day programs.

Orsulic-Jeras, Judge, and Camp (2000), extended this study by examining the effects of Montessori-based activities programming on four types of engagement with persons with advanced dementia in a long-term care facility, as compared to their engagement in regular scheduled activities. An engagement measure was constructed that assessed four types of engagement in ADS participants: (1) constructive engagement (CE) – any motor or verbal behavior in response to activity, (2) passive engagement (PE) – listening and/or looking behavior as a response to activity; (3) non engagement (NE) – staring into space more than 10 sec., sleeping; and (4) self engagement (SE) – any purposeless behavior that the individual is engaged in with him or herself during the activity. The study showed that during individual one-on-one Montessori-based activities, CE was observed the majority of the time compared to the low frequency of CE during regular scheduled activities; participants showed less PE during Montessori activities and no NE and SE instances. This study also indicated that when assessing affect levels (using the Apparent Affect Rating Scale), greater pleasure and lower anxiety were seen during Montessori-based activities. Similar results were found in two group activities (memory bingo and group sorting) that included three to five participants. In these groups, each individual contributed to a common task as in the form of a “task group.”

*Principles and Practices of Montessori-based Activities for Persons with Dementia*

Some of the Montessori principles have been adapted in the modified approach for persons with dementia in order to facilitate success in the process of the activity. These principles include the use of everyday materials, progressive complexity of tasks, focus on process, and methodology concerning the administration of the activities (Camp & Orsulic-Jeras, 1999). These principles will be elaborated upon in the following sections.

*Use of everyday materials.* Everyday materials are aesthetically pleasing, give immediate feedback, and do not represent “child like” activities. They bring forth discussions of memories, which add to the meaningfulness of the activity to the individual. These materials may also elicit the procedural memory and the emotional memory of engaging in similar tasks in the past.

*Progressive complexity.* Presenting activities at the simplest level and progressing in complexity in order to facilitate success at targeted skills constitutes progressive complexity. As mentioned earlier, the principle of task analysis enables the “break down” of activities according to personal levels of performance so that individuals may practice each component separately. The Montessori-based activities designed by Camp and colleagues employ task analysis with pre-planned modifications of activities created to accommodate individual abilities. These modifications, referred to as “extensions,” provide the opportunity for: (a) Horizontal programming – the use of other activities that require similar skills and procedures as the original task; (b) Downward extensions – modifications that simplify the original task; and (c) Upward extensions – modifications of the original task to challenge cognitive and/or motor skills. The goal is to strike a balance between activities that are too easy and can cause boredom and activities that are too complex and may cause anxiety or agitation. Such an approach corresponds with the principles of activities for persons with dementia, mentioned earlier, indicating the importance of appropriate activities in maintaining self-dignity and image ( Mace,

1987; Zgola, 1987). A complementary goal is to maintain skills that might enable the individual to utilize maximum levels of performance (cognitive, motor, and social) as mentioned by Bowlby Sifton (2000).

*Zone of proximal development.* Vygotsky's concept of the zone of proximal development is integrated within the Montessori philosophy and has been suggested as a way of organizing cognitive support for persons with dementia (Cavanaugh et al., 1989). The concept was introduced as a means of assessing children's competencies and teaching strategies with the belief that the child's developmental level is not what he or she has accomplished, but rather the potential developmental level of what can be achieved if the same activity or task were done under the supervision and instruction of an adult. The zone of proximal development is therefore the distance between the actual developmental performance and the potential development level that can be achieved under supervision (Goldhaber, 2000). In working with persons with dementia, staff is typically more familiar with the persons' lower boundaries of performance such as agitation, depression, anxiety and apathy (possibly because of the deficit model approach), and expectations of their performances are derived from this knowledge (Camp & Orsulic-Jeras, 2000; Salari & Rich, 2001). Exploring the upper boundary of dementia is a challenge (Camp & Orsulic-Jeras, 2000). The Montessori-based activities support exploration of the zone by including upward extensions. If a person completes the original Montessori activity very easily, an upward extension is provided with supervision in order to facilitate the maximum level of performance.

The supervision and the mentoring process of the Montessori method for children, where older children serve as mentors to the young ones (Camp et al., 1997), can be adapted to the work with persons with AD. The facilitator may serve as a mentor to the group, and a higher functioning individual may serve as a mentor to lower functioning individuals. Mentoring is the

process that helps the lower functioning adults with dementia to function at their upper boundaries of the zone by being provided with cues and monitored for their reaction to a task based on the process of individual task analysis.

*The focus on process versus end product.* The focus of Montessori activities is not on the end result but on the process of engaging the individual in a meaningful activity, facilitating success in performance of the activity, and receiving immediate feedback that may contribute to the individual's concept of self. This focus is consistent with Bowlby Sifton's (2000) guidelines to activities for persons with dementia mentioned earlier, emphasizing the process of being engaged in an activity rather than the end product. An assessment of physical and cognitive abilities is advised in order to guide the selection or development of activities.

*Montessori methodology.* Camp (1999) described methodological principles that may increase the probability of success in facilitating activities with people with dementia. These include the use of little vocalization in presenting the activities, demonstrating the activity individually to participants in slow movements that correspond to the individual's speed, and then giving the individual the opportunity to try the activity. Providing materials and activities that are self-corrective helps individuals correct their performance without assistance from the leader, thus improving chances for success and independence. Structuring materials and procedures for movement from left to right and from top to bottom matches the eye and head movements of the reading process in most western cultures. Materials should be arranged in this manner from large to small and from most to least.

Part of Maria Montessori's philosophy includes the adaptation of the environment to the physical and cognitive stage of the children. The same process is advised for the geriatric population in general (modifying fine motor skills for persons with arthritis) and specifically for older adults with dementia who may experience sensory or cognitive deficits. The use of external



cues to compensate for memory problems requiring retrieval of information is an example (Camp & Orsulic-Jeras, 2000; Vance et al. 1996). Enlarging print of text, or providing a visual prompt in addition to verbal cues may assist in modifying the learning environment for older adults. Such modifications promote the use of existing abilities and enhance function.

*Limitations of the Montessori method.* The individual one-to-one approach of Montessori-based philosophy is useful, however, many settings prohibit such a staff-client ratio. Montessori-based activities for persons with dementia were originally designed as one-on-one activities; group settings were limited to memory bingo and group sorting, which are “task groups” in which each individual contributed to the mutual effort of completing the task. The literature emphasizes the benefits that structured group activities for persons with AD provide. Groups provide a therapeutic setting for continuing abilities such as social skills and nurturing of others (Bowlby, 1993). Persons with AD are often isolated from peers, friends, and family because of communication difficulties. Special group activities serve the need for belonging and acceptance. Such a setting is normal for adults and may fill their basic need for socialization that facilitates social skills, and provides support and encouragement by members facilitated by staff (Bowlby, 1993).

