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Self-Determination Theory and Therapeutic Recreation: The Relevance of Autonomy, Competence, and Relatedness to Participant Intrinsic Motivation

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SELF-DETERMINATION THEORY AND THERAPEUTIC RECREATION:
THE RELEVANCE OF AUTONOMY, COMPETENCE AND
RELATEDNESS TO PARTICIPANT
INTRINSIC MOTIVATION.

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Parks, Recreation, and Tourism Management

by
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ABSTRACT

The purpose of this dissertation was to explore the relevance of autonomy, competence, and relatedness, the three innate psychological needs proposed by self-determination theory, to participant intrinsic motivation. The three needs of SDT have not previously been examined in an exploratory manner or applied to efficacy research in therapeutic recreation. If applied, therapists could use them to increase intrinsic motivation towards interventions in their participants.

The first manuscript discusses intrinsic motivation and self-determination and their presence in leisure and therapeutic recreation research. It details the experimental manipulation of autonomy, competence, and relatedness in a $2 \times 2 \times 2$ design. A novel activity systematically varying in component support was introduced to 101 undergraduate students. The Intrinsic Motivation Inventory and Rated Needs Satisfaction were administered following the manipulation and participants were observed during a free-choice period to see if they chose to continue the activity as measures of intrinsic interest. Supporting competence and relatedness had main effects on intrinsic motivation. Supporting autonomy and relatedness together was also found to have a significant effect on intrinsic motivation. Implications for therapeutic recreation are discussed. The second manuscript reviews the importance of autonomy, competence, and relatedness in the lives of older adults, their impact on psychological well-being, and frequent absence in long term care settings. Research that addresses these deficits is then discussed with suggestions for application.
DEDICATION

This dissertation is dedicated to Dr. Judith Voelkl. Without her early encouragement and input on the topic this project would not have been possible. Her strength was and continues to be an inspiration. I do wish she had been able to see the project through, as I also wish my Grandma Louise, Grandpa Roger, and Cousin Roger Brandon would have been able to see me become the first Doctor in our family. As they did not depart this earth until 2007 they were able to witness the beginning of my journey. My Grandma’s dedication to healthcare, my Grandpa’s work ethic, and my cousins’ perseverance despite all odds also continue to inspire me.
ACKNOWLEDGMENTS

In my time at Clemson many people have come into my life and others have left it. It is due to my faith, and the support of my friends, family, and the PRTM Department that I was able to carry on and thus this accomplishment is not mine alone.

The community of Lindsay Road has been the first real neighborhood I have experienced as an adult. They helped me to feel connected to something other than just the school and I know that I will always have a place with them.

There is nothing I regret about choosing the PRTM department at Clemson. People often talk about the “open door” policy here; that is an extreme understatement. No matter the situation I was always able to find someone willing (and often able) to help me. I know the relationships I have formed with my colleagues in Lehotsky will only continue to enrich my life.

For some, as they age and establish themselves, they grow apart from their families. This could not be less true in my case. Whereas I live farther away from my family now than I ever have, we grow closer by the day and the times they have been there for me are innumerable.
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CHAPTER ONE
INTRODUCTION

Rationale

As of 2005, there were approximately 54.4 million individuals in the United States of America living with some level of disability (Brault, 2008). Of those individuals, 35 million (12%) had a severe disability. “Some level of disability” includes people with vision and hearing impairments, mobility impairments, learning disabilities, mental conditions, and developmental disabilities. Many different treatment modalities exist which can benefit people with disabilities, such as physical therapy, occupational therapy, and speech therapy. One modality in a position to provide benefits to people with disabilities is therapeutic recreation.

Therapeutic recreation (TR) has been defined several different ways. Robertson and Long (2008) define TR as “the purposeful utilization or enhancement of leisure as a way to maximize a person’s overall health, well-being, or quality of life.” A slightly different definition and term is presented by the American Therapeutic Recreation Association (2009):

"Recreational Therapy” means a treatment service designed to restore, remediate and rehabilitate a person’s level of functioning and independence in life activities, to promote health and wellness as well as reduce or eliminate the activity limitations and restrictions to participation in life situations caused by an illness or disabling condition.

A third definition is presented by Sylvester, Voelkl, and Ellis (2001):
Therapeutic recreation is defined as a service that uses the modalities of activity therapy, education, and recreation to promote the health and well-being of persons who require specialized care because of illness, disability, or social condition. Furthermore, recognizing the potential of leisure for contributing to the quality of life of all people, therapeutic recreation facilitates leisure opportunities as an integral component of comprehensive care.

Whereas these definitions are different, they do have common threads. Health and well-being/wellness are present in all three. Leisure and disability are mentioned in two of the definitions. There may not be a finite definition of therapeutic recreation, but a majority of professionals and academics alike do agree on the basics.

As previously mentioned, there are many models of practice for therapeutic recreation and recreational therapy. When conceptualizing the definition, purpose, and role of the field, it is important to also consider what was proposed within these models. The Leisure Ability Model proposed by Peterson and Gunn in 1984 is the oldest model of therapeutic recreation practice (Stumbo & Peterson, 1998). This linear model proposes the role of the TR professional as decreasing in degree of involvement, the role of the participant in turn increasing, as the participant moves from functional improvement to leisure education and then arrives at recreation participation. According to this model “the overall intended outcome of therapeutic recreation services… is a satisfying, independent, and freely chosen leisure lifestyle” (p. 82).

A slightly different perspective appears in Austin’s Health Protection/Health Promotion model (1998), in which the “purpose of therapeutic recreation is to assist
persons to recover following threats to health (health protection) and to achieve as high a level of health as possible (health promotion)” (p. 110). In this model, health related outcomes are in the foreground and leisure has moved to the background.

Leisure is prominent in Van Andel’s TR Service Delivery and TR Outcome Models (1998). In these models, the TR professional leads the participant through the service delivery and then transitions them into the outcome. According to Van Andel, “respect for clients involves informed consent and promotes independence and opportunities for self-determination” (p. 183). Outcomes are not only functional but also existential and all are seen as relevant to participant quality of life.

One of the most recently introduced models of practice is the Leisure and Well-Being Model (Carruthers & Hood, 2007; Hood & Carruthers, 2007). This model, based on the principles of positive psychology, proposes that the one long-term goal of TR should be well-being. Their definition of well-being encompasses the whole person, physical, social-emotional, and cognitive, and thus is applicable to a multitude of possible participants. Leisure has a prominent role in this model as the authors call the experience of leisure a “proximal outcome” (Carruthers & Hood, 2007). The authors include autonomy and competence as two resources that can be developed to support well-being within their model (Hood & Carruthers, 2007).

Considering these definitions and models, the author considers the purpose of TR to include bringing people, disabled or not, to a place of higher functioning through purposeful leisure and recreation in order to improve their overall health and well-being.
Theoretical framework

A field finds credibility by having deep theoretical roots (Bullock, 1998). Historically, few therapeutic recreation (TR) models of practice are founded in theory (Carruthers & Hood, 2007; Dattilo, Kleiber, & Williams, 1998). For many of the early models, theories were either not fully explained in the original appearance or they were applied after the model was introduced (Austin, 1998; Stumbo & Peterson, 1998; Van Andel, 1998; Widmer & Ellis, 1998). A lack of theoretical roots does not necessarily indicate a lack of validity; however, it does indicate a lack of empirical support. Those models not based on time-tested theories have a need to prove their claims.

Just as a lack of theoretical groundings does not necessarily indicate a lack of validity, being firmly steeped in theory does not guarantee a model will be applicable in the field. In order to determine the practicality of the models, they must be put to the test of systematic research (Mobily, 1999). A review of the journals displays a paucity of such research on the models, Stumbo and Peterson’s Leisure Ability Model being the exception.

Certified Therapeutic Recreation Specialists (CTRSs) do not often rely on models of practice, accepted theories, or established research when developing treatment plans and setting goals and objectives for participants. They do often rely on prior experience. CTRSs cannot be confident that they are providing an optimal experience if they are basing their planning solely on what seemed to get good results in the past for similar participants. Interventions based on scholarly research and carried out according to a theoretically grounded model of practice are much more likely to emit positive outcomes.
There are many people with disabilities. TR professionals are prime candidates for serving the needs of individuals with all types of disabilities. In order to do this, an effective way to serve must be determined. Recipients of TR services will not participate if they are not motivated to do so. Equally, they are more likely to continue participating after they are no longer receiving services if they are intrinsically motivated to do so. Not much is known about how to support intrinsic motivation. Very little is known about supporting intrinsic motivation within the leisure field. According to Dattilo and Kleiber (1993), “Individuals who are intrinsically motivated in certain situations are more likely to learn, adapt, and grow in competencies that characterize development”. Intrinsically motivated participants with the ability to learn, adapt, and grow will be likely to accomplish TR goals.

Conceptual Framework

Self-determination theory (SDT) was introduced over twenty years ago by two psychologists, Edward Deci and Richard Ryan (1985). Their theory proposes that all humans have three basic needs: autonomy, competence, and relatedness. People feel autonomous when they are making decisions for themselves without outside pressures. Acting autonomously is also seen as operating with an internal locus of control. Those operating with an external locus of control are not acting autonomously. Competence involves people feeling like they know what they are doing and they are capable in their pursuit. Lastly, relatedness indicates that people feel connected to others, like they belong with a particular group, and that the group cares about them as individuals.
Reaching these needs is effected by two factors: how determined people are, and whether or not they are being nurtured by the social environment (Deci and Ryan, 2002).

It is helpful to view the concepts of self-determination and non-self-determination as the personality variable of internal or external locus of control. When people are making autonomous choices they are operating from an internal perceived locus of control and are working towards self-determination. An internal perceived locus of control indicates a belief in personal control over circumstances. When extrinsic rewards are at the focal point people are then operating from an external perceived locus of control, which is also sometimes referred to as heteronomy (Kasser & Ryan, 1999). An external perceived locus of control indicates a belief in no personal control over circumstances.

In the context of self-determination theory (SDT), intrinsic motivation is present when people are motivated for participating in an activity by the activity itself. Extrinsic motivation occurs when people are motivated by something other than the activity. A third type of motivation is amotivation. This is when there is a total lack of intention to act. It is in one of four mini-theories of self-determination, organismic integration theory, that extrinsic motivation is more fully explored and its levels are subsequently illustrated as a part of the self-determination continuum (Ryan & Deci, 2000). The continuum begins at amotivation, continues through the different levels of extrinsic motivation, and ends at intrinsic motivation. The theorists have described four regulatory styles involved in extrinsic motivation that range from least to most autonomous as well as least to most self-determined: external, introjected, identified, and integrated. Intrinsic regulation is
associated with intrinsic motivation. It is possible for people to be extrinsically motivated and display self-determined behaviors when they have identified or integrated their regulation. This means that those people have most likely identified with their motivations, seen them as important, and aligned them with their personal values and belief system. It is in these two regulatory styles that people have also begun to operate from a more internal locus of causality and feel in control (to a degree) of the situation. Whereas Ryan and Deci (2000) do describe intrinsically motivated behaviors as the “prototype” of self-determined actions, they do ascribe to the possibility of extrinsically motivated behaviors being self-determined. When people are determined and their environment supports autonomy, competence, and relatedness needs they are more likely to be on the intrinsic motivation end of the self-determination continuum (Ryan & Deci, 2000). When people are not determined and perceive themselves to be incompetent in achieving their outcomes, they are amotivated. Possible benefits to people whose needs have been satisfied can include the optimization of personal well-being and social development (Deci and Ryan, 2002). People consistently experiencing amotivation are likely to develop learned helplessness as a response to their perceived lack of control over circumstances (Deci & Ryan, 1985).

