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# Increasing motivation in older adults

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**INCREASING MOTIVATION  
IN OLDER ADULTS**

by  
**Megan Ann Deskin**

**An Abstract**

**of a thesis in partial fulfillment of the  
requirements for the degree of Master of Science  
in the School of Health Sciences and Human Performance at  
Ithaca College**

**March 2000**

**Thesis Advisor: Carol Knight Assistant Professor of occupational therapy**

## Abstract

Occupational therapy was founded on the fundamental importance of occupations. Participation in occupations is pertinent to the everyday life of an older adult. The occupation which is used in therapy to enhance an older patient's function should be both purposeful and meaningful for that individual and his or her condition.

Several research studies have been performed in occupational therapy research, looking at the concepts of patient incorporation, meaningful and purposeful occupations of intervention, and patient motivation. This study integrated these three concepts in order to compare subjects' performance in and perceptions of two upper extremity strengthening activities.

The number of stirs completed and the duration of stirring time was measured in seventeen subjects who were asked to participate in two sessions, a meaningful and purposeful stirring exercise which included baking cookies, and a rote stirring exercise with no meaning or purpose. The subjects filled out a questionnaire regarding their interest and motivation in the activities. At the end of the study, all subjects were asked which session they preferred.

Results of the study showed the subjects stirred longer, with more stirring revolutions in the purposeful and meaningful baking session, than in the rote session. Neither of these differences were considered statistically significantly different. Eighty two percent of the subjects reported more enjoyment in getting exercise through the meaningful and purposeful session than in the rote session.

This study provides support for the importance of using meaningful and purposeful activities for therapy, in order to increase participation in the older adult population.

**INCREASING MOTIVATION  
IN OLDER ADULTS**

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**A Thesis Presented to the Faculty  
of the School of Health Sciences and Human Performance  
Ithaca College**

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**In Partial fulfillment of the  
Requirements for the Degree  
Master of Science**

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**by  
Megan Ann Deskin  
March 2000**

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CERTIFICATE OF APPROVAL

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This is to certify that the Thesis of

Megan Ann Deskin

Submitted in partial fulfillment of the requirements for the degree of  
Masters of Science in the Department of Occupational Therapy, School of Health  
Sciences and Human Performance at Ithaca College has been approved.

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Date: September 1, 2000

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Dedication

I dedicate all of the long hours and extreme effort which was put into this thesis to my parents, in thanks for their constant support throughout my college education. I would not have made it through as successfully as I did, if you were not there beside me every step of the way, listening to me, guiding me, and motivating me. You were my motivation and you are my inspiration.

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## Introduction

Purposeful activity is a concept which is deeply rooted in occupational therapy. It has been defined as "tasks or experiences in which the person actively participates" (Hinojosa, Rosenfeld, & Sabari 1983, p. 805). Meaningful activities are also an important component of occupational therapy practice. Meaningful activities are defined as "activities or tasks that have relevance to the person who is to change so that it motivates the will to learn and improve" (Trombly, 1995, p.963).

Often an activity may be chosen for treatment, which is seen as purposeful to the therapist and the patient, but may have no meaning to the patient. For example, the therapist may choose to have the patient wash dishes. This activity is very purposeful in the eyes of the therapist and the patient. What may not have been considered when selecting this activity, is whether this is a meaningful activity to the patient. In order for treatment to be important to the patient the activities chosen must be both purposeful and meaningful (Trombly, 1995).

A patient's interest "leads to active participation in satisfying the occupational activities" (Klyczek, Bauer-Yox, and Fidler, 1997, p.816). "To interest is to attract and hold attention, to occupy and engage a patient's concern to the extent of employing his time . . . This is one of the basic principles upon which Occupational Therapy is applied" (Matsutsuyu, 1969, p. 323). In order to find that which interests a patient, the therapist must involve the patient in the therapeutic process. Neistadt (1995) found there were significant gains in the performance of patients who collaborated with their therapists on treatment. She studied the methods used in assessing patients' priorities in adult physical disability settings. The results showed that therapists are not using effective means to

collaborate with patients to set up goals and plan treatment (Neistadt, 1995). She emphasizes the importance of the interaction between the therapist and the patient in establishing occupational goals and a treatment plan that is meaningful and of interest to the patient (p 435).

Yoder, Nelson, and Smith (1989) studied the performance outcomes of therapy which used purposeful versus non-purposeful activities in the geriatric population. The results of the study showed that there was significantly better patient performance in the purposeful activity. This study demonstrated the importance of using purposeful activity in treating the geriatric population. It did not take into consideration patient choice of a meaningful activity.

The present study proposes to replicate Yoder, Nelson, and Smith's (1989) study with the addition of three variations. All subjects recruited will express an interest in baking, so the activity has meaning to them. The subjects in this study will be used as their own controls by participating in both of the sessions. Lastly, an interest and motivation questionnaire will be used to look deeper into the patients' feelings about their participation in the sessions.

### Statement of the problem

Many Occupational therapists are not using meaningful and purposeful activities in their treatment (Fisher, 1998). In the older adult population, if the therapeutic activities are not considered meaningful or purposeful, there may be a lack of motivation and a subsequent decrease in patient participation in the activities.

### Background

Occupational therapy requires a team action between the therapist and the patient, working toward a common goal. The goal relates to the patient's resumption of function and independence. It is imperative for the therapist to know to which routines and roles the patient must return. From this information, the therapist and the patient can work in collaboration to select treatment activities which interest the patient. The therapy will then be seen as meaningful and purposeful to the patient.

The terms occupations, purposeful activity, and function are included in an occupational therapist's everyday practice. The terms are used so frequently that it is assumed all therapists hold the same definitions. Actually each therapist defines the terms differently, and therefore, each concept may be differently applied in each therapist's practice. To clarify these terms, a position paper was published in the American Journal of Occupational Therapy (AJOT) in which The American Occupational Therapy Association (AOTA) defined each of the terms. Occupation is defined as "the activities that people engage in throughout their daily lives to fulfill time and give life meaning" (AOTA, 1997, p.864). Purposeful activity is defined by AOTA (1993) as "goal directed behaviors or tasks that the individual considers meaningful" (p. 864). Function is "to be

able to do an action for a purpose" (AOTA, 1997, p.865). All three of these terms revolve around the importance of an individual's ability to perform a purposeful and meaningful activity.

The use of purposeful activity is the basis of occupational therapy with all populations. It is cited in much of the occupational therapy literature. In a position paper, Hinojosa, Rosenfeld, and Sabari define purposeful activity differently from the AOTA definition discussed previously. The authors defined it as the "tasks or experiences, in which the person actively participates" (1983, p. 805). Hinojosa et al. focused more on the idea that a purposeful activity will help to refocus the patient's attention away from their physical and emotional distress and allow them to focus on the task at hand (Hinojosa et al., 1983). In essence, the patients will work longer and harder on the task because their interest in the activity, rather than a repetitive action, will motivate them to do so.

To encourage patients to participate to their best ability, the therapist must find the key to their motivation through purposeful and meaningful activities. Linda Florey (1969) discussed intrinsic motivation as one of the dynamics of occupational therapy theory. She believes that "pleasure in the activity itself is a key property of intrinsic motivation. Reinforcement . . . lies in doing or completion of the activity itself" (Florey, 1969, p.320).

Older adults have formed interests and habits, which direct their everyday occupations. These rituals or habits are seen to them as meaningful and an integral part of who they are. There is a purpose in performing these occupations and they are a

meaningful part of the person's daily repertoire. In order to make therapy a positive experience for the patient, purposeful and meaningful occupations need to be utilized.

Many occupational therapists working with the older adult population do not take the time to effectively collaborate with their patients to understand the patients' roles and learn about their interests and habits (Neistadt, 1995). This causes the therapist to design a treatment program which focuses on tasks that might not have any meaning or purpose in the patient's life. If the tasks prove to be un-motivating the patient may quit the task early or not work to the best of his or her ability. The patient may also have a difficult time seeing the link between the activity and his/her rehabilitation needs.

Older adults may attend therapy and spend hours pinning clothespins on pegs, putting puzzles together, and finding pennies in therapy. In the eyes of the therapist, these activities may seem purposeful to remediate weakness, but do they meet the patient's needs to engage in meaningful activity? Do these activities make sense to a person desperately trying to regain independent function? If the therapist does not collaborate with the patient before setting up the treatment plan, he or she will not know what is purposeful and meaningful to the patient (Neistadt, 1995). This is particularly true for the older adult patient because he/she is so established in his/her roles and routines and less willing to engage in ridiculous, non-meaningful activities.

### Purpose of study

The purpose of this study is to compare individuals' performances in a purposeful and meaningful stirring and baking activity, versus a rote stirring activity. This will be accomplished through partial replication of Yoder, Nelson, and Smith's (1989) study titled "Added Purpose versus Rote Exercise in Female Nursing Home Residents". Yoder et al. looked at the differences in subjects' performance between a purposeful activity of stirring cookie dough and a rote activity, stirring an unknown substance.

In order to incorporate meaning into the purposeful activity, this research study will only recruit subjects who have an interest in making cookies. The question is, does a meaningful and purposeful activity result in more patient motivation and greater patient participation than a similar rote activity that requires similar movement patterns?

### Significance of study

This study will investigate the importance of purposeful occupations as the basis of occupational therapy in working with the older adult population. The idea will be explored more deeply than in the Yoder et al. study by adding meaning to the purposeful occupation, to discover if there is a difference in the individuals' performance of the purposeful and meaningful activity versus their performance in a rote exercise requiring the same movements. Positive results of this study will reinforce the value of engaging an individual in purposeful and meaningful occupations, in order to increase patient motivation.

### Definitions of terms

The following terms have been defined for a clearer understanding of their relevance to this research study.

**Occupations:** the activities that people engage in throughout their daily lives to fulfill time and give life meaning (AOTA, 1997, p. 864).

**Interest:** to attract and hold attention, to occupy and engage a patient's concern to the extent of employing his time (Matsutsuyu, 1969, p. 323).