Bowlby (1993) described the most successful group format for persons with dementia to be the “parallel presentation,” in which each participant is presented individually with a particular step of the activity. This enables a non-threatening environment, where each person works at his or her own pace on the same task and at the highest individual level of ability, while the leader coordinates and helps modify the task according to abilities. This form is advantageous for persons with dementia compared to a “task group”, where completion of the task depends on each person’s contribution, thus potentially making some adults feel pressured to perform successfully and feel badly if they inhibit the group’s success.

The original design of Montessori-based activities also emphasizes minimal verbal interaction in demonstrating and administering the activity. This format may be more appropriate for persons in the severe stages of AD, however, prior personal experience facilitating modified-Montessori activities in small group settings suggests that small groups of higher functioning individuals may benefit from moderate levels of verbal interactions that promote socialization. The need exists to examine the effects of Montessori-based activities for persons with dementia utilizing small “parallel” groups of individuals; situated in a group, each working at his or her own pace to complete the same task, and a more verbal approach to presenting and administering the activity. The current study addresses this need.

#### *Summary and Conclusions*

Current views of the care of people with dementia such as the philosophy of person-centered care, as well as the attempt to define quality of life and care of people with dementia, seem promising. Implementation of these views in dementia care programs may change or moderate the negative emotional experiences and neglect surrounding dementia care that prevailed in the past. Adapting Montessori activities for persons with dementia is an example of the ongoing effort to apply quality care to AD patients that is developmentally appropriate and takes into account the individual’s personal needs.

The principles of the Montessori philosophy adapted for AD patients have been associated with positive engagement and affect in participants. The literature on task analysis emphasizes the importance of adapting a meaningful and purposeful activity to the individual’s needs and remaining skills. The leisure literature emphasizes the benefits of activities for the older adult socially, in maintaining skills, and providing the opportunity for feelings of worthiness and belonging. Research of Montessori-based activities used with cognitively impaired persons suggests that the modifications employed serve to accommodate individual

abilities. Montessori-based activities facilitate the use of procedural memory and promote sensory and motor stimulation, which Bowlby Sifton associates with maintenance and enhancement of existing abilities (2000). Preserving internal continuity and continuity of identity as suggested in Atchley's continuity theory (1993) is an additional goal that Montessori-based activities address by using familiar materials and procedures associated with meeting the basic need of the individual for continuity.

By providing the opportunities for maintaining physical, mental, and social skills, Montessori-based activities serve to promote quality of life (QOL) of persons with AD, improve the level of engagement in activities, and promote positive affect. In addition, the modified method of Montessori-based activities for persons with AD addresses the two main deficits of many current activity programs for persons with dementia; the inadequacy of activities and the appropriateness of activities being provided to persons with dementia at community-based services. The Montessori method applies to a wide range of potential appropriate activities, the activities can be borrowed explicitly from the Montessori-based repertoire, or the method can be adapted to any activity. Application of Hasselkus's model of "Occupation and Well-Being in Dementia" (1998) suggests that meaningful activities benefit not only the cognitively impaired adults' QOL but also the family or program caregivers by providing feedback about the efficacy of their interventions in engaging cognitively impaired persons.

### Study Hypotheses

The proposed study utilizes Montessori-based activities in small groups of cognitively impaired individuals. Given Bowlby Sifton's review on maximizing function in older adults with dementia and research on modified Montessori activities to persons with dementia, in this study I assessed the different types of engagement and affect during Montessori-based activities in small group settings and compared the results to engagement and affect during regular activities.

Based on the literature on the engagement and affect of individuals with dementia during modified Montessori-based activities, I present six hypotheses regarding the comparison of engagement and affect between the Montessori and non-Montessori activities. Based on the assumption underlying occupational therapy, and research findings regarding the effect of engagement on individuals' well being, I present a seventh hypothesis addressing the correlations between affect and engagement of the person with dementia during Montessori and non-Montessori activities.

### Research Hypotheses

I examined whether there is a difference in the engagement of individuals with dementia (time and type of engagement, e.g., constructive engagement, passive engagement, self engagement, or non engagement) between Montessori-based activities and regular activities in small group settings. The hypotheses guiding this project were:

1. Constructive engagement (CE) will be significantly higher during Montessori-based activities as compared to regular scheduled activities.
2. Non-engagement (NE) will be significantly lower during Montessori-based activities than during regular scheduled activities.
3. Passive engagement (PE) will be significantly lower during Montessori-based activities than during regular scheduled activities.
4. Self engagement (SE) will be significantly lower during Montessori-based activities than during regular scheduled activities.

In addition, I examined difference in affect (pleasure, anger, anxiety/fear, sadness/depression, interest) of individuals with dementia during Montessori-based activities, compared to the affect expressed by the same individuals during regular schedules activities in small group settings. The hypotheses were:

5. Positive affect (pleasure, interest) will be significantly higher during Montessori-based activities as compared to regular activities.
6. Negative affect (anger, anxiety/fear, sadness/depression) will be significantly lower in Montessori-based activities compared to regular activities.

Past research suggests a positive association between engagement in occupation and relative well-being, I examined whether positive affect (i.e., pleasure) is associated with positive constructive engagement, of individuals with dementia, observed during Montessori-based activities and regular activities. The hypothesis was:

7. Positive affect will be associated with positive constructive engagement of individuals with dementia, observed during Montessori-based activities and regular activities.

If engagement and affect are higher during Montessori-based activities than in regularly scheduled activities, the modified Montessori method should be considered as a valuable tool in engaging individuals with dementia in activity, improving their affect, and thus promoting QOL and well-being.

### Chapter 3. Method

#### *Participants*

The sample is a non-random convenience sample, consisting of older adults attending an ADS program in a university setting. The number of participants is 10 (5 males and 5 females) of the possible 13 ADS participants. All participants have the diagnosis of Alzheimer's disease or a related disorder and suffer from different levels of dementia. Consent forms were sent to all the primary caregivers; only those who agreed that their relatives could participate in the research study are part of the sample. Three participants were not included; two did not attend the program during the days the study was conducted, and one participant was too agitated to join the group and therefore was not included in the study. The mean age is 83.4 ( $SD=7.14$ ), ranging from 74 to 97. The control group consists of the same individuals during non-Montessori regular activity programming, meaning the individuals serve as their own control group.

#### *Instrumentation*

Measures for the proposed study address five domains: engagement, affect, cognitive impairment, skill completing observed activities, and demographics.

*Engagement Measurement:* The Myers Research Institute Engagement Scale (Judge, Camp, & Orsulic-Jeras, 2000) was used to measure four types of engagement exhibited by participants during activities:

- Constructive Engagement (CE): Motor or verbal response to the activity
- Passive Engagement (PE): Listening to or looking at the activity
- Self-Engagement (SE): Engagement with self rather than activity (e.g., wringing hands).
- Non-Engagement (NE): Sleeping or staring into space

The duration of each type of engagement is recorded (in seconds) during a five-minute observation period. This scale has not yet been assessed for validity in large-scale studies;

however, the developers of the scale report a 95% inter-rater agreement and high content validity (Orsulic-Jeras, Judge & Camp, 2000).