The importance of autonomy, relatedness, competence, the three basic psychological needs established by self-determination theory, is largely unstudied in general, and has never been studied in TR. Instead of using the theory as one unit researchers are choosing which pieces of the theory they see to be the most useful. On a few occasions SDT has been the framework of TR research studies (Mahon, 1994; Hill &
Sibthorp, 2006; Carruthers, Platz & Busser, 2006; Sklar, Anderson & Autry, 2007, & Heo, Lee, Lundberg, McCormick & Chun, 2008). Dattilo and Kleiber’s Self-Determination and Enjoyment Enhancement service delivery model is based on elements of the theory. More often when one sees “self-determination” in the TR literature it is being mentioned as a desirable part of a leisure skill-set and referred to as self-determination skills. A similarity among many of the models of practice is the inclusion of the concept of self-determination. Despite this, few employ the actual concepts of self-determination theory.

If SDT has the possibility of guiding TR practice in terms of programming to help people fulfill the three needs, the absence of which is ill-being (Ryan & Deci, 2000), then a way to incorporate SDT into programming in order to fulfill these needs must be researched. The possible efficacy of this incorporation must be well established before it can be recommended to practitioners.

The millions of Americans with disabilities have the possibility of receiving benefits from participation in therapeutic recreation services. The concepts of self-determination theory have the possibility of assisting in the reception of those benefits if incorporated in therapeutic recreation programming in such a way as to support intrinsic motivation. To determine how to incorporate the concepts they must first be experimentally explored. Looking at the concepts in the context of an experimental design will help to establish causality (Rosenthal & Rosnow, 2008).
The purpose of this study is to examine the effect of autonomy supportive, competence supportive, and relatedness supportive messages, on intrinsic motivation in a recreation context.

Research Question
Is each of the three components of SDT individually important to the facilitation of intrinsic motivation?

Research Hypotheses
H₀: Written messages intended to support autonomy will not result in rated need satisfaction for autonomy.
Hₐ: Written messages intended to support autonomy will result in rated need satisfaction for autonomy.

H₀: Written messages intended to support relatedness will not result in rated need satisfaction for relatedness.
Hₐ: Written messages intended to support relatedness will result in rated need satisfaction for relatedness.

H₀: Written messages intended to support competence will not result in rated need satisfaction for competence.
Hₐ: Written messages intended to support competence will result in rated need satisfaction for competence.

H₀: Written messages that support autonomy will not effect intrinsic motivation.
Hₐ: Written messages that support autonomy will effect intrinsic motivation.
Hø: Written messages that support relatedness will not effect intrinsic motivation.

Ha: Written messages that support relatedness will effect intrinsic motivation.

Hø: Written messages that support competence will not effect intrinsic motivation.

Ha: Written messages that support competence will effect intrinsic motivation.

Hø: Written messages that support autonomy, relatedness, and competence will not effect choice of activity during free time.

Ha: Written messages that support autonomy, relatedness, and competence will affect choice of activity during free time.

Explanation of terms

In this study, disability refers to vision and hearing impairments, mobility impairments, learning disabilities, mental conditions, and developmental disabilities. Individuals eligible for TR services are those disabled or not, as disability does not include individuals with acute or chronic illnesses, caregivers, or many others that could benefit from purposeful recreation. In regards to the messages, a message is supportive when it is intended to enhance or fulfill the need, and it is non-supportive when it is intended to detract from the fulfillment of the need.

Intrinsic motivation is defined by Ryan and Deci (2000) as “the inherent tendency to seek out novelty and challenges, to extend and exercise one’s capacities, to explore, and to learn.” In intrinsic motivation “the satisfaction gained through the activity [is] seen as coming from engaging in the activity itself” (Neulinger, 1974). According to Russell (2002), it is what “makes leisure unique among all other human experiences.”

Dissertation Outline
This dissertation is a hybrid of the traditional format and a newer, more functional, format. There are two supporting chapters (Chapters 1 & 4), and two individual articles in journal style (Chapter 2 & 3). Chapter One sets the stage for the overall project with the initial problem statement, an overview of the literature, the study purpose, research questions and hypotheses, and an explanation of terms. Chapters Two and Three are presented as two independent journal articles suitable for submission to peer-reviewed journals. More specifically, the purpose of the first article is to examine the effect of autonomy supportive, competence supportive, and relatedness supportive messages, on intrinsic motivation via experimental manipulation in a recreation context. The purpose of the second article is to show why autonomy, competence, and relatedness are important for older adults and discuss practical ways to support these needs in nursing facilities. Chapter Four gathers together the results in a summative manner and provides some overall recommendations for practitioners and researchers.

Also, five appendices have been included. Appendix A is the full script of messages delivered to the participants. Appendix B is the instruction sheet participants read during the manipulation in order to understand how to play Boggle. Appendices C and D are the instruments used in the study. Lastly, Appendix E is a copy of the IRB approval letter.
CHAPTER TWO (MANUSCRIPT #1)
THE EFFICACY OF VERBAL MESSAGES SUPPORTIVE OF AUTONOMY,
RELATEDNESS, AND COMPETENCE IN INCREASING
PARTICIPANT INTRINSIC MOTIVATION

Intended outlet
Therapeutic Recreation Journal

Abstract
Participants are more likely to benefit from therapeutic recreation services if they are intrinsically motivated to participate. Self-determination theory identifies intrinsic motivation as the prototype of self-determined behavior (Deci & Ryan, 2002). To determine the relevance of autonomy, competence, and relatedness, the three components of self-determination theory, to intrinsic motivation in a therapeutic recreation environment, this study experimentally manipulated these components in a 2 x 2 x 2 design. A novel activity systematically varying in component support was introduced to 101 undergraduate students. The Intrinsic Motivation Inventory was administered following the manipulation and participants were observed during a free-choice period to see if they chose to continue the activity as measures of intrinsic interest. Supporting competence and relatedness had main effects on intrinsic motivation. Supporting autonomy and relatedness together was also found to have a significant effect on intrinsic motivation. Implications for therapeutic recreation are discussed.

KEYWORDS: intrinsic motivation, self-determination theory, verbal messages, experimental manipulation, autonomy, competence, relatedness
As of 2005, there were approximately 54.4 million individuals in the United States of America living with some level of disability (Brault, 2008). Many of these people receive therapeutic recreation services. It is important to engage individuals with disabilities in the therapy process as it has the possibility to improve their quality of life (Robertson & Long, 2008). As there are numerous positive outcomes for those who continue therapy, mechanisms that support participation are crucial. Intrinsically motivated and self-determined participants are highly likely to be engaged in behavior change settings and continue to engage in the behaviors after the treatment is completed (Sheldon, Williams & Joiner, 2003). Within self-determination theory Deci & Ryan (1985) propose if a persons’ basic psychological needs of autonomy, competence, and relatedness are being fulfilled the person is more likely to be self-determined and thus more likely to be intrinsically motivated. Autonomy is an evident concept included in every TR practice model (Sylvester, 2005). Another necessary element for self-determination is relatedness. As a TR starts to develop rapport with a client, the seeds of relatedness are sown. Relatedness continues to grow through interactions with the TR and can blossom more grandly in multiple group settings. The third element to self-determination is competence. A frequent goal of the TR professional is to create a feeling of competence in their participants. If participants are not competent they will not be able to continue the behavior regardless of whether or not they are motivated.

While self-determination theory and its proposals on intrinsic motivation fit well with therapeutic recreation, a literature review yielded few results in support of intrinsic motivation within TR. Very little is known about supporting intrinsic motivation within
the leisure field overall. Supporting intrinsic motivation could be accomplished by utilizing the concepts of self-determination theory. According to Dattilo and Kleiber (1993), “Individuals who are intrinsically motivated in certain situations are more likely to learn, adapt, and grow in competencies that characterize development”. If TR goals are going to be accomplished, participants need to be able to learn, adapt, and grow, and thus, it would be valuable for them to be intrinsically motivated in those situations. Past research in TR has included self-determination theory in different ways. It is commonly referred to briefly as part of the literature review, however it is not referred to in the context of the results (Kensinger, Gibson & Ashton-Shaeffer, 2007; Lundberg, Widmer, McCormick & Ward, 2005/2006; Sklar, Anderson & Autry, 2007). Other times it is applied in the planning stages yet only portions of the theory are considered (Ashton-Shaeffer, Shelton & Johnson, 1995; Carruthers, Platz & Busser, 2006; Gaudet & Datttilo, 1994; Mahon, 1994; Sklar, Anderson & Autry, 2007; Williams & Dattilo, 1997). In these occasions the researchers generally discuss the importance of autonomy and sometimes mention competence, the few times relatedness is considered as a factor it is not deemed as important (Heo, Lee, Lundberg, McCormick & Chun, 2008; Hill & Sibthrop, 2006).

Whereas practitioners and researchers alike may not share a singular philosophy in regards to where therapy and recreation meet, common elements such as health, well-being, leisure and disability appear in various writings. Intrinsic motivation is considered a required element for leisure. Despite philosophy, it is important to engage participants. Increasing intrinsic motivation is one compelling way to engage participants.
Conceptual Foundation

*Self-determination Theory*

Self-determination theory (SDT) was introduced over twenty years ago by two psychologists, Edward Deci and Richard Ryan (1985). Their theory proposes that all humans have three basic psychological needs for autonomy, competence, and relatedness. People feel autonomous when they are making decisions for themselves without outside pressures. Competence involves people feeling like they know what they are doing and they are capable in their pursuit. Lastly, relatedness indicates feeling connected to others, like they belong with a particular group, and that the group cares about them. Attainment of these needs is effected by two factors: how determined people are, and whether or not they are being nurtured by the social environment (Deci and Ryan, 2002). When people are determined and their environment is meeting these three needs they are likely to be more intrinsically motivated and less extrinsically motivated (Ryan & Deci, 2000). Possible benefits to people whose needs have been satisfied can include the optimization of personal well-being and social development (Deci and Ryan, 2002). For a diagram of the proposed relationship between autonomy, competence, and relatedness, and self-determination and intrinsic motivation, see Figure 1.
Figure 1. Fulfillment of Needs Results in Intrinsically Motivated, Self-Determined People.

Presence of self-determination theory in Therapeutic Recreation

Instead of using self-determination theory and autonomy, competence, and relatedness as one unit, past TR researchers have chosen which pieces of the theory they see to be the most useful. On a few occasions SDT has been the foundation of TR research studies. In 1994, Mahon looked at the facilitation of self-determination through the use of self-control techniques in individuals with developmental disabilities. His focus was on decision-making skills. Gaudet and Dattilo (1994) utilized SDT in a similar way in their study of adults with cognitive impairments and the re-acquisition of recreation skills. They discuss self-determination in general and do not specifically consider relatedness. The focus on individuals with developmental disabilities is
continued with Ashton-Shaeffer, Shelton and Johnson (1995). They discuss the role of self-determination skills in assisting adolescents with disabilities in transitioning from school to vocational training and employment. Williams and Dattilo (1997) looked at the effect of leisure education on self-determination, as defined by choice-making, in young adults with developmental disabilities. They were unable to establish a causal relationship between the education program and self-determination.

