THE RELATIONSHIP AMONG SERIOUS LEISURE, RECREATION SPECIALIZATION, AND PLACE ATTACHMENT FOR AMATEUR ATHLETES

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Introduction

The purpose of this chapter is to explain the relationship among serious leisure, recreation specialization, and place attachment for amateur athletes. The overall research background, research problem statement, and purpose of the study are presented in the chapter. Moreover, research hypotheses, assumptions and limitations of the study and definition of key terms are also included in this chapter.

Research Background

Leisure is a central and dominant aspect of an individual's daily life that facilitates behaviors, defines who they are, and provides a personally satisfying and full existence (Brightbill, 1961). The concept of serious leisure could be used to explore amateur athletes' characteristics of pursuing their leisure systematically and acquiring benefits from the process (Stebbins, 1992). Team sports, such as softball and volleyball, commonly exist in community based recreation across the United States. Community recreation programs provide amateur athletes a reachable and affordable opportunity for adults to pursue their leisure and enhance their recreational skills and experiences (Hastings, Kurth, Schloder, & Cyr, 1995). Community based recreation is also considered as an essential factor to reduce

rates of crime and drug use and increasing community development and healthy lifestyle (Vail, 2007).

In the context of leisure research, place has been considered as an important factor that may facilitate or hinder individuals' leisure and recreation experience (McCool, Stankey, & Clark, 1985). The aspect of place is composed of meanings, activities, and physical settings (Relph, 1976). A physical setting becomes a place when people attach meaning to a particular location and actually have experience through activities related a physical setting. Leisure is regarded as a "placemaker" which assists people to define, reveal, enhance, reinforce, or make accessible meanings of place (Henderson & Frelke, 2000). In other words, through personal leisure experiences, people create and expand their personal bonding with a specific place, and the place also becomes an attraction for individuals to re-experience their leisure. Individuals' relationship with specific physical locations or environment is usually called place attachment or sense of place, referring to an emotional bond, attracting people to seek for specific places or outdoor settings (Bricker & Kerstetter, 2000). The concept of place attachment has been used in various fields to explain the meaningful bonding between people and physical settings (Kyle, Mowen, & Tarrant, 2004).

However, only a few studies have been done to refine the relationship between leisure involvement and man-made recreational settings, such as softball fields and volleyball courts. Most of the research related to place attachment has focused on natural-resource based outdoor recreation, such as fishing (Bryan, 1977), backpacking (Williams & Huffman, 1986), camping (Bond, 2006; McFarlane, 2004), hiking (Williams & Vaske, 2003), visiting wilderness areas (Williams, Patterson, Roggenbuck, 1992), and whitewater recreation (Bricker & Kerstetter, 2000). Therefore, if place is regarded as an essential factor of people's

leisure experience, the relationship between man-made physical settings and individuals' place attachment should not be overlooked. Green and Chalip (1997) argued that within sports activities, place attachment could be viewed as an approach to obtain different managerial perceptions of a physical setting from players.

From a recreation managerial perspective, the concept of place attachment could help recreational managers understand users' perception of the importance of physical settings, demand of services, opportunities, or experiences, and current issues related to recreation areas (Anderson & Fulton, 2008). Within the past two decades, many leisure and recreation researchers and practitioners have applied place attachment to improve the understanding of how place affects individuals' leisure experience and behavior (Kyle, Graefe, Manning, & Bacon, 2004). Green and Chalip (1997) suggested that from the view of recreation management, place attachment can be used to research individuals' bonding to a place and perception of management on the recreation areas. Research related to place attachment has been extended to investigate how individuals' recreation preference (Anderson & Fulton, 2008), leisure/activity involvement (Kyle, Graefe, et al., 2003; Cavin, Cavin, Kyle, & Absher, 2004), and service satisfaction (Hwang, Lee, & Chen, 2005) associate with their attachment to specific recreation settings. In addition, Anderson and Fulton (2008) noted that place and experience were commodities of recreation services, and individuals' recreational experience at specific places can shape their attachment to the place.

Softball and volleyball programs are the most commonly existing and quickly growing recreation programs in communities across the nation (Snyder, Ammons, Ronald, 1993). According to the Amateur Softball Association of American (2012), there were over 170,000 teams, 2.5 million players and 500,000 coaches annually involved in softball games,

and the adult amateur is the largest group nationwide. In the City of Stillwater, Oklahoma, the adult softball program is usually provided in fall, summer, and spring, and attracts approximately 500 to 800 amateurs to play every season. This program not only pulls the city residents to participate in softball games but also attracts players from other cities or towns in the nearby communities. Many players consistently and systematically are involved in their chosen leisure activity in Stillwater, being amateur athletes and "seriousness" about their leisure pursuit. Socialization among players and their family played the most important roles in their long-term involvement in sports (Green & Chalip, 1997). In terms of the relationship between serious leisure and recreation specialization, Tsaur and Liang (2008) indicated that when amateurs have a higher level of specialization in their personal pursuit, they have more opportunities to improve and develop their techniques and skills, a willingness to commit personally and economically, and a willingness to invest fully in their leisure pursuit as the central aspect of their life.

There is evidence to suggest that individuals' leisure involvement and recreation specialization likely influences their connection with a specific place (Bricker & Kerstetter, 2000; McFarlane et al., 1998; Moore & Graefe, 1994). However, Kyle, Graefe, et al., (2003) argued that the theoretical assumption that higher involvement tends to lead to a stronger attachment to recreation settings might be superficial and misleading. As a result, the relationship between individuals' leisure pursuit and place attachment remained unclear, and even less study focused on amateur athletes' attachment to a specific place where they enjoy their recreation experience.

Research Problem Statement

Many studies have been conducted to investigate how individuals' leisure involvement, past experience, and level of specialization impact on their attachment to specific recreational settings. However, the nature of this effect remains unclear (Kyle, Graefe, et al., 2003). In addition, even though adults sport programs commonly exist in communities nationwide, amateur athletes are overlooked in the study of serious leisure, recreation specialization, and place attachment. The research problem for this study is to understand the relationship among serious leisure, recreation specialization, and place attachment for amateur athletes.

Purpose of the Study

The purpose of the study was to investigate how amateur athletes' systematic leisure pursuit and recreational specialization vary relative to their attachment to a specific place. There are two major objectives in this study. The first was to investigate the relationship between serious leisure and place attachment through recreation specialization for amateur athletes. The second was to compare amateur athletes' characteristics (dimensions) between serious leisure and recreation specialization, between recreation specialization and place attachment, and between serious leisure and place attachment.

Research Hypotheses

Six hypotheses and a structural model were tested to determine how the leisure involvement, which is examined by serious leisure theory, varies with recreational specialization and influences amateur athletes' attachment to the place. Within the theoretical construct of serious leisure, the denotation of SL1 to SL5 represents the qualities of serious leisure: perseverance (SL1), significant effort (SL2), career (SL3), identity (SL4), and unique

ethos (SL5). Within the recreation specialization theory, the denotation of RS1 to RS3 represents the three dimensions of recreation specialization: past experience (RS1), economic commitment (RS2), and centrality-to-lifestyle (RS3). Within the place attachment structure, the denotation of PA1 to PA3 represents the three dimensions of place attachment: place identity (PA1), place dependent (PA2), and social bonding (PA3). The hypotheses and model of this study are as follows (Figure 1):

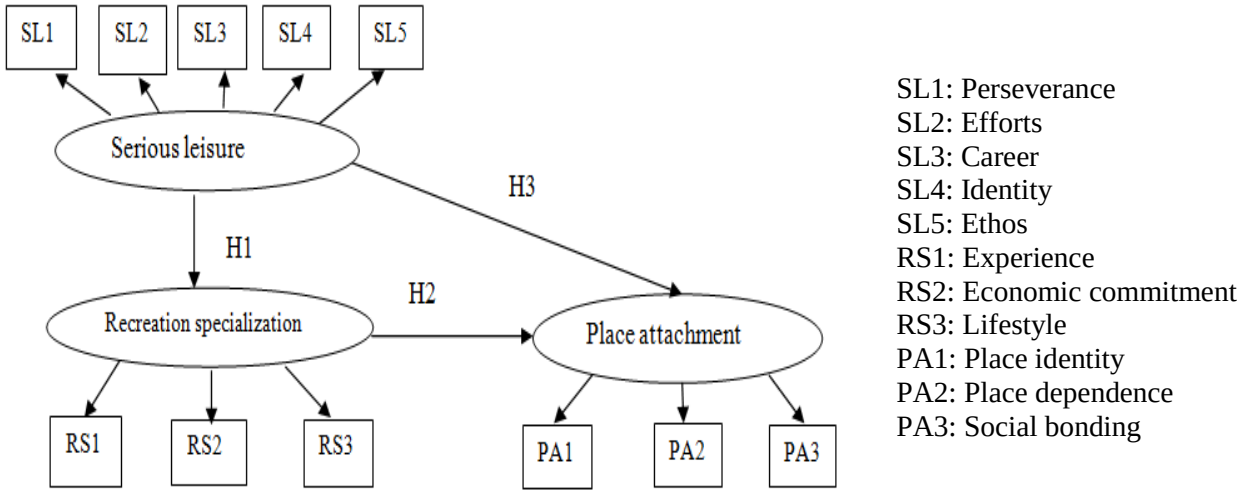


Figure 1 The Model of the Relationship between Serious Leisure, Recreation Specialization, and Place Attachment for Amateur Athletes

H1: Amateur athletes' systematic pursuit (serious leisure) is positively related to their level of recreation specialization.

H2: Amateur athletes' systematic pursuit (serious leisure) has an indirect positive influence on their place attachment through their recreation specialization.

H3: Amateur athletes' systematic pursuit (serious leisure) is positively related to their place attachment.

H4: There is a significant relationship between amateur athletes' serious leisure and recreation specialization characteristics (dimensions).

H5: There is a significant relationship between amateur athletes' recreation specialization and place attachment characteristics (dimensions).

H6: There is a significant relationship between amateur athletes' serious leisure and place attachment characteristics (dimensions).

Assumptions of the Study

In order to conduct this study, four assumptions were formulated for the research:

1. All amateur athletes are honest and truthful in responding to the research instrument.
2. All amateur athletes are voluntary and intended to complete the research instrument.
3. The research instruments utilized in this study are generic in nature. It is assumed, based on prior study, that the generic language can be specified for factors in this study.
4. All amateur athletes consider softball or volleyball as their serious leisure pursuit.

Limitations and Delimitations of Study

The limitations and delimitations of this study are listed as follows:

1. All the amateur athletes were in the adult sports program in City of Stillwater, Oklahoma; therefore, the finding of this study may not be generalized to other geographical areas outside the city.
2. The lack of control over the outdoor environment in which respondents respond to the survey may have affected the findings of this study.
3. The research participants were not randomly selected; therefore, the demographic characteristics of these respondents, such as gender, income, ethnicity, and age, may affect the findings of the study.

Definitions of the Key Terms

Serious leisure

In this current research, the definition of serious leisure proposed by Stebbins (1992) is a form of leisure which is the systematic pursuit of an amateur, hobbyist, or volunteer activity. Participation, in a typical case, feel substantial and interesting in their leisure pursuits, have a career development, and acquire special skills, knowledge, and experience through their leisure dedication. The qualities of serious leisure, including perseverance, career development, significant personal efforts, unique ethos, and strong identification, are applied to investigate the leisure involvement of the research participants.

Recreation specialization

The definition of recreational specialization noted by Bryan (1997) is "a continuum of behavior from the general to the particular, reflected by equipment and skills used in sport and activity setting preferences" (p.175). The study uses the three dimensions of recreation

specialization of McFarlane (1994), including past experience, centrality-to-lifestyle, and economic commitment, to exam the interrelationship between other factors.

Place attachment

The fundamental perspective of place attachment is the relationship between human and spatial settings, including place dependent, place identity, and social bonding (Kyle et al., 2005). Place dependence, a practical attachment to a physical location, is used to describe the personal levels of attachment in which people have practical and functional bonding associated with places. In addition, place identity, an emotional attachment, refers to the symbolic importance of a place as a repository for emotional ties and relationships that immerse specific places into individuals' life (Williams & Vaske, 2003). Finally, social bonding refers to the social connection among recreation participants which usually create the primary meaning of physical settings (Kyle et al., 2005).

CHAPTER II

LITERATURE REVIEW

Introduction

The literature review for this study is structured by the hypothetical research model mentioned in Chapter 1. Six main sections included in the literature review: serious leisure, recreation specialization, place attachment, serious leisure and recreation specialization, recreation specialization and place attachment, and serious leisure and place attachment.

Serious Leisure

The concept of serious leisure was developed by Stebbins (1992) and defined as "the systematic pursuit of an amateur, hobbyist, or volunteer activity that people find so substantial and interesting, and feeling that, in typical cases, they launch themselves on a (leisure) career on acquiring and expressing a combination of its special skills, knowledge, and experience" (Stebbins, 2006, p. 3). This theory originated between 1973 and 1976, while Stebbins dedicated himself to explore the understanding between the relationship between professional and amateur. Stebbins formulated the theory through ethnographic research involving musicians, actors, archeologists, baseball players, astronomers, entertainment magicians, football players, and stand-up comics. Through systematic pursuit in leisure, people are enabled to develop their confidence, self-esteem

and gain close friendship, lifelong learning experiences, and personal growth opportunities (Brown, McGuire, & Voelkl, 2008; Patterson & Pegg, 2009). Stebbins (2001b) regarded that serious leisure is the best way for people spending their free time in postmodern society. Serious leisure has been viewed as a profound, consistent, invariable engagement based on substantial knowledge and skills, and it also requires more perseverance to overcome challenges and complex tasks. Within this type of leisure, people feel deep satisfaction and experience a full existence (Stebbins, 2001a).