*Measures of Affect:* The Apparent Affect Rating Scale (Lawton, Van Haitsma, Klapper, 1996) is used to measure the duration of five types of affect displayed by participants during activities: pleasure, interest, anger, anxiety/fear, and sadness. Each emotion is rated on a 5 point scale: 1=never; 2= <16seconds; 3= 16-59 seconds; 4= 1-2 minutes; and 5=2-5 minutes. This is a standardized and validated measurement. The scale has been shown to be sensitive in capturing differences in affect of individuals with dementia as they moved from one environmental context to another. It has been suggested that it would be a good tool to measure the outcomes of various interventions employed with cognitively impaired individuals or group of individuals (Lawton, Van Haitsma, Perkinson, & Ruckdeschel, 1999).

*Cognitive Function:* The Mini-Mental State Examination (*MMSE*; Folstein, Folstein & McHugh, 1975) is a widely used screening instrument for determining levels of cognitive impairment. The measurement contains 11 questions, and no time limit is placed on respondents to answer questions. Scores range from 0-30 with scores over 26 indicating normal cognitive status, scores of 20-26 indicating mild cognitive impairment, 11-19 suggesting moderate level of dementia, and scores 10 or lower implying severe cognitive impairment. The MMSE has been recognized as a quantitative aid in clinical examination for AD by the National Institute of Neurological and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association work group (McDougall, 1990).

*Skill completing activity:* The Leader's Evaluation Form (see Appendix F), uses a 5-point Likert scale developed for this study. The activity leaders complete this form after each modified Montessori activity, rating the success each individual had in completing the original task as well as on the extensions utilized. Scores are rated according to the following range: 0=

participant was not at all able to complete the task; 1= Verbal response to activity, no physical engagement; 2= Lots of physical and/or verbal help; 3= Minimal directions and minimal physical help; 4= No physical help, minimal cues; and 9= Available but refused to participate, indicating that the participant did not care to join the activity although she or he was present at the ADS. In addition, the activity leader records any initiation of conversation or participation in social interactions with other participants. Data from the leader's evaluation forms will not be analyzed in this study except for qualitative remarks regarding social interactions during Montessori activities.

### *Procedure*

Ten Montessori-based activities were conducted over the course of the 10-week period (Appendix B). Each participant performed one activity each week. Skills targeted by the activities included: fine and gross motor, volume discrimination, spatial recognition, and other skills utilized for everyday activities. One graduate student was trained to use the Engagement Scale (Appendix C) and another to use the Apparent Affect Rating Scale (Appendix D).

Although the original researchers using the Montessori based activities with persons with AD emphasize: (a) non-verbal demonstration by the facilitator and (b) a one-on-one setting as a method of conducting the activity, in the current study, I modified these two elements. Lack of staffing is a major problem in many facilities, and applying individually-based activities may be an unrealistic goal. Therefore, to test the generalizability of the benefits of the Montessori activities to small group settings, the activities in the proposed study were conducted in small groups of three to five people. Each participant was engaged individually in the same activity as the others, while the activity leader coordinated the group discussion and adapted activities to individual needs and abilities. This "parallel" group procedure not only addresses practical limitations of personnel but also promotes the opportunity for social interactions. Moderate



levels of verbal interaction were utilized with the current sample (as opposed to the non-verbal approach of past research) in the form of introducing the activity using a script, and applying meaning to the activity.

Trained graduate assistants administered activities to small groups of three to five people, utilizing modifications (“extensions”) to match individual abilities. Staff members created the *occupational space* indicated in the model by providing the opportunity for individuals to engage in an activity. At the start of each activity, the leaders gave a scripted introduction to the activity in order to enhance meaning and interest in the activity as well as to promote the individuals’ social interactions. The introduction provided opportunities for reminiscence and discussion of topics related to the activity (see Appendix E for a sample script). This first phase of introduction is called the *meeting of the minds* (Hasselkus, 1998; Coppola, 1998); it serves to gain the person’s attention as well as to connect with the person with AD and assist him or her in finding shared meaning for engaging in an activity.

The second phase of the occupational process as described by Hasselkus (1998) and clinically interpreted by Coppola (1998) is the *engagement in occupation*. There are multiple types of engagement, that according to the model of occupation and well-being in dementia, represent “levels of connection with the real time, place, persons, and activity of the day-care center” (Hasselkus, 1998, p. 428). Indicators of engagement vary from basic eye contact to spontaneous occupation, verbal or non-verbal communication, emotional responses (smile, laugh, anxiety), and competence in performance (Coppola, 1998). In this study, activity leaders modeled the activity, invited the participants to engage in the activity, evaluated the ability to complete the original task as well as documented any extension(s) utilized and how well the participant was able to complete them (Appendix F). In addition, activity leaders documented any initiation or engagement in social conversations among the participants. Montessori-based

activities utilize extensions and modification of the activity to promote the engagement process; leaders' evaluations assess the process of engagement as well as the competence in completing the task.

Two weeks of observations of engagement and affect were held at the beginning, middle and end of the study period: weeks 1, 2, 5, 6, 9, 10. Similar skills or related categories of activities were utilized at these times (i.e., weeks 1 & 2 involved care of the environment, weeks 5 & 6 involved measuring and mixing, and weeks 9 & 10 involved craft activities).

During weeks of observation, observers assessed engagement and affect during 5-minute periods. The two observers observed the same individual during each 5-minute period (e.g., both observed Tom from 11:00-11:05 AM). Participants were observed in the same sequence during scheduled activities and during Montessori-based activities. Observers recorded the ratio of participant to staff involved in the activity as well as the beginning time of the activity itself and the start of the observation time. All activities and observations took place during the same time of the day (morning period).

The last phase of the occupational process as applied from Coppola's (1998) interpretation of Hasselkus's model (1998) is *well-being*. It is referred to as well-being of the caregiver and the client's situation as evaluated by the caregiver. Well-being is seen as the outcome of this engagement process. Hasselkus and Coppola emphasized that there is interconnectedness between the individual's well-being and the caregiver or the activity facilitator. Some indicators of well-being were captured by the measurements of the types of engagement and the affect expressed during the activities.