**Purposeful activity:** Goal directed behaviors or tasks that the individual considers meaningful (AOTA, 1993, p. 864).

**Meaningful activity:** An activity, or a task that has relevance to the person, who is to change, so that it motivates to will to learn and improve (Trombly, 1995, p.963).

**Motivation:** The person sustains performance on an activity, due to their satisfaction in the activity itself (Florey, 1969, p. 320). Energy that initiates, directs, and sustains involvement (Losier et al 1993, p. 153).

**Function:** To be able to do an action for a purpose (AOTA, 1995, p. 865).

Rote activity: A limited-purpose or single-purpose focus by the exerciser on the movement (Nelson and Peterson, 1989, p. 582). The activity may have a purpose or goal but more often than not the purpose originated with the practitioner and not the client (Fisher, 1998, p. 512).

Older adult population: Persons who are over the age of sixty years old

## Literature Review

### Purposefulness and meaningfulness

In the 1995 Eleanor Clarke Slagle lecture, Trombly (1995) discussed the use of purposefulness and meaningfulness of occupations as a therapeutic medium. Occupation can be an "end" in which the activity is the goal, or a means in which the patients' engagement in selected occupation is a change agent to achieve another goal (Trombly, 1995). Trombly (1995) sees meaningfulness and purposefulness as key qualities in both occupations as ends and occupations as means. Trombly (1995) stated that "purposefulness helps to organize and meaningfulness aids in increasing patient motivation" (p.169). The individual needs both purpose and meaning for successful completion of the occupation.

Purposefulness of occupations used as means is based on the assumption that "the activity has a healing property that will change an organic or behavioral impairment" (Trombly, 1995 p. 963). Although Trombly discussed this term in 1995, it has been a well-known goal of occupational therapy for decades. Hoover (1996) wrote about the use of purposeful occupations during World War I. The large number of injured soldiers returning from battle greatly increased the need for occupational therapy. Initially, therapy was given in the form of diversional activities, in order to help the soldiers forget about their pain and to deter them from depressive thoughts. The soldiers were given bedside activities such as weaving, crocheting, and knitting. Although the activities used did help to lift the soldier's spirits by showing them that they could be productive, they had very little purpose relevant to the soldiers return to normal life.

At the end of the war, government concern arose for the future of U.S. industry with the return of the injured soldiers. Occupational therapy refocused from diversional occupations to vocational activities. Bedside activities shifted to woodworking, cartooning, and clerical work. These activities proved to be more relevant to the soldiers' vocational future, while they still added diversion. Hoover (1996) stated that "the goals may vary between the past and present, but the need for purposeful occupations in the early stages of rehab, remains constant throughout the decades" (p. 884).

Trombly (1995) defined meaningfulness of occupation as having "relevance to the person, who is to change, so that it motivates the will to learn and improve" (p.963). Meaningfulness should accompany purposefulness in the occupations chosen for the treatment of older adults. Spirituality can easily be incorporated into the treatment plan to create more meaning. Howard and Howard (1996) looked at the spirituality of occupations as they relate to an individual.

The OT must find what it is that is meaningful to the patient by looking deep into the patients' past, present, and future, and acknowledging them as creative and able persons. This information may help the therapist connect to the patients' spiritual center and find what motivates the patient. (Howard, & Howard, 1996)

According to Howard and Howard (1996), connection to the patient can be through many mediums. The therapist can use imagery to delve into the patients' thoughts and help them find what is important to them in treatment. Clinical reasoning must also be used to help the patient decipher what motivates them to be involved in therapy. Whatever the method may be, the patient must be involved in the selection of the therapeutic activity.

Patient involvement and patient control ensures meaningfulness and purposefulness of occupations.

In 1998, Fisher delivered the Eleanor Clark Slagle lecture titled "Uniting practice and theory in an occupational therapy framework". She discussed the importance of occupations in a person's life. Occupations are defined by the Oxford Dictionary (1989) as something in which we engage ourselves. Fisher (1998) stated that an occupation must be viewed as an activity of importance, which does not only have purpose to the individual but also has meaning. Fisher (1998) defines meaning as something that "pertains to the personal significance of the activity to the client" (p. 511). She described purpose as "it pertains to the client's personal aim, reason for doing, or intended goal" (Fisher, 1998, p.511). Using these terms, Fisher (1998) stated that it is important for an occupation to be both purposeful and meaningful. Engagement in activities that have meaning to the patient will increase motivation and purpose in the patient (Fisher, 1998).

In discussing occupations with therapists from all over the world, Fisher (1998) found that there is a common definition of the term occupation that includes both purpose and meaning. However, her findings showed that there is a far from common practice of incorporating meaning and purpose into occupations used in therapy. Many occupational therapists use exercise in their therapeutic sessions believing that they are "ultimately" improving the person's future performance in occupations (Fisher, 1998). Fisher (1998) questioned how this practice is different from physical therapy. Therapeutic exercise and contrived occupations do not render meaningfulness and purposefulness to the client. Although there may be an end purpose to the exercises, it is generated and recognized by the therapist, not the patient (Fisher, 1998). In contrast, therapeutic occupation involves

active client participation and results in engagement in occupations that are both purposeful and meaningful to the client.

Fisher (1998) discussed the steps of the Occupational Therapy Intervention Process Model. The first two steps directly relate to finding that which is meaningful and purposeful to the patient. The first step is establishing a client centered performance context in which all aspects of the client are considered including role dimension, and motivation dimension (Fisher, 1998). The second step is referred to as "methods for establishing the client centered performance context" (Fisher, 1998, p.515). This is how the therapist finds that which motivates the patient.

Fisher (1998) challenges therapists to take the time in the beginning stages of treating a patient to establish a client-centered approach. Even in the midst of staffing cuts, budget cuts, and problems with reimbursement, she emphasizes the importance of this step. Fisher (1998) believes that this approach may even decrease the overall time needed for effective treatment.

In her article From crafts to competence, Fidler (1981) discussed the need for both purposeful and meaningful occupations in therapy. She believes that there is a lack of information in the literature on these ideas. Fidler (1981) stated that occupational therapists know and understand meaning in activities as it pertains to individuals' lives, yet knowledge may not be used in this manner. "In our efforts to achieve credibility through identification with the modalities of other disciplines, we have disclaimed activities and thereby disclaimed our essence" (Fidler, 1981, p.570). Fidler (1981) believes if a therapist can identify the activities they are using with their patients as "unproductive activity," they are denying the basic beliefs of occupational therapy. Fidler

(1981) states that turning to other profession's modalities or not using meaningful occupations in treatment denies the patient of true occupational therapy.

### Incorporating the patient

Nelson (1996) defined two terms relative to occupations: occupational form and occupational performance. Occupational form is the task demands and the environmental context, whereas occupational performance is the act of doing the task. Nelson (1996) later described the term therapeutic occupation as "meaningful and purposeful occupational performance leading to assessment, adaptation, and compensation, all in the context of occupational synthesis" (p. 780). Nelson (1996) defines occupational synthesis as the joint decision between the therapist and the patient on the occupational form in order to achieve therapeutic goals (p.777). Through patient-therapist collaboration, the occupational form is decided upon in terms of patient interests and goals for therapy. This adds both purpose and meaning to the patient's occupational performance.

It is important for therapists to use tools to involve patients and to find their interests so that meaningful therapeutic occupations will be chosen. The Interest Checklist was a tool developed by Matsutsuyu (1969) for this purpose. Klyczek, Bauer-Yox, and Fidler (1997) studied the use of the interest checklist with the older adult population in order to determine how accurately the items cluster into the five categories described by Matsutsuyu. The results showed that there were differences in interests among the participants on a basis of either age or role. This emphasizes the fact that caution should be taken when interpreting patient's interest checklist scores so that meaningful occupations are chosen for each particular individual (Klyczek et al., 1997).

When considering interest, it is important to find the interests of each individual person, not common interests related to a group (Klyczek et al., 1997). The Interest Checklist is a useful tool for therapists to use to find occupations of interest to the patient. The authors of this study believe that "evoking or sustaining interest, enhances the chances of improving the patient's mental and physical status" (Klyczek et al., 1997, p.816).

Neistadt (1995) researched the methods that occupational therapists use to assess patients' priorities. A survey was completed by 269 OT directors in different adult physical rehabilitation settings across the United States. The results of the surveys found that 263 facilities routinely identify patients' priorities, only 3 did not, and 1 said sometimes.

The most common method of determining patient interest mentioned was informal interview. Neistadt (1995) believes that "informal interview is needed to build rapport with the patient initially," but that it is not sufficient alone to find patients' priorities (p. 434). Other methods mentioned were the Interest Checklist and Occupational Performance History Interview (OPHI). Both were used a lot less frequently than the informal interview method. The Interest Checklist and the OPHI, both semi-structured methods of assessment, provide for greater consistency and facilitate deeper probing by the therapist and the patient.

Neistadt (1995) stated, "in order to establish treatment plans that will be maximally effective, occupational therapists must help clients evaluate and articulate the occupations most meaningful to them" (p. 431). The therapist must use various methods

to collaborate with the patient on what is important in their therapeutic treatment. Patient control in choosing the activity is important to ensure meaning and purpose in treatment.

Rudman, Cooke, and Polatajko (1996) did a qualitative exploration of how seniors perceive activity. The authors stated it is important for the patient to not only be doing but to also be in charge of what he or she is doing (Rudman et al., 1996). The study was conducted through semi-structured interviews with 12 seniors who fit certain qualifications. The interviews revolved around what the participants considered activity and how that activity was relevant to them.

The results obtained from the participants showed that sense of control "is an important mediator of the relationship between activity and the patients' well being" (Rudman et al., 1994, p. 646). The individuals participated in activities because they wanted to, not because someone else wanted them to.