In a departure from the focus on individuals with developmental disabilities, Hill and Sibthorp (2006) took a self-determination theory approach to TR at a diabetes camp. Whereas their main goal was to create an autonomy supportive environment, they fostered competence and relatedness needs as well. They found autonomy support in the camp to enhance perceptions of relatedness for the campers (2006). Carruthers, Platz and Busser (2006) looked at an entirely different portion of the theory when looking into gambling motivations. They characterized participant motivation toward gambling as amotivation, extrinsic motivation, or intrinsic motivation. Sklar, Anderson and Autry’s 2007 study on a wilderness intervention and positive youth development contributed another perspective. They discussed the importance of autonomy and competence, but not relatedness, as part of a motivational framework in their literature review yet do not connect it to the results in the discussion. Lastly, Heo, Lee, Lundberg, McCormick and Chun (2008) investigated development of self-determination through participation in adaptive sports by measuring satisfaction of all three needs. They found that participants with higher levels of self-determination also scored high on serious leisure, as demonstrated by strong identification and consistent behavior.
A model for therapeutic recreation practice that places high emphasis on self-determination theory is the Self-Determination and Enjoyment and Enhancement Model (Dattilo, Kleiber, & Williams, 1998). This model employs SDT as one of the foundational pieces including it as one of the six components of the model. In the visual depiction of the model, self-determination is located between functional improvement and intrinsic motivation. It is at this point in the model that an individual with a disability is believed to develop self-awareness, make decisions and choices, set goals, and communicate preferences (Dattilo et al., 1998). Whereas the autonomy aspect of self-determination is included, relatedness and competence are not discussed. A similarity among many of the other models of practice is the inclusion of the concept of self-determination (Sylvester, 2005). Despite this, few employ the three needs proposed by self-determination theory.

If SDT has the possibility of guiding TR practice in terms of programming to help people fulfill the three needs, the absence of which is ill-being (Ryan & Deci, 2000), then a way to incorporate SDT into programming in order to fulfill these needs must be researched. The consideration of how TR services help to either prohibit or inhibit the fulfillment of autonomy, competence and relatedness should be on the mind of all practitioners (Heo, et al., 2008). In order to establish recommended ways for practitioners to incorporate these ideas in their participant interactions they must first be further explored with research.
Experimental Manipulation of Self-Determination Theory

Sheldon and Filak (2008) were the first to experimentally manipulate all three elements of self-determination theory. Their study looked at the importance of autonomy, competence and relatedness in an effort to fill in the gap of research regarding competence and relatedness support. Sheldon and Filak manipulated support of the three needs in a game-learning context in an attempt to predict rated need satisfaction, affect, motivation, and objective game performance. Their sample of 196 undergraduate psychology students was spread across eight experimental conditions and one neutral control group. Participants filled out a rated need satisfaction scale, the Positive affect/Negative affect scale, the interest/enjoyment subscale of the Intrinsic Motivation Inventory, and the number of words they found in the practice puzzle and the final puzzle measured their performance. Significant results were found for competence and relatedness as main effects on intrinsic motivation. In their discussion they suggest that future researchers should craft their autonomy messages to be more multifaceted and have obvious choice/non-choice scenarios (Sheldon & Filak, 2008).

Intrinsic Motivation in Leisure

Intrinsic motivation has been recognized as an important part of leisure experiences for over 30 years. Neulinger included it as one of the two dimensions of his Leisure Paradigm (1974), which illustrated when activities or episodes were or were not leisure as construed by the participant. In the paradigm he classifies activities into 4 categories based on the type of motivation, intrinsic or extrinsic, and perceived freedom, constrained or free. According to Neulinger, in intrinsic motivation “the satisfaction
gained through the activity [is] seen as coming from engaging in the activity itself” (p. 17). In a review of leisure and health, Coleman and Iso-Ahola (1993) found the perception of intrinsic motivation and perceived freedom to be central to healthy leisure experiences.

Research conducted in the leisure field that explores intrinsic motivation includes studies on its relationship with flow (Mannell, Zuzanek, & Larson, 1988), social support and self-determination (Iso-Ahola & Park, 1996), constraints (Alexandris, Tsorbatzoudis, & Grouios, 2002), and gender and ethnicity (Walker, 2008).

Many therapeutic recreation practice models, including the Leisure Ability Model (Peterson & Gunn, 1984); the Health Protection/Health Promotion Model (Austin, 1998); TR Service Delivery and Outcome Models (Van Andel, 1998); the Self-determination and Enjoyment Enhancement Model (Dattilo, Kleiber & Williams, 1998); and the Leisure and Well-Being Model (Carruthers & Hood, 2007; Hood & Carruthers, 2007), incorporate intrinsic motivation as an important piece. The pervasiveness of intrinsic motivation in these models indicates its importance in the TR process.

**Purpose Statement and Research Hypotheses**

In summary, intrinsic motivation is a key part of the leisure experience and supporting autonomy, competence, and relatedness in participants can facilitate it. Facilitating intrinsic motivation in participants is important to therapeutic recreation professionals; however, supporting the three needs has not been explored in the TR field. Therefore, the purpose of this study is to examine the effect of autonomy supportive, competence supportive, and relatedness supportive messages, on intrinsic motivation via
experimental manipulation in a recreation context. Supportive messages were designed to enhance need satisfaction, and non-supportive messages were designed to detract from need satisfaction. This study employs a 2 X 2 X 2 between participants factorial design. Specifically, it was hypothesized that need supportive messages would have an effect on intrinsic motivation. The possibility of two-way or three-way interactions was acknowledged, however, no hypotheses were proposed, as a review of past literature did not support significant interactions. Satisfaction of each of the needs was examined as a manipulation check as well as dependent variables. It was hypothesized that those in need supportive conditions would rate higher on need satisfaction than those in conditions that were not need supportive. This would indicate successful manipulation of the targeted need.

Because this study was intended to have relevance for TR a recreation activity was used for the task. Participants were instructed how to play Boggle, a word game in which one has a predetermined amount of time to find as many words in a 4 X 4 puzzle as possible. Previous studies investigating intrinsic motivation have used this game as it is considered to be interesting and enjoyable by most (Sheldon & Filak, 2008). To achieve this purpose, a post-test only experimental design was used. Participants were randomly assigned to one of eight experimental conditions. Based on their assignment, they experienced one of eight possible combinations of messages regarding introduction to the game, learning the game, and performance feedback. These messages were designed to either support or undermine autonomy, relatedness, and competence.
Method

Participants

Participants were undergraduate students enrolled in an introductory leisure course at a land grant university in the southeast. They participated as a part of their course requirements with the option of an alternate assignment if they so chose. One hundred twenty-three students enrolled in the course were eligible to participate after the researcher gave them basic information about the study during class time. A total of 91 students participated in the experimental conditions (74% of those approached).

The final sample consisted of 89 students (two declined to have their data used after they were debriefed) with a retention rate of 98%. A majority of the participants were female (56%) and did not have previous experience with the activity (71%). Two students (2%) disclosed learning disabilities. The final sample of 89 in the experimental conditions yields a lambda of 12.15 (power ≈ .71) as determined by an analysis of power assuming a medium effect size.

Random assignment was accomplished by the researcher entering the names of the participants from the sign-up sheet on to a spreadsheet in the order of their appointment times. The random number generator was then used to assign each person a participant number from 1 to 96. Participant’s 1-12 were assigned to condition 1, 13-24 to condition 2, and so on. Sign-up sheets were posted where the students could access them and they chose which of the 130 possible times they preferred. There were five students who signed up but did not show up for their appointment times. Whereas the
researcher was aware of the condition assignments, the participants were neither aware of their assigned condition nor that there were different conditions.

**Procedure**

The sequence of steps followed in this study can be seen in Figure 2. Participants were seen individually at their chosen appointment time. Upon arrival, they were given an informed consent form to review and sign, which described the experiment as an exercise in game learning. Participants were then told they would receive the first portion of their instructions via audio and the camcorder would be started as the researcher left the room. The participants listened to the audio instructions and worked on a practice puzzle for three minutes until the researcher returned so their puzzle could be checked. The researcher gave them feedback about their progress so far, supplied their final puzzle or choice of puzzles (if in an autonomy supportive condition), and left to allow them three minutes to complete the puzzle. The researcher then returned, gathered their puzzle, and provided them with the Rated Need Satisfaction and Intrinsic Motivation Inventory. After these were completed they were told the researcher would take a few minutes to make a copy of their informed consent form. Until the researcher returned they were free to either complete some of the extra puzzles provided or read magazines. After six minutes the researcher returned, provided the copy of the informed consent form, inquired about their previous experience with Boggle, thanked them for participating and told them they were free to leave. At this point the camcorder was stopped, ending the filming.
Manipulations

Autonomy, relatedness, and competence were manipulated separately through the messages participants heard. The messages varied in support and non-support of the needs across the 8 conditions as described in Table 1. As autonomy supportive manipulations have been the most common in the past, these messages were based on
past research (Deci, Eghrari, Patrick, & Leone, 1994; Reeve, Jang, Carrell, Jeon, & Barch, 2004; Sheldon & Filak, 2008; Sheldon, Williams, & Joiner, 2003). As competence and relatedness supportive manipulations have not been explored, Sheldon and Filak crafted their messages using conceptual definitions (Deci & Ryan, 2000). The messages from the present study were based on those developed by Sheldon and Filak (2008). The messages were also piloted by the current researchers. People that were similar to the intended study population reviewed early versions of the messages. Piloting was continued until 80% of the reviewers agreed the messages manipulated the needs they were intended to in either a supportive or non-supportive direction. There were eight possible combinations of the messages and thus eight conditions. For a description of the experimental conditions as well as the number of participants per condition see Table 1.

Table 1

<table>
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<th>Description of Conditions</th>
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<td>Condition 1</td>
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<td>Condition 4</td>
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*Note.* Messages supported (y) or did not support (n) autonomy (A), relatedness (R), and competence (C).

In each experimental condition all participants heard autonomy, relatedness and competence messages. Across the conditions the messages varied with content being either supportive or non-supportive. As the game was being introduced, those in autonomy supportive conditions were told “We’d like for you to approach learning
Boggle the same way you would normally approach learning a game. There are hints, and you can choose the order in which you receive them. Also, there are a variety of puzzles, and you can do whichever ones you prefer”. Those in autonomy non-supportive conditions were told “Today, you will not have a choice about how you learn Boggle. There are three different hints, and we have decided when you will receive each. We have also decided which puzzles you will work on. These are all the decisions of the experimenter”. This was meant to emphasize either choice and self-direction or experimenter control and the absence of choice. Participants in relatedness supportive conditions were told “We see you and the other participants as individuals. We care about your experience and we would like to understand how you in particular learn. Because of this, we would appreciate you discussing your experience with us afterwards”. Those in relatedness non-supportive conditions were told, “You are only one of many participants in this study. Your individual experience is not important to us. Because of this, please keep your thoughts to yourself afterwards”. These messages were meant to either emphasize interest or disinterest in the participant. Lastly, in order to manipulate competence, those in competence supportive conditions were told “While some people find Boggle to be challenging, we have confidence in your ability and are sure that you will do well! It is okay if you do not find a lot of words your first time. If you put forth a good effort you should progress fairly quickly”. Those in competence non-supportive conditions were told “Remember that many people think Boggle is very difficult. It is likely that you will think Boggle is difficult and you will probably find very few words. Regardless of the difficulty you should give it a good effort. You could
luck out and get some easy puzzles”. These messages emphasized both positive expectancies and the ability to learn or low expectancies and the possibility of chance.