Serious leisure and amateur athletes

According to Stebbins (1992), there are three types of serious leisure participants: amateur, hobbyist, and volunteer. Amateurs are usually viewed as counterparts of professionals and inevitably linked with the professional setting of their preferred activity. Amateurs are usually found in the arts, sciences, sports, and entertainment fields (Stebbins, 1992). Although common sense might view professionals as "better than" their amateurs by using measurable elements, such as skills and knowledge, Stebbins (1992) indicated that there are monetary, intellectual, organizational, and technical relationships between amateurs and professionals that differentiated them by more than merely their skill level. The professional-amateur-public system (P-A-P system) has been used to explain the "bridge" roles of amateurs between professional and public (Stebbins, 1979, 1992). In other words, professionals usually set benchmarks and standards of an activity and amateurs become "mediators" to deliver them to the public, and the public usually is differentiated by lack of knowledge and involvement of a particular pursuit. Unlike professionals, amateurs do not depend on the income from an activity but might gain some economic benefits because of their professional-like experiences and skills

(Stebbins, 2006). Moreover, Yoder (1997) modified the P-A-P system for tournament-bass fishing to a more complicated triangular model: commodity agents, professional/commodity agents, and amateurs/publics (C-PC-PA), which has sharpened the understanding of the amateurs' relations in various fields as well, such as stand-up comedy and entertainment magicians (Stebbins, 1990).

Within the framework of serious leisure, several studies related to amateur athletes, such as mature swimmers (Hastings, Kurth, Schloder, & Cyr, 1995), runners (Goff, Fick, & Oppliger, 1997), golfers (Siegenthaler & O'Dell, 2003), and cyclists (O'Connor & Brown, 2010), have been discussed. However, these leisure activities mentioned above were more like an individual sport which participants can enjoy them along. On the other hand, team sports, such as softball, basketball, or volleyball, have not been studied in the concept of serious leisure. Comparing to individual sports or personal physical activities, the nature of team oriented sports are more likely to provide opportunities for amateur athletes having social interaction with other people, developing sense of belongingness within their team, gaining support system to overcome difficulties (Pedersen & Seidman, 2004).

Six qualities of serious leisure

Serious leisure has been defined by six qualities, which also assist to distinguish serious leisure from casual leisure (Stebbins, 1992, 2001b). The first quality of serious leisure is the need of perseverance. The quality of perseverance would support leisure participants is overcoming psychological and physical difficulties during their experiences, such as anxiety, embarrassment, and physical dangers, even though they generally have pleasant memories of their leisure pursuits. In other words, participants

who are serious about their leisure pursuits do not always just enjoy the pure pleasure or fun but suffer some sort of “negative” feelings or unpleasant experiences, such as psychological unpleasantness or physical injury.

The next quality of serious leisure for amateurs, hobbyists, and volunteers is that they tend to have career development in their endeavors. The endeavors “are enduring pursuits with their own background contingencies, histories of turning points, and stages of achievement or involvement” (Stebbins, 1992, p. 6). Leisure participants need to choose between starting an activity as a career, in which people will enrich their identification and keep learning or as an activity in which to “dabble” in which the leisure pursuit is regarded as non-serious activity (Godbey, 2008). Gould, Moore, McGuire, and Stebbins (2008) subdivided the career quality of serious leisure into two dimensions- career progress and career contingencies. The career progress dimension focuses on the conscious improvement of leisure participation during the individuals’ engagement, and the career contingencies dimension emphasizes the turning points or special events and influences of their leisure involvement.

For example, serious quilters were involved with continuing negotiation with their family due to their career-orientated leisure pursuits although time and space were the constraints for female serious quilters within their house (Stalp, 2006). Gibson, Willming, and Holdnak (2002) studied football fans as serious leisure participants and expounded these fans’ career endeavors not only immersed in their lifestyle but also varied their progression in different life stages of lifespan, such as adding new members in a family.

The quality of a career in serious leisure usually rests on a third quality: significant personal effort, which is based on specially required skills, knowledge, training, or/and skills, all of which require more learning opportunities outside of formal education, or through a self-directed learning process. A study of adaptive sports as serious leisure indicated that serious leisure is positively related to participants' self-determination and skill level and the sports skill development not only assists adaptive sports participants gain social rewards and physical improvement but also enhances their self-determination for their serious leisure pursuits (Heo, Lee, Lundberg, McCormick, & Chun, 2008). Another study found that serious sports tourism participants tended to invest personal efforts and perseverance through the training process (Heo & King, 2008).

The durable benefits characteristic is the fourth quality of serious leisure. Stebbins found eight durable outcomes and benefits of serious leisure amateurs, including self-actualization, self-enrichment, self-expression, recreation or renewal of self, feeling of accomplishment, and enhancement of self-image, and group outcomes (social interaction and belongingness), and lasting physical products of the activity. Self-gratification or pure fun, the ninth benefit, is less important than the former eight benefits of serious leisure pursuit and is also a characteristic of casual leisure (Stebbins, 1992). The quality of durable benefits focuses on the consequences of pursuing serious leisure rather than the motivational rewards. These durable benefits have been used as the rewards gained from serious leisure participants in various research efforts. For instance, Heo et al. (2010) selected accomplishment to measure overall personal benefit and applied self-

actualization to examine participants' unique skills, abilities, and knowledge as serious leisure elements.

Next, participants of serious leisure tend to have strong identification with their chosen activity. They become very excited, interested, and enthusiastic to share experiences and knowledge associated with their leisure pursuits and they are willing to present themselves in terms of their leisure pursuits. Stebbins (1992) found that amateurs often recognize that they are enthusiastic in talking about their avocation, while non-serious leisure participants do not identify themselves within their leisure pursuits. Moreover, Heo et al. (2010) believe that strong identification of serious leisure quality is a particularly important aspect of serious leisure. Kane and Zink (2004) used the term "symbolic capital" to refer to the adventure kayakers identification as the differentiation between kayaking and non-kayaking world.

The sixth quality of serious leisure, which divided it from casual leisure, is unique ethos. Unique ethos enriches and enhances while people are involved in their leisure activity. In the serious leisure framework, amateurs, hobbyists, and volunteers develop a social world or subculture which has special norms, values, beliefs, styles, moral principle, preference standards, and similar shared representations (Stebbins, 1992). Individuals who are serious about their leisure pursuits generate a sense of belonging through other members or identify themselves within a particular group having distinct values and believes (Heo & King, 2009). In other words, serious leisure participants are part of a social world classified by subculture or unique ethos.

As these six qualities of serious leisure, Gould et al. (2008) developed a serious leisure instrument, named the Serious Leisure Inventory and Measurement (SLIM). The entire SLIM includes 18 factors, which reflect the six qualities of serious leisure: perseverance, efforts, career progress, career contingencies, personal enrichment, self-actualization, self-express abilities, self- express individual, self-image, self-grat-satisfaction, self-grat-enjoy, re-creation, financial return, group attraction, group accomplishments, group maintenance, identity, and unique ethos. These terms are specifically used by the authors to title factors and to differentiate among specific dimensions of serious leisure. In addition, each factor is composed of four or three items; therefore, SLIM is composed of 72 items or the short form of SLIM is composed of 54 items. Applying the structural equation modeling technique, these researchers determined the short form has a better fit than the 72 items of SLIM.

Serious leisure and leisure involvement

There is some overlap between enduring involvement and serious leisure theories. Theoretically, the attraction dimension of enduring involvement refers to the combination of important and pleasure factors. Pleasure and enjoyment do not guarantee the high level involvement or "serious" participation, but they are the most significant rewards of casual leisure. Using terms such as "fulfillment" or "rewardingness" are more appropriate to describe the reward of serious leisure (Stebbins, 2006). The self-expression dimension of involvement measurement means that recreationalists tend to convey their self-representation and self-impression to others through the activity they chose to pursue (Kyle et al., 2004). This dimension may be viewed as an aspect of the strong identification of serious leisure characteristics because participants not only view their

leisure pursuits as part of self-impression but also even important than their work role (Stebbins, 2006).

Additionally, using structural equation modeling and path analysis, Cheng and Tsaur (2011) explored the relationship between serious leisure characteristics and recreation involvement of surfers in Taiwan. They found that the level of serious leisure had a positive impact on the level of recreation involvement. The perseverance of serious leisure has a positive influence on attraction, self-expression, and lifestyle of leisure involvement; the career development of serious leisure quality has a positive impact on attraction and lifestyle; the unique ethos of serious leisure quality has a positive influence on attraction and self-expression. In short, the dimensions of serious leisure have different impacts on the dimensions of leisure involvement.

Recreation Specialization

Bryan (1977) defined recreational specialization as "...a continuum of behavior from the general to the particular, reflected by equipment and skills used in sport and activity setting preferences" (p.175). In this section, two major topics will be explained: the development of recreational specialization theory and the progression of recreational specialization.

The development of recreational specialization theory

The beginning of recreational specialization research in the leisure and recreation field has been discussed by Hobson Bryan (1977). Bryan explored the specialization frameworks to outdoor recreation activities, such as angling, hiking, backpacking, and hunting. Recreational specialization is regarded as a continuing behavior of recreation

participants in which people gain their skills and knowledge of the chosen activity and the ability to use and select setting (Bryan, 2000). The most obvious criteria of specialization are equipment owned, skill demonstrated, the choice of setting, prior experience, and membership in clubs. All of these barely reflect behavioral characteristics (McIntyre & Pigram, 1992). Lacking individuals' affective attachment or commitment of this theory has been recognized as the limitation of Bryan's perspective (McIntyre, 1989). Block, Black, and Lichtenstein (1989) noted that there was a negative relationship between runners' experience and perceived importance of equipment. In other words, individuals' ownership of equipment might attest to their socioeconomic status, conspicuous consumption, or overbuying rather than commitment to or involvement in an activity (McIntyre & Pigram, 1992). However, most studies associated with recreation specialization have treated equipment ownership as one of the essential factors of recreation specialization (J. H. Lee & Scott, 2004; McFarlane, 2004; M. Morgan & Soucy, 2008; Oh & Ditton, 2008; Tsaur & Liang, 2008).

Little (1976) furthered the body of knowledge and developed a specialization loop which embraced cognitive, behavioral, and affective systems into a personal recreation involvement system (Figure 2). Each personal system mutually reinforces development in which one enhances the likelihood of growth in the other systems. The three systems of an individual's specialization are mutually reinforcing and enhancing to one or another.

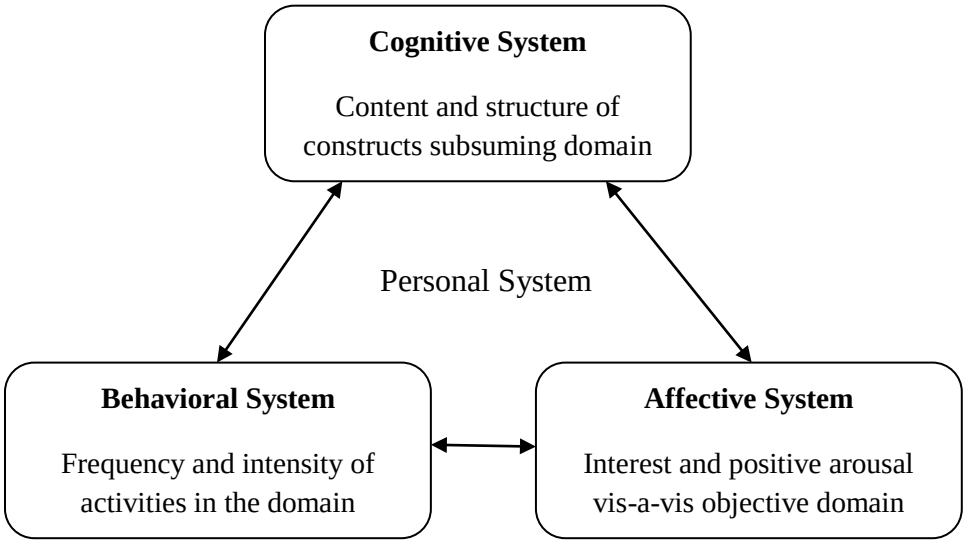


Figure 2 Little's Recreation Specialization Loop (1976)

McIntyre and Pigram (1992) stressed the important of Little's perspective which emphasizes the important of affective system in recreation specialization. Furthermore, McIntyre and Pigram (1992) applied and expanded the recreational specialization of Bryan (1977) and Little's recreation specialization loop (1976), creating a construct they describe as "enduring involvement" which is equivalent to the affective system of Little's specialization loop. Enduring involvement is consisted of four components: self-expression, enjoyment, importance, and centrality (McIntyre, 1989). In addition, the behavioral system is related to frequency of participation, which is measured by past experiences involving an activity, familiarity of a recreation setting, and the cognitive system is associated with the knowledge and skills recreationalists gain from the activity. Appling factor analysis technique for vehicle-based campers, McIntyre & Pigram (1992) determined three surfaces of recreation specialization: self-expression, attraction, and centrality (Figure 3).