Literature indicates that older adults have established routines of occupations and it is imperative to include the activities that they feel are important into their treatment regime. The therapist must use methods such as those discussed in the article by Neistadt (1995) to help them recognize and describe what is important to them. This will give the patient a sense of control and a voice in what will be used as a treatment method. When the choice of occupations becomes a patient's responsibility, more meaning is evoked, which may result in an increase in motivation to participate in the chosen activity.

#### Motivation

Linda Florey (1969) expressed that there is a better outcome when intrinsic motivation is elicited versus extrinsic motivation. Florey (1969) believes that intrinsic motivation is evoked when activities of interest are chosen in working with a patient.

"The patient would experience satisfaction in the activity itself and this would be sufficient to sustain performance, even performance associated with painful movement" (Florey, 1969, p. 320). A patient becomes intrinsically motivated to complete the activity because it is of interest to him/her, more so than for an outside extrinsic reward (Florey, 1969).

Fidler (1995) introduced the Lifestyle Performance Model, which takes into account the activities in which a person engages and the needs of the individual. This model helps the therapist gain a holistic perspective of the individual's activity repertoire. Fidler (1995) writes that intrinsic motivation can be initiated and sustained when there is a common ground between the characteristics of the activity and the characteristics of the individual. The Lifestyle Performance Model (1995) encourages this match between the person and the activity. To find a match and elicit motivation, there must be patient inclusion in developing the treatment plan and there must be use of meaningful activities. Intervention using this model elicits and sustains a person's motivation to engage in and be successful in activities of interest (Fidler, 1995).

Fidler (1995) discussed four points in her article, which are relevant to motivation and the potential of activities: 1) mastery and competence in activities which are socially acceptable to an individual and his or her culture have greater meaning than those activities with little or no significance; 2) activities hold both symbolic and reality-based meanings which directly influence the individual's experience and motivation; 3) activities which relate to the individual (psychologically and neurobiologically) evoke more mastery and competence and intrinsic gratification; 4) competence and achievement are seen in the outcome of the activity by self and others. Applying these

four factors helps the therapist understand a patient's personal meaning and initiate both the engagement in meaningful activity and the motivation to continue to participate (Fidler, 1995).

The self-determination theory was formulated by Deci (1980). This theory describes three types of motivation as intrinsic, extrinsic, and amotivational. It is in this order that the types of motivation are ranked from the most self-determined (intrinsic motivation) to the least self-determined (amotivational). The theory states that the way a patient perceives the leisure constraints and leisure opportunities can determine motivation. Often there are activities which a patient would like to be able to do. The activities may seem impossible to the patient due to his, or her condition. In this case, the patient considers the activity a constraint. The therapist must make it clear to the patient that the activity can be adapted so that a successful outcome will occur. This will enhance the patient's self-determination and result in greater intrinsic motivation to participate.

Motivation is integral to the elderly population's participation in leisure. In order to evoke motivation, self-determination must be established. Losier, Bourque, and Vallerand (1993) performed a study, which examined patient motivation in leisure activities based on Deci's (1980) self-determination theory. The authors proposed and tested a motivational model, which examined that which encourages the elderly to participate in leisure activities (Losier et al., 1993). Motivation according to this model was defined as "energy that initiates, directs, and sustains involvement" (Losier et al. 1993, p. 153).

The study of the Motivational Model was conducted with the use of a questionnaire with four questions regarding the individuals' participation in leisure. The authors found that the outcomes of the study proved the three postulates that are stated in the motivation model: Perceptions of leisure opportunities and perceptions of leisure constraints were significant determinants of leisure motivation. Perceptions of leisure opportunities enhanced self-determined leisure motivation, whereas perceptions of leisure constraints undermined self-determined motivation (Losier et al., 1993 p.159).

Much has been said about motive but it is very difficult to evaluate. There are very few methods, which can be used to measure a patient's motivation. Carlson (1996) did a pilot study to look at the ways therapists evaluate patient motivation. She obtained her information from 150 fieldwork coordinators in physical disability settings. The participants were asked if they evaluate patient motivation and if so, how they do it. The majority of the respondents said they do evaluate patient motivation, but it is done informally through methods such as observation and discussion. These respondents believe that their evaluation of motivation was reflected in their intervention choices and led to better treatment outcomes.

The results of this study are positive because it shows that many therapists are looking at what is important to the patient and basing their intervention on this information. These findings conflict with what Neistadt (1995) found in her study. Neistadt's (1995) results showed "that therapists are setting treatment goals without specific input from clients about their valued activities" (p. 347). Therapists must keep in mind that patient goals and values are the key to finding that which motivates them to participate and succeed in therapy.

Fidler and Fidler (1978) studied the process of “doing” and its effect on motivation and self-competence. They defined doing as “the sense of performing, producing, or causing. It is purposeful in that the action is directed toward the intrapersonal, interpersonal, or the non-human” (Fidler & Fidler, 1978, p. 305). The doing activity must meet all realms of the individual's needs, must be accepted by them and the people with whom they associate, and is critical for ego development (Fidler & Fidler, 1978). With these ideas in mind when forming a purposeful, doing activity for therapy, the therapist will enable the patient to experience a sense of competence in performing the activity, which may lead to motivation to continue participation (Fidler & Fidler, 1978).

#### Related studies

Nelson and others have done numerous studies on the inherent value of purposefulness in occupational therapy. Several of these studies particularly address the older population. In 1994, Hsieh, Nelson, Smith, and Peterson studied dynamic standing balance in persons' with hemiplegia. The study compared the performance outcomes from purposeful occupations versus the outcomes from rote activities. All subjects were introduced to a week each of an added-material exercise, imagery-based exercise, and rote exercise. The added-material exercise required that the individual use the materials for the activity. For example, one of the activities required the patient to throw small balls. In this case, the patient actually threw small balls at a target. Using this example in the imagery based exercise, the participants imagined using their uninvolved arm to pick up and throw the ball. The rote exercise required that the patient just follow through the motion of bending over, standing up, flexing, and then extending their elbow and wrist as

if pretending to throw a ball. The subjects were rated on the number of repetitions that they could continuously do in each of the exercise methods.

The researchers found a statistically significant increase in number of repetitions performed in the added-material and imagery based exercises than in the rote exercises. There was not a significant difference between the added-material and imagery based exercises (Hsieh et al., 1994). The participants performed more repetitions when they were actually doing the activity or imagining their performance, rather than doing non-purposeful, repetitive motions (Hsieh et al., 1994). The added-purpose and imagery based activities also provided the patient with a goal (hit the target) for them to work toward. The patient could control and rate their performance while participating, whereas the rote exercises provided the patient with repetitive motions without any feedback to the patient if the exercises are being done correctly.

The researchers found that "under certain conditions, the adding of purpose to therapeutic occupations can elicit superior performance" (Hsieh et al., 1994, p. 13). The added materials and the added imagery served as distracters to the patient while they were performing the exercises (Hsieh et al., 1994). The patients focused more on the intrinsic motive to complete the activity successfully and less on the number of repetitions that they performed.

A similar study was performed, which also compared individuals' performance in added-material, imagery based, and rote occupations. Lang, Nelson, and Bush (1992) evaluated fifteen nursing home residents as they participated in three lower extremity kicking tasks. In the material based occupation the subject was asked to kick a balloon as many times as they could until they became tired. The imagery based occupation required

the subject to imagine they were kicking a big red balloon until they became uncomfortable. The final occupation was a rote task in which the subjects simply moved their foot in a kicking motion. The researchers evaluated the number of kicking repetitions the subjects performed in each of the sessions.

The results of this study indicated that subjects kicked significantly more in the added material occupation ( $m= 53.8$ ) than in the imagery based occupation ( $m= 26.20$ ). The rote exercise repetitions ( $m= 18.53$ ) were significantly lower than the materials based occupation. However, there was not a significant difference in the imagery based repetitions and the rote repetitions (Lang et al., 1992). Discussion of the results stated that subjects' verbal remarks in the material based occupation were consistent with the fact that they kicked more. Verbalizations were much more positive in this occupation and much more negative and un-motivating in the rote occupation.

Bakshi, Bhambhani, and Madill (1991) performed a very broad based study, which evaluated several factors of multiple situations. The researchers evaluated performance in most preferred and least preferred occupations. Twenty female subjects between eighteen and eighty years selected a most and least preferred task from a list of eight. Each subject participated in a purposeful most preferred and purposeful least preferred occupation for ten minutes each. The subjects also participated in a non-purposeful most preferred and non-purposeful least preferred occupation, also for ten minutes each. The non-purposeful conditions simulated the purposeful conditions without the purpose. For example, weaving was one of the purposeful activities on the list. The non-purposeful condition of this activity required the repetitive motion of weaving without the presence of a thread on the shuttle.

The researchers evaluated each subject's performance in all four of the occupations, recording the number of repetitions, heart rate increase, increase in blood pressure, and rating of perceived exertion. Results of the study showed there was a significantly higher heart rate and perceived exertion rate in the non-purposeful activity for both the most preferred and least preferred activities. This finding suggests that physiological and perceived stress is elevated during non-purposeful occupations (Bakshi et al., 1991). Many subjects reported they would have stopped the least preferred non-purposeful activity sooner than ten minutes if they were allowed to do so (Bakshi et al., 1991).

Steinbeck (1986) performed a study looking at perceived exertion in purposeful versus non-purposeful activities. The purposeful activity consisted of a drill press controlled by lower extremity pedaling. This activity was converted to a non-purposeful activity by removing the drill press, leaving the subject to pedal with no effect. There was also a comparison made between a purposeful upper extremity activity (squeezing a bulb to make a tennis ball suspend) and a non-purposeful upper extremity activity (squeezing the bulb with no effect).

Results showed that there was much more pedaling and bulb squeezing repetitions in the purposeful task. There was also a higher exertion rate in the purposeful tasks, based on an increase in the subject's heart rate. Steinbeck (1986) attributed the better results in the purposeful tasks to the subjects' distraction from their physical exertion, with their attention focused on the goal of the activity. There was no consideration given to the meaningfulness of the activities chosen. Most likely these activities were not of any meaning to the participants.