Upon introduction of the practice puzzle, participants in autonomy supportive conditions were given the opportunity to choose one of three possible puzzles. In autonomy non-supportive conditions the puzzle was chosen for them as they received the same puzzle chosen by the most recent participant in an autonomy supportive condition. All participants were reminded of how the researchers felt about their individual experiences to either support or not support relatedness. Participants in competence supportive conditions were told this puzzle was merely a practice puzzle, college students usually did well with these types of tasks, and they should just do their best. If they were in competence non-supportive conditions they were told the practice puzzle would be an indicator of their performance, which would probably not be very good.

The researcher then returned and checked the participants’ puzzle. All were told how many of the possible 60 words they had found and the researcher delivered all messages from this point in person. Regardless of performance, those in the competence supportive conditions were told they were doing great so far and participants in competence non-supportive conditions were told, “That’s a start. You may not do very well with the remaining puzzle.” At this time the participants were given hints to assist them with the puzzle. A choice of the order the hints were received in was given to those in autonomy supportive conditions but not to those in autonomy non-supportive. Participants in relatedness supportive conditions were then told that the hints really made a difference for the researcher and so they should help them as well. Relatedness non-
supportive conditions heard no extra message here. Competence supportive condition members next were told the hints should make sense to them quickly and help their performance, were then asked to demonstrate how to apply the hints, and were told they explained them very quickly. Competence non-supportive condition members were told they may have difficulty applying the hints or they may happen to make sense. They were then asked to explain what they didn’t understand about the hints and afterwards were told, “That took a little longer than expected.”

At the introduction of the final puzzle the same choice/non-choice scenario was established for the puzzles. Participants in relatedness supportive conditions were told “We hope you are enjoying the puzzles so far. Please remember that it’s very important for us to understand your experience in learning this game”. Those in relatedness non-supportive conditions were told “Whether or not you are enjoying the puzzles is not important to us. You are only one of many participants. What is important to us is how you learned the game”. They were left with a competence message of “It looks like you really understood the hints, you should be able to apply them and do very well” if they were in the supportive condition, or “I’m not sure you really understood the hints, but maybe you’ll do alright without them” for the non-supportive condition.

In addition to the messages, autonomy was manipulated through puzzle choice and selection of the order in which the hints were heard. Relatedness was further manipulated through researcher interaction. In relatedness supportive conditions the researcher made eye contact with and frequently smiled at the participants. In relatedness
non-supportive conditions the researcher avoided eye contact and did not smile at the participants. Competence was manipulated only through the messages.

The primary researcher provided all messages. In order to be sure of consistency across treatments and maintain internal validity, all participants were seen in the same room with the same set up each time. Each participant was seen on one twenty-minute occasion.

In order to prevent participants from sharing the true purpose of the study with other participants, they were not debriefed immediately following their participation. A week after data collection was completed all participants were gathered and debriefed at the same time. They were given the opportunity to ask questions and also a choice of whether or not they wanted all data collected from them to be destroyed.

**Instrumentation**

*Design.* As this was a post-test only randomized experiment, participants were only administered the Intrinsic Motivation Inventory and Rated Need Satisfaction after they completed the task. A post-test only design allows the researcher to avoid many of the threats to internal validity (Rosenthal and Rosnow, 2008). Also, when a study randomly assigns participants to conditions it can be assumed that participants are initially comparable on the dependent variable (Babbie, 2002).

*Rated Needs Satisfaction.* The previous study this builds on (Sheldon & Filak, 2008) also tested the same independent variables. As a manipulation check and an additional dependent measure of psychological effectors, all of their participants were administered a nine-item survey (three per independent variable) to determine whether or
not the targeted needs were being manipulated. This was developed by Sheldon and Filak and based on a scale previously employed by Sheldon, Ellis, Kim, and Kasser (2001). When tested, the survey was found to be valid and reliable with the alpha coefficient for the autonomy items to be .70, for the competence items to be .80, and for the relatedness items to be .81 (Sheldon & Filak, 2008). The same scale was employed in the present study. Statements such as “I felt like I had a choice about what puzzles to do,” “I did well at the game,” and “I felt that my teacher accepted me” were followed by a Likert-type scale ranging from 1 (strongly disagree) through 5 (strongly agree).

*Intrinsic Motivation.* Intrinsic motivation was measured two ways. The first was by self-report using the interest/enjoyment subscale of the Intrinsic Motivation Inventory (IMI; Ryan, 1982). The IMI has been used in many studies (e.g. Deci et al. 1994; Plant & Ryan, 1985; Ryan, 1982; Ryan, Koestner, & Deci, 1991; Ryan, Mims, & Koestner, 1983; Sheldon & Filak, 2008). One study examined the validity of the survey in a confirmatory factor analysis and found strong support (McAuley, Duncan, & Tammen, 1989). Specifically, the interest/enjoyment subscale was found to have an alpha coefficient of .78. It has also been found that the IMI can be modified slightly to fit the needs of an individual study without effecting its validity or reliability. The internal consistency was affirmed in the present study (Cronbach’s alpha: .92). Seven statements such as “This activity was fun to do,” and “I would describe this activity as very interesting” were followed by a Likert-type scale ranging from 1 (not at all true) to 7 (very true).
The second way intrinsic motivation was measured was through observing the participants during a free choice time. This practice was established in previous studies that looked at intrinsic motivation (Deci et al. 1994; Iyengar & Lepper, 1999; Plant & Ryan, 1985; Reeve, Nix, & Hamm, 2003; Ryan, 1982; Ryan, Koestner, & Deci, 1991; Ryan, Mims, & Koestner, 1983). After the manipulation and the assessments participants were told the researcher needed to go make a copy of their consent form and it would take a few minutes. They were then left alone in the room with extra puzzles and a few current magazines. The entire process was videotaped to allow the researcher to record what the participant did during this time. According to Deci and Ryan (1991), when an activity is freely chosen over alternative activities it can be assumed the participant was more intrinsically motivated regarding the task (Boggle).

**Data Analysis**

The nine items on the Rated Need Satisfaction were used to create three composite scores (one for each need). To perform a manipulation check and also test the effectiveness of the messages these scores were analyzed along with the independent variables by multiple Analyses of Variance.

The between-subjects factorial design of the study allowed for the conduction of an Analysis of Variance (ANOVA), which analyzed between group variations. This allowed the researcher to explore the relationships between the independent variables and scores on the IMI, allowing for an explanation of main effects as well as possible interactions of the independent variables. The independent variables analyzed were: autonomy support (yes/no); relatedness support (yes/no); and competence support.
(yes/no). Gender (male/female) and previous boggle experience (yes/no) were also examined as possible predictors. The dependent variable was the composite IMI score.

A logistic regression was used to analyze the independent variables, their possible interactions, and whether or not the participant chose to continue the task during their free-choice time.

Results

Data were first examined for missing values and outliers, none were found. The Rated Need Satisfaction was composed of nine items, three that addressed each need. Each three were used to create a composite need satisfaction score, which resulted in one for each need, and then compared to condition in a Multivariate Analysis of Variance (MANOVA) which was found to be significant with a multivariate Wilks’ Lambda $F(21,227) = 8.358, p < .01$. ANOVAs were then run for each of the needs. The mean autonomy need satisfaction scores were analyzed in comparison to whether a participant was in an autonomy supportive or non-supportive condition. The following significant results indicate those in autonomy supportive conditions rated higher on autonomy need satisfaction than those in autonomy non-supportive conditions: $F(1,87) = 180.283, p < .01$. The mean competence need satisfaction scores were then analyzed in comparison to whether a participant was in a competence supportive or non-supportive condition. The following significant results indicate those in competence supportive conditions rated higher on competence need satisfaction than those in competence non-supportive conditions: $F(1,87) = 19.992, p < .01$. Finally, the mean relatedness need satisfaction scores were then analyzed in comparison to whether a participant was in a relatedness
supportive or non-supportive condition. The following significant results indicate those in relatedness supportive conditions rated higher on relatedness need satisfaction than those in relatedness non-supportive conditions: \( F(1, 87) = 6.383, p = .013 \). In the second week of data collection the researcher stressed the anonymity of the surveys in response to preliminary data analysis which suggested all participants were rating high for relatedness need satisfaction. If participants from the first week of data collection are removed from the analysis the results of the ANOVA for rated need satisfaction of relatedness improve. The mean difference between the non-supportive and supportive condition increases from .376 to .55 and the \( p \)-value improves from .013 to .005.

Results from the three ANOVAs including all participants can be seen in Table 2. The means of the composite rated need satisfaction scores are displayed in Figure 3.

Table 2

\textit{ANOVA Results of Rated Needs Scores by Condition}

<table>
<thead>
<tr>
<th>Rated Needs</th>
<th>( df )</th>
<th>( F )</th>
<th>( \eta )</th>
<th>( p )</th>
</tr>
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<tbody>
<tr>
<td>Autonomy</td>
<td>(1, 87)</td>
<td>180.283*</td>
<td>0.675</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Competence</td>
<td>(1, 87)</td>
<td>19.992*</td>
<td>0.187</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Relatedness</td>
<td>(1, 87)</td>
<td>6.383*</td>
<td>0.068</td>
<td>0.013</td>
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</table>
Next, an analysis of variance was run that included gender, previous boggle experience, autonomy support, competence support, relatedness support, and IMI composite scores. Gender and previous boggle experience were included to see whether or not there were variances across groups. An alpha level of .05 was used for all tests. The overall model, $F(28, 60) = 2.690, MSE = 2.347, p < .01, \eta^2 = .557$, demonstrated significant differences between the groups. Whereas there were several lower order effects found to be significant, two significant higher order effects qualified them. The first is displayed in Figure 4.
Figure 4. Four-way Interaction Between Autonomy, Relatedness, Gender, and Previous Boggle Experience.

Note. Participants either did (Y) or did not (N) have previous boggle experience. Conditions were either supportive (Y) or not supportive (N) of autonomy and relatedness.

The preceding figure displays the significant four-way interaction between autonomy, relatedness, gender, and previous boggle experience, $F(1, 60) = 4.163, p < .05$. Whether or not there was a significant interaction between autonomy and
relatedness depended on previous boggle experience and gender. More specifically, previous Boggle experience effects how autonomy and relatedness interact to support intrinsic motivation significantly differently between males and females. For males, changing from some previous Boggle experience to none results in higher intrinsic motivation when in relatedness supportive, autonomy supportive, and autonomy non-supportive conditions, whereas for females changing from some previous Boggle experience to none results in minimally lower intrinsic motivation for all levels of relatedness and autonomy support. The most drastic increase was for male participants from some previous Boggle experience to none in relatedness supportive conditions. For males in non-supportive relatedness conditions change from some previous Boggle experience to none resulted in lower intrinsic motivation. This indicates the importance of relatedness support for males for activities in which they do not have prior experience. The results also indicate previous experience in general should be taken into consideration when planning for males more so than females. The second higher order effect is displayed in Figure 5.
Figure 5. Four-way Interaction Between Autonomy, Competence, Relatedness, and Gender.