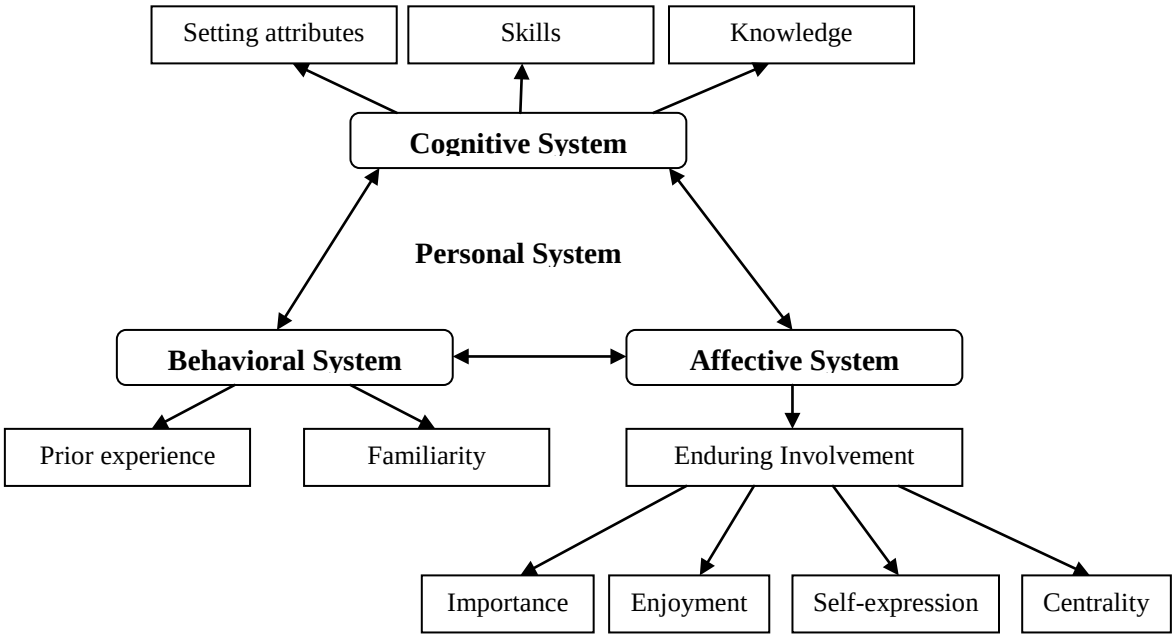


Figure 3 Three Surfaces of Recreation Specialization of McIntyre & Pigram (1992)

Furthermore, Scott and Shafer (2001) organized their previous studies associated with recreational specialization and noted that researchers have applied recreational specialization to various types of recreation activities. The majority of studied activities were traditional outdoor recreation experiences such as boating, camping, and wildlife based activities. From Bryans perspective, recreational specialization is more than just intension measurement of involvement, but to be a developmental process of how people improve themselves toward higher stages of involvement (Scott & Shafer, 2001).

Scott and Shafer (2001), in modifying the specialization loop of McIntyre and Pigram (1992), classified the construct of recreational specialization and described how researchers might apply this theory as a development process. Scott and Shafer (2001) envisioned that recreational specialization is a process to understand how recreationalists participate in an activity in a long run. They proposed that specialization have better to be

explanted in terms of the progression of: (1) a focusing of behaviors, (2) the acquiring of skills and knowledge, and (3) the personal and behavior commitment of recreation activities. Within their framework, the development of skills and commitment processes has been focused on simple advanced knowledge and endurable involvement. Besides, researchers have applied recreational specialization on various types of recreation activities, but most current studies focus on traditional outdoor recreation and few researchers has been studies for indoor recreation activities, such as playing bridge (Scott & Godbey, 1994).

Additionally, McFarlane (1994) conceptualized recreation specialization as three indicators: past experience, centrality-to-lifestyle, and economic commitment. He applied three motivation categories of wildlife-related recreation proposed by Decker, Brown, Driver, and Brown and found three types of wildlife recreationists. First, the affiliation-oriented wildlife recreationists are those who enjoy a specific activity because of the enjoyment of company with someone they love and the opportunity to strengthen their relationship with family and friends. Next, achievement-oriented recreationists are those who become engaged in an activity because they have some personal preference for and interest in it. Third, the appreciation-oriented wildlife recreationists are those who require belonging, and familiarity, and some psychological release and recovery through the activity.

The progression of recreational specialization

The first progression of recreational specialization of Scott and Shafer (2001) is a focusing of behavior, which refers to the individuals' tendency toward a particular leisure activity at the expense of other activities. They argued that researchers have used various

indicators to measure behavioral specialization, including years of experience, frequency of participation, the number of sites visited, the types of equipment used, and the number of activity-related books and magazines purchased and owned. They believe that comparing an individual's behavioral involvement in the leisure activity with other activities might be helpful for measuring the level of behavioral involvement in the activity (Lee & Scott, 2004; Scott & Shafer, 2001).

Moreover, the development of special skills and knowledge is another indicator of the progression of recreational specialization. Scott and Shafer (2001) argued that it is inappropriate to merely use past experience in predicting individuals' level of perceived skills and knowledge, because the skill development and acquisition of knowledge varies in different types of activities and the desire to develop skills and knowledge of a specific activity varies with the recreationalists' specialization.

The third progression is commitment, which is the combination of personal and behavioral commitment. Personal commitment refers to the development of self-identity which an individual tends to define himself/herself within the leisure activity. The behavioral commitment refers to "a strong affective attachment and inner conviction that activity is worth doing for its own sake" (Scott & Shafer, 2001, p.329). Scott and Shafer (2001) further maintained that individuals who make a commitment to their personal life and behavior because their leisure pursuits could be viewed as "central life interests."

Ditton, Loomis, and Choi (1992) suggested that when the level of recreation specialization increases, the participants' recreation experiences were most likely to shift from activity-general to activity-specific preferences. The highly specialized individuals

of heritage tourism were more likely to be satisfied with their overall experience and they were most likely to espouse authentic articles and to visit more sites than the lower specialized individuals (Kerstetter, Confer, & Graefe, 2001). Tsaur and Liang (2008) indicated that past experience and centrality-to-lifestyle were the most influential indicators of recreation specialization, while economic commitment was the weakest indicator of birding specialization.

Place Attachment

Henderson and Frelke (2000) viewed space as containers or sites for leisure and recreation activities and indicated that the meaningful and influential environment and place are essential factors to impact participants' leisure experience. The concept of place attachment provides a possible reason to explain why people have preference for a specific place more than for the other sites they have visited (Hunt, 2008) . Historically, geographers have used "sense of place" (Relph, 1976; Tuan, 1977) or "place attachment" to explain the relationship between people and physical locations.

Tuan (1977) described the sense of place as often related to individuals' emotional and affective ties with particular places and this attachment may have the possibility to create long-term bonds between people and places. In addition, Jorgensen and Stedman (2001) also used the term "a sense of place" to explain the relationship between humans and spatial settings, including place attachment, identity, and dependence, all of which are commonly used in environmental psychology. Williams and Vaske (2003) argued that the concept of sense of place and place attachment are very similar, and the former is usually used in human geography whereas the latter is more commonly addressed in environmental psychology.

Activities, companions, and setting are generally viewed as three major elements of outdoor recreation experiences. Recreation settings can facilitate or hinder not only the recreation activity itself but also the perceived quality experience of recreationalists (McCool, Stankey, & Clark, 1985). Especially in recreation and leisure studies, it is almost impossible to separate outdoor recreation experiences and behaviors from understanding the engagement of physical locations (Schreyer, Knopf, & William, 1985). Recreation settings or places, just like consumer products, most often are considered as collection of features or attributes (Williams, et al, 1992). A multi-attribute view of places, the emotional and symbolic meaning of environment, becomes very significant and attracts people to attach to and "consume" with the place. Given the social interaction and activities within the experiences, a setting itself might be the central aspect of recreation (Williams et al., 1992).

From the environmental psychological perspective, motivation could be viewed as an important factor of place attachment. Kyle et al. (2004) indicated that place dependence is impacted by healthy attraction; place identity was impacted by learning and autonomy reason; and social bonding was impacted by activity, social, and nature attraction. Morgan (2010) indicated that place attachment developed in childhood has stronger ties and longer positive bond than the attachment developed in adulthood (Hay, 1998).

Place dependence and place identity

The concept of place attachment has been divided into two components: place dependence and place identity (Bond, 2006; Hailu, Boxall, & McFarlane, 2005; Hunt,2008; Jorgensen & Stedman, 2001; Kyle, Graefe, Manning, & Bacon, 2004;

Williams & Vaske, 2003). For example, Williams and Vaske (2003) utilized confirmatory factor analysis to divide place attachment into a two-dimensional structure: place dependence and place identity. They suggested that both behavioral and psychological variables are associated with the attachment of places.

Place dependence, a functional attachment of a physical location, is used to describe the level of attachment to a physical setting where people have practical and functional bonding associated with places. Hunt (2008) noted that functionality of a place is related to how much recreational opportunities and economic benefits. Stokols and Shumaker (1981) defined place dependence as a form of attachment in which a place provides higher satisfaction and meets an individual's needs to a greater extent than other similar settings. This attachment reflects the significance of a physical location in providing conditions and an environment that support specific and desired activities. People are more likely to develop personal dependence related to a place when a setting provides opportunities and environment which matches their needs and interests (Bond, 2006). Williams et al. (1992) explained this concept through the word "dependent" which emphasizes the overall necessity plays an important role in creating the suitability of setting attributes for recreationalists.

Place identity refers to the symbolic and emotional importance of a place as a repository for psychological ties and relationships that immerses particular places into individuals' life (Williams & Roggenbuck, 1989). Korpela (1989) regarded place identity as a process of environmental self-regulation which means that the environment itself is not only a mediator for recreation and social purpose but also creates memorable experiences and meanings in one's life. Place identity may also be viewed as the sub-

concept of self-identity and is related to individuals' attitudes, values, thoughts, beliefs, and behavioral tendencies (Proshansky, Fabian, & Kaminoff, 1983). Moreover, this self-identity of physical environment has been increasingly recognizes as a psychological motivation for an individual to participate in outdoor recreation (Haggard & William, 1992). In other words, place identity is based on people's emotional bonds and actual physical involvement of a place might not be necessary (Williams et al., 1992). Place attachment could be a relevant tool in understanding how people view selected management alternatives (Bricker & Kerstetter, 2000).

Other dimensions of place attachment theory

Some researchers have embraced more dimensions in the concept of place attachment. Other dimensions of place attachment have been recognized, such as social lifestyle (Bricker & Kerstetter, 2000; Bond, 2006), social bonding (Kyle, Graefe, and Manning, 2005), and place commitment (Bond, 2006), all of which have been conceptualized as part of the people-place relation.

Kyle et al. (2005) suggested that the third dimension, social bonding, should be included in place attachment. They suggest that social bonds among recreation participants may create the primary meaning of physical settings. Bricker and Kerstetter (2000) studied the relationship of level of specialization and place attachment of whitewater recreationists, and conceptualized place attachment as three dimensions: place dependence, place identity, and lifestyle. The result showed that people who attach to places are more likely to donate their time and money to support their behavior associated with the place than other people who are not connected with the place. They also found that the time spent with the place and the importance of the activity are associated with

the place identity dimension, and the distance from home and the frequency of visiting are associated with the place dependent dimension.

Moore and Graefe (1994) discovered that individuals who more frequently visit a specific physical location were less likely to visit other sites for their recreation participation because they depend more on the site to facilitate their leisure activities. They also argued that people with higher levels of place attachment are more likely to use a rail-trail than people who have lower levels of attachment to the place. Similarly, Williams et al. (1992) also found that the frequency of visiting wilderness areas might develop a higher level of place attachment to these sites. Moreover, Cavin, Cavin, Kyle, and Absher (2004), investigated the relationship between leisure involvement and place bonding of national forest campers and found five dimensions of people-place relation: place familiarity, place belongingness, place identity, place dependence, and place rootedness.

The psychological attachment to places in recreation settings plays an important role in leisure and recreation studies. Hailu, Boxall, and McFarlane (2005) used the travel cost model (TCM) as a tool to estimate the consumer surplus associated with recreation sites. They concluded that recreation habits and place attachment formed through previous experiences have positive influences on consumer surplus purchases. In terms of the relationship between place attachment and travel distance, Moore & Graefe (1994) found that the shorter travel distance, the higher attachment to a specific place. In other words, individuals' place attachment was negatively influenced by the distance traveled to the site.

Serious Leisure and Recreation Specialization

The theoretical connection between serious leisure and recreation specialization were discussed in this section. First, the development stage of recreation specialists and serious leisure was used to explore the similarities and differences of development stages between these two theories. Second, the relationship between serious leisure and recreation specialization were explained through the existing studies.

Development stage of recreation specialists and serious leisure

Bryan (1977) applied a metaphor to explain the stages of recreationalists' involvement to identify particular behaviors and characteristics of recreational specialization participants over time. There are three general stages of recreationalists' specialization. The first stage is a beginning stage in which participants are more likely to engage in leisure occasionally. It is followed by an establishment stage in which participants tend to establish and develop their competence and seek higher skills and knowledge through involvement in greater challenges. Finally, the third stage of specialization entails true specialization in a preferred activity. When recreationalists move forward into this stage, they have a higher degree of commitment, related knowledge, and a focus on behavior (Scott & Shafer, 2001).

Stebbins (1992) took Bryan's theory forward and further explained the development stage of serious leisure participants. He constructed the involvement stage of who might engage in more systematic and career-oriented stages through the developmental process (Scott & Shafer, 2001). The first stage of Stebbins' framework is the beginning stage in which recreationalists participate in an activity irregularly until they find themselves substantially interested in it. The second stage, the development

stage, begins when individuals have built their interests in a specific activity and participation of leisure becomes more systematic and routine. According to Stebbins' perspective, individuals in the establishment stage learn and gain advanced skills and knowledge of the activity rather than just learning the fundamental or basic techniques, and they tend to find their own position in an amateur or professional world. Next, the maintenance stage refers to individuals glow their leisure pursuit and are willing to use their full potential to enjoy the activity (Stebbins, 1992). Finally, there is the decline stage in which individuals may have injury, loss of physical power due to aging, and a lack of opportunities and access (Stebbins, 1992).