Morton, Barnett, and Hale (1992) write that added-purpose tasks are considered multidimensional tasks, which are used by occupational therapists to provide exercise for the patient but allow their attention to be directed toward the outcome of the task. This way the patient's attention is not on the motions they are performing or the pain they have. It has been assumed that the addition of purpose in a task will improve the patient's performance on the task "if it is sufficiently distracting or meaningful" to the patient (p.128). Based on these beliefs, Morton et al. (1992) performed a study which looked at performance outcomes based on the adding of purpose to a task. The content of this study closely resembled that of Steinbeck's (1986) study.

Thirty subjects between the ages of 39 and 52 were recruited to participate in the Morton et al study. There were 15 males and 15 females and all were employees at the Department of Veteran Affairs Medical Center. The subjects were randomly assigned in a stratified manner based on sex and age to participate in the added purpose or the single purpose activity. Each person participated in his or her assigned activity three times within a two week period.

The added purpose task and the single purpose task both required the same apparatus. The apparatus was built as a weight box on an inclined frame with a battery operated bell box at the top of the frame. The subjects in the added purpose group were to move the weighted box up the angled frame until the bell rang. The goal was to ring the bell as many times as they could, stopping when they reached very hard (17) on the Borg rating scale.

The subjects in the single purpose task were asked to "extend and flex their elbows as many times as possible to move the weighted box, stopping when they reached

very hard (17) on the Borg rating scale" (Morton et al., 1992, p. 130). The bell was not present on the apparatus during the single purpose task. The researchers stopped the subjects during either of the tasks if they reached peak heart rate, as was indicated by an EKG monitor.

The researchers evaluated the duration of time the subject spent on the task, the number of repetitions they performed, and their exercise heart rate. Unlike the results of Steinbeck's research, the results of this study indicated no significant difference in the three variables analyzed between the single purpose and the added purpose tasks. It was discussed that this result may be due to the fact that the bell ringing was not considered meaningful or a distraction to the subjects in the added purpose task.

The researchers discussed the fact that the bell ringing was goal directed but it did not result in the production of a product. It is believed that an outcome which includes a product may lead to more meaning in an activity and therefore elicit a better performance of the activity (Morton et al., 1992). Subjects in this study mentioned that the added purpose (ringing bell) task was more fun than the single purpose task. The authors believe that occupational therapists should use activities that "solicit purpose or meaning from patients performing rehabilitative tasks" (p.132).

Thibideaux and Ludwig (1998) tested the use of purposeful activity as an intrinsic motivator. Fifteen subjects participated in two sanding activities. The subjects were to sand a board until they reached 15 (hard) on the Borg rating scale. The subjects' heart rate and the amount of time spent on the project was compared with their performance on sanding a cutting board that they could keep. This study incorporated the idea of a performance outcome which included a product (a cutting board).

The results of this study did not prove the hypothesis that “purposeful activity will motivate the subject to perform longer and harder” (Thibideaux & Ludwig, 1998, p. 171). This result was attributed to the small sample size. However, the subjects' responses on the interest questionnaire about the activities showed that there was much more patient interest in sanding the cutting board than in sanding the piece of wood. Suggestions from the researchers to improve this study included the use of an Interest Checklist to discover patients' interests in order to incorporate the idea of meaningfulness. The authors believe more meaning in the activity may have led to a greater difference in the results.

Bloch, Smith, and Nelson (1989) studied the changes in heart rate, affect, and duration of time on activity in a single purpose activity versus an added purpose activity. This was a replication of an earlier study performed by Kircher (1984). Thirty college students participated in this study. The group was randomly divided into two groups. Each group participated in both activities but it was randomly assigned as to which group participated in which activity first. The single purpose activity was considered a non-purposeful activity in the authors' eyes. The subjects were asked to jump as if they were jumping rope without the actual rope. In the added-purpose activity the subjects actually jumped rope using a real rope.

The subjects participated in both of the activities within a span of twenty-four hours to five days. After each session, the subject's heart rate was taken and the amount of time spent on the task was recorded. The subjects were asked to fill out an Osgood's short form semantic differential. This measures the affective meaning of the activity to the individual. The subjects were also asked at the end of the second session which session they preferred.

The results of this study showed a significantly higher heart rate after the subjects' participation in the added-purpose activity. A comparison of the duration of time spent on the task between the two activities approached significance. Twenty of the thirty subjects jumped longer with out the rope. No significant difference was observed in the analysis of the factors of affective meaning. Sixteen of the thirty subjects preferred jumping with the rope. Bloch et al. (1989) believe there needs to be more research in this area to substantiate the use of added purpose in exercise embedded activity.

Miller and Nelson (1987), studied "Dual purpose activity versus single purpose activity in terms of duration on task, exertion level, and affect" (p. 55). The subjects were thirty undergraduate students divided into two groups. Subjects who participated in the dual-purpose activity were asked to stir cookie dough with the purpose of baking cookies. Subjects in the single purpose group simply stirred a substance of the same consistency as the cookie dough.

There was a significantly higher rating of the dual purpose activity using Osgood's semantic differential (Miller and Nelson, 1987). There was no significant difference in duration of time on task. Differences in exertion level approached significance (Miller and Nelson, 1987).

Yoder, Nelson, and Smith (1989) studied added-purpose versus rote exercise in female nursing home residents. This was a replication of the previous study by Miller and Nelson (1987) with a few differences. The study compared the performance of a group of elderly female subjects stirring cookie dough, versus that of different group's performance at stirring, without knowing the substance was cookie dough.

The subjects who were aware they were stirring cookie dough actually followed through with baking the cookies after they stirred the dough. This activity was considered an "occupationally embedded exercise" (Yoder et al., 1989). In the meaningful situation, the environment was set up as if the subject was going to bake the cookies. The subjects were told to stir as long as they could until they became uncomfortable. The subjects in the group stirring the unknown substance only performed the rote stirring exercise with no change in the environmental set up. These subjects were also told to stir as long as they were able until they became uncomfortable.

The researchers compared performance in the two activities based on the frequency of rotations in stirring, the duration of attention to the task, and the number of discontinuities in the task. The study showed there were significantly more rotations of stirring in the added purpose activity. The participants also attended to the purposeful task for a much longer duration. The subjects in the rote group tended to stop more frequently during the stirring process. The "added purpose, occupationally embedded exercise" elicited a better performance than did the rote exercise (p.585). Yoder et al. (1989) believe "This finding, provided the additional support for the traditional occupational therapy idea of embedding exercise within occupation" (p. 585).

A suggestion made in the discussion of this article is the use of self-report to find "meanings and purposes of the individual" (p.586). This suggests that the differences found may have been even greater if an activity that was considered meaningful to the subject was used.

Nelson and Peterson (1987) performed a theoretical analysis of the use of purposeful activity to enhance therapeutic exercise. The authors believe that "meaningful

and purposeful activities provide a naturalistic context for motivating and supporting healthy movement" (p.12). Nelson and Peterson (1987) believe this idea can be generalized to the geriatric population by "designing or synthesizing meaningful activities specifically geared to the movement needs of the elderly patient" (p.13). It was concluded that a patient who participates in an exercise embedded in an everyday activity is more apt to integrate the exercise/activity into their daily repertoire. The patient who performs rote, non-meaningful and non-purposeful exercise will be less likely to generalize the routine into their day.

Nelson and Peterson (1987) believe activities with purpose produce a better quality of exercise because there is an added goal, which distracts the patient from the actual movement. "There are strong theoretic grounds for suggesting that elderly persons with or without specific medical conditions will especially benefit from an activity based approach" (p.21).

### Summary

When working with the older adult population, it is imperative to remember the routines in which they have been involved throughout their lives. The best way for the occupational therapist to find out what is most important to the patient in their treatment is to collaborate with them (Neistadt, 1995). The collaboration process will give the patient a sense of control over the treatment and recovery process. It will also help the therapist to find what is meaningful to the patient in their recovery. The therapist can use the information obtained to assist the patient in formulating a meaningful treatment program that is purposeful to the patient's condition. Patient input will enhance meaning and purpose because the treatment methods will directly pertain to the patient's needs and

wants (Niestadt, 1995). This correlation between what is important to the patient and what is used in therapy may help to elicit intrinsic motivation in the patient and contribute to better performance in therapy (Florey, 1969).

In working with the older adult population, research shows that with the incorporation of patient control and the use of meaningful and purposeful activities to develop self determination, there will be an increase in patient motivation (Losier et al., 1993). This increase may further lead to better participation in treatment activities and most importantly, better treatment outcomes.

## Methodology

### Subject selection method

Seventeen subjects were recruited for this study. To be included in the study the individuals had to be at least sixty years old and somewhat enjoy baking cookies.

Recruitment initially occurred at the Ithaca Community Senior Center. The recruitment process was done by advertisement. The researcher attended several of the Senior Center's activities and discussed the study and asked for volunteers. A bulletin was posted in the Senior Center which described the study and asked for volunteers who fit the subject criteria.

The response rate of interested individuals was very low at the senior center, only four subjects volunteered after two weeks of recruitment. For this reason, the recruitment process was expanded to include Titus Towers in Ithaca. Titus Towers is a rent subsidized housing unit in Ithaca. The residents of Titus Towers live independently in their own apartments. The researcher attended one of the breakfast group gatherings at the facility to announce the study and recruit participants. During only one hour of recruitment at Titus Towers, fifteen subjects who fit the subject criteria for the study became interested in participating.

### Apparatus

One sauce pan was used for the purpose of this experiment. A circle was cut out of the lid of the pan. The circle measured about 2 cm in diameter, and was about 3 cm from the edge of the lid. The shaft of a long mixing spoon was inserted through the lid and into the container. The spoon was marked two inches from the lid of the pan so that

all subjects held the spoon in the same place. This adaptation of the sauce pan allowed the lid of the pan to rotate as the subject stirred.