The preceding figure displays the significant four-way interaction between autonomy, competence, relatedness, and gender, $F(1, 60) = 5.061, p < .05$. More specifically, how autonomy, competence, and relatedness interact to support intrinsic

Note. Conditions were either supportive (Y) or not supportive (N) of autonomy, competence, and relatedness.
motivation varies significantly between males and females. The three-way interaction has almost double the effect size for males ($\eta = .037$) as it does females ($\eta = .02$). Upon inspection of the two graphs in Figure 5, it is shown that the change in intrinsic motivation as females in relatedness non-supportive conditions move from competence support to non-support is very different from the change in intrinsic motivation of males in relatedness non-supportive conditions as they move from support to non-support of competence; females experience a larger decrease in intrinsic motivation than do males. Further, whereas males and females in relatedness supportive conditions experience a decrease in intrinsic motivation as they move from competence supportive to non-supportive, the decrease is much larger for males than females. This indicates the importance of competence support for females in relatedness non-supportive conditions and males in relatedness supportive conditions.

A logistic regression was run to determine if the independent variables had an effect on whether or not participants chose to continue the activity during their free choice time. There was not a main effect of the full model (chi-square value $8.693, df = 7, p > .05$). The effect size was .07 ($R^2 = 8.693/122.469$). However, the difference of 5.092 between the full model chi-square and a partial model chi-square indicated a significant three-way interaction between autonomy, competence, and relatedness with a $p < .05$. Figure 6 is simple display of probability of playing Boggle during free choice time by condition.
Figure 6. Probability of Playing Boggle During Free Choice Time by Condition.

![Bar chart showing probability of playing Boggle by condition]

Note. Messages supported (y) or did not support (n) autonomy (A), relatedness (R), and competence (C). This is not a ranking of probability, merely a visual display of probability of playing Boggle during free choice time by condition.

The significant three-way interaction between autonomy, competence, and relatedness and whether or not Boggle was the chosen activity during free choice time is displayed in the graphs of Figure 7. The probability of playing Boggle during free choice time decreased for participants in autonomy supportive and competence non-supportive conditions as they moved from relatedness supportive to relatedness non-supportive. In contrast, the probability increased for participants in autonomy and competence non-supportive as they moved from relatedness support to non-support. Participants in totally non-supportive conditions were more likely to choose Boggle during their free choice time than those in conditions that were only supportive of autonomy. In competence supportive conditions the results are the opposite. Participants in competence supportive conditions that are also supportive of autonomy are more likely to participate in Boggle.
during their free choice time when in relatedness non-supportive rather than relatedness supportive conditions. Participants in competence supportive conditions that are non-supportive of autonomy are less likely to participate in Boggle during their free choice time when in relatedness non-supportive versus relatedness supportive conditions. This indicates participants are more intrinsically motivated towards an activity when relatedness and/or competence are being supported as opposed to autonomy alone being supported.
Figure 7. Three-way Interaction Between Autonomy, Competence, and Relatedness for Probability of Playing Boggle During Free Choice Time.

Note. Messages supported (Y) or did not support (N) autonomy, relatedness, and competence.
Discussion

The purpose of this study was to examine the effect of autonomy supportive, competence supportive, and relatedness supportive messages, on intrinsic motivation in a recreation context. Based on previous literature, the present study hypothesized that messages supportive of the needs would have an effect on intrinsic motivation. The possibility of two-way or three-way interactions was acknowledged, however, no hypotheses were proposed, as a review of past literature did not support significant interactions. Regarding need satisfaction, it was hypothesized that those in need supportive conditions would rate higher on need satisfaction than those in conditions that were not need supportive. This would indicate successful manipulation of the targeted need.

Examination of the rated need satisfaction scores suggested the needs were manipulated as intended and supported the internal validity of the study. Those in each of the need supportive conditions rated significantly higher on need satisfaction than those in the need non-supportive conditions. Whereas this indicates the needs were manipulated as intended, it also indicates manipulating the needs can be as simple as changing the way one person speaks to another in a brief encounter. When the first weeks participants are removed, rated need satisfaction for relatedness becomes more significant.

In regards to supportive messages and responses to the intrinsic motivation inventory, the effects depend on gender and sometimes on previous Boggle experience. All unique effects were qualified by gender, or previous Boggle experience, or both,
including that of autonomy supportive messages. Sheldon and Filak (2008) also did not find a unique effect for autonomy on intrinsic motivation and suggested it was possibly due to the lack of choice being perceived as unimportant and the nature of the experiment. They suggested the autonomy messages in future studies be more specific. The current study took these suggestions into account when creating messages; however, it is possible more changes need to be made.

The results did show the interaction between autonomy and relatedness had a significant effect on intrinsic motivation as qualified by previous Boggle experience and gender. More specifically, when autonomy was supported relatedness had a significant effect on intrinsic motivation and when autonomy was not supported relatedness did not have a significant effect on intrinsic motivation for female participants. Also for females, when relatedness was supported autonomy had a significant effect on intrinsic motivation, and when relatedness was not supported autonomy did not have a significant effect on intrinsic motivation. This demonstrates the interactive nature of the components of self-determination theory.

The three-way interaction between autonomy, competence, and relatedness was significantly different in males and females. This continues to demonstrate the interactive nature of self-determination theory. The amount of support for each need must be intricately balanced, possibly in different ways for different genders. The most surprising result regarding the interaction of all three needs was which condition had the least effect on intrinsic motivation. It had been suspected the condition which was non-supportive of all three needs would produce the lowest level of intrinsic motivation. In
fact, two other conditions produced lower intrinsic motivation. The condition that produced the lowest level of intrinsic motivation for males and females was the condition that only supported autonomy. Directly above was the condition that supported only relatedness. Each of these conditions produced less intrinsic motivation than the condition that was completely non-supportive. Apparently, there is a danger to only supporting one need regardless of gender. It is possible participants perceive such messages as disingenuous and inconsistent. It is strange to be told personal choice is important while personal experience and ability are not. Participants must receive consistent messages in order to achieve efficacy.

In regards to whether or not Boggle was chosen during the free choice time, there were no main effects found, only an interaction of all three needs. This is very strong support for the interaction between all three needs. Ryan and Deci (2000) report previous research shows competence will not enhance IM unless accompanied by autonomy. Results of this study show those in a condition supportive of only competence had a 27% chance of playing Boggle during their free choice time. Participants in the condition supportive of autonomy but not relatedness or competence had a 25% chance of playing Boggle during their free time. This is consistent with the results of the IMI. Across the board, conditions solely supportive of autonomy had the least effect on intrinsic motivation.
Implications for Therapeutic Recreation Specialists

Of the 30,000 current Certified Therapeutic Recreation Specialist (NCTRC, 2009), it is likely they have all experienced a lack of motivation in their participants. A method of practice that uniquely engages male and female participants in such a way that they want to be there and they feel as though they are accomplishing their goals would be helpful. A method of practice that inspires participants to continue to participate after they are no longer in therapy would provide strong evidence of efficacy. This study has shown it is possible to effect intrinsic motivation in one 20 minute session.

A note must be made about autonomy. As shown in the multitude of previous studies on autonomy-supportive environments, it has frequently been assumed to be more important than relatedness and competence. Whereas autonomy support had the strongest significance for rated need satisfaction, it was also shown to produce the least amount of intrinsic motivation when it was the only need supported. Despite gender, an opportunity for choice in the absence of creating a relationship with the participants or giving them the encouragement that they were capable of the task at hand was the least motivating scenario. Interactions should be about more than giving participants a number of options as to what they can do; it must also be about connecting with them on a personal level and letting them know they are competent. Initially assessing participants in a way that begins to develop rapport, developing a plan that involves interventions they have chosen, and creating goals that are achievable are the beginning of supporting relatedness, autonomy, and competence needs while inciting intrinsic motivation.
Future Research

These results should be applied to research with specific populations served by therapeutic recreation professionals. Research should be done in settings that are more similar to those of actual practice. Furthermore, longitudinal studies must be carried out to see the behaviors continue outside of the manipulation. This would indicate the possibility of motivating participants to continue behaviors after therapy has been discontinued. Puzzle performance could also be examined to see if it has a qualifying effect on intrinsic motivation. If the results of future studies are consistent with the findings of this study they should be used to inform future practice models for therapeutic recreation.

Limitations

Previous studies similar to the present study did not show differences across gender. The gender of the researcher may have affected the results found in this study. Frequently males and females react differently to people of different genders. Not having research assistants of different genders randomly assigned to interact with the participants was a limitation to this study. It is also possible that difference found based on gender could be attributed to males and females reacting differently to different genders. Future research utilizing different research assistants would indicate whether the results found were due to the gender of the researcher or the gender of the participants.

There was not a confederate blind to the experimental conditions to interact with the participants. As the researcher was also the person interacting with the participants it is possible that an element of researcher bias may have entered the equation as the
researcher was personally invested in the project. Also, participants may have responded differently as they knew the researcher was the one who recruited them, took them through the participation process, retrieved their surveys, and reported back to their teachers so they could receive course credit, than if someone unknown to them had led them through the participation.

Personality may have been a factor in some of the results. Some people are extroverted and respond more to a relatedness approach. Others are introverted and possibly turned off by a relatedness approach. It could have been beneficial to include a basic personality test as part of the demographics to rule out interactions between personality type and response to the manipulation.

While there is a significant mean difference between the relatedness rated need satisfaction scores of those in supportive and non-supportive conditions, it is not a very large difference. The researcher suspected participants were reluctant to respond negatively to the survey due to politeness. For example, participants with whom the researcher neither established eye contact with nor smiled at would say “Thank you” after the researcher told them “Whether or not you are enjoying the puzzles is not important to us” and “I’m not sure you understood the hints but maybe you’ll do alright without them”. Most of these same participants responded, “strongly disagree” to “I don’t feel very good about the way my teacher talked to me” and “I don’t feel the teacher liked or understood me”. Many also responded, “strongly agree” to “I felt that my teacher accepted me”. After noticing this trend during the first week of data collection, the researcher attempted to ameliorate this by stressing the anonymity of the surveys when
providing them to the participants. It is also possible that because they were given the option to participate as an alternative to volunteering for an event they were grateful for the opportunity and reluctant to “bite the hand that fed them”.