Relationship between serious leisure and recreation specialization

Scott and Shafer (2001) and Stebbins (2006) indicate that there might be a relationship between serious leisure and recreational specialization. Stebbins considered that recreation specialization is a part of serious leisure process, because the behavioral commitment refers to the durable benefits of serious leisure recreationists and the personal commitment is associated with the strong identification of them. The combination of these two commitments of Scott and Shafer's theory displays the possibility for serious leisure recreationalists of developing a career in their endurance (Stebbins, 1992). According to Stebbins' perspective, the similarity of serious leisure and recreation specialization is that both are complex leisure activities. The complex leisure activity refers to activities which require a combination of abilities, skills, knowledge, and experiences and influence various aspects of an individual. He explained that specialization might be seen as part of leisure career experiences in which participants

focus on being specialized in their interests. The development of recreation specialization will continue developing during the process of leisure pursuit (Stebbins, 2006).

In addition, Tsaur & Liang (2008) noted three connections between serious leisure and the recreation specialization of bird watching. First, the recreationists gain skills and knowledge for being specialized in the activity, which is present in the significant efforts of serious leisure. Second, recreation specialization can be measured by personal commitment associated with strong affective attachment of leisure activities which may turn into an individual's self-identity (Buchanan, 1985; Lee & Scott, 2004). Third, the progression of specialization is considered as the stage of involvement, career change, and turning point which has very close similarity to the career development of serious leisure (Scott & Shafer, 2001).

Using McFarlane's specialization framework (1994) and Stebbins's serious leisure qualities, Tsaur and Liang (2008) conducted research focused on testing the relationship between serious leisure and recreation specialization. The researchers used structural equation modeling (SEM) to measure any direct causal effect between serious leisure and recreation specialization. The three dimensions of recreation specialization were classified as past experience, centrality-to-lifestyle, and economic commitment. The six qualities of serious leisure participants were perseverance, career development, strong identification, durable benefits, unique ethos, and significant personal effort. The research discovered that serious leisure has a positive relationship with recreational specialization, and the three most robust predictors' of serious leisure on recreation specialization were career development, significant personal efforts, and strong identification with the activity. In addition, having career development, significant personal efforts, and strong

identification with the activity of leisure participants were positively related to all three specialization dimensions (Godbey, 2008).

Furthermore, Brown (1989) applied various characteristics of recreation specialization, such as identity, orientation development, frequency of dance, competition technique, and skill improvement and categorized shaggers into five types of dancers due to their dance traits. Hastings et al. (1995) focused on understanding the linkage of career contingencies and leisure benefits for swimmers in Canada and the United States. They suggested that fitness, skill development, and sociability were important factors for pursuing leisure crossing all age groups and skill development and achievement were associated with the past experience of swimming.

Financial issues for the participants are another topic affecting the commitment or rewards within both the serious leisure and recreation specialization frameworks. Financial behavioral commitment may, at times, be viewed as a problematic commitment of leisure involvement (Scott, Baker, & Kim, 1999) because of the possible heavy investment in leisure activity might result in serious "penalties" (Stebbins, 1992). In other words, when individuals are so engaged in their leisure pursuits that they spend enormous amounts of money buying equipment and vast energy developing skills and knowledge of the activity, they might lose family and friends' support and even encounter financial difficulties. As with financial challenges for participants, the time spent in leisure is another issue for leisure participants (Bryan, 2000). For example, runners whose spouse support their serious leisure participant spend more time running, and the emotional support from their spouse minimizes leisure-family conflict as well (Goff et al., 1997). As

a result, both time and financial issues of serious leisure inclination and specialization recreation result in a possible crisis of individuals' leisure pursuits.

Recreation Specialization and Place Attachment

Gifford and Scannell (2010) reviewed previous research and conceptualized the person-process-place (PPP) framework to develop a tripartite model of place attachment. According to their model, the personal dimension of place attachment includes individual and cultural meanings for people. The process dimension concerns the psychological interaction of individuals to a place and their affection, cognition, and behavior in the physical setting. The place dimension of place attachment refers to the place characteristics and consists of social and physical objects. Within this framework, the connection between personal leisure experience and specific physical locations has been emphasized in leisure studies.

Kyle, Graefe, Manning, and Bacon (2003) have noted a direct link between experience and place attachment. Through understanding the relationship between place attachment and level of recreation specialization of recreationists using natural resources, recreation professionals will gain an understanding of how people with different levels of specialization view these resources and how they value the environment (Bricker & Kerstetter, 2000). The more times recreationists visit a specific site, the higher the possibility of developing their identity related to the place (Moore & Graefe, 1994). Bricker and Kerstetter (2000) utilized place attachment and recreationalist' specialization framework to explore the relationship between involvement and connection of a place to whitewater recreationists. They defined place attachment as having three dimensions: place dependent, place identity, and lifestyle and asserted that each of the dimensions of

place attachment varied depending upon the level of specialization. The result showed that people with higher levels of recreation specialization were more likely to value the importance of place identity and lifestyle than low and medium level recreation specialists, whereas place dependence does not have significant impact on any level of whitewater recreationists.

River recreationists who have higher levels of recreation specialization had higher attachment to place identity, lifestyle, and place commitment excluding the place dependence dimension (Bond, 2006). McFarlane (2004) examined the cause-effect relationship between recreation specialization and site choice among vehicle-based campers in Canada. The study showed that when individuals were more familiar with the site and types of campground, they were most likely to have better camping skills and viewed camping as more significant and central of their life.

Kyle, Absher, and Graefe (2003) found that when individuals who emotionally attach to their recreational settings, they most likely to have more positive attitude toward paying fees and spending fee revenue on facilities and services, environmental protection, and environmental education. In addition, applying the framework of place attachment and activity involvement to classify the level of recreation specialization, Morgan and Soucy (2008) concluded that the anglers who have higher levels of specialization had more knowledge about the park than those who have lower levels, while the positive relationship between utilizing interpretive media and having resource knowledge of the park was weak but significant.

Serious Leisure and Place Attachment

Few studies have applied serious leisure theory to explore the relationship between leisure involvement and place attachment. Most studies related to leisure involvement have used enduring involvement. The theory of enduring involvement was adapted from consumer behavior studies and focuses on personal value and needs of an activity (Bryan, 1977). McIntyre and Pigram (1992) conceptualized enduring involvement into three components: attraction, centrality, and self-expression, which have been used to measure the psychological dimension of recreation specialization. For example, according to Kyle et al. (2004), place identity of attachment was impacted by attraction and self-expression of leisure involvement facets, place dependence was significantly influenced by self-expression of leisure involvement, and social bonding was impacted by attraction and self-expression of leisure involvement facets. Both place identity and place dependence are associated with predicting recreationalists' perceptions of setting density.

A study of tourism experience in South Australia found that centrality is the most significant predictor for both place attachment and place dependence dimensions. Self-expression had no significant relationship for place attachment or place dependence (Heo & King, 2009). Past experience of recreationalists revealed a moderate, direct, and significant effect on place identity, place dependence, and visitors' perspective of recreation impact of natural environment. Neither place attachment nor place dependence showed significant influences on the sense of depreciative behavior, environmental impact, and recreation conflict (White, Virden, & Riper, 2008).

A serious leisure bicyclists' study in Australia found the importance of a recreation place emphasized safety concern issues of the cycling activity, but also negatively influenced their leisure pursuits (O'Connor & Brown, 2010). Kelly and Freysinger (2000) indicate that serious leisure could generate individuals' flow experience, which is a quality experience in which people are so involved in an activity that nothing else seems to matter. However, the direct relationship between serious leisure and flow has not been determined, but the place was determined to be a significant element to having an extraordinary leisure experience (Heo et al., 2010).

In addition, both serious leisure and place attachment perspective consider that interpersonal relationship is an essential factor for individuals' leisure experience. Stebbins (1992) indicated that serious leisure participants carry and shape their interest and involvement within their own social world and named these characteristics as one quality of serious leisure unique ethos. The interrelationship with social world members or "social context" plays an important role in creating an emotional bond and attachment to place (Kyle & Chick, 2007). Applying a qualitative approach for shag dancing, Brown (1989) determined that interpersonal relationship or friendship appeared the contribution of dancers' long-term commitment and involvement.

Finally, serious leisure could be viewed as the best way for individuals to spend their free time and share the benefits with the community and society (Stebbins, 2001b). Personal recreation and leisure involvement is the integral part of generating a sense of place or emotional attachment to particular places (Tuan, 1977). Eisenhauer, Krannich, and Blahna (2000) found that individuals develop their emotional attachment to particular places most often associated with their leisure pursuit and social connection with family

and friends are most likely the primary reasons underlying the emotional attachments with special place.

CHAPTER III

METHODS

Introduction

This chapter details the research methodology of examining the model to explore the relationship among serious leisure, recreation specialization, and place attachment for amateur athletes. The model and first three hypotheses (H1, H2 and H3) were examined by structural equation modeling (SEM) which is used to investigate the relationship between the latent variable and their indicators (structural and measurement model). The relationship between different latent variables includes H4, H5, and H6 were tested by path analysis. In order to examine the model, the reliability and validity of each selected instrument, including Serious Leisure Inventory and Measurement, Recreation Specialization measurement, and Place Attachment Measurement used in the study are described in this chapter.

Population of the Study

The study aimed to examine amateur athletes' perceptions of serious leisure, recreation specialization, and place attachment. The research population included amateur softball and volleyball players enrolled in community-based adults programs of the City of Stillwater, Oklahoma, fall of 2011. The Parks and Recreation Department of

Stillwater provides various seasonal adults sports program, such as softball, volleyball, tennis, and basketball, for the community. Softball and volleyball programs were offered to the community in fall of 2011. The softball program in Stillwater is the most popular adults' sport program which usually includes men, coed, and senior leagues. The volleyball program is usually relatively smaller than the softball program, including women and coed leagues. The adults' sport program supervisor of Stillwater estimated approximately 600 softball players and 120 volleyball players enrolled in the adults' sports program in fall of 2011. According to the Stillwater adult softball/volleyball rule book (2011), the purpose of both softball and volleyball program is to provide recreational sports programs for adults who are interested in recreation, socialization, and physical fitness and to encourage participants' sportsmanship, skill improvement, and having fun in the sports programs.

Sampling

Stratified sampling was employed for selecting samples from the amateur athletes in the City of Stillwater. In the study, the population included both softball and volleyball amateur athletes in 2011 Fall season in the City of Stillwater. Because of different leagues within this population, the researcher followed various leagues schedules to conduct on-site surveys. According to the season schedule, there were three leagues of the adult softball program: men, coed, and senior league. There were two leagues of adult volleyball including women's and coed league. The scheduled data for conducting the survey of all softball and volleyball leagues is displayed in Table 1 (p.39). The study sample is the amateur athletes who voluntarily responded to the on-site survey in Fall of 2011. The official permission for conducting the survey at the softball fields and courts is

at Appendix A, and the research information to the program supervisor for team managers and coaches is seen in Appendix B.

Table 1 The Schedule of Conducting On-site Survey

Softball		Volleyball	
League	Schedule data	League	Schedule date
Men 4 & 6	Oct. 10 2011	Women 1 & 2	Oct. 24 2011
Men 1-2-3 & 5	Oct. 11 2001	Coed 1-3	Oct. 25 2011
Senior	Oct. 18 2011		
Coed 4 & 6	Oct. 20 2011		
Coed 1-2-3 & 5	Oct. 27 2011		

Sample Size

In this study, the target sample size was 250 in order to fit the criteria of applying structural equation modeling and path analysis. Theoretically, the structural equation modeling is a large sample size technique; therefore 200 observations in the SEM approach is a reasonably large sample size (Hox & Bechger, 1998; Kline, 2005). In addition, Jackson (2003) proposed that minimum sample size could be estimated by the ratio of case to free parameters, such as 10:1. Other researchers provided a wider range of sample size, such as 100-400 or five or more cases than the number of independent variables (Reisinger & Mavondo, 2007). As a result, since the SEM model has 25 free parameters (11 regressions and 14 variances), 250 (25*10) individuals is an even better sample size. Within the population of Stillwater's adult sports program, 200 softball players and 50 volleyball players were estimated as likely to voluntarily respond to the survey on the fields or courts.

Data Collection and Location

For the large sample collection and game schedule, two research assistants were trained by the principal investigator before conducting surveys on-site. The on-site script of the researchers is in Appendix C. The researchers followed four procedures to approach potential respondents: (1) before the game began, the researchers talked to team mangers or coaches and asked them to encourage their team members to participate in the study; (2) the researchers stood by the fields or courts to identify the players, wearing "uniforms" with a number on their back; (3) the researchers verbally invited potential respondents to determine if they were willing to respond to the survey; and (4) the researchers delivered a pen-and-paper based survey with a "participant information sheet" approved by the Oklahoma State University Institutional Review Board (IRB). This document asked potential respondents to read the first page to confirm if they were willing to participate in the study. Research participants voluntarily responded to the study and were free to decline. They might also stop or withdraw from their participation anytime. The IRB approved document is in Appendix D.

The on-site surveys were delivered at the Airport or Sanborn softball fields for softball players and at the Armory volleyball courts at the city's recreation center for volleyball players. The Airport softball facility has three fields and the Sanborn softball facility includes two fields. The three fields at the Airport area and one field at Sanborn area were used on game nights. Due to how the teams were scheduled, each field at the Airport was scheduled with four softball games per night, and the one field at Sanborn area was only scheduled for softball senior league. The principal investigator and two research assistants were in charge of one field per night. In addition, the data collection of

volleyball players was at the two volleyball courts in the city's recreation center. The principal researcher was in charge of conducting the volleyball players' survey. The diagram of Airport and Sanborn softball fields is in Appendix E and a picture of the Armory volleyball courts distribution is in Appendix F.