Three bolts were drilled into the lip at the top of the pan. The bolts stuck into the center of the pan enough to deter the lid from popping off the pan while the subject was stirring. The bolts were not touching the lid, therefore no added resistance was created. The lid did not allow the individuals in session B to see that they were stirring cookie dough. The lid was used in session A for consistency between the experimental and control groups. The hole in the middle of the lid which allowed the lid to rotate ensured that all stirring revolutions were comparable within subjects and between subjects. For both the rote and the purposeful/meaningful baking session, the subjects stirred the same amount and consistency of cookie dough.

#### Gathering the data

Seventeen subjects who are sixty years of age or older, live independently in the Ithaca community, and enjoy baking cookies were asked to attend two sessions at the Ithaca Senior Center kitchen or the Titus Towers kitchen, depending on from which facility they were recruited. Subjects were randomly divided into two groups (1 and 2). Group 1 participated in session A (purposeful/meaningful baking session) first, and session B (rote session) second. The order of sessions was reversed for group 2. There was a minimum of three days and a maximum of 10 days between each subject's participation in the two sessions.

The stirring occupation in both sessions was a function of strength. Therefore, grip strength was measured for each subject prior to their participation in each session. Grip strength was measured only on the hand with which the subject stirred, using the

Jamar dynamometer. This measurement also tested for variability in the subjects' hand strength between the two sessions. Slight variability was expected, but if a large variability occurred it was to be taken into consideration and the data gathered from the subject would not be used. The results of the dynamometer readings showed that variability in subjects' hand strength did not exceed a difference of five pounds between the two sessions.

The environment was kept consistent between the Senior Center and Titus Towers. In session A, the environment was set up as if the subject was going to bake cookies. This facilitated the subjects' feeling that they were fully engaged in a meaningful and purposeful activity of baking cookies. The scent of cookies was in the air from those baked by the prior subject. A vanilla candle was also lit in an effort to enhance the baking smell and create a relaxed baking environment. There was a plate of cookies on the counter from which the subject could snack. A spatula, a hot pad, and measuring spoons were also visible.

The cookie dough the subjects stirred consisted of oil, eggs, and cookie mix. The dough was mixed prior to each session so that it was the same consistency as the dough the subject stirred in the rote stirring session (session B). All subjects stirred one pound of dough each session. Before each session, the dough was measured with a cooking scale to ensure that it was the exact amount of dough each session.

The amount of time the subjects stirred the dough may have been affected when they saw that the dough had already been mixed. Taking this into consideration, the researcher placed the dough into the pan prior to the arrival of the subject. Before the subjects began stirring, they were told:

All of us need to exercise. Sometimes we can combine our exercise with some other activity we enjoy, like baking cookies. I am trying to determine the length of time and how hard a person will stir something for exercise and for baking cookies. These cookies taste best when stirred for a long time. When I say begin, please stir the cookie batter as long as you can without feeling too uncomfortable.

Do not let me bother you. I will be keeping track of how long you stir.

Remember, these cookies taste best when stirred for a long time. Please stir as long as you can without feeling too uncomfortable. Stop when you are too uncomfortable. Ready? Begin. (Yoder et al., 1989, p.585)

Session B (rote stirring session) had no environmental stimuli. The same cookie dough used in session A was also used in session B. The already stirred dough was in the mixing pot when each subject arrived. The subjects were unaware that it was cookie dough in the pot. If they asked, they were told it was clay with the same consistency as the cookie dough. Before the subjects began stirring, they were told the following:

All of us need to exercise. I am trying to determine the length of time and how hard a person will stir something for exercise. When I say begin, please stir as long as you can without becoming too uncomfortable. Stop when you are too uncomfortable. Do not let me bother you. I will be keeping track of how long you stir. Remember, stir as long as you can without feeling too uncomfortable. Stop when you are too uncomfortable. Ready? Begin. (Yoder et al., 1989, p. 584)

During each session, the researcher sat in a chair approximately ten feet away from the subject. The researcher did not initiate any communication with the subjects. If the subjects began to talk to the researcher during the stirring process, the researcher

would respond as long as it was not interfering with the process of the study. This was to create a less stressful and more natural baking and exercise environment. A rigid, non-communicative environment may have affected how the subject viewed the activity and may not have allowed them to act as they would have under normal conditions.

If the subject stopped stirring to talk or stopped for a break, they were prompted to continue stirring by the researcher. If the subjects stopped in session A, the purposeful/meaningful baking session, they were told "These cookies taste best when stirred for a long time. Can you stir some more without feeling too uncomfortable? Stop when you are too uncomfortable" (Yoder et al., 1989, p.585). If the subjects stopped in session B, the rote stirring session, they were told "Can you stir some more without feeling too uncomfortable? Stop when you are too uncomfortable" (Yoder et al., 1989, p.585). Nothing else was said if a subject failed to continue to stir. The time the subject finally stopped was recorded.

The researcher noted the duration on the task for each subject during the session. The number of stirring revolutions was also recorded for analysis. All sessions were video taped, so the count of stirring revolutions could be verified accurately. The number of stirring revolutions were not counted during the sessions because of too many distracting factors that may have caused inaccuracy in counting. All video tapes were reviewed and analyzed the same day as the taping occurred.

After each session, the subjects were asked to fill out a short questionnaire. The questions pertained to the subjects' perception of their participation in the activities and their motivation to participate in the sessions. The questions were as follows:

- 1) How much do you like baking cookies?

- 2) How much did you like to get exercise by doing this activity?
- 3) Were you bored during this activity?
- 4) Do you wish you could have stirred longer than you were able to?

The responses followed a Likert format (1=not at all, 2= not very, 3=somewhat, 4=very much).

The subjects circled their response to the questions. At the end of the subjects participation in the last session, the subjects were asked to assess in which session (A or B) they preferred participating.

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### Null Hypotheses

There will be no difference between session A (purposeful/meaningful baking session) and session B (rote stirring session) on each of the following dependent

variables:

- duration of time spent stirring
- number of stirring revolutions performed
- responses to the interest and motivation questionnaire

There will be no significant difference in group 1 and the group 2 in session A (purposeful/meaningful baking session) and session B (rote stirring session) in the

following dependent variables:

- duration of time spent stirring
- number of stirring revolutions performed
- responses to the interest and motivation questionnaire

### Assumptions

In this study, several assumptions were made prior to the beginning of the research in order to account for factors beyond the control of the researcher. This study assumes:

This population of Ithaca senior citizens is a representative sample of the independently living elderly in the Ithaca community.

If an individual is interested in baking cookies, the activity of stirring cookie dough and baking cookies is considered meaningful and purposeful.

People who find an activity interesting, meaningful, and purposeful will be motivated to participate in the activity.

If an individual participates in an activity and enjoys the participation, the activity is motivating to them.

All subjects will truthfully respond to the questions on the interest and motivation questionnaire.

The presence of the observer and the video camera will not change the participation level of the subject.

Each subject will be cognitively and physically able to stir the dough for at least thirty seconds.

### Analyzing and interpreting the data

The three dependent variables, the time spent on the stirring task, the number of stirring rotations, and the responses to the interest and motivation questionnaire were statistically analyzed using paired  $t$  tests. The paired  $t$  test was used to analyze whether

the subjects' performance and perceptions were significantly different between the two sessions.

An independent samples  $t$  test was performed in order to compare the three variables in the purposeful/meaningful and rote sessions. This test was used to assess whether there were significant differences in the variables due to the order of the two testing conditions.

Descriptive statistics were performed to show the means for time on task, the number of stirring rotations, and to compare and describe the answers from the two questionnaires that were given at the end of each session. Descriptive statistics were also used when analyzing the subjects' responses regarding their preference of sessions.

A Spearman Rho correlation analysis was performed to assess for significant relationships among all variables analyzed.

Although an ANOVA would be a beneficial statistical analysis for this study, it was not used due to the fact that the data in this study was not structured so that an ANOVA could be easily performed.

### Limitations and Delimitations of the study

This research study includes individuals over the age of sixty who are independently living in the Ithaca community. The sample does not include elderly patients who are currently receiving occupational therapy.

A small sample size can make it difficult to achieve significance due to the fact that there is a greater probability that the difference occurred by chance.

Each individual's health, particularly their hand and upper extremity strength, may be different from day to day. This may make their effort vary between the two sessions and further affect the results.

In the initial stages of the research, only subjects who enjoy baking cookies were recruited. However, many responded they do not like to bake on the interest and motivation questionnaire, which was given after the subjects' participation. This would mean that this activity may not have been considered meaningful to these subjects because of the fact that they had no interest in baking.

Many of the subjects live alone and have little contact with others. The attention and interaction they received in the rote session seemed very pleasurable to them. This may be the reason the subjects' responses on the questionnaire showed equal enjoyment in both sessions. This created a limitation in the validity of the subjects' responses to the interest and motivation questionnaire and is also a limitation in the results of this study.

## Results

The data were analyzed using SPSS software on a desktop computer. Results were considered significant if the  $p$  values were less than .10. A paired samples  $t$  test was performed in order to test the first hypothesis which stated there will be no difference between session A (purposeful/meaningful baking session) and session B (rote session) on each of the following dependent variables: duration of time spent stirring, number of stirring revolutions performed, and responses to interest and motivation questionnaire. The results are presented in table one.

The paired  $t$  test analysis showed that overall there were no significant differences in the amount of time ( $t(16) = 1.47, p = .16$ ) or the number of stirring rotations ( $t(16) = -1.24, p = .23$ ) between the purposeful/meaningful bake session and the rote session. Therefore, the first null hypothesis was not rejected with respect to these variables.

The response as to which session the subjects' preferred participating in showed that 82% enjoyed the purposeful/meaningful bake session most. Two subjects preferred the rote session and one subject had no preference for either session.

There was a significant difference in the paired  $t$  test in the response to the question that asked how much the subjects liked to get exercise in the rote session and the purposeful/meaningful bake session ( $t(16) = 1.90, p = .08$ ). Given this, the first null hypothesis was rejected regarding this variable.