In conclusion, this study found autonomy, competence, and relatedness, the three components of self-determination theory, to be relevant to intrinsic motivation, as well as gender and previous Boggle experience. It is possible to manipulate satisfaction of the needs through messages, and gender and previous experience should be considered when planning participant interaction. Also, in contradiction to previous emphasis on autonomy in the literature, the support of only autonomy while not supporting competence or relatedness was found to be the most detrimental to intrinsic motivation. These things should be taken into consideration by all practitioners.
CHAPTER THREE (MANUSCRIPT #2)
THE IMPORTANCE OF PROMOTING INTRINSIC MOTIVATION IN CLIENT INTERACTIONS TO SUPPORT PSYCHOLOGICAL WELL-BEING

Abstract

The purpose of this article is to show why autonomy, competence, and relatedness, the three innate psychological needs proposed by self-determination theory, are important for older adults and discuss practical ways to support these needs in nursing facilities. The fulfillment of these needs can positively impact psychological well-being, however, their fulfillment is frequently absent in long term care settings. Various research studies have examined the effects of fulfilling these needs and found support for improved psychological well-being. New research on supporting the three needs through messages is discussed, and suggestions for application by activity professionals are made.

KEYWORDS: intrinsic motivation, quality of life, well-being, self-determination

Many older adults have a poor quality of life (Steinmetz, 2006), and thus, diminished psychological well-being. Prevalence of diminished psychological well-being is seen in the high depression rates of older adults, the National Institute of Mental Health (2008) estimates 2 million Americans over the age of 65 suffer from clinical depression. It is also seen in high rates of anxiety and suicidal ideation (Vanderhorst & McLaren, 2005). This is due to many factors, which can include loss of friends and family, and decreased health and mobility. The elderly are more likely to experience depression when other illnesses are involved and also as their physical abilities decrease (Hybels & Blazer, 2003).
In contrast, when long term care (LTC) residents report a good quality of life it has been linked to acknowledgment of the residents’ uniqueness, provision of opportunities to make decisions about their own space, perceptions of control, and continuation of relatedness to friends and family (O’Rourke, Caspar, Gutman, Theurer, Cook, Kasprw & Bachner, 2009). As this shows it is possible not only to have a good quality of life while living in a nursing home but also that quality of life is positively associated with autonomy and relatedness, two concepts addressed by self-determination theory. It is reasonable to suggest further investigation of this theory as it applies to LTC residents. Thus, the purpose of this article is to show why autonomy, competence, and relatedness are important for older adults and discuss practical ways to support these needs in nursing facilities.

Theoretical Framework

Self-determination Theory

A theory that addresses relatedness, autonomy, and competence associated with leisure involvement of older adults is self-determination theory (SDT). Self-determination theory outlines a perspective on how fulfillment of the need for competence, the need for relatedness, and the need for autonomy contribute to intrinsic motivation. In the context of this theory, its authors (Deci & Ryan, 2002) have further defined the components. The term competence refers to how capable one perceives oneself to be at a given task. The idea of relatedness refers to the connectedness one feels to others and the sense of belongingness brought about by those relationships. Autonomy is viewed as the ability to make decisions independently. Deci and Ryan contend that all
people have these needs. How hard people work to attain these needs depends on how determined they are and how much they are being nurtured by the social environment, which can work either to encourage or dissuade them. If people are able to satisfy the three needs, Deci and Ryan propose that self-determination is then present and personal well-being and social development are then optimized (2002). If people are not able to satisfy the three needs, they are likely to experience diminished motivation and well-being (Ryan & Deci, 2000). A few indicators associated with diminished well-being are depression, anxiety, negative affect, poor self-esteem, and physical symptoms of psychological stress such as headaches (Deci & Ryan, 2002; Kasser & Ryan, 1993, 1996; Kasser & Ryan, 1999; Ryan, Chirkov, Little, Sheldon, Timoshina, and Deci, 1999).

Self-determination theory proposes a continuum of motivation with amotivation on the far left end, extrinsic motivation in the middle, and intrinsic motivation on the far right end (Ryan & Deci, 2000). Amotivation is “the state of lacking motivation to act” (p. 72). This could be caused by a feeling of incompetence, a perceived lack of value in the activity, or an assumption that the desired outcome is impossible. Any behavior at this point is considered nonself-determined. Learned helplessness can be attributed to repeated occurrences of amotivation coupled with a lack of control (Deci & Ryan, 1985; 2000). People in a state of learned helplessness have relinquished control to the degree that they will not make important choices even when their personal well-being is threatened (Mannell & Kleiber, 1997; Seligman, 1975). Extrinsic motivation follows amotivation in the continuum. It occurs at four different levels of regulation, each one more self-determined and autonomous than the last. The four levels are: external
regulation, introjected regulation, identified regulation, and integrated regulation. Whereas external regulation is indicative of behaviors that are driven by external rewards or demands, integrated regulation is indicative of an alignment of the behaviors with personal values even though they are linked to extrinsic outcomes (Ryan & Deci, 2000). Intrinsic motivation is next on the continuum and is seen as the prototype of self-determined behavior. People that are intrinsically motivated are participating solely to participate in things they find to be interesting and enjoyable.

As the continuum increases in level of autonomy it changes in perception of control. In heteronomy, the opposite of autonomy, an external perceived locus of control is in effect and actions are seen as emanating from somewhere other than the self. These actions may be caused by or performed under pressure from outside sources. In autonomy, an internal perceived locus of control is in effect and actions are seen as emanating from within. It should be noted that autonomy is not necessarily total autonomy. People can be in controlled situations and still make autonomous decisions. For example, residents may not be able to choose which room they are placed in when they move into a LTC facility, however, they may be able to choose how the room is arranged and decorated.

It is not uncommon for aging adults to experience reduced feelings of autonomy and diminishing competence (Dacey & Newcomer, 2005). Often their roles are changing and this combined with diminishing competence threatens their self-determination. This raises the salience of applying the concepts of self-determination theory to interventions that motivate older adults towards participation.
When older adults move from their own home to most LTC settings they lose varying amounts of autonomy (Hall & Bocksnick, 1995). Some nursing facilities “can be sterile, regimented, devoid of both privacy and meaningful association, and deadening to the human spirit” (Kane et al., 2003; p240). There are certain choices people can no longer make because they are no longer theirs to make. Generally decisions as simple as when to wake, what to eat for breakfast, and where to spend their time, are made for them (Voelkl, Battisto, Carson, & McGuire, 2004). When people are no longer living independently it is often because there are some self-care tasks they are no longer capable of, hence their competence has decreased. As people age they lose loved ones from death and distance. Loss of contact with those that have been a significant part of their lives can cause people to feel disconnected from society, as though they don’t belong. These circumstances create a need for older adults to establish relatedness with new contacts, either personnel at their new nursing facility or other residents (Kasser & Ryan, 1999).

When needs for autonomy, competence, and relatedness are not being met, the older adult will not be intrinsically motivated and may experience anxiety, depression, or even suicidal ideation (Vanderhorst & McLaren, 2005).

Losier, Bourque and Vallerand (1993) studied a proposed motivational model of leisure participation in the elderly. They found leisure motivation to be a significant determinant of the quality of a leisure experience, as well as to be a better predictor of leisure satisfaction than actual participation. Their results also suggested self-determination theory could be used as a framework for future research on leisure motivation. As intrinsic motivation is an accepted part of the leisure experience, this
indicates the appropriateness of encouraging intrinsic motivation through leisure motivation in residents of long-term care facilities.

Research on enhancement of relatedness, competence and autonomy in older adults

Given that residents have deficits in the three needs, helping them to feel autonomous, competent, and connected to others will increase their psychological well-being as well as their intrinsic motivation towards participating in activities. Multiple researchers have examined fulfillment of the needs in older adults. This is discussed in the following paragraphs and is summarized in Table 1.

Table 1

*Studies of Older Adults With Autonomy, Competence, and Relatedness Outcomes*

<table>
<thead>
<tr>
<th>Authors</th>
<th>Intervention/Modality</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buettner &amp; Fitzsimmons (2003)</td>
<td>67 Protocols, many skill-based social clubs (e.g. Bowling League, Social Dance Club, and Group Drum Circle)</td>
<td>The guideline provides a multitude of interventions to be implemented with individuals with dementia. Protocols are to be chosen autonomously by participants who can then develop a sense of competence in the activity and a sense of relatedness to the other participants.</td>
</tr>
<tr>
<td>Dupuis, Smale, &amp; Wiersma (2005)</td>
<td>Open environments</td>
<td>Creating an environment in a LTC facility that does not close residents off to the outside world was found to create an opportunity to fulfill relatedness needs.</td>
</tr>
<tr>
<td>Hall &amp; Bocksnick (1995)</td>
<td>Perceptions on decision-making process for recreation programs</td>
<td>Lack of choice in which recreation programs to participate in was associated with undermining of autonomy, control, and self-determination, which could result in elder abuse.</td>
</tr>
<tr>
<td>Janssen (2004)</td>
<td>Leisure education</td>
<td>Opportunities to increase relatedness by spending more time with friends and family were chosen autonomously</td>
</tr>
<tr>
<td>Study</td>
<td>Description</td>
<td>Findings</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kasser &amp; Ryan (1999)</td>
<td>Measurement of personal autonomy, autonomy support from others, and quality of relationships</td>
<td>Autonomous support from others related to lower rates of depression and higher levels of well-being; residents with higher quality relationships also related to higher levels of well-being.</td>
</tr>
<tr>
<td>Kunzmann, Little &amp; Smith (2002)</td>
<td>Beliefs about control and their associations with well-being</td>
<td>Perceived control over desirable outcomes associated with psychological well-being.</td>
</tr>
<tr>
<td>Langer &amp; Rodin (1976)</td>
<td>Told responsible for own actions, given choice of plant to care for and movie night</td>
<td>Those given autonomous choice and control experienced increased psychological well-being and improved interactions with residents, staff, and others. Improved interactions increased opportunities for fulfillment of relatedness needs.</td>
</tr>
<tr>
<td>Shary &amp; Iso-Ahola (1989)</td>
<td>Received messages emphasizing choice and control over their lives</td>
<td>Experienced increased perceived competence after given the opportunity to exercise their control.</td>
</tr>
<tr>
<td>Vanderhorst &amp; McLaren (2005)</td>
<td>Looked at relatedness variables as predictors of depression and suicidal ideation</td>
<td>Fewer social support resources and less relatedness linked with higher rates of depression and likelihood of suicidal ideation.</td>
</tr>
<tr>
<td>Voelkl, Battisto, Carson &amp; McGuire (2004)</td>
<td>Proposed a family model of care for nursing homes</td>
<td>In a family model residents exercise their autonomy in choices regarding daily activities and living space; relatedness is fostered amongst residents, staff, and family; and residents are given the opportunity to complete meaningful tasks in which they can demonstrate competence.</td>
</tr>
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</table>

Hall and Bocksnick (1995) investigated the need for autonomy in nursing homes and proposed the absence of autonomy creates opportunities for abuse. They interviewed residents, recreation therapists, and administrators, on residents’ degree of control in
decision-making. One of the themes found was that of disempowerment in the residents. It was found that the residents were not given choices about what they did and did not participate in; therapists were insisting they go to activities for their own good. Participation in activities was actually detracting from fulfillment of their needs for autonomy and self-determination, which can be seen as contributing to abuse (Hall & Bocksnick).