There are a few fundamental distinctions between the method of facilitating the regular activities and the Montessori-based activities. During Montessori-based activities, all the materials were provided ahead of time, each individual had a tray with all the materials needed

for the activity in front of him or her. The activity director seldom had the time to arrange everything ahead of time; therefore part of the time at the beginning of the activity was devoted to distribution of materials, either individually or at the middle of the table. Thus, the time in which the activity started during the Montessori-based activities was defined as the time the leader began introducing the script. In contrast, during the regular activities, there was less of a distinction regarding when the regular activity began. Each Montessori activity, following the script introduction, began with a demonstration by the leader; usually no demonstration was provided during regular activities. An additional difference was that the “extensions” of the Montessori activities were prepared ahead of time and given as modifications to individuals during the activity. In the regular activities, no extensions were provided; individuals who could follow the instructions went on to complete the activity while those who could not follow received assistance from staff, usually in the form of performing the task for the individual. Nine of the ten regular activities were craft activities that followed a similar procedure, while one was a musical performance.

### *Analysis*

The purpose of the study is to compare the difference between engagement and affect during Montessori-based activities compared to regular scheduled activities of older adults with dementia attending a university ADS. The study involves two groups of distinct dependent variables, engagement score (CE, PE, SE, NE) and affect score (pleasure, anger, anxiety/fear, sadness/depression, interest) and one independent variable, “type of activity” (Montessori-based activity vs. regular scheduled activity).

Prior to analysis, in order to control for covariates such as cognitive status, gender and age, intercorrelations were computed among the demographic variables, individuals’ cognitive status, and each dependent variable. Any significant correlation between the dependent variables

and the demographic variables or cognitive variable, led to controlling for that covariate using Analysis of Covariance (ANCOVA) for that particular variable.

To address the first four hypotheses regarding the comparison of constructive engagement, passive engagement and non-engagement during Montessori and non-Montessori activities, in the absence of the need to control for any covariate, paired sampled t- tests for each dependent variable's sub-groups (i.e., constructive engagement, passive engagement, self-engagement and non engagement) were performed. The same process was used to test hypotheses five and six regarding the affect variables (pleasure, anger, anxiety/fear, sadness/depression or interest). The analyses tested for significant differences in means of each dependent variable during Montessori compared to regular activities. Pearson correlations was used to address hypothesis seven regarding the relationship between engagement and affect.

Effect sizes were calculated in order to consider not only the statistical significance in evaluating the value of the research results, but also the "practical significance" taking into consideration the influence of the small sample size in assessing the likelihood of the phenomena to occur in the population, as well as assessing the "clinical" significance, meaning the effect the intervention had on individuals (Thompson, 2002).

## Chapter 4. Results

The results section is divided into two parts (a) describing the characteristics of the sample (i.e., demographic characteristics and cognitive status), and (b) addressing the research hypotheses.

Table 1 provides the demographic characteristics of the sample along with the cognitive status of the sample.

Table 1  
Sample Characteristics

Characteristic	Value
<u>Sex (%)</u>	
Male	50
Female	50
<u>Age</u>	
Mean (SD)	83.4 (7.14)
Range	74-97
<u>MMSE Scores</u>	
Mean (SD)	18.22 (7.22)
Range	8-26

A mean score was computed for each individual, for each of the dependent variables (i.e., CE, PE, NE, SE, pleasure, sadness, anger, interest, anxiety) across the six observations of Montessori and regular scheduled activities. Missing data were not substituted with group means or means of the dependent variable across the individual's observations of all activities; rather, the average was based on the number of observations made for each individual (e.g., an individual's mean score who participated in only 4 of the 6 observations was based on averaging

the 4 observations). Since no instances of anger were exhibited during observations of Montessori or regular activities, this variable was not included in the analysis.

The Pearson correlations showing relationships among the demographic variables, cognitive status, and each of the dependent variables are presented in Table 2. The correlations were calculated to identify any covariates that need to be controlled for in analyses that test the hypotheses. As seen in Table 2, there are two significant correlations (a) between age and the amount of time passively engaged in a Montessori activity, and (b) between sex and average level of pleasure exhibited in regular activity. Age will be controlled for in analysis of passive engagement and sex will be controlled for analysis of pleasure, using ANCOVA with these dependent variables (mean Montessori passive, engagement, mean regular activity, pleasure) instead of paired t-test analysis. ANCOVA offers statistical control in quasi-experimental studies (Newton & Rudestam, 1999) and therefore will account for effects of age and sex in the specific analyses.

Table 2  
*Correlations between Sample Characteristics and the Average Dependent Variables (N=10)*

Characteristics	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Age																			
2. Sex	.59																		
3. Cognitive status	.20	.19																	
4. CE in reg. act	.31	.10	.53																
5. CE in Mon. act.	.59	.14	.13	.32															
6. PE in reg. act.	.36	.08	.58	.57	.41														
7. PE in Mon. act.	.63*	.15	.10	.36	.99	.40													
8. SE in reg. act.	.31	-.31	.29	-.24	.01	.14	.00												
9. SE in Mon. act.	-	-	-	-	-	-	-	-											
10. NE in reg. act.	.11	.32	.48	.81	.19	.27	.21	.20											
11. NE in Mon. act.	.58	.42	-.37	-.13	-.45	.20	.49	.08	-	-.08									
12. Reg. pleasure	-.26	.66*	.45	.07	-.22	-.18	.16	.19	-	.04	-.38								
13. Mon. pleasure	-.38	-.24	.35	.33	.09	.09	-.14	-.80	-	-.20	-.52	.50							
14. Reg. anxiety	.09	.60	.17	.17	.34	-.23	-.33	-.42	-	-.27	-.32	-.30	.18						
15. Mon. anxiety	-.51	-.09	-.23	-.18	.30	-.17	-.29	-.22	-	.56	-.25	-.38	-.31	.00					
16. Reg. depression	.06	.15	.13	-.02	.16	-.43	-.15	-.16	-	.00	-.27	.30	.23	.65	-.22				
17. Mon. depression	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18. Reg. interest	.17	.50	-.06	-.20	.08	.19	-.07	.40	-	-.08	.29	-.64	-.54	.30	.24	-.15			
19. Mon. interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\* $p < .05$ , two tailed.

### *Research Hypotheses*

I will address the first 6 hypotheses by presenting paired samples t-tests comparing the means of each dependent variable for regular scheduled activities and Montessori-based activities. Table 3 illustrates the means of each variable during both activities, and Table 4 illustrates paired samples t-tests, along with Cohen's measure of effect size ( $d$ ) where values of standardized differences of .2 and lower are considered "small," .5, "medium," and .8, "large" (Thompson, 2002).

#### *Hypothesis 1.*

As hypothesized, the average amount of constructive engagement (CE) was significantly higher during Montessori-based activities compared to CE during regular scheduled activities. CE took place the majority of the time the individuals were observed during Montessori based activities. On average 254 seconds out of the possible 300 were spent in CE during Montessori activities as opposed to 197 seconds on average during regular scheduled activities. Cohen's effect size  $d$  is high, supporting the likelihood that this phenomenon would be observed population-wide (Pedhazur & Pedhazur Schmelkin, 1991; Thompson, 2002).