Games began at 6:30 PM, 7:30 PM, 8:30 PM, and 9:30 PM within the softball schedule and each game was approximately 50 minutes. A team usually played two games "back to back", and these teams played at either 6:30 and 7:30 PM or 8:30 and 9:30 PM. Therefore, the peak time for conducting the study was between 8:00 PM and 9:00 PM, because the first division players finished their games and the second division players prepared to play their games. In other words, the softball teams playing at 6:30 and 7:30 would receive the survey after their game, while the teams playing at 8:30 and 9:30 would receive the survey before their game. The volleyball players received the survey after their game. As a result, the pen-and-paper based on-site survey was entered into SPSS 18 software and transformed into an electronic version for data analysis. The data was analyzed by SPSS 18 and Amos18, the SEM technique software within SPSS, to estimate the fit of the model and evaluate the hypotheses.

Statistical Approach

The primary statistical techniques of this study were structural equation modeling and path analysis. Both of these statistical approaches were used to examine the cause and effect relationship. Generally speaking, path analysis is used to examine causal relationships between two or more observed variables, and structural equation modeling is used to determine causal relationships between latent variables (Kline, 2005; Reisinger & Mavondo, 2007; Stevens, 2009). Oh and Ditton (2008) emphasized the significance of

SEM which has become more popular for understanding cause-effect relationship in outdoor recreation and leisure studies.

Structural equation modeling and path analysis

The primary function of structural equation modeling (SEM) is to examine the inter-related dependent relationship between a set of latent variables with causal relationships and analyze the causal links between latent variables measured by one or more observed variables (Reisinger & Turner, 1999). This statistical technique has been used increasingly for understanding causal mechanisms in outdoor recreation and leisure studies. According to Reisinger and Mavondo (2007), SEM is used with one of three purposes: (1) strictly confirmatory approach, (2) model development approach, and (3) alternative models approach.

The basic statistic in SEM is the covariance, and other terms, such as covariance analysis, covariance structure modeling, or analysis of covariance have been used to explain the same procedures of SEM (Kline, 2005). The technique of SEM does not designate a single procedure but a family of related statistical techniques and is a combination of path analysis and factor analysis. Path analysis, a statistical technique used to examine causal relationships between two or more observed variables, is a special case of SEM. Unlike path analysis, SEM can examine both measured and latent variables, while path analysis only can examine measured or observed variables. Moreover, in the SEM technique, the measurement model is measured by confirmatory factor analysis (CFA), applied to detect the distinction between indicators and the underlying latent variables (Kline, 2005).

A measured variable is a variable that can be measured and observed directly. A latent variable is a hypothesized construct in the model that cannot be examined and studied directly and must be tested through measured variables and applied by the covariance among two or more measured variables (Stevens, 2009). Latent variables are often known as factors, constructors, or unobserved variables, while measured variables are usually named as observed, indicators, or manifest variables.

The statistical technique of SEM is composed of two parts: a measurement model and a structural model. The measurement model involves the relationship between measureable variables and latent variables, and the structural model deals with the relationships among latent variables. In this study, the first step in the model testing procedure is a measurement model. The measurement model tests the theoretical construct of each factor and its observed variables or indicators. The purpose of examining the instrument models is to determine which survey items were suitable for the amateur athletes and provided the most profound information about serious leisure, recreation specialization, and place attachment individually. Moreover, the structural model is the second step of SEM technique to determine the causal-effect relationship between any two factors which illustrated as H1, H2, and H3. There are more details of SEM as follows (See Figure 4):

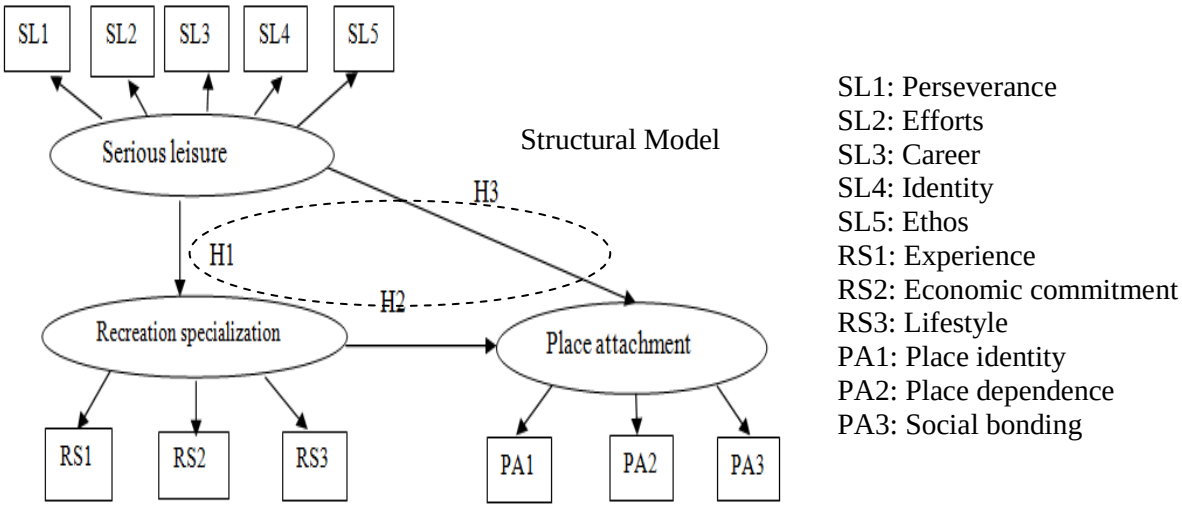


Figure 4 The Measurement Model and Structural Model of the Study[1]

Moreover, the study further investigated the amateur athletes' serious leisure and recreation specialization characteristics (H4), recreation specialization and place attachment characteristics (H5), and serious leisure and place attachment characteristics (H6) by applying the path analysis statistical approach. This step provided more detailed information about how each predictor dimension contributes to a criteria dimension due to the significant influence analysis (Tsaur & Liang, 2008).

In the SEM technique, the measurement model is evaluated by confirmatory factor analysis (CFA) which is a technique used to examine how a pre-specified factor model fits observed data. CFA is used to determine if a hypothetical construct is statistically valid and reasonable (Pedhazur, 1997). Kline (2005) suggested that three indicators per factor is the minimum number of indicators for applying CFA and adding

[1] SL1: Perseverance, SL2: Significant effort, SL3: Career, SL4: Identity, SL5: Unique ethos; RS1: Past experience, RS2: Economic commitment, RS3: Centrality-to-lifestyle; PA1: Place identity, PA2: Place dependence, PA3: Social bonding.

indicators can re-specify a non-identified CFA model which enhances the number of observations available to estimate effects. Therefore, each factor in the study has at least three indicators to enrich the factor loading on latent variables. In this study, CFA was used to test how well the three prior theoretical models, serious leisure, recreational specialization, and place attachment, fit the sample data.

The function of the structural model is to test how well some variables predict other variables and are similar to the function of regression or path analysis. The structural model is evaluated by maximum likelihood method (ML) which provides an estimation of the model's parameters, and ML estimators would maximize the likelihood of an observed sample. Maximum likelihood is a large sample size statistic and acquires a normal distribution data set (Kline, 2005). In this study, the SPSS 19 and Amos 19 were used to analyze the data and alpha 0.05 was used to determine if the model and hypotheses are statistically significant.

Furthermore, there were several criteria used to measure the instrument and structural models' goodness of fit within the selected samples. Once the model has been fit to the data, the model's performance and the specific parameter estimation will need to be evaluated as well. Generally speaking, there are three types of goodness-of-fit or overall fit model measures that are commonly used, including absolute fit measurement, incremental fit measurement, and parsimonious fit measurement (Hair, Anderson, Tatham, & Black, 1998; Reisinger & Turner, 1999).

First, the function of absolute fix measure is to directly examine how well the hypothetical model fits the sample data, such as chi-square statistic (CMIN), chi-square

divided by degree of freedom (CMINDF), goodness-of-fit index (GFI), root mean square residual (RMR), standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). Incremental fit measurement assesses the performance of the research model relative to the null model (Stevens, 2009), such as the normal fit index (NFI) and comparative fit index (CFI). Finally, a parsimonious fit measurement is used to compare models with different complicity, such as the parsimonious goodness-of-fit index (PGFI) (Reisinger & Mavondo, 2007). As a result, within the current research framework, the chi-square (CMIN), CMINDF, GFI, RMR, SRMR, RMSEA, NFI, and CFI were applied to evaluate how the overall final measurement model fits the data in this research study (See Table 2, p.47). In addition, when a goodness-of-fit index is at its cutoff point (just on the indexes criteria), it can be regarded as acceptable fit (Hu & Bentler, 1999).

Table 2 The Criteria of Good Fit for the Hypothesized Model

Model fit indices	Abbreviation	Criteria of good fit
Chi-square (p-value)	X^2(CMIN)	p>0.05 good fit
Normed chi-square	X^2/d.f. (CMINDF)	<3.00 good fit
Goodness-of-fit index	GFI	>0.90 good fit
Root mean square residual	RMR	<0.08 good fit
Standardized root mean square residual	SRMR	<0.08 good fit
Root mean square error of approximation	RMSEA	<0.08 good fit
Normal fit index	NFI	>0.90 good fit
Comparative fit index	CFI	>0.90 good fit

(Hox & Bechger, 1998; Kline, 2005; Reisinger & Mavondo, 2007)

Measurements and Instruments

Three instruments were used in this study: Serious Leisure Inventory and Measurement (SLIM) (Gould et al., 2008), recreation specialization instrument (McFarlane, 1994), and place attachment instrument (Kyle et al., 2005). All the three instruments have been used in other studies and determined as reliable and valid measurements and instruments. The further explanation of these three instruments is provided in following discussion. The complete survey of this study for amateur softball and volleyball players is in Appendix G.

Serious leisure instrument

Six out of 18 factors of SLIM, including perseverance, significant effort, career progress and contingencies, unique ethos, and strong identity with the pursuit, were used to investigate the relationship between the level of behavior commitment and emotional

tie to a particular place. The six factors of SLIM are applied in this study because they delineate the "seriousness" of amateur athletes rather than the outcome of their leisure pursuits. In the original SLIM, the 12 factors, including personal enrichment, self-actualization, self-express abilities, self- express individual, self-image, self-grat-satisfaction, self-grat-enjoy, re-creation, financial return, group attraction, group accomplishments, group maintenance, are used to measure the durable outcomes of serious leisure. All the 12 factors are regarded as an inventory of outcomes and not to be considered as an additive reflection of seriousness (Gould et al., 2008). Moreover, SLIM divided the career quality of serious leisure into two factors: career progress and career contingencies, but the study combined them as career development dimension in order to maintain Stebbins' perspective of career development in serious leisure quality. The detailed serious leisure measurement information of the survey is at Table 3.

Table 3 Detailed Information for the Serious Leisure Instrument

Serious Leisure Subscale	Item	Scale type
Perseverance	Item: 1, 2, 3	Five-point Likert scale
Significant effort	Item: 4, 5, 6	Five-point Likert scale
Career	Item: 7, 8, 9, 10, 11,12	Five-point Likert scale
Unique ethos	Item: 13, 14, 15	Five-point Likert scale
Identity	Item: 16, 17, 18	Five-point Likert scale

Reliability and validity of serious leisure instrument

The reliability and validity of SLIM (2008), 54 items of 18 dimensions, has been examined in two different samples: a convenient sample and a targeted population. Gould at al., (2008) found that the serious leisure target samples had significant mean

differences at $p<0.05$ level in the l6 dimensions of short form SLIM which supports "the predictive ability of SLIM was evidenced" (Gould et al., 2008, p. 63). The 18 first-order factors represent the comprehensive construct of the concept and q-sort, experts panel, and cross validated used to determine the acceptable fit, reliability and equivalence across samples (Gould et al., 2008). Except self-actualization, the all factor loadings should be more than 0.70 and average variance explained (AVE) values should be more than 0.50. Both of them represent a good convergent validity of this instrument. For example, Heo and King (2009) applied SLIM to measure the seriousness of sports tourism and the Cronbach's alpha of serious leisure items was 0.96. However, the current study applies the selected factors that reflect the level of seriousness rather than the inventory outcomes or durable benefits of the qualities of serious leisure, and the career progress and career contingencies of SLIM dimension are combined as one career development dimension in the study. Therefore, the original measurement is reliable and valid and the reliability and validity of the modified version will be evaluated during the statistical approach.

Recreation specialization instrument

To measure athletes' specialization, McFarlane's (1994) specialization framework of birding was chosen as the theoretical concept of constructing this aspect of the survey. Theoretically, three sub-dimensions have been proposed: past experience, economic commitment, and centrality-to-lifestyle (McFarlane, 1994). Due to the nature of different activities, target populations, and research areas, it is necessary to modify items, questions, or statements of each dimension in order to fit a specific activity (Tsaur & Liang, 2008). The modified questions of recreation specialization tend to become more fitting for amateur athletes' lifestyle and appropriate for these specific activities. As a

result, based on each dimension's core value of this concept, three items of past experience, six items of centrality-to-lifestyle, and three items of economic commitment were included (See Table 4).

Table 4 Detailed Information for the Recreation Specialization Instrument

Rec. Specialization Subscale	Items	Scale type
Past experience	Item: 1, 2, 3	Two open-ended items One four-point Likert scale
Economic commitment	Item: 4, 5, 6	Three open-ended items
Centrality-to-lifestyle	Item: 7, 8, 9, 10,11,12	Five-point Likert scale

Reliability and validity of recreation specialization instrument

McFarlane (1994) investigated birdwatchers' recreation specialization and found that the specialization concept is composed of past experience, centrality-to-lifestyle, and economic commitment. In that study, the Cronbach's alpha of the scale reliability is 0.86. Tsaur and Liang (2008) slightly modified the instrument to evaluate birdwatchers' specialization in Taiwan. In that study, the Cronbach's alpha of three subscales was 0.89 to 0.85 and the composite reliability of each subscale is higher than 0.85, which confirmed the internal consistency of the criteria (Hair et al., 1998). However, both of the studies applied this instrument to evaluate bird watching which is a totally different recreation activity from team sports. The overall reliability and variability are acceptable.