Leisure education has long been a part of the therapeutic recreation process (Stumbo & Peterson, 1998). In 2004, Janssen implemented a leisure education intervention among residents of a retirement facility in an attempt to see what effect it would have on their quality of life. Subjects participated in sessions on the following: “leisure appreciation, awareness of self in leisure, self-determination in leisure, making decisions regarding leisure participation, knowledge and utilization of resources facilitating leisure, and leisure and quality of life” (p. 283). The participants experienced a significant improvement in their rated quality of life, much due to participating in social activities with friends and families and thus increasing relatedness that they had chosen autonomously after being made aware of their options through the sessions.

The relatedness and autonomy needs of older adults residing in a nursing home have been examined by Kasser and Ryan (1999). In their study they looked at levels of autonomy support and relatedness and what relation they have to the overall well-being of residents in a nursing home. Residents who perceived family, friends, and staff to be supportive of the residents’ autonomy were generally found to experience low levels of depression and higher levels of well-being, vitality, and life satisfaction. Also, residents
with an external perceived locus of control (as opposed to an internal perceived locus of control) were less likely to be alive at follow-up. Lastly, it was found that residents reporting “greater depth of emotional contact” (p. 949) with friends and relatives experienced a better quality of life than those with a large quantity of low quality interactions.

With the intent of gaining a further understanding of the long-term emotional implications of various types of control beliefs, Kunzmann, Little, and Smith (2002) reviewed responses to measures of perceived control and emotional well-being in older adults. They hypothesized different types of control beliefs would be related differently to emotional well-being. The types of control considered were: personal control over desirable outcomes; personal responsibility for undesirable outcomes; and others’ control over desirable and undesirable outcomes (2002). Results of the longitudinal study showed perceived control over desirable outcomes to be positively associated with emotional well-being. In the same respect, those who perceived others to be in control tended to report a decline in positive affect. This demonstrates the importance of supporting autonomy needs in older adults.

A classic work on providing autonomy for LTC residents is that of Langer and Rodin (1976). In their study, they told some residents they were responsible for their own actions. They followed this up by giving the same residents the opportunity to choose a plant they could keep in their room for which they would be responsible for the care. Later, these residents were also given the option of which movie night to attend. Other residents were not given the messages regarding responsibility, received a plant
they were told they would not be taking care of, and the night to attend the movie was chosen for them. The residents that were provided opportunities for autonomy experienced increased psychological well-being, improved interactions with fellow residents, staff, and visitors (1976), and, shown in a follow-up study, increased life expectancy (Rodin & Langer, 1977).

Frequently, recommended interventions for older adults who no longer live at home focus on reducing the symptoms of dementia. Buettner and Fitzsimmons (2003) have contributed a guideline to assist the TR professional working with people experiencing dementia related symptoms containing many interventions based on established research. The availability of these guidelines to TR professionals is evidence of a shift in emphasis towards evidence-based practice. Many of these very specific interventions fall under the larger categories of reality orientation, reminiscence, physical activity, relaxation, and expressive arts. Goals occur in the following domains: physical, psychosocial, cognitive, and sensorimotor. Some of the outcomes expected are decreased apathy, passivity and agitation, and increased social skills, communication and attention to task. A group format is common among these interventions and thus relatedness in highly promoted among participants. Also, many interventions involve the participants making choices: first about whether or not to participate, and then in how they participate. This helps fulfill their need for autonomy.

Shary and Iso-Ahola (1989) demonstrated concepts such as choice and personal control are relevant when discussing the value of services for nursing home residents. In their intervention, they provided some participants with messages that “emphasized
personal control, choice and responsibility over one’s life” (p. 7). These messages were followed with circumstances in which they could exercise their control and feel more autonomous. The actual interventions were a music-exercise group and an arts-crafts group that all participants attended, whether they took part in planning or were directed to go. The group nature of these interventions provided the opportunity to develop relatedness with other residents. When the planning participants were tested on perceived competence afterwards they scored significantly higher than those that had not received the messages emphasizing control. They connect their results with previous studies that found control-relevant interventions to have positive effects on psychological well-being.

A Change in Environment

One area of interest being explored in Canada is open environments in long-term care settings (Dupuis, Smale, & Wiersma, 2005). The authors describe open environments as an alternative to the popular “total institution” setting of most long-term care facilities. Total institutions are seen as closed environments that are self-sufficient: a resident need never leave for any reason and the outside world (other than staff) does not interact with the facility. In an open environment the residents often interact with the community by having community members participate in programming and use facility accommodations for events, or by the residents going on community outings. The authors surveyed activity directors and recreation supervisors in many long-term care facilities across Canada. Because this was the first survey of its kind they were establishing a baseline and did not have previous data with which to compare their
results. They found that there are some facilities attempting to provide opportunities for an open environment, however, the majority of facilities are not. This is due to perceived constraints on the part of “staff perceptions of the functional abilities of the residents” (p. 292). Many staff persons do not see their residents as physically or cognitively competent of appropriately interacting with their community. Promoting the interaction of residents with the community creates a unique opportunity for fulfilling their need for relatedness. Often residents feel separated from their community and their fellow residents. An open community would create many possible scenarios for building a feeling of belonging amongst residents. Scenarios include but are not limited to intergenerational programming, establishing a family model of care (Voelkl, Battisto, Carson, & McGuire, 2004), providing chances for the community to use the facility, creating opportunities for unprompted leisure experiences, and educating community members on the capabilities of the residents (Dupuis, Smale, & Wiersma, 2005).

Voelkl, Battisto, Carson, and McGuire (2004) have proposed the family model as an approach to “creating a life-enriching nursing home environment” (p. 20). Within their model an importance is placed on shared domestic space, caring relationships, and enduring relationships. The culture should be collaborative, in which all residents, staff, and family members are valued and participate autonomously in decision-making processes. Feeling valued by others helps to fulfill relatedness needs. Having a say in decisions that are made helps to fulfill autonomy needs. The setting should be home-like and promote a sense of belonging in which residents have control over their living areas and daily choices. The final piece of the family model is meaningful activities.
Activities are engaged in when they are found to be interesting. Residents are encouraged to participate in life-long rituals in which they feel competent (Voelkl, Battisto, Carson & McGuire, 2004).

Another study that considered environment examined the affect of autonomy-supportive nursing home environments on motivation and psychological adjustment (Philippe & Vallerand, 2008). When a person’s environment changes, that person is presented with an opportunity for psychological adjustment. How they adapt to the new environment depends on a motivational sequence that influences autonomy and self-determination. It is not uncommon for nursing home residents to display a different personality than they did while living in their own home. This is due to a failure to adjust to the new environment. Philippe and Vallerand found participants living in nursing homes that supported autonomy, through choice in daily activities and the amount of initiative the residents were able to take, experienced self-determined motivation, which made them more likely to adjust to their new environment over the course of a year.

As of yet, research has not been published that reports looking directly at the implications of supporting self-determination and, in turn, increasing intrinsic motivation in older adults. However, some research has been done in that direction with college students (Bell, 2010; Sheldon & Filak, 2008). Both studies found verbal messages supportive of competence and relatedness to be successful in increasing intrinsic motivation in participants. It is important to remain conservative regarding applicability to other populations, nonetheless, the results were significant and the ideas should be continued and looked at in the context of other populations, such as older adults.
Empirical support of other applications of self-determination theory with older adults indicates the information could transfer.

Suggestions for Practitioners

A list of health care practitioner behaviors that support patients’ feelings of competence, autonomy, and relatedness has been provided by Sheldon, Williams, and Joiner (2003) and is reproduced in Table 2 with additions compiled from research reviewed in this article. These behaviors can be integrated into all interactions with residents. For example, making an effort to listen to residents and acknowledging their thoughts shows them their opinion and feelings are valued creating a sense of relatedness. Providing various options when possible and providing rationale for those options supports autonomy within residents. In addition, listening to their thoughts and ideas and using those to provide them a choice allows them choose an activity they are more likely to be competent in accomplishing.
Table 2

Health Care Practitioner Behaviors That Support Patients’ Feelings of Autonomy, Competence, and Relatedness

<table>
<thead>
<tr>
<th>Behavior</th>
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<tbody>
<tr>
<td>Listening to patients</td>
</tr>
<tr>
<td>Eliciting patients’ perspective</td>
</tr>
<tr>
<td>Acknowledging patients’ feelings and ideas</td>
</tr>
<tr>
<td>Supporting patients’ choice and providing a menu of options</td>
</tr>
<tr>
<td>Encouraging patients’ initiative and responsibility</td>
</tr>
<tr>
<td>Minimizing control</td>
</tr>
<tr>
<td>Giving patients information and/or a rationale for change</td>
</tr>
<tr>
<td>Being nonjudgmental</td>
</tr>
<tr>
<td>Encouraging efforts at task completion</td>
</tr>
<tr>
<td>Creating opportunities for interaction with peers, family, and the community</td>
</tr>
<tr>
<td>Spreading awareness of options to interact with others</td>
</tr>
<tr>
<td>Designing activities to contain achievable goals</td>
</tr>
<tr>
<td>Planning interesting and enjoyable opportunities for participation</td>
</tr>
</tbody>
</table>

*Note.* First eight behaviors are from Sheldon, Williams, and Joiner (2003, p. 52). Remaining behaviors are compiled from research reviewed in this article.

For example, the aforementioned studies on college students found telling someone they had a choice in how to participate, the researcher saw them as capable of the task, and their individual experience was important had higher rates of intrinsic motivation than those that were told they did not have a choice, were probably not capable, and their experience was not important. Furthermore, amount of choice is important in moderation. When people are presented with too many options within their choices they are likely to be demotivated (Iyengar & Lepper, 2000).

Suicide rates are high in older adults. When activity personnel implement interventions in such a manner that relatedness is increased among participants, they may in fact be decreasing the occurrence of depression and suicidal ideation (Vanderhorst & McLaren, 2005). LTC facilities with lower rates of depression and suicidal ideation in
their residents will provide a positive environment in which to reside. Further, individual residents that are not depressed will have an improved quality of life and will be more likely to be interested in enjoying interventions provided by personnel.

In conclusion, older adults living in long-term care settings are likely to be experiencing deficits in autonomy, competence, and relatedness. This makes them less likely to be intrinsically motivated towards activities and more likely to be depressed, anxious, and susceptible to illness. Providing autonomy, relatedness, and competence support in nursing home environments can increase intrinsic motivation and contribute to improved psychological well-being.
CHAPTER FOUR

CONCLUSION

Chapter Overview

The purpose of this chapter is to bring together the ideas proposed in the two preceding articles. It first discusses implications from each of the articles. Following the implications, limitations of the present study and suggestions for future research are considered.

Implications

Results of the present study indicate unique things about self-determination theory that have yet to be examined by other researchers. For example, past research has highlighted the possibilities presented by autonomy supportive environments. The current research shows supporting autonomy while not supporting competence or relatedness is predictive of lower intrinsic motivation than not supporting autonomy. This indicates the danger in choosing one part of a theory to apply as opposed to applying a theory as a whole. It also indicates the value of research in allowing translation of theoretical concepts into practice. Theories should be tested in their entirety before they are applied to practice to determine the effectiveness of all of their components.

The results of this study indicate the possibility of a relationship between gender, fulfillment of autonomy, competence, and relatedness, and intrinsic motivation. Males and females responded differently to the messages, and thus, the needs. If this is indeed true in the general population it should be taken into account when planning interactions with participants. Also, gender and participants’ previous experience with an activity
should be taken into consideration by therapists planning interventions. Depending on previous experience, needs may need to be supported at different levels.