#### *Hypothesis 2.*

Non-engagement (NE) was significantly lower during Montessori-based activities than during regular scheduled activities supporting the second hypothesis of the study. The practical significance (i.e., the effect size) is high ( $d = .80$ ), indicating the unlikelihood of non-engagement being exhibited during Montessori-based intervention.



Table 3

*Average Levels and Variations in Dependent Variables during Montessori and Regular Activities*

Dependent Variables	Means (SD)	
	Montessori	Regular
	Engagement Type	
Constructive	254.73 (35.35)	194.60 (53.40)
Passive	45.43 (37.68)	41.6 (26.75)
Self	1.08 (3.40)	16.91 (19.47)
Non Engagement	2.49 (4.43)	38.42 (43.85)
	Affect	
Pleasure	1.59 (.39)	1.74 (.41)
Anger	1.00 (.00)	1.00 (.00)
Anxiety	1.04 (.09)	1.06 (.11)
Depression	1.00 (.00)	1.05 (.11)
Interest	5.00 (.00)	4.96 (.07)

*Note.* Engagement scale is measured in seconds. The affect is measured by an ordinally ranked scale in which 1 = "never," 2 = "less than 16 sec.," 3 = "16-59 sec.," 4 = "1-2 min.," 5 = "more than 2 min.,".

Table 4

*Paired Samples T-Test for Averages of Dependent Variables in Montessori and Regular Activities*

Dependent Variables	<i>t</i>	<i>df</i>	<i>Sig.</i>	<i>d</i>
Constructive engagement	-3.37	9	.008 *	-1.06
Passive engagement	-.32	9	.75	-.010
Self-engagement in reg. act.	2.76	9	.02 *	.87
Non-engagement	2.55	9	.03 *	.80
Pleasure	1.18	9	.26	.37
Anxiety	.53	9	.60	.17
Depression	1.40	9	.19	.45
Interest	-1.50	9	.16	.42

\*  $p < .05$  two tailed.

*Hypothesis 3.*

In order to perform analysis of covariance, a dummy variable was defined as a dichotomous variable to indicate Montessori-based activities and regular activities, with 0 indicating a regular activity and 1 indicating a Montessori activity. Analysis of covariance was performed for mean passive engagement controlling for participants' age (see Table 5) and for pleasure accounting for the individual's sex (see Table 5).

Table 5

*Analysis of Covariance*

Source	Type III Sum of Squares	df	MS	F	Sig.
Between subjects					
Mean PE					
Age	5118.2	1	51	6.1	.024
Activity Type	72.20	1	72	.08	.772
Error	14140.33	17	831.78		
Between subjects					
Mean Pleasure					
Sex	.613	1	.61	4.48	.04
Activity Type	.113	1	.11	.82	.37
Error	2.32	17	.13		

*Note.* For Mean PE  $R^2=.27$ ; Adjusted  $R^2 = .18$ . For Mean Pleasure  $R^2= .24$ ; Adjusted  $R^2 = .14$

Hypothesis 3 was not confirmed; Eighteen percent of the variance of mean passive engagement was accounted for by age and type of activity; with greater age associated with more passive engagement. As shown in Table 5, when controlling for age, there was no significant difference between mean passive engagement in regular and Montessori activities.

No significant difference was found for passive engagement (PE) between the two types of activities. During regular activities an average of 41 seconds of passive engagement was exhibited, and an average of 45 seconds out of the possible 300 were exhibited during Montessori activities.

*Hypothesis 4.*

As hypothesized, self-engagement (SE) was significantly lower during Montessori-based activities than during regular activities. However, values of SE were relatively low during both types of activities.

*Hypotheses 5 and 6.*

Average levels of positive affect (i.e., pleasure, interest) were similar between both types of activities; interest was exhibited during the majority of the observations of both types of activities. Considering the model for pleasure, sex had a significant influence on mean levels of pleasure, with females exhibiting more pleasure than males; however type of activity had no effect on mean level of exhibited pleasure.

Similarly, no significant differences were found for negative affect (i.e., anxiety/fear, sadness/depression) of individuals during Montessori-based activities compared to the same individuals' responses during regular scheduled activities in small group settings. Relatively few instances of negative affect were observed during either activity type. Thus, both hypotheses were not confirmed.

It is interesting to note that the measure of effect size for depression and interest between the Montessori and regular activities was .45 and .42 respectively. These effect sizes, or practical strength of relationships, are close to the medium range values according to Cohen's (1969) criteria (Thompson, 2002).

*Hypothesis 7.*

Hypothesis 7 was not confirmed; the correlation between positive affect (pleasure) and positive engagement (CE) of individuals with dementia observed during Montessori-based activities and regular activities did not yield any significant associations (Table 6). This implies that individuals who were constructively engaged were not more likely to experience positive affect.

Table 6

*Correlations among Average positive Affect and Constructive Engagement during Montessori and Regular Activities*

Variables	1	2	3	4
1. Pleasure-reg. act.	–			
2. Pleasure- Mon. act.	.50	–		
3. CE in reg. act.	.07	.33	–	
4. CE in Mon. act.	-.22	.09	.33	–

## Chapter 5. Discussion

This study focused on implementing meaningful and appropriate activities based on the Montessori philosophy and evaluating their impact on engagement and affect of individuals with dementia compared to their engagement and affect during regular activities at an ADS setting. The study addressed the value of utilizing meaningful activities to enhance well-being and of applying a parallel group setting that considers the staff shortage in many care facilities.

The results of the study reveal that constructive engagement, referring to any motor or verbal behavior directed toward the activity, is significantly higher in a parallel procedure group setting of Montessori-based activities compared to regular group activities of persons with dementia in an ADS. Additionally, the results support the hypothesis that non-engagement (sleeping or staring into space) is significantly lower during Montessori-based activities in small parallel procedure group settings than during regular scheduled activities. The present findings support previous research suggesting that the Montessori method may elicit more constructive engagement and less non-engagement than regular program activities. The Montessori method as an intervention was meaningful to individuals and positively influenced social interactions, satisfaction and skill competence, which are all part of the mission statement of an ADS program. Similar to other research, the current study did not elicit significant differences when comparing passive engagement or self-engagement during Montessori and regular scheduled activities.

Although the study did not directly compare the group setting to the one-on-one approach emphasized in past research, the present results support the use of parallel group settings to elicit high levels of constructive engagement of individuals with dementia similar to those found in the research of Orsulic-Jeras et al., (2000). Parallel group settings may also enable social interactions with peers and staff, thereby providing an opportunity for individuals to feel belonging in a group. In addition, Orsulic-Jeras and colleagues' results from using a 10-minute

observation unit yielded that pleasure was exhibited in 29% of the observation time during Montessori activities compared to 31% of the 5-minute observation unit in the current study. During regular activities, Orsulic-Jeras and colleagues observed pleasure in 14% of the 10-minute observation time, while in the current study pleasure was observed 35% of the observation time during regular activities. Hence, these comparisons illustrate that the current study yielded similar or higher levels of pleasure during the Montessori activities, than those found by Orsulic-Jeras and colleagues. The fact that in the current study the percentage of time in which pleasure was exhibited during regular activities was much higher than in that of Orsulic-Jeras and colleagues may explain the differences in the significance of the results relating to pleasure and type of activity between the two studies.