Place attachment instrument

As stated in Chapter 2, the most commonly agreed dimensions of place attachment are place identity and place dependence, both of which have been defined in

almost all research associated with place attachment (Hailu et al., 2005, Hunt, 2008; Jorgensen & Stedman, 2001; Moore & Graefe, 1994; Kyle et al., 2004; Williams, 1992; Williams & Vaske, 2003). However, there are other dimensions of place attachment, such as social lifestyle (Bricker & Kerstetter, 2000; Bond, 2006), social bonding (Kyle et al., 2005), and place commitment (Bond, 2006) which have been conceptualized as part of the people-place relation. In this research, because the social interaction plays an important role in team sports, such as softball and volleyball, social bonding as a sub-dimension of place attachment (Kyle et al., 2005) will be a part of the survey items. As a result, the place attachment questionnaire includes four items of each place attachment dimension: place identity, place dependence, and social bonding (See Table 5).

Table 5 Detailed Information for the Place Attachment Instrument

Place Attachment Subscale	Items	Item-scale
Place identity	Item: 1, 2, 3 ,4	Five-point Likert scale
Place dependence	Item: 5, 6, 7, 8	Five-point Likert scale
Social bonding	Item: 9, 10, 11, 12	Five-point Likert scale

Reliability and validity of place attachment instrument

According to Kyle et al. (2005), the investigation of place attachment scale using data from visitors to the Appalachian Trail in the United States found that a correlated three-factor model consisting of place identity, place dependence, and social bonding was supported. These authors used cross-validation to examine the equivalence of covariance and mean within two randomly split sample groups. Although the reliability of this instrument varied in different groups, the theoretical construction remained the same which indicates that the place attachment instrument is reliable. The Cronbach's alphas,

determining the internal consistency of the items in three dimensions were .87, .86, and .62. Nunnally (1978) suggests that the acceptable Cronbach's alpha value should not be less than .70, and Cortina (1993) argued that when the items of dimensions is less than six, the acceptable Cronbach's alpha is .60 or more (Kyle et al., 2004; Kyle et al., 2005). Therefore, the instrument of place attachment is considered as a reliable and valid measurement.

Demographic Information

During the last part of the survey, amateur athletes who responded to the survey were asked to provide their demographic information (10 items), including gender, age, highest education achieved, marital status, monthly income, ethnic group, whether they are a city resident, whether they are college or university student, years of living in town, and distance from home to the place. These demographic factors have been shown in prior research to influence leisure behavior. In addition, these demographic factors will be used to describe the sample and permit comparisons to the broader population.

Statistical Procedure in the Study

To sum up, the statistic procedure of the study included three sections: (1) pre-modeling testing, (2) instrument model testing by confirmatory factor analysis, and (3) structural equation modeling and path analysis. Figure 5 (p. 53) shows the testing process of the study.

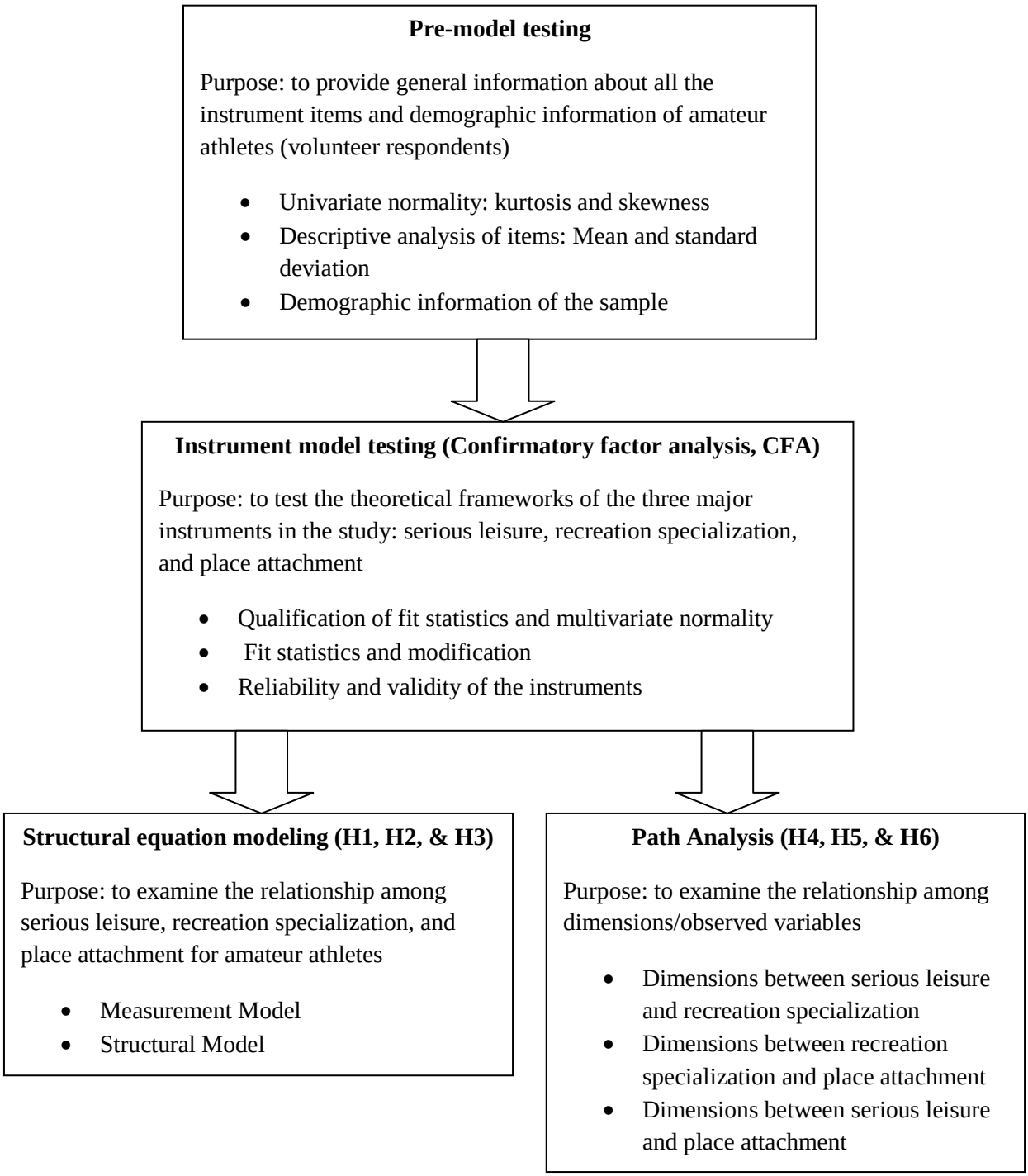


Figure 5 Statistical Procedure of the Study

CHAPTER IV

RESULTS

Introduction

This chapter reports the results of the research along with demographic information about study participants. The purpose of this study was to investigate how amateur athletes' systematic leisure pursuit and level of specialization vary relative to their attachment to a specific place. There are two major objectives in this research: (1) to investigate the relationship between serious leisure and place attachment through recreation specialization for amateur athletes; and (2) to compare amateur athletes' characteristics (dimensions) between serious leisure and recreation specialization, between recreation specialization and place attachment, and between serious leisure and place attachment.

The survey was composed of four sections: (1) the Serious Leisure Instrument and Measurement (SLIM) (Gould et al., 2008), (2) modified recreation specialization instrument (McFarlane, 1994), (3) place attachment instrument (Kyle et al., 2005), and (4) demographic information. The first three sections were randomly ordered whereas demographic information was on the last page in the administration of the survey. All the questions in the first three sections were measured by five point Likert scale, except the

five items in recreation specialization section. All the five point Likert scales ranged from 1 (strongly disagree) to 5 (strongly agree). The first three sections were applied to investigate the relationship among serious leisure, recreation specialization, and place attachment. The demographic information was used to access the demographic characteristics of the sample but was not directly used for the statistical examination related to the research objectives.

This chapter is divided into four sections: (1) the general information for the sample included the demographic information, descriptive analysis of three instruments, and univariate normality testing; (2) the instrument and structural model; (3) the path analysis examined the relationship among serious leisure, recreation specialization, and place attachment dimensions; and (4) the chapter conclusion of the results associated with the study hypotheses.

General Information for the Sample

The general information of the sample includes the demographic information, descriptive analysis of three instruments, and univariate normality testing. The total number of participants in this study was 252. Data screening is an important procedure before researchers conduct further analysis as this procedure helps to clean data and find incomplete surveys (Kline, 2005). Structural equation modeling (SEM) and path analysis require complete data and no missing data is permitted to be included (Byrne, 2010).

When applying the structural equation modeling technique, it is common solution to purge all missing data cases, especially missing data is relatively small (less than 10%) in the data set (Little & Rubin, 2002). In this set of data, there were five incomplete

surveys in which one or more sections had been omitted. All five incomplete surveys were removed from the data set. In addition, ten cases existed in which amateur athletes skipped one or more items in the first three sections of the survey (serious leisure, recreation specialization, and place attachment sections). All ten of these surveys were removed as well. To review procedure, if a participant did not finish the survey or skipped one or more questions within the first three sections, the survey was removed from the following analysis. However, the missing data in the demographic information section would not be deleted from the sample because these demographic items did not directly influence the data analysis but might represent missing minor demographic information of the sample. One additional case was eliminated due to the athlete's age being found to be under 18. As a result, 16 out of 252 surveys (6%) were eliminated from the collected samples. A total of 236 (94%) were employed for the following analysis process.

Demographic information

The survey respondents were comprised of 41.5% (N=98) from men's softball league participants, 30.1% (N=71) of coed softball league participants, 20.3% (N=48) of volleyball league participants, and 8.1% (N=19) of senior softball participants. There were 157 male players (64.6%) and 86 female players (35.4%). The players' age ranged from 18 to 83 years old and the average age was 33 years old. The largest athletes' age group was between 21 and 29 years old (N=106, 44.9%), and the second largest group were 30 to 39 years old players (N=57, 24.2%). With the highest education status of the participants, all the players have obtained at least senior high school degree, and the majority of the participants have college or higher degree.

Athlete's marital status were somewhat evenly distributed with 46.6% married (N=110) and 53.3% not married (N=126). The majority of the participants' monthly incomes were less than $3,000 per month and 19.8% (N=44) of them earn more than $6,000 monthly. The majority of the respondents were Caucasian (N=191, 80.9%), while Native Americans were the second largest ethnic group (N=15, 6.4%) and Hispanic were third highest (N=11, 4.7%). Seven respondents (3.8%) checked more than one box which represents the mixed ethnic group. A large percent of players (75%, N=177) were resident in the City of Stillwater, and the majority of players (N=156, 66.1%) were not college students. The average years living in Stillwater of the participants was 13.1 years and the majority was living within 10 miles distance to the field (76.6%). Table 6 (p. 58-59) displays the detailed demographic information of the sample.

Table 6 Demographic Information for the Sample

	Category	Freq.	%	Cum. %
League	Men's softball	98	41.5	41.5
	Senior softball	19	8.1	49.6
	Coed softball	71	30.1	79.7
	Women volleyball	36	15.2	94.9
	Coed volleyball	12	5.1	100.0
Gender	Male	157	64.6	64.6
	Female	86	35.4	100.0
Age	Under 20	12	5.1	5.1
	21-29	106	44.9	50.0
	30-39	57	24.2	74.2
	40-49	31	13.1	87.3
	50-59	18	7.6	94.9
	60 and over	12	5.1	100.0
Highest Ed.	Senior high	44	18.7	18.7
	Junior College	46	19.5	38.2
	Bachelor	88	37.3	75.5
	Grad. School	56	23.7	99.2
	Missing	2	0.8	100.0
Marital status	Married	110	46.6	46.6
	Not married	126	53.4	100.0
Income (m)	$ 2,000 or less	82	34.7	34.7
	$ 2,001-$ 3,000	56	23.7	58.4
	$ 3,001-$ 4,000	23	10.0	68.4
	$ 4,001-$ 5,000	18	7.6	76.0
	$ 5,001-$ 6,000	7	3.0	79.0
	$ 6,001-$ 7,000	12	5.0	84.0
	$ 7,001 or more	32	13.5	97.5
	Missing	6	2.5	100.0

(Table 6 continues on page 59)

Table 6 Continued - Demographic Information for the Sample

	Category	Freq.	%	Cum. %
Ethnic group	Caucasian	191	80.9	80.9
	Hispanic	11	4.7	85.6
	Asian	4	1.7	87.3
	Native American	15	6.4	93.7
	African American	2	0.8	94.5
	Mixed	7	3.0	97.5
	Other	4	1.7	99.2
	Missing	2	0.8	100.0
Resident	Yes	177	75.0	75.0
	No	59	25.0	25.0
College Stu.	Yes	80	33.9	33.9
	No	156	66.1	100.0
Years living in Stillwater	Less than 1 year	17	7.2	7.2
	1-4 years	64	27.1	34.3
	5-9 years	44	18.6	52.9
	10-19 years	35	14.8	67.7
	20-29 years	45	19.2	86.9
	30-39 years	18	7.6	94.5
	40 or more years	11	4.7	99.2
	Missing	2	0.8	100.0
Distance to the field	Under 3 mile	66	28.0	28.0
	3 to 10 miles	114	48.3	76.3
	10 to 20 miles	20	8.5	84.8
	20 to 50 miles	27	11.4	96.2
	50 or more miles	8	3.4	99.6
	Missing	1	0.4	100.0

Note: highest education, monthly income, years of living in Stillwater, and distance to the field have some missing data, and others do not.

Descriptive analysis of the three major instruments

There are three major instruments in this study: serious leisure, recreation specialization, and place attachment. Each item in the respective instrument was denoted as the instrument abbreviation, the order of dimension in analysis, and the number of item in the dimension. For example, SL2_3 represents the third item in the efforts dimension of serious leisure instrument (SL2).