Experimental design is not frequently utilized by therapeutic recreation researchers. This study provides evidence to the value of experimental design in showing cause and effect. Working with human beings is complex, people cannot make assumptions about what does and does not work when it comes to the many parts of a theory. A tested theory is holistic; the many parts are there for a reason and most often because they are interconnected. As was found in the present study, supporting only a portion of the theory can be more detrimental than not supporting it.

Limitations

The results of this study are limited in their generalizability as are the results in any study. The limitations of the present study are listed and briefly discussed:

1. The study population was a fairly homogenous group of undergraduate leisure studies students. They were representative in gender but not in ethnicity. Persons belonging to other ethnic groups may respond differently to supportive and non-supportive messages.

2. The sample size was relatively small. Including more participants would allow for greater probabilistic equivalence and more rigorous results.

3. The participants were not disabled, and thus, are not part of a typical therapeutic recreation (TR) population. On one hand, this limits the applicability to TR. On the other hand, if a specific population had been studied the results would only be applicable to that population.
4. Participants had incentive to participate in the study. This may have resulted in biased responses on surveys.

5. Two of the measures employed in the study were self-report. Whereas precautions were taken to prevent participants from knowing the true purpose of the study and thus responding to the instruments based on this it is possible they may not have been entirely honest in their responses.

6. The researcher did not have a support staff. Having a confederate blind to the experimental conditions to interact with the participants did not occur, and thus the possibility for researcher bias was introduced. The researcher controlled for their variability in interactions with participants.

7. The gender of the researcher may have affected the results. Not having research assistants of different genders randomly assigned to interact with the participants was a limitation to this study.

8. Previous boggle experience qualified some of the results. An activity that was novel to all participants may have resulted significant main effects of the independent variables.

Future Research

The possibilities for future research are almost limitless. This study was exploratory in nature with the intention to set up possibilities for future research in various TR settings and populations. These results should be applied to studies with individuals with physical disabilities, substance abuse problems, developmental disabilities, chronic debilitating illnesses; those being treated for mental health problems,
caregivers, etc. Possible settings would include rehabilitation centers and hospitals, community centers, schools, nursing facilities, and even homes. This research should also be longitudinal to establish whether or not the intrinsic motivation towards the activity continues after the manipulation.

In regards to the design of the study, there are other factors that could be considered in future research. Having a sample of participants that are there by choice and not because of incentive to participate could reduce the possibility of their providing favorable responses to surveys. Multiple confederates of different genders randomly assigned to participant interactions could reduce the qualifying effect of gender on intrinsic motivation. The activity should be novel to all participants in order to eliminate the qualifying factor of previous experience. This could be achieved in future research through either employing a totally novel activity or excluding participants from the study based on previous experience. Optimally, in future studies the sample size will be larger. This will allow for a more accurate representation of demographics, increase the power of the study, and the possibility of generalizing to other populations.

Furthermore, follow-up interviews with participants as they are debriefed may help in understanding trends in the results. This could be accomplished individually, or by conducting focus groups of participants. Topics to be discussed could include personal reactions to specific messages as well as the complete experience.

Conclusion

This research supports the relevance of autonomy, competence, and relatedness to intrinsic motivation. More specifically, promoting autonomy alone while not promoting
competence or relatedness was more detrimental to intrinsic motivation than not promoting any of the three needs. This demonstrates the importance of applying all parts of self-determination theory to therapeutic recreation practice and research. Gender was found to be a factor in how the needs interacted to support intrinsic motivation. Males and females responded significantly differently to the messages. Whether or not this was due to the gender of the researcher, it is important for therapists to know that their gender and the gender of their participant should be considered when interventions to improve intrinsic motivation by utilizing the concepts of self-determination theory are being planned.
APPENDICES
Appendix A

The Messages

Legend:
(All) – A message everyone will hear
(Ay) – Autonomy supportive
(Aa) – Autonomy non-supportive
(Ry) – Relatedness supportive
(Ra) – Relatedness non-supportive
(Cy) – Competence supportive
(Ca) – Competence non-supportive

Researcher:
Welcome, thank you for coming in today. Please sit here and read over the informed consent form. I will wait here; let me know if you have any questions. Thank you. You will receive the next portion of your instructions by audio. Once I have left press here to begin. (Start video recording before exiting room).

Recording:
(All) Hello. As you were told, we will be looking at game learning today. The game you will be playing is Boggle. The instructions are on your desk, please look them over. (Ay) We’d like for you to go about learning Boggle however you generally go about learning a game. There are hints, and you can choose the order in which you receive them. Also, there are a variety of puzzles, and you can do whichever ones you prefer. (Aa) Today, you will not have a choice about how you learn Boggle. There are three different hints, and we have decided when you will receive each. We have also decided which puzzles you will work on. These are all decisions of the experimenter. (Ry) We see you and the other participants as individuals. We care about your experience and we would like to understand how you in particular learn. Because of this, it would be really great if you discuss your experience with us afterwards. (Ra) You are only one of many participants in this study. Your individual experience is not important to us. Because of this, please keep your thoughts to yourself afterwards. (Cy) While some people find this puzzle to be challenging, we have confidence in your ability and are sure that you will do well! It is okay if you do not find a lot of words your first time. If you put forth a good effort you should get do well fairly quickly. (Ca) Remember that many people think this puzzle is very difficult. It is likely that you will think this puzzle is difficult and you will probably find very few words. Regardless of the difficulty you should give it a good effort. You could luck out and get some easy puzzles. (All) It is now time to begin the pretest (practice grid).
(A_y) On your desk is a folder entitled “pretest”. It is up to you which of the three grids inside you choose to complete.
(A_n) We have chosen the grid for you to complete, it is inside the folder on your desk entitled “pretest”.
(R_y) Don’t forget, we are very interested in you and your particular style of learning. Do what you can to remember your thoughts and feelings about the experience so that you can share it with us afterwards.
(R_n) Don’t forget, this is not about your thoughts or the way you prefer to learn. Please do keep your thoughts to yourself.
(C_y) This first bit is to give you a chance to practice with the puzzles. College students often do very well with these types of puzzles. You will probably do well. You will have 3 minutes to find as many words as you can in the grid. Write down each of the words that you find. Don’t over think it; just do the best you can.
(C_n) This first exam should tell us how poor your performance is at the beginning. Most college students are not very good at these types of puzzles. You will probably not be very good at this. You will have 3 minutes to find as many words as you can in the grid. Write down each of the words that you find. Try hard and you may not do too badly.
(All) Your 3 minutes is up. Please notify the researcher so that they can check your grid. 
Researcher returns.
(All) Of the 60 possible words, you found ___ words.
(C_y) You’re already doing great! I don’t see any reason why you shouldn’t do well with the remaining puzzles.
(C_n) That’s a start. You may not do very well with the other puzzles.
(A_y) You may now choose which of the three hints you would like first.
(A_n) We have decided the order in which you will receive the three hints. The first is…
(R_y) When I first tried these puzzles I found that the hints really made a difference, I am sure that you will too.
(R_n) (told nothing extra)
(C_y) These will make sense to you very quickly and really make a difference in your performance.
(C_n) You will probably have difficulty applying these hints, but if they do happen to make sense you could use them to help your performance.
(C_y) Can you show me how to apply these hints? then... Good, you picked up on that quickly!
(C_n) Tell me what it is you don’t understand about this hint. then... That took a little longer than expected.
(All) We have now come to the final timed test.
(A_y) You may now choose which of the three grids you would like to complete.
(A_n) We have decided this is the grid you will complete.
(R_y) This is the final part. We hope you are enjoying the puzzles so far. Please remember that it’s very important for us to understand your experience in learning this game.
(Rₐ) This is the final part. Whether or not you are enjoying the puzzles is not important to us. What is important is us seeing if you took to the way we wanted you to learn the game.

(Cₐ) It looks like you really understood the hints, you should be able to apply them and do very well.

(Cₓ) I’m not sure you really understood the hints, but maybe you’ll do alright without them.

*Researcher exits, this ends the manipulation portion.*
Appendix B

Instructions on How to Play Boggle

Boggle® is based on the familiar principle of making words from a grid. Sixteen cubes, each of which has one letter on each of its six sides, are shaken in a plastic container and come to rest in a four-by-four tray as illustrated below:

```
A D S L
M Qu A T
R Z S O
E Y O T
```

The object is to write down as many three or more letter words as possible from the grid using any letter only once. Letters must be adjacent in the grid, horizontally, vertically or diagonally, to the previous letter of the word. For example, in the above grid, you can make the word LAZY, but you cannot make the word MARE as the A is not adjacent to the R.
Appendix C

Rated Need Satisfaction

For each of the following statements, please indicate how much you agree, using the following scale:

1  2  3  4  5
strongly disagree  agree  strongly agree

I felt that I had a choice about how to apply the hints and play the game. ___
I felt like I had a choice about which grids to do. ___
I felt that my teacher provided me with choices and options. ___
I felt that I picked up on the hints very well. ___
I did well at the game. ___
I feel that I probably got more words than most people would get. ___
I felt that my teacher accepted me. ___
I don’t feel very good about the way my teacher talked to me. ___
I don’t feel the teacher liked or understood me. ___
Appendix D

Intrinsic Motivation Inventory

For each of the following statements, please indicate how true it is for you, using the following scale:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not at all true</td>
<td>somewhat true</td>
<td>very true</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I enjoyed doing this activity very much. ___
This activity was fun to do. ___
I thought this was a boring activity. ___
This activity did not hold my attention at all. ___
I would describe this activity as very interesting. ___
I thought this activity was quite enjoyable. ___
While I was doing this activity, I was thinking about how much I enjoyed it. ___
Appendix E

Letter of IRB Approval

December 3, 2009

Dr. Fran McGuire
Clemson University
Department of PRTM
282B Lebatsky Hall
Clemson, SC 29634


Dear Dr. McGuire:

The Institutional Review Board (IRB) of Clemson University reviewed the above-mentioned study using Expeditious review procedures and has recommended approval. Approval for this study has been granted as of November 24, 2009. Please find enclosed with this letter your original, stamped consent documents to be used with this protocol.

Your approval period is November 24, 2009 to November 23, 2010. Your continuing review is scheduled for October 2010. Please refer to the IRB number and title in communication regarding this study. Attached are handouts regarding the Principal and Co-Investigators’ responsibilities in the conduct of human research. The Co-Investigator responsibilities handout should be distributed to all members of the research team. The Principal Investigator is also responsible for maintaining all signed consent forms (if applicable) for at least three (3) years after completion of the study.

No change in this approved research protocol can be initiated without the IRB’s approval. This includes any proposed revisions or amendments to the protocol or consent form. Any unanticipated problems involving risk to subjects, any complications, and/or any adverse events must be reported to the Office of Research Compliance immediately. Please contact the office if your study has terminated or been completed before the identified review date.

The Clemson University IRB is committed to facilitating ethical research and protecting the rights of human subjects. Please contact the Office of Research Compliance at 656-6460 if you have any questions.

Sincerely,

Laura A. Moll, M.A., CIP
IRB Administrator

Enclosures
REFERENCES


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