Comparing the affective responses (pleasure, interest, anxiety, sadness) of participants during Montessori-based activities and regular activities, the current study did not reveal any significant differences. Thus, the hypotheses dealing with the affective responses were not confirmed. A possible explanation for these results is that the current activity program at this specific site is a relatively good program; staff members are respectful and alert to participants' needs and foster a positive environment in which individuals can maintain their physical and social skills. Consequently, positive affect was more prevalent than negative affect during the regular activities as well as during the Montessori-based activities.

An additional explanation involves the issue of staffing and procedures that may have influenced the lack of significant differences in passive engagement and positive affect between both activity programs. One goal of the Montessori research was to train ADS staff to implement these types of activities so they could be utilized after the research program ended. Thus, the activity director took part in facilitating the Montessori-activities and learned the methods of utilizing extensions. It is possible that a carryover effect took place and that the activities director utilized principles of the Montessori method when facilitating the regular ADS

activities. Although the activities director learned techniques of the Montessori method, she demonstrated related skills (e.g., task analysis) in ADS activities prior to the start of the project. Thus, findings may have been similar even had the activity director not been included in the Montessori project.

It is important to note that Orsulic-Jeras and colleagues (2000) modified the scale measuring affect (AARS), omitting “interest” from the five categories. The reason for omitting this category may have been that the researchers relied on their personal knowledge of their participants, assuming that they were experiencing pleasure although they did not exhibit it by the standards of the AARS. It may be the case that the high levels of pleasure exhibited in their study are accounted for by deleting the category of “interest” from the scale which would likely result in more observations being coded as pleasure, the only remaining positive affect in the scale. In the current study “interest” was included and high levels were observed during both types of activities, while pleasure was relatively low during both Montessori and regular activities.

#### *Limitations of the study*

This study was based on past research assessing the effect of Montessori-based activities on the engagement and affect of individuals with dementia. Several limitations of the investigation should be considered.

#### *Issues Concerning the Design of the Study*

In designing the study, the beginning time of observations during the Montessori activities was defined as the time the leader began presenting the script to the group. During the regular activity, such a clear starting point was lacking, therefore observations often began only after materials were handed out or when the individual to be observed began working on the activity. The engagement during the unstructured introduction period of the regular activity, which was not coded in the observations, was characterized as being generally more passive. Not



coding this passive period may have contributed to biasing the results in favor of the regular activities. Starting the observations of the regular activities at the time the first participant began working would have made the observations' beginning time more unified across observations, and would have probably elicited greater differences in constructive engagement and affect between the two types of activities than were detected in the current analyses.

### *Sampling Issues*

The current study utilized a convenience sample of older adults, which is not representative of the whole population of persons with dementia; thus, generalizability of the results is limited. The fact that the sample consisted only of 10 individuals may have reduced the power of the study and the chances of reaching statistically significant results. According to Tashakkori and Teddlie (1998), sample size affects the “statistical conclusion validity of the findings by influencing the margin of error and the power of statistical test to detect effects” (1998, p.72). A larger sample would improve the power and the generalizability of the results assuming the intervention is appropriate and effective. Statistical tests are largely influenced by the sample size (Thompson, 2002). But as Thompson (2002) argued, statistical significance cannot be the sole criterion for the value of the results; rather, practical and clinical significance (i.e., the applied value of the intervention to the individual) must also be considered. The larger the effect size, the greater the chance of reaching clinical significance, even if statistical significance is not achieved. Clinical significance in this study refers to the effect of the Montessori-based intervention on individuals. For example, an individual who is usually agitated and often asks when he will go home, during Montessori activities was found to be constructively engaged, exhibiting much less agitation and anxiety. Thus, clinical significance was reached for certain individuals during this study. Utilizing a larger sample with the near-medium effect size may have resulted in statistical significance. Conducting power calculations, with an effect size of  $d = .45$ , shows that I would need a larger sample of 30 people in order to

conclude that depression was statistically significantly lower in Montessori-based activities compared with regular activities. Similarly, I would need 37 people to reach statistical significance in interest between the two types of activities.

Participants in the current study served as their own control group. Although there are advantages to this approach in eliminating preexisting differences between groups related to the independent variable and demographic characteristics, utilizing a different control group of individuals with dementia from another facility, or preferably from the same facility, may have controlled for threats to internal validity such as maturation, testing, instrumentation, and so on (Tashakkori and Teddlie (1998)). Future studies should employ a control group of individuals with similar cognitive and demographic characteristics who do not receive the intervention of Montessori activities but who are assessed during regular scheduled activities. Another option that may eliminate or minimize the carry over effect, whether positive or negative, of the participants from one type of activity to another in future research may be in alternating the Montessori and the regular activities (e.g., 5 weeks Montessori activities, 5 weeks regular activities). This option, however, opens a greater threat to validity in the form of other intervening events occurring among the particular group members, such as change in medication. These types of changes are harder to control and would likely be greater threats to validity than the carryover from regular to Montessori activities.

Although Bowlby Sifton (2000), suggested that emotional carryover can characterize persons with dementia (e.g., a feeling of anger or frustration may persist long after the stimulus of the incident that elicited it is over), in this study the data suggest that the few instances of negative affect (i.e., anxiety and sadness) that were exhibited, did not occur on the same day of observation or with the same person. Therefore, we cannot conclude that there was a carryover of negative affect from the regular activities, which always preceded the Montessori activities, to the Montessori ones. Furthermore, Montessori-based activities were conducted at a different

table in the center, thus individuals had to change settings, which is considered a common breaking point and may reduce the chance of a carry over effect.

### *Measurement Issues*

*Affect scale.* The AARS did not capture the precise amount of time exhibited in the observations. Because the scale is ordinally ranked, there is no way of differentiating if a person receiving a score of 5 for instance was constructively engaged for two minutes or four minutes during a 5-minute observation. Modification of the scale to measure the exact number of seconds associated with a specific behavior code would have elicited a more accurate picture.

The AARS has specific guides for coding instances of pleasure. These guides focus on outward expressions of enjoyment (i.e., laughing, smiling, kissing, touching other), which may not be observed even if the person with dementia is experiencing pleasure. During observations, it was often clear that the participant was experiencing pleasure and enjoyment, however, they did not tend to smile or laugh while concentrating on accomplishing the task. This may be partially due to symptoms of the disease as persons with dementia have a deficit in expression of emotions (Bowlby Sifton, 2000); even though they may experience pleasure, they may not be able to express it verbally or by typical facial expressions. Thus more sensitivity or different criteria are needed to assess positive affect among persons with dementia.