Five sub-scales of serious leisure (SL) instrument were included in the study: SL1 (perseverance), SL2 (efforts), SL3 (career), SL4 (identity), and SL5 (unique ethos). Table 7 presents means and standard deviation scores of items in serious leisure instrument. Overall, the perseverance has the highest mean (4.10), followed by the career dimension (3.93), and efforts dimension (3.80).

Table 7 The Means and Standard Deviation of Items in the Serious Leisure Instrument

Serious Leisure		M	S.D.	Sub. M
SL1_1	If I encounter obstacles in _____, I persist until I overcome them.	4.12	0.90	4.10
SL1_2	By persevering, I have overcome adversity in _____.	4.05	0.85	
SL1_3	I overcome difficulties in _____ by being persistent.	4.14	0.83	
SL2_1	I try hard to become more competent in _____.	4.11	0.93	3.80
SL2_2	I practice to improve my skills in _____.	3.51	1.23	
SL2_3	I am willing to exert considerable effort to be more proficient at _____.	3.77	1.06	
SL3_1	I have improved at _____ since I began participating.	4.25	0.95	3.93
SL3_2	Since I began _____, I have improved.	4.30	0.94	
SL3_3	I feel that I have made progress in _____.	4.23	0.96	

Table 7 Continued - The Means and Standard Deviation of Items in the Serious Leisure Instrument

Serious Leisure		M	S.D.	
SL3_4	For me, there are certain _____ related events that have influenced my _____ involvement.	3.57	1.19	
SL3_5	There are defining moments within _____ that have significantly shaped my involvement in it.	3.63	1.07	
SL3_6	There have been certain high or low points for me in _____ that have defined how I became involved in softball.	3.58	1.10	
SL4_1	Others that know me understand that _____ is a part of who I am.	3.73	1.14	
SL4_2	I am often recognized as one devoted to ____.	3.57	1.11	3.60
SL4_3	Others recognize that I identify with _____.	3.50	1.17	
SL5_1	I share many of the sentiments of my fellow _____ devotees.	3.66	1.07	
SL5_2	Other _____ enthusiasts and I share many of the same ideals.	3.62	1.05	3.65
SL5_3	I share many of my _____ group's ideals.	3.68	1.03	

Note: _____: softball and volleyball

There are three dimensions of recreation specialization measurement: experience (RS1), commitment (RS2), and lifestyle (RS3). Table 8 (p.62) is displayed on page 62 and presents the means and standard deviation scores of the items in the recreation specialization instrument. In this instrument, there are five open-ended questions in two sub-dimensions of recreation specialization (RS1 & RS2), so the means of these two sub-scales are not provided. The average experience of these amateur athletes was twelve years and they played softball or volleyball more than one day per week. The amateur

athletes, on average, spent $110.00 dollars in the past year to play their respective sport and owned at least two pieces of equipment associated with their leisure pursuit.

Table 8 The Means and Standard Deviation of Items in the Recreation Specialization Instrument

Recreation specialization		Mean	S.D.	Sub M.
RS1_1*	How many years have you been involved in this leisure activity?	12.23	12.00	
RS1_2*	How many times do you play _____ per week?	1.63	0.89	-
RS1_3	What is your perceived skill level in this recreation activity?	2.88	0.92	
RS2_1*	How much money did you spend on _____ sportswear and supplies in the past year?	110	285	
RS2_2*	How many _____ do you have?	1.56	2.32	-
RS2_3*	How many _____ do you have?	1.57	1.14	
RS3_1	I have a very profound knowledge of _____ techniques and rules.	4.11	1.04	
RS3_2	I like to read magazines and books which are associated with ____.	2.13	1.20	
RS3_3	I would rather play _____ than do most anything else.	3.11	1.18	
RS3_4	I enjoy discussing ____ with my friends.	3.38	1.11	3.28
RS3_5	I organize my weekly schedule to "protect" my _____ commitment	3.58	1.16	
RS3_6	I usually watch TV shows and events associated with my sports interest.	3.36	1.33	

Note: * indicates that the item is an open-ended question. _____ represents either softball or volleyball. RS2_2: softball bats or protective devices (volleyball); RS2_3: softball gloves or pairs of volleyball shoes.

Three sub-scales of place attachment (PA) instrument were included in the study: PA1 (place identity), RS2 (place dependence), and PA3 (social bonding). Table 9

presents means and standard deviation of items of place attachment. It indicates that social bonding (3.81) has the highest mean score, followed by place identity (3.59), while the place dependence (3.02) has the smallest mean.

Table 9 The Means and Standard Deviation of Items in Place Attachment Instrument

Place attachment		Mean	S.D.	Sub. M.
PA1_1	The _____ mean a lot to me	3.59	1.10	
PA1_2	I really enjoy my time at the _____.	4.14	0.91	
PA1_3	I identify strongly with _____ as the place that I enjoy for softball.	3.92	1.04	3.59
PA1_4	I feel no commitment to _____.	2.70	1.29	
PA2_1	I enjoy playing at _____ more than any other field.	2.70	1.17	
PA2_2	I get more satisfaction out of playing at _____ more than other fields.	3.22	1.11	
PA2_3	Playing _____ here is more important than playing on any other field.	3.13	1.17	3.02
PA2_4	I wouldn't substitute any other activity for the type of recreation I do at _____.	3.01	1.20	
PA3_1	I have a lot of good memories about _____.	3.87	1.03	
PA3_2	I have a special connection to _____ and the people who play ball with me.	3.68	1.07	3.81
PA3_3	I do tell many people that I play softball at _____.	3.82	1.07	
PA3_4	I will bring my family/friends to _____.	3.87	1.07	

Note: _____ is Airport/Sanborn fields (softball) or Armory Courts (volleyball)

Assessment of univariate normality

It is necessary to test the normality of each item to determine if these items are appropriate for the following multivariate analysis. The value of skewness and kurtosis of

each item were applied to determine if the scores of the item was normal distrusted. The acceptable range of skewness should be between negative three (-3) and positive (+3) or absolute value less than three, and the acceptable range of absolute kurtosis value is less than eight (Kline, 2005). All the items of the study reached these two normality criteria, except the five open-ended questions in recreation specialization section (RS1_1, RS1_2, RS2_1, RS2_2, and RS2_3). The raw scores of open-ended items have broad ranges and non-normal distributions, which would violate the assumption of normality for structural equation modeling. Therefore, the raw scores were transformed by using the square root approach to re-distribute the scores. After transforming the raw data, the absolute skewness and kurtosis indexes respectively ranged between 0.44 and 1.40 and between 0.22 and 3.02, both of which indicates that these transformed scores have a normal distribution (Kline, 2005). The normality test of the three instruments items are reported in Table 10 (p. 65).

Table 10 Normality Testing of the Sample

Serious Leisure			Recreation Specialization			Place Attachment		
Item	skewness	kurtosis	item	skewness	kurtosis	item	skewness	kurtosis
SL1_1	- 1.16	1.50	RS1_1*	0.44	-0.72	PA1_1	- 0.41	- 0.35
SL1_2	- 0.78	0.56	RS1_2*	1.40	3.02	PA1_2	- 1.00	0.79
SL1_3	- 1.08	1.65	RS1_3	- 0.70	-0.22	PA1_3	- 0.87	0.31
SL2_1	- 1.23	1.75	RS2_1*	1.19	1.54	PA1_4	0.25	- 0.91
SL2_2	- 0.52	- 0.66	RS2_2*	0.73	0.51	PA2_1	- 0.18	- 0.39
SL2_3	- 0.76	0.09	RS2_3*	- 0.51	0.92	PA2_2	0.17	- 0.34
SL3_1	- 1.41	1.76	RS3_1	- 1.35	1.68	PA2_3	- 0.14	- 0.57
SL3_2	- 1.57	2.40	RS3_2	0.74	-0.47	PA2_4	- 0.03	- 0.83
SL3_3	- 1.42	1.84	RS3_3	- 0.15	-0.78	PA3_1	- 0.99	0.84
SL3_4	- 0.56	- 0.49	RS3_4	- 0.34	-0.39	PA3_2	- 0.69	0.07
SL3_5	- 0.44	- 0.35	RS3_5	- 0.55	-0.59	PA3_3	- 0.78	0.05
SL3_6	- 0.52	- 0.25	RS3_6	- 0.36	-1.00	PA3_4	- 0.91	0.41
SL4_1	- 0.58	- 0.18						
SL4_2	- 0.85	0.07						
SL4_3	- 0.53	- 0.47						
SL5_1	- 0.66	- 0.03						
SL5_2	- 0.51	- 0.20						
SL5_3	- 0.62	0.09						

Note: * means that the item has been transformed by square root approach. Each item was denoted as instrument abbreviation, the order of dimension in the analysis, and number of item in the dimension. For example, SL2_3 represents the third item in the efforts dimension of serious leisure instrument.

Instrument and Structural Model Testing

In this section, the instrument model was examined first and then the structural model. Before examining the model, the three applied instruments of the study, including Serious Leisure Instrument and Measurement (SLIM), modified recreation specialization instrument, and Kyle's place attachment instrument, needed to be tested for preserving the most appropriate items in the instruments. The purpose of examining these instruments is to investigate which survey items were suitable for amateur athletes and provided the most detailed information for understanding the relationship among serious leisure, recreation specialization, and place attachment.

Criteria for testing a model

According to Bagozzi and Yi (1988), three criteria are used to evaluate if a model is qualified to be estimated for overall fit: (1) all standardized regression weight or factor loadings are less than 0.95; (2) all measurement errors are positive (no negative error); (3) all standard errors (SE) should be less than one. In addition, the multivariate normality was tested by Maradia's coefficient which needs to be lower than p (p+1), where p is the number of observed variables (Bollen, 1989). The multivariate normality test would allow researchers to use the maximum likelihood estimation in confirmatory factor analysis without violating the assumption of normality (Moreno Murcia, Gonzalez-Cutre Coll, & Chillon Garzon, 2009).

The goodness-of-fit statistics of this study are chi-square (CMIN, $p>0.05$), chi-square divided by degree of freedom (CMINDF<3.00), goodness of fit index (GFI> 0.90), root mean square residual (RMR<0.08), standardized root mean square residual

(SRMR<0.08), root mean square error of approximation (RMSEA<0.08), normed fit index (NFI>0.90), and comparative fit index (CFI>0.90). All of these goodness-of-fit statistics were applied when investigating if the sample is fit on the model. Table 2 in Chapter 3 (p. 45) reports the all goodness-of-fit statistics. In addition, when a goodness-of-fit index is at its cutoff point (just match the indexes criteria), it can be regarded as acceptable fit (Hu & Bentler, 1999).

If modification of a model is necessary, from the Amos output, model modification index (MI) output is employed to identify observed variables (items) that impact the fit of the model. According to the modification indices output, researchers are allowed to fix the model from the highest model modification index (MI) in order. Statistically, MI expresses the chi-square statistic with a single degree of freedom. The value of chi-square with one degree of freedom is 3.84 ($p<0.05$); therefore, when the MI is larger than four, the item is worthy to modify (Kline, 2005). This current study applied a conservative value (MI=15) as a criteria to modify the model so that the model would not be over-modified (Byrne, 2010). While applying modification to a model, researchers are only allowed to modify one item in the model at a time (set the parameter free or remove the path) (Byrne, 2010). To do so, the instrument model would become "fit" and preserve the best items or questions for the data set. The modification of models accomplished when there were no MI higher than 15 and the majority of the model fit indexes (at least five out of eight criteria) were qualified a good fit.

In addition, the reliability and validity of the instruments were examined by four statistics (Fornell & Lacker, 1981; Stevens, 2009): (1) squared multiple correlation (R^2) is used to evaluate how an individual factor is explained by a collective set of predictors

and R^2 should be larger than 0.20; (2) composite reliability (CR) value is applied for measuring the overall reliability of an instrument, and the common suggested criteria of CR value is better larger than 0.60; (3) Cronbach's α (alpha) is used to investigate the internal reliability, and the common suggested criteria of alpha value is no less than 0.60; (4) The Kaiser-Meyer-Olkin (KMO) estimates the sampling adequacy which should be greater than 0.50 for a satisfactory factor analysis to proceed.

Instrument model of serious leisure

In the serious leisure section, 18 items originally came from part of the Serious Leisure Instrument and Measurement (SLIM). Five dimensions were used to examine the players' involvement of their leisure pursuit: perseverance (SL1), efforts (SL2), career (SL3), identity (SL4), and unique ethos (SL5). Originally, there were three items of each dimension, except the career sub-scale (six items). Each item was denoted by its instrument abbreviation, the order of dimension in the analysis, and number of items in the dimension. For example, SL2_3 represents the third item in the efforts dimension of serious leisure instrument.

By using confirmatory factor analysis (CFA), the instrument structure of serious leisure comprised eighteen items and five sub-dimensions. However, within the original serious leisure instrument model, all the fit statistics were failed to match the criteria in the study. Table 11 (p. 70) reports the model fit indexes of the original model (M0), and the original instrument model is displayed in Figure 6 (p. 69). Therefore, in order to determine the best instrument items of serious leisure for this sample, it is necessary to modify the instrument model and delete less appropriate statements.