In regards to all other responses given to the questions asked after each session, the answers were similar in both sessions. Therefore, the researcher failed to reject the first null hypothesis regarding these variables because there were no significant differences in the subject's responses.

Correlations among variables included in the paired samples t-test yield several results. First, the time spent stirring in both conditions was strongly positively related ( $r = .74$ ). This is not surprising given that there was no significant difference in the time spent stirring in each condition. Additionally, participants' responses to the question "were you bored during this activity" were consistent and strongly correlated ( $r = .86$ ) indicating that they found the activities in both conditions to be boring. No relationships were found between the subjects response in both sessions to the question asking if they wished they could have stirred longer ( $r = .08$ ). All paired t correlations are presented in table number one.

Table One

Comparisons of Subject Participation in the Purposeful/Meaningful Condition and the Rote Condition (n = 17):

Variable	Bake		Rote		t	df	r
	M	SD	M	SD			
Time spent stirring	156.71	88.37	134.71	80.99	1.47	16	.74**
Number of stirring revolutions	71.11	37.41	60.71	37.80	-1.24	16	.58**
How much do you like to bake cookies?	3.29	.92	3.29	1.05	.00	16	.16
How much did you like to getting exercise?	3.47	.80	2.88	1.11	1.90*	16	.14
Were you board during this activity?	1.47	.80	1.76	1.34	-1.57	16	-.86**
Do you wish you could have stirred longer?	2.82	1.19	2.23	1.20	1.50	16	.08

\*\* p < .05 \* p < .10

An independent samples  $t$  test was performed in order to test the second hypothesis which stated there will be no significant differences between group 1 and group 2 in session A (purposeful/meaningful baking session) and session B (rote stirring session) on the following dependent variables: duration of time spent stirring, number of stirring revolutions performed, and responses to the interest and motivation questionnaire. Table two shows all of the results from this analysis.

Results of the independent samples  $t$  test indicate that in the purposeful/meaningful bake session, group 1, who participated in the bake session first, stirred more revolutions in the bake session than group 2, who performed the rote session first. This was considered significantly different ( $t(16)=2.35, p=.03$ ). There was also a significant difference in the time spent stirring in the bake session ( $t(16)=1.94, p=.07$ ) between the two groups. Group one stirred longer than did group two. Given these results, the researcher will reject the null hypothesis, which stated that there would be no differences in the number of stirring rotations and the time spent stirring between group 1 and group 2 in the baking session.

The independent samples  $t$  test was also used to compare the responses of group 1 to the questionnaire versus the responses of group 2 in the bake session. There was a significant difference in groups' response to the question pertaining to their level of boredom in the rote session ( $t(16)=-2.19, p=.05$ ). Given this, the researcher rejected the null hypothesis which stated there would be no difference in the groups' responses.

The researcher failed to reject the null hypothesis regarding all responses given by the two groups in the baking session. There were no significant differences in the

responses, showing that the order of the sessions had no effect on the groups' responses to the questions on the interest and motivation questionnaire.

During the rote session, group 1 performed more stirring revolutions and spent a longer time stirring than did group 2. However, neither of these differences were considered significant according to the independent samples  $t$  analysis. The results of the analysis led the researcher to fail to reject the second null hypothesis regarding these variables.

In regards to the subjects' responses to the questions asked in the rote session, a significant difference was found between group 1 and group 2 in regards to the question which asked how much the subjects liked to get exercise by engaging in the rote activity ( $t(16)=1.92, p=.07$ ). Group 1 enjoyed getting exercise in the rote session "somewhat," as compared to group 2 who enjoyed it "not very much". This means that the order of treatment affected both performance in and perceptions of the sessions. Therefore, the null hypothesis regarding this variable was rejected!

There was also a significant difference in the responses given in the rote session to the question which pertained to the subjects boredom with the activity ( $t(16)= -1.90, p=.08$ ). Group 2, who engaged in the rote activity first, reported being more bored in the rote session than did group 1. Therefore, the researcher rejected the null hypothesis that stated there would be no difference in the groups' responses to this question.

The researcher failed to reject the second null hypothesis for all other responses in the rote session. This was due to the fact that there were no significant differences in the responses to the questions between the two groups following the rote activity. Therefore, the order the groups participated in the sessions did not appear to affect their responses.

Table Two  
 Comparison of the Order of Tasks : Does it affect behavior and perception?

Variable	Group 1		Group 2		t	df
	M	sd	M	sd		
<b><u>Bake Condition</u></b>						
Time spent stirring	192.89	104.47	116.00	42.42	1.94*	16
Number of stirs	88.89	32.96	51.13	33.10	2.35**	16
How much do you like to bake?	3.44	.73	3.12	1.13	.70	16
How much did you like exercise?	3.56	.73	3.37	.92	.45	16
Were you bored?	1.11	.33	1.88	.99	-2.19**	16
Do you wish you stirred longer?	2.56	1.01	3.13	1.36	-1.00	16
<b><u>Rofo Condition</u></b>						
Time spent stirring	164.78	94.36	100.88	48.43	1.72	16
Number of stirs	70.56	40.47	49.63	33.61	1.15	16
How much do you like to bake?	3.44	.53	3.13	1.46	.62	16
How much did you like exercise?	3.33	.50	2.38	1.41	1.92*	16
How bored were you?	1.11	.33	1.88	.99	-1.90*	16
Do you wish you stirred longer?	2.33	1.00	2.13	1.46	.35	16

\*\* p < .05 , \* p < .10

A Spearman's Rho analysis was performed in order to investigate the relationships among the participants' stirring behavior and their assessment of both the purposeful/meaningful baking session and the rote stirring session. All of the results are presented in table three (Appendix C).

There was a significant correlation between the baking time and the number of stirring revolutions that were performed in the bake session ( $r = .68$ ). Likewise, there was a significant correlation between the time the subjects spent on the rote stirring activity and the number of stirring rotations performed in this session ( $r = .73$ ).

A positive significant correlation was found in the purposeful/meaningful baking session between the subjects' statement of how much they like to get exercise and how much they like to bake cookies ( $r = .61$ ). The more they like to bake cookies, the more the subjects enjoyed getting exercise in the purposeful/meaningful baking session. There was a positive significant correlation ( $r = .73$ ) between the number of times the subjects stirred in the bake session and their responses to the question regarding the rote session, which asked if they wished they could have stirred longer than they were able to. The more the subjects wished they could have stirred in the rote session, the longer they stirred in the purposeful/meaningful bake session.

A negative correlation ( $r = -.66$ ) was found between the questions asking whether the subjects were bored during the bake activity and how much they liked getting exercise in the rote activity. A negative significant correlation ( $r = -.66$ ) was also found in the rote session pertaining to the same questions. These results indicate that there is a relationship between a subject's level of boredom during the activity and how much they enjoy getting exercise by engaging in this activity. Lastly, there was a positive significant correlation

( $r = .74$ ) between how bored the subjects were in the base how bored they were in the rote sessions.

## Discussion

The paired  $t$  analysis did not show a significant difference in the time spent stirring or the number of stirring revolutions performed between the bake session and the rote session. However, the means appear to show a difference. During the baking session, there were more stirring revolutions performed for a longer period of time.

The results of the paired  $t$  analysis showed that individuals reported enjoying getting exercise through stirring in the purposeful/meaningful baking session as opposed to the rote stirring session. The purposeful/meaningful baking session responses showed the subjects "somewhat" enjoyed getting exercise in the bake session, whereas getting exercise in the rote session was not enjoyed very much.

The independent  $t$  test showed there was a significant difference in the number of stirring rotations and time spent stirring between the two groups in the purposeful/meaningful activity. Group 2, who participated in the bake session second, stirred less rotations and less time in the bake session than did group 1, who participated in the bake session first. This could be due to the fact that group 1 participated in the baking session first, a task that may have been considered purposeful and meaningful to them and allowed them to then perform well in the second, rote session. Group 2 however, participated in the rote session first. This session may have been less motivating and biased their participation during the baking session.

There was a significant difference in the responses given by subjects in both groups in the meaningful/purposeful bake session and the rote session to the question pertaining to their level of boredom during the rote session. Group 2's participation in the rote activity first may have led them to become bored with activity in general. Group

1, on the other hand, started out with the purposeful and meaningful activity and, therefore, may have seen the rote activity as less boring, because the task was similar to the meaningful activity.

There was a moderate significant difference in the responses to the question pertaining to the amount the subjects enjoyed getting exercise in the rote activity between the two groups. Group 1 enjoyed getting exercise more than did group 2 in the rote session. The difference may be attributable to the order in which the subject's participated in the sessions. Group 1 began the study with the purposeful, baking session. This may have established a positive expectation of the activities of the study for these subjects. When stirring in the rote session, they may have equated the stirring they were doing with the stirring they performed in the baking session. Group 2, on the other hand, began with the rote session. This may have caused some confusion because the subjects may have thought they were going to be baking and then they were asked to simply stir until they became tired. This may have created a negative perception of the activity, such as the activity being boring since it was not as they may have thought it would be.

There were some interesting findings in the Spearman rho correlation analysis. There was a strong positive correlation that showed the more the subjects liked to bake cookies, the more the subjects liked to get exercise in the baking activity. This indicated that if the baking activity has meaning to an individual, they may have more motivation to get exercise through the activity. The more meaningful the task was, the more the subject may have forgotten the fact that they were getting exercise and enjoyed the process of stirring cookie dough, which was actually exercise in itself.

There was a negative correlation between how much the subject liked to get exercise in the rote activity and how bored they were during the rote activity. It is reasonable to conclude that the subjects who found the rote activity boring did not enjoy getting exercise in this activity.

There was a positive correlation between the number of times the subjects stirred in the bake session and their reported desire to stir longer in the rote session. It is plausible that the more the subjects wished they could have stirred longer in the rote session, the more motivated they were to actually stir more during the bake session. The rote activity appeared to be more work than the bake activity, possibly because it was less purposeful and required more physical effort. Most of the subjects wished they could have stirred longer in the rote session but were unable to because they fatigued sooner, or became bored with the activity. The individuals' participation in the baking session was better due to the subjects increased motivation to stir longer, most likely because there was more purpose and meaning.