*Engagement scale.* The engagement scale was useful in assessing the process of engagement of individuals, indicating the type of engagement and the time the individual exhibited it during the 5-minute observation period. However, the instrument was not sensitive to instances where the individual was constructively engaged but with something unrelated to the task he or she was performing (i.e., conversation after completing the activity).

An additional code was later added to this scale by its developers (Judge, 2002). The purpose of the additional code is to address the problem indicated and to catalogue engagement that is constructive in nature (i.e., verbal and or motor behavior) but not directed towards the

“key” activity of interest. Thus “Off-task engagement” is any motor or verbal behavior that is directed towards another activity that is not the primary activity of interest. This additional code was not made public until the current study had been completed and thus was not used in this study. Adding the code would likely improve the instrument in assessing engagement of individuals with dementia in future studies.

In general, another limitation of the measurements was that not all of the adults were observed in the same 5-minute period. Thus, observations made at the beginning and/or at the end of the activity time were less likely to be coded as constructive engagement or pleasure since individuals either did not begin the activity or were likely to have already completed it. However, for certain individuals the 5-minute observation may have been during these time periods. Using video recordings might enable a more controlled environment for observing all participants at the same time. Although video observations may be useful, they also have shortcomings; there may be difficulties viewing simultaneously the individuals’ interactions (e.g., facial expressions and limb or body movements) and capturing all the indicators of engagement and affect. Another alternative may be limiting the number of individuals observed, and having more observers such that each observer observes both scales (engagement and affect) on one individual several times throughout the activity, capturing a more representative picture of the engagement and affect of that specific individual.

#### *Implications and Future Research*

While recognizing the limitations of the study, there are important implications to be considered. First, the Montessori method modified for persons with dementia has shown again its ability to successfully elicit significantly higher levels of constructive engagement of individuals with dementia in an ADS program than regular activities. Such findings support the literature on activities in dementia care in which higher levels of constructive engagement in meaningful activities are associated with relative well-being (i.e., eye contact, smile,

engagement, reminiscence remark etc.). In addition, the modifications of the setting (parallel as opposed to one-on-one) and use of an orientation script in this study seem to be appropriate for individuals with mild to moderate levels of dementia. Remarks made by individuals during the orientation script enhanced social interactions and included a plethora of comments. Some individuals reminisced about previous leisure activities and hobbies (leather work, working in the garden, sewing), while others reminisced about their life experiences and memories of holidays, raising children, and cooking. Thus, findings support the benefits of conducting Montessori activities in parallel group procedure settings as well as the importance of choosing activities that are familiar and meaningful for the individuals as suggested by Atchley (1993) and the leisure literature (Steinkamp & Kelly, 1987; Zuzanek & Boss, 1988).

The results of the study do not indicate any relationship between positive engagement and positive affect, implying that not all participants who are constructively engaged are also experiencing pleasure. The contrary may also be true; high levels of positive affect are not necessarily associated with high levels of constructive engagement. This supports the potential benefits of the parallel group procedure setting where even if individuals do not engage constructively in the activity, relative well-being and pleasure may still be elicited simply from participating and belonging to the group. Future research may focus explicitly on comparing the type of setting utilized (i.e., one-on-one versus parallel procedure in a small group) and the affect or engagement that is produced from participation in such settings. Such an approach may offer insight to a more realistic staff-participant ratio during activities.

Future research should take into account a more precise beginning time of observations for the regular scheduled activities in order to capture the differences in methods of preparing materials ahead of time, engaging in orientation script to elicit meaning, and open opportunities for constructive engagement (i.e., conversation) at the start of the activity.

Emphasis of the Montessori-based philosophy is on the process of the activity. Impact of the activity cannot be solely tied to skill of completing the activity but must be considered in relation to affect and self-esteem. This study focused on the effects of the Montessori method on engagement and affect; it would be interesting to further examine the process of engagement, for example, the types of engagements (i.e., CE, PE, NE, SE), types of extensions utilized, the effect they have on the individuals' ability to complete the task (competence score), and the extensions' effect on the individual's affect and self-esteem. Results from the leaders' evaluations of this study are yet to be examined. The format of the leaders' evaluations was not compatible with the observation scales used in the present study and did not allow for comparisons. A possible method of examining the effects of utilizing extensions on affect and engagement may be done using video analysis and observations of an individual during the original task and the extensions. Different facilitators may have a different influence on individuals' mood or engagement, future studies should account for this variability (e.g., using a dummy code for the facilitator or characteristics of the facilitator).

Overall, the principles of Montessori activities seem to be appropriate for implementation with other types of therapeutic interventions as well as general dementia care. Hasselkus's model of occupation and well-being in dementia (1998), as well as the suggestions made by Coppola (1998) to utilize it in therapeutic settings, is a promising framework for promoting meaningful occupation and providing the opportunity for constructive engagement, social interaction, and maintenance of skills, while producing a range of relative well-being outcomes. The current study further supports the Montessori method as a general process of adapting activities to individuals with a variety of motor, cognitive, or emotional deficits. Utilizing the principles of the Montessori method, including techniques such as extensions, task analysis, and motor demonstration of the activity provides, the opportunity for opening doors to a wide range

of activities. The value of the Montessori method lies in the approach to modifying activities rather than a single activity taken from a manual.

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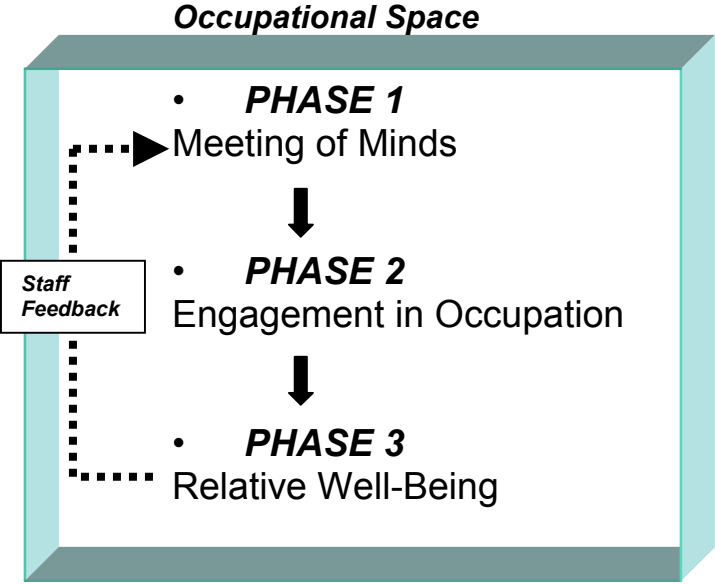
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**APPENDIX A: THE MODEL OF OCCUPATION AND WELL-BEING IN  
DEMENTIA (HASSELKUS, 1998)**