The negative correlation between how much the subject enjoyed getting exercise in the rote activity and how bored they were in the bake session may indicate that the more the subjects enjoyed getting exercise in the rote session, the less bored they were during the baking session

Lastly, the positive correlation between the subjects' boredom in the rote activity and the subjects' boredom in the baking activity could be due to the fact that many of the subjects recruited did not have as great of an interest in baking than was initially thought. This could have led to their boredom during not only the rote activity, which simulated

stirring cookie dough, but also during the bake activity, because it was not of any meaning to them.

Overall, looking at the performance of all subjects in both sessions, more time was spent stirring the dough in the baking session than in the rote session. However, the difference between the time spent stirring the dough in the baking session was not considered a significant difference from the time the subjects spent stirring in the rote session. This result can be attributed to the limitation that this was a small research study with only seventeen subjects. Had there been a greater number of subjects, the difference in time spent on the task between the bake session and the rote session may have proved to be significant. This same reasoning also pertains to the number of stirring revolutions performed in the bake session versus the rote session. There were more revolutions performed in the bake session as compared to the number of revolutions the subjects performed in the rote session. However, these differences also were not statistically significant.

In analyzing the subject's responses to the interest and motivation questionnaire, many things must be taken into consideration. First, thirteen (76%) of the subjects in this study are from Titus Towers in Ithaca. Of these thirteen individuals, twelve live alone. These circumstances may mean that the individuals are lonely or bored in their apartments and may have been interested in this study because it got them out of their apartment, gave them something to do, and provided human interaction. This may have had a great effect on the subjects' responses to the questions. This is considered a major limitation to the study in that the subjects who participated were not a good sample of the well elderly living in the community. This also goes against the assumption made in the

proposal of this research project, which stated that subjects used would be a representative sample of the older adult Ithaca population. Many of the residents of Titus Towers are lonely individuals who are very inactive in the community and rarely leave their apartments. Also to be considered is the fact that many residents at Titus Towers are of low socioeconomic status and have a limited educational background. These are not characteristics of the majority of the well elderly in Ithaca, making the results difficult to generalize to the well elderly population.

Many of the subjects responded with the same answers for both the baking and the rote sessions. Given the population studied, there may be two reasons for identical responses to both activities. One of these reasons could be that the subjects really did enjoy both sessions. The rote session was an opportunity for them to socialize with another person (the researcher), so it may have been enjoyable to them in this respect. The second reason could be that the subjects perceived a developing relationship between themselves and the researcher throughout the study. For this reason, the subjects may not have wanted to hurt the researcher's feelings by saying that they did not like one of the sessions. This sentiment was stated several times by different subjects when they were asked to fill out the questionnaire.

The questionnaire also proved to be difficult for the subjects to understand. Question number three asked the subject if they were bored during the activity. One subject responded "not very much" to this question when it was asked in regards to the subject's participation in the rote session. When the subject was leaving, she asked if she would actually bake the cookies in the next session. When it was affirmed that the next session was the baking session her response was, "good because this session was boring."

This shows a great discrepancy between what the subject was feeling and the response that she gave on the interest and motivation questionnaire.

The question, "how much do you like to bake" was asked as the first question in both the baking and the rote session. Many of the subjects answered this question differently between the two sessions. Some of the differences in the answers given were as dramatic as "not at all" in one session, and "very much" in the other session. These opposite answers raise a question regarding the validity of the subjects' responses to the rest of the questions on the questionnaire.

During the recruitment process, it was made clear that all subjects must qualify to be in the study based on two criteria; sixty years or older and they must enjoy baking. All subjects who signed up were said to fit these qualifications yet some subjects' responses to the questionnaire indicated otherwise. Of the seventeen subjects in the study, 35% responded that they do not like baking at all or do not like to bake very much and 29% answered they enjoy baking somewhat. This negates one of the main assumptions of this study, that the subjects find baking meaningful. There were six subjects who did not find the baking session to be at all meaningful or motivating and five who saw it as moderately meaningful and motivating. This may simply be because they do not like to bake or only somewhat like to bake. This was considered a limitation to the study.

When asked which session the subjects' would choose to participate in if they had to do it everyday, 82% responded the purposeful, baking session. Only two of the subjects responded that they preferred the rote session. When asked why, one of the subjects reported that she chose the rote session because it was the first session in which she participated and so it was the session in which she learned about the whole study

through the informed consent form. She also chose the rote session because it was the session in which she met the researcher, demonstrating the desire for personal interactions. In the bake session she stirred much longer than the rote session and performed many more revolutions than she did in the rote activity.

As the researcher, I observed many differences in both the subjects' performances and attitudes during the two sessions, which are worth mentioning. There was a great increase in the subjects' reminiscence during the baking group. They discussed times when they used to bake, holidays, their late loved ones, etc. There was much less discussion in the rote group. The discussion that did take place during the rote session was based more on the activity and the movement required. The subjects asked questions about the pan, how it was adapted, and commented on the stirring process.

These findings are supported by past research. Motron, Barnett, and Hale (1992) described added purpose occupations as multi-dimensional tasks that allow attention to be directed to the outcome not on the pain the individual is in or the task at hand. They believe patient performance on the task will improve if the task is considered "sufficiently distracting or meaningful to the patient" (p.128). Nelson and Peterson (1989) believe that an added goal in a purposeful movement can distract from the movements required.

The purposeful baking occupation offered the subject not only physical exercise in the stirring process, but also emotional and cognitive stimulation. In the rote task, the subjects focused only on the task at hand. The rote session was considered a physical activity only, because it did not stimulate psychological, emotional, or cognitive responses in the subject.

Another difference which was noticed between the rote and the bake session was the fact that the subjects seemed to have a much more positive affect and seemed to have more motivation to keep stirring in the baking session. This was evident based on some of the things they said during the sessions. One woman said, "I am not tired" throughout the entire stirring process during the baking session. This was the complete opposite of her attitude during the rote activity in which she persistently stated, "I am getting tired". However, there was little evidence based on the responses to the interest and motivation questionnaire; that the subjects were more motivated to continue stirring in the baking session. The moderately significant difference in the paired samples statistics, which was discussed earlier, did show that the individuals enjoyed getting exercise in the bake activity more than in the rote activity.

The researcher had hoped to find many significant differences in the responses given on the interest and motivation questionnaire during the bake session versus the rote session. The researcher thought that more subjects would respond they were more bored in the rote activity than the baking activity. This may not have occurred due to the fact that many of the subjects were not as interested in baking as they expressed when recruited for the study. The researcher also thought the subjects would respond that they wanted to stir longer in the bake session. This would have implied that they were more motivated to keep stirring in this session, because there was a purpose, good cookies. This, however, was not the case, probably due to the fact that many of the subjects were confused by this question.

The researcher did find that the subjects in group 2 mostly responded they stopped stirring because they were bored. However, this was not significantly different from

group 1's response to the same question. The researcher had expected to find a much larger discrepancy between the answers given in this question in the two sessions. It was expected that the individuals would stop stirring in the bake session because they were motivated to keep stirring and in turn became wore out. In the rote session it was expected that the subjects would stop because they were simply bored with the activity.

Overall, the subjects did stir longer and with more stirring revolutions in the meaningful/purposeful baking session than in the rote session, however, these results were not considered significantly different. The subjects reported they enjoyed getting exercise in the purposeful/meaningful baking session more so than in the rote session. Eighty two percent of the subjects reported they preferred participating in the purposeful/meaningful session than the rote session.

It is important to note that the results are based on a small sample size. Before any conclusive statements can be made about the researcher's findings, this study should be replicated with a larger sample, given that the chance for error is very high in this particular study.

## Summary

There are many implications for future research in this area. In this study, recruiting subjects who enjoy baking was set as a criterion in order to include patient control and meaningfulness to the purposeful activity. Results may be different in future research if only the subjects who truly like to bake were used. This would ensure that the baking activity will have meaning to the subjects and possibly give them more motivation to stir longer and with more revolutions than in a rote activity.

Another idea for future research may be to use the interest questionnaire to find out the subject's main interests. From this point the researcher can compose a rote activity to simulate one of the activities of interest on the questionnaire. The subject will then have full control in the activity chosen and it will hold full meaning to the individual. Performance between the rote and the occupationally embedded activity can be compared for each individual.

Due to the fact that the interest and motivation questionnaire derived for this particular study was confusing to the subjects, it may be wise in future research to use a more standardized questionnaire, appropriate for the older adult population.

More replication studies need to be performed in this area of research. Although there have been many studies looking at the use of purposeful activities versus rote activities, they all have shown very different results. A clear result must occur, so that occupational therapy services can provide their patients with the most motivating and appropriate form of therapy.

One thing that must be considered based on the results of this study is the fact that each person stirred a different number of times and responded differently to both

sessions, showing that each person is unique. This must be considered in every occupational therapy treatment intervention. No two patients are alike, even when they are recruited with specific qualifications in mind, as was the case in this research study. The occupational therapist needs to find the motivating factor for each patient in order to get them more involved in the therapy process.

Occupational therapists must find a common ground in their therapy methods. This includes a return to our basic beliefs of incorporating the patient in finding treatment methods. This will ensure the use of both purposeful and meaningful activities with respect to the patient. The results of this study show that the use of this method did ensure a better performance in an activity. Although many of the results were not considered significant in terms of statistical measures, we have to remember that there was a difference in the patient performance regardless. Also to be considered is the fact that 82% of the subjects enjoyed getting exercise in the purposeful, baking session more than the rote session.

There needs to be a return to the fundamental beliefs of occupational therapy, meaning and purpose.

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## Appendix A

## Human subjects proposal

Abstract.