## **APENDIX B: LIST OF MONTESSORI ACTIVITIES**

### **FALL 2001**

<b>Week 1</b>	<b>Flower arrangement</b>
<b>Week 2</b>	<b>Plant propagation</b>
Week 3	Clothes folding and sorting
Week 4	Bead stringing
<b>Week 5</b>	<b>Soil scooping</b>
<b>Week 6</b>	<b>Granola candy making</b>
Week 7	Seed sorting
Week 8	Soup making
<b>Week 9</b>	<b>Ornament making</b>
<b>Week 10</b>	<b>Paper mache</b>



**APENDIX C: ENGAGEMENT SCALE**

Date: \_\_\_\_\_ Observer: \_\_\_\_\_ Number of staff: \_\_\_\_\_ Number  
of participants: \_\_\_\_\_






Intro start time: \_\_\_\_\_ Activity start: \_\_\_\_\_ Observation start: \_\_\_\_\_ Activity  
end: \_\_\_\_\_

Montessori / Non-Montessori Activity leader: \_\_\_\_\_ Activity: \_\_\_\_\_  
(circle one)

Name Observation time	Constructive	Passive	Non- engagement	Self- engagement	Comments
Total					
Total					
Total					
Total					
Total					

## APENDIX D: APPARENT AFFECT RATING SCALE (AARS)

Participant's Name \_\_\_\_\_ Montessori /Non. Mon. Act. \_\_\_\_\_  
 Date \_\_\_\_\_ # of Participants Engaged in Act. \_\_\_\_\_ Total # of clients at program \_\_\_\_\_ Total staff in Act. \_\_\_\_\_  
 Observer's Name \_\_\_\_\_ Activity start time: \_\_\_\_\_  
 Observation Start time: \_\_\_\_\_

	9 Can't tell	1 Never	2 Less than 16 sec.	3 16-59 sec.	4 1-2 min.	5 More than 2 min	Total score √
<b>Pleasure:</b> Signs: Laughing; smiling; kissing; stroking or gently touching other; reaching out warmly to other; responding to music(only counts as pleasure if in combination with another sign). Statements of pleasure.							
<b>Anger:</b> Signs: Physical aggression; yelling; cursing; berating; shaking fist; drawing eyebrows together; clenching teeth; pursing lips; narrowing eyes; making distancing gesture. Statement of anger.							
<b>Anxiety/Fear:</b> Signs: shrieking; repetitive calling out; restlessness; winching/grimacing; repeated or agitated movement; line between eyebrows; lines across forehead ;hand wringing; tremor; leg jiggling; rapid breathing; eyes wide; tight facial muscles. Statement of anxiety/fear.							
<b>Depression/Sadness:</b> Signs: Cry; frowning; eyes drooping; moaning; sighing; head in hand; eyes/head turned down and face expressionless (only counts as sadness if paired with another sign). Statement of sadness.							
<b>Interest:</b> Signs: Participating in task; maintaining eye contact; eyes following object or person; looking around room; responding by moving or saying something; turning body or moving toward person or object.							

## APENDIX E: SCRIPT OF MONTESSORI BASED ACTIVITY

### Montessori Activity script for Arranging Flowers

- Have materials set out at the activity table. Place materials for extensions nearby.
- Individually ask the appropriate group members to join you at the table for an activity. “We will be working with some flowers this morning, will you please join us in the project of arranging flowers?”

#### Introduction

The project I have for you today involves working with flowers. We are going to arrange these flowers into groups to make them look nice. Flowers are one thing that we often use to make our surroundings look nice. Have you put flowers out at your house? Do you have flowers at your home? (Inside the house or outside?). I know that some of you worked in our garden this summer...

What other things have you done in your home to make it look nice? You may like some decorations you have better than others. Are there any decorations in your home or here in the room that you like best?

I would like to show you how this project will give you some practice at arranging flowers and making them look nice to decorate our environment

#### Demonstration

Place the flowers in an arrangement in the center of the table. Talk about how colorful and pretty the flowers look. You can ask the participants what colors they like or which flowers are their favorite and look prettiest. Take the flowers one by one and create a bouquet, discuss how they can stick the flowers in the baskets in the styrofoam blocks. Discuss how they can choose the different sized and colored flowers they would like to work with.

#### Extensions

##### **Horizontal:**

- Use a vase instead of the basket (bases will all have relatively wide mouths).
- Use fresh flowers.

##### **Vertical:**

#### Downward

- Hold the basket while the participant places the flowers in it.

- Have the participant hold the flower before you place it in the basket.
- You do the physical work while the participant tells you what they would like.

Upward

- Match the flowers to corresponding pictures. (Be sure to reserve the flowers necessary for this extension.)
- Match different types of flowers with similar colors (yellow flower bouquet).
- Do some gardening or planting seeds.
- Pick flowers from the terrace and then arrange them.
- You could re-introduce garden tools that they have used during the summer as well as water some plants.

**APENDIX F: COMPETENCE IN COMPLETING THE ACTIVITY  
LEADERS' EVALUATION FORM**

Participant: \_\_\_\_\_

Date: \_\_\_\_\_

Activity: \_\_\_\_\_

Number of Participants: \_\_\_\_\_

Leader: \_\_\_\_\_

General Comments:

1. How well was participant able to complete the original activity?

0	1	2	3	4	9
Not at all	Verbal response to activity. No physical engagement	Lots of physical and/or verbal help	Minimal directions and minimal physical help.	No physical help, minimal cues	Available but refused to participate

2. Was any horizontal programming used for this participant today? YES NO

a. If yes, what horizontal programming was used? How well was the participant able to complete it)?

Horizontal Extension	Score
----------------------	-------

_____	_____
_____	_____
_____	_____

3. Was any vertical programming used with this participant today? YES NO

a. If yes, was it upward or downward? UP DOWN

4. What vertical programming was used? How well was it completed?

Vertical Extension	Score
--------------------	-------

_____	_____
_____	_____
_____	_____

Additional remarks or comments concerning the socialization during the activity:

(Socialization / reminiscence)

Participant initiated or took part of a conversation during the activity. \_\_\_\_\_

Participant served as a mentor (helped by giving verbal or physical cues). \_\_\_\_\_

## Vita

**Tsofit Gozali** was born in Haifa Israel. She received her B.O.T. in Occupational Therapy from Haifa University and the Technion (Israel Institute of Technology) in 1996. From 1996-1999 she was a senior occupational therapist in the department of Occupational Therapy, Rambam Medical Center, Haifa, Israel, specializing in hand therapy. Currently, Tsofit graduated from Virginia Tech earning her M.S. in Human Development with an emphasis on Adult Development and Aging. In addition, she obtained a graduate certificate in Gerontology at the Center of Gerontology at Virginia Tech. During her studies, Tsofit served as a graduate research assistant working on various research projects at the Virginia Tech Adult Day Services. Her main interests include improving the quality of life of persons with dementia, therapeutic activities for persons with dementia, and implementation of intergenerational programs.