The use of purposeful and meaningful occupations is a basic belief of occupational therapy practice. As a researcher, I have hypothesized that many therapists do not use meaningful activities when working with the geriatric population. This study will examine engagement in meaningful and non-meaningful activities in order to explore the effect of meaning in a given task performance. This will be a replication of the study performed by Yoder, Nelson, and Smith (1989), titled "Added purpose versus rote exercise in female nursing home residents."

## 1. General information about the study

### a) Funding

There will be no outside funding for the research being proposed

### b) Location

The research will be held in the kitchen of the Senior Center in Ithaca, New York.

### c) Time Period

The research is expected to take place in a three month time period between January and March of the year 2000.

## 2. Related Experience of the Researcher(s)

I am a student in the five year master program for Occupational Therapy. I have successfully completed my bachelors degree in Occupational Science. In my four years studying at Ithaca College I have been exposed to the theory behind occupational therapy. I have also had several opportunities to apply my knowledge in the clinical setting. I have completed three level one fieldworks in the areas of pediatrics, adults, and geriatrics. I have also fulfilled one of my three level two fieldworks in the pediatric field. The clinical work I have done in working with the geriatric population is what sparked my interest in the topic I have chosen for my research thesis.

## 3. Benefits of the Study

In my experience in the clinical setting, I have come to realize that difficulties with the health care system and problems with reimbursement are forcing therapists to look for a quick fix for their patients. This has led therapists to stray from the basis of our

profession, functional activities. Many of the therapy sessions I observed with the geriatric population included a non-purposeful and non-meaningful activity for the patient to work on during their session. The result of the session, was a patient who complained a lot and performed poorly at the task. I would like to prove to therapists that the use of patient input to find meaningful and purposeful activities will lead to an increase in patient motivation and good performance in therapy. This may actually solve the problems with reimbursement because if the right activities are chosen, less sessions will be needed to obtain a goal.

#### 4. Description of Subjects

- a) A sample size of sixteen subjects will be used for this study.
- b) Characteristics of the subjects

The subjects I plan to use will be elderly patients who are living in the community. The patients will need to be sixty years or older to qualify as a senior citizen so that a good generalization can be made to the geriatric population. I will be directly asking for patients who are interested in baking cookies. From this qualification, I am expecting that I will probably get more females than males who are interested.

I plan to recruit my subjects through word of mouth at the Ithaca Senior Center. Flyers will also be posted asking for participants in the study (see attached copy).

#### 5. Description of Subject Participation

Each subject will be asked to participate in two sessions. Both of the sessions will require the subject to go to the kitchen in the Senior Center. At the beginning of each session, the participants will

do a dynamometer reading to measure the strength of their grip. The sessions will be randomly mixed which the subject will participate in first. In one of the sessions, the participant will be told the directions verbatim. He or she will be required to stir the contents of a bowl until they begin to become tired, fatigued, or feel discomfort. The subject will not know what the contents of the bowl is. In the other session the experiment will be the same, except the subject will be stirring cookie dough. The same instructions will be given for the second session as were for the first. In the session that real cookie dough is used, the researcher and the subject will actually bake the cookies together to complete the activity. After each of the sessions, the subjects will be asked about their interest and their motivation to participate in these activities.

As the researcher, I will be counting the number of stirring revolutions made, the number of times the subject stops to rest, and timing the entirety of the stirring process. I am anticipating that each of the sessions will last a maximum of 30 minutes. All sessions will be video taped for accuracy in analyzing the variables I am researching.

At the end of the last session, the subject will be reminded that the contact information is on the informed consent form, should they have any questions regarding their participation in the study.

All results obtained will be strictly confidential. No names will be used when taking any of the information. The video tapes will be stored in a safe place in my apartment and will only be viewed by myself. After the study is completed, the tapes will be destroyed.

## 6. Ethical Issues - Description

### a) Risks of participation

There are no potential major risks that are foreseen in this experiment. Caution will be taken when putting the cookies into and taking the cookies out of the oven. All subjects will be carefully monitored by the researcher during each session.

b) Informed Consent: See the attached copy

## Informed Consent form

### 1) Purpose of the study

My name is Megan Deskin and I am an Occupational Therapy student at Ithaca College. As a requirement to get my masters degree, I have to do a research thesis. I am interested in the older adult population and their participation in activities. Exercise is an important part of everyone's lives. In order to stay healthy, one must stay active. I think this is particularly important for the geriatric population to get exercise through their daily activities. I plan to look at the outcomes of two different forms of upper extremity strengthening exercise.

### 2) Benefits of the study

My hope in conducting this research is that therapists will use what is valued by this particular population as a more effective means of exercise. As a volunteer participant in this study, you are giving your time to help therapists distinguish what is the best method of therapy for their clients. The better therapy given, the quicker the patient can return to their everyday lives. As a future Occupational Therapist, I thank you for your time in helping to better our profession.

### 3) What you will be asked to do

You will participate in two experimental sessions. In both sessions you will be asked to stir the substance until you become tired or fatigued, or if you feel pain. After your performance in both sessions, you will be asked to answer a few questions regarding your participation in the activity. Each session will be video taped while you are stirring, for accuracy in observing the session.

### 4) Risks

There are no potential risks in participating in this study.

### 5) If you would like more information about the study

If you should have any questions about the study before, during, or after your participation, please contact me at 277-2553, or E-Mail me at mdeskin1@ic3,ithaca.edu.

### 6) Withdrawal from the study

As a volunteer, you do not have to do anything that makes you feel uncomfortable. You have the right to withdraw your participation in this research study at any time. If you should feel any pain during either of the sessions, you may withdraw from the research. Also, if you do not feel comfortable answering the questions asked, you may refuse to answer. Your withdrawal from the rest of the experiment will not result in any penalty or loss of benefits. If you should decide to withdraw, simply tell me during the experiment and you will be excused.

Initials

\_\_\_\_\_

7) How the data will be maintained in confidence

All information taken from this study will be strictly confidential. No one, other than myself, will know your name in regards to your participation in this study. The results will be examined and documented, but again your name will never be used in writing the results. I will be the only person viewing the video tapes. They will be stored in a safe place at my apartment and destroyed after the study is completed.

**I have read the above and I understand its contents and I agree to participate in the study.**

\_\_\_\_\_  
Print or type name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**I give my permission to be videotaped.**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**DO you enjoy baking cookies?**

**Do you feel exercise is important in your life?**

**Megan Deskin, an Ithaca College Occupational Therapy Graduate** student is looking for subjects to participate in her masters thesis study. The study will be looking at the importance of exercise in daily activities. One of the activities you will participate in is baking cookies.

The study will take place in two short sessions at the Titus Towers common kitchen area. Sessions will not begin in February and total time for both sessions **will not** exceed an hour.

Your participation in the study may help to better the field of Occupational therapy services to geriatric patients. If you have the time **please consider this opportunity**, you would be **greatly appreciated**. For more information, please call Megan Deskin at **277-2553**. If you are interested, please sign up on the sheet, and Megan will be in touch with you

**Thank you so much for your time**

## **DO you enjoy baking cookies?**

### **Do you feel exercise is important in your life?**

**Megan Deskin**, an Ithaca College Occupational Therapy Graduate student is looking for subjects to participate in her masters thesis study. The study will be looking at the importance of exercise in daily activities. One of the activities you will participate in is baking cookies.

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Your participation in the study may help to better the field of Occupational therapy services to geriatric patients. If you have the time **please consider this opportunity**, you would be **greatly appreciated**. For more information, please call Megan Deskin at **277-2553**. If you are interested, please sign up on the sheet, and Megan will be in touch with you

**Thank you so much for your time**

## Appendix B

## Interest and motivation questionnaire

**Please circle the answer that is closest to how you feel.**

1) How much do you like to bake cookies?

1 (Not at all)    2 (Not very much)    3 (Somewhat)    4 (Very Much)

2) How much did you like to get exercise by doing this activity?

1 (Not at all)    2 (Not very much)    3 (Somewhat)    4 (Very Much)

3) Were you bored during this activity?

1 (Not at all)    2 (Not very much)    3 (Somewhat)    4 (Very Much)

4) Do you wish you could have stirred longer than you were able to?

1 (Not at all)    2 (Not very much)    3 (Somewhat)    4 (Very Much)

## Appendix C

Table Three - Spearman's Rho Correlations

	Baketime	Rotetime	Rotestir
Time stirring (rote)	.38		
Number of stirs (rote)	.42	.73*	
Number of stirs (bake)	.68*	.37	.68*
How much do you like to bake? (bake)	.38	.20	.24
How much did you like getting exercise? (bake)	.30	.03	.11
How bored were you? (bake)	.08	-.08	-.25
Do you wish you could have stirred longer? (bake)	.10	-.03	.07
How much do you like to bake? (rote)	.30	.51*	.27
How much did you like getting exercise? (rote)	.19	.41	.47
How bored were you? (rote)	-.01	-.01	-.09
Do you wish you could have stirred longer? (rote)	.47	.44	.58*

\*  $p < .10$

	Bake stirs	Like bake (bake)	Exercise (bake)
How much do you like to bake? (bake)	.09		
How much did you like getting exercise? (bake)	.03	.61*	
How bored were you? (bake)	-.08	-.23	-.20
Do you wish you stirred longer? (bake)	-.19	.32	.07
How much do you like to bake? (rote)	.11	.35	.02
How much did you like getting exercise? (rote)	.24	.36	.22
How bored were you? (rote)	-.13	-.40	-.18
Do you wish you could have stirred longer? (rote)	.73*	.05	-.37
	Boredom (bake)	Wish (bake)	
Do you wish you could have stirred longer? (bake)	-.29		
How much do you like to bake? (rote)	.12	.01	
How much did you like getting exercise? (rote)	-.66*	.13	
How bored were you? (rote)	.74*	-.14	

\* p < .10

	Like (rote)	Exercise (rote)	Boredom (rote)
How much did you like getting exercise? (rote)	.57*		
How bored were you? (rote)	-.16	-.66*	
Do you wish you could have stirred longer?(rote)	.16	.13	-.10

\* p < .10