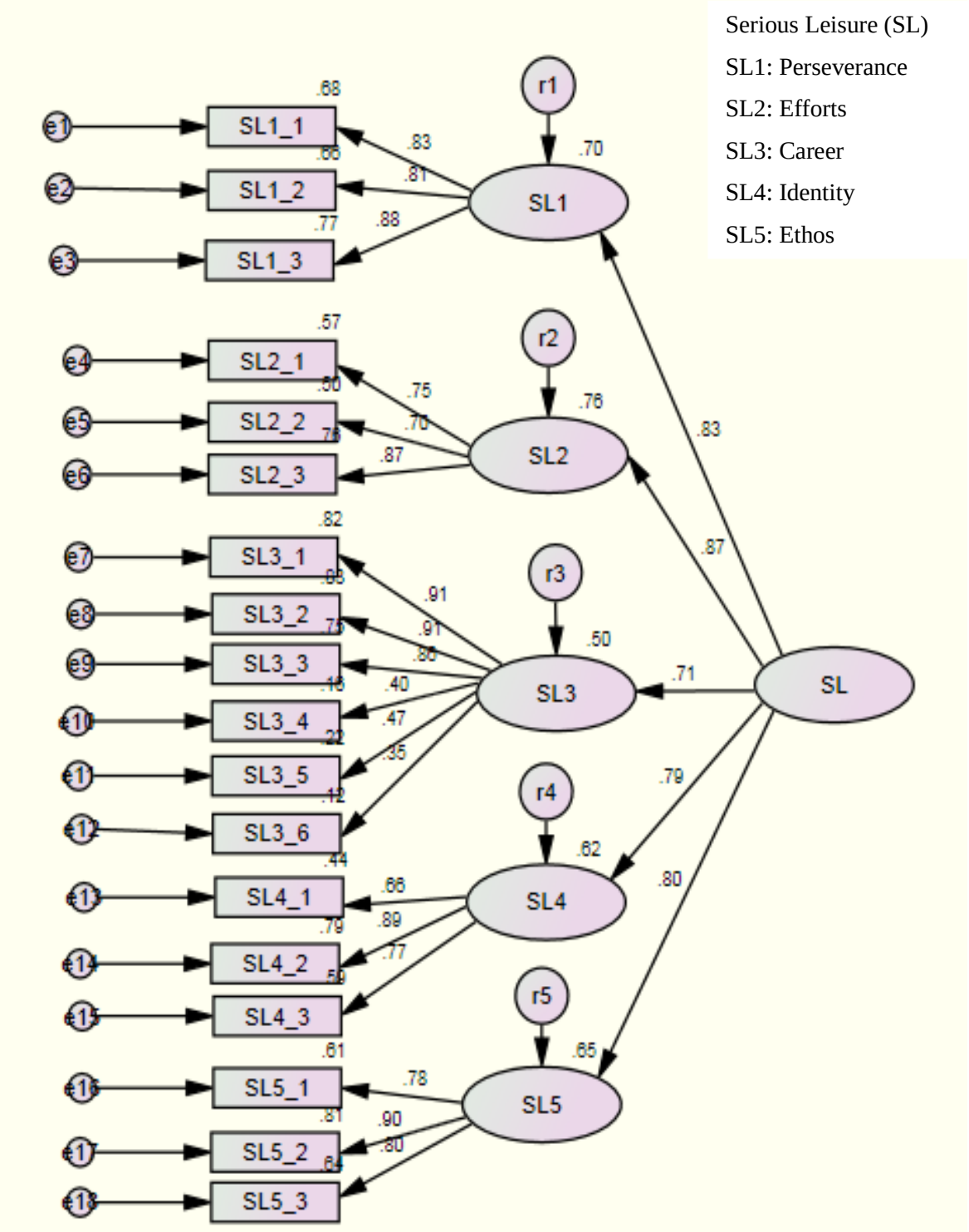


Figure 6 The Original Serious Leisure Instrument Model

Note: SL (Serious Leisure), SL1 (perseverance), SL2 (efforts), SL3 (career), SL4 (identity), and SL5 (unique ethos); Each observed variables (items) was denoted as its instrument abbreviation, the of dimension in the analysis, and number of item in the dimension. For example, SL2_3 represents the third item in the efforts dimension of the original instrument.

Table 11 explains the sequence of modification for serious leisure instrument. The original model was denoted as M0, and the modified models were named as M1, M2, M3, and so on. The fit of modified models would be accomplished when there were no MI higher than 15 and the majority of the model fit indexes were qualified as a good fit.

Table 11 The Sequence of Modification for Serious Leisure Instrument

Model No.	M0	M1	M2	M3	M4	M5	M6
Modified Item	-	SL3_6 (e12)	SL3_5 (e11)	SL5_1 (e16)	SL3_4 (e10)	SL4_3 (e15)	SL2_3 (e6)
MI	-	95.21	71.74	53.74	35.24	20.44	17.73
X^2 (CMIN)	p<0.01	p<0.01	p<0.01	p<0.01	p<0.01	p<0.01	p<0.01
X^2/d.f. (CMINDF)	6.72	5.60	4.81	4.64	3.82	3.47	2.79*
GFI	0.67	0.74	0.79	0.81	0.85	0.87	0.91*
RMR	0.18	0.16	0.14	0.13	0.08	0.07*	0.06*
SRMR	0.16	0.14	0.11	0.11	0.08	0.08*	0.07*
RMSEA	0.15	0.14	0.13	0.11	0.11	0.10	0.08*
NFI	0.73	0.79	0.83	0.84	0.89	0.90*	0.93*
CFI	0.76	0.82	0.86	0.87	0.91*	0.93*	0.95*

Note: * means the index reaches the fit criteria

The final construction of serious leisure instrument in this study embraced two items in efforts (SL2), identity (SL4), and unique ethos (SL5) dimensions, and three items in perseverance (SL1) and career (SL3) dimensions. In the final model, all the standardized regression weights ranged from 0.57 to 0.94 (<0.95), the value of measurement error are positive, and all the standard errors ranged between 0.11 and 0.43

(<1.00). The standardized regression weights and measurement errors are displayed in Table 12 (p. 74). In addition, the Maradia's coefficient of final serious leisure instrument is 98.29 (<182=12×13), which indicates that these items match the requirement of normality at the multivariate level. All the criteria indicate that the modified serious leisure is qualified to estimate the overall goodness-of-fit. The final modified serious leisure instrument model is presented as Figure 7 (p.72).

In the serious leisure instrument, after six modifications from the original serious leisure model, the final model's CMINDF (2.79<3.0), GFI (0.91>0.90), RMR (0.06<0.08), SRMR (0.07<0.08), RMSEA (0.08), NFI (0.93>0.90), and CFI (0.95>0.90) indicates that the M6 (final model) is a goodness-of-fit model in the sample. However, the chi-square (p-value<0.05) still did not reach the necessary criteria. As a matter of fact, the chi-squire test (p-value), which is extremely sensitive to sample size, may not be the most accurate index to define the model's fit especially in a large sample size situation (Byrne, 2010). All the fit indexes indicate that the modified final model is a better fit than the original one. Therefore, the final model of serious leisure instrument (M6) has been involved and is considered as a good fit. Table 11 is displayed on page 70 and shows the goodness-of-fit indexes of the final serious leisure instrument (M6).

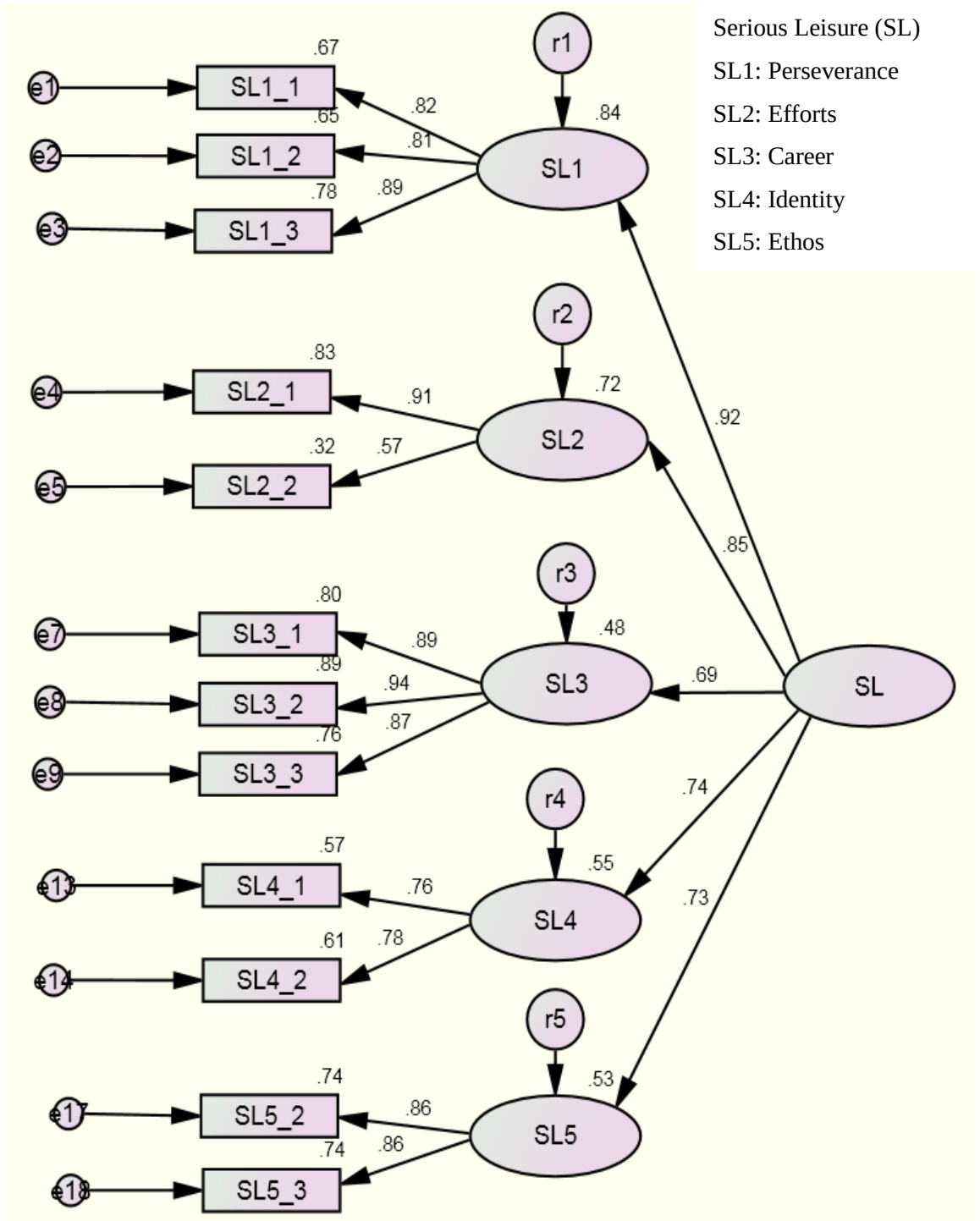


Figure 7 Modified Serious Leisure Instrument Model

Note: SL (Serious Leisure), SL1 (perseverance), SL2 (efforts), SL3 (career), SL4 (identity), and SL5 (unique ethos); Each observed variables (items) was denoted as its instrument abbreviation, the of dimension in the analysis, and number of item in the dimension. For example, SL2_2 represents the second item in the efforts dimension of the original instrument

Within the final serious leisure instrument (M6), squared multiple correlation (R^2) ranged from 0.32 to 0.89 (>0.20). In addition, the composite reliability (CR) values are between 0.75 and 0.93, and the Cronbach's α of all five dimensions in the instrument ranged from 0.82 to 0.93. The KMO of the final recreation specialization's model is 0.89 (>0.50) which indicates it is satisfactory for factor analysis. All the statistics above indicate that the reliability and validity of the final serious leisure instrument is good. Table 12 (p.74) represents the final serious leisure instrument's squared multiple correlation (R^2), composite reliability (CR), and Cronbach's α (alpha).

Table 12 The Regression Weights, error, R^2, Composite Reliability, and Alpha Value of the Final Serious Leisure Instrument (M6)

Serious Leisure	Regression Weights		Error	R^2	CR	Alpha
					0.89	0.92
SL -> SL1		0.92*	0.43	0.84	0.88	0.88
	SL1 -> SL1_1	0.82*	0.22	0.67		
	SL1 -> SL1_2	0.81*	0.21	0.65		
	SL1 -> SL1_3	0.89*	0.22	0.78		
SL -> SL2		0.85*	0.32	0.72	0.82	0.82
	SL2 -> SL2_1	0.91*	0.37	0.83		
	SL2 -> SL2_2	0.57*	0.27	0.57		
SL -> SL3		0.69*	0.11	0.32	0.93	0.93
	SL3 -> SL3_1	0.84*	0.18	0.80		
	SL3 -> SL3_2	0.94*	0.19	0.89		
	SL3 -> SL3_3	0.87*	0.19	0.75		
SL -> SL4		0.74*	0.17	0.64	0.75	0.80
	SL4 -> SL4_1	0.76*	0.29	0.55		
	SL4 -> SL4_2	0.78*	0.31	0.57		
SL -> SL5		0.73*	0.14	0.53	0.85	0.83
	SL5 -> SL5_1	0.86*	0.24	0.86		
	SL5 -> SL5_2	0.86*	0.24	0.80		

Note: * means that the effect is significant in $p<0.05$, two-tailed.

Instrument model of recreation specialization

Unlike the serious leisure or place attachment instruments in the study, recreation specialization is the only instrument in which questions had been modified for this study. The original instrument was used for investigating the specialization of bird watchers (McFarlane, 1994), and it was necessary to modify the original questions in order to be appropriate for evaluating amateur athletes' level of specialization. Therefore, principal components analysis (varimax rotation) was applied to investigate the underlying structure of the measurement and how these questions represent these dimensions before analyzing the instrument model (Steven, 2009). Like the original instrument structure, three dimensions (eigenvalue>1) were extracted in this data set, but the individual items were re-organized within the three dimensions. Three items (RS1_1, RS1_2, and RS3_6) were eliminated, because their factor loading was not higher than 0.50 in any of the three dimensions of recreation specialization (Fornell & Lacker, 1981). As a result, the first dimension (RS1: experience) was composed of RS1_3 and RS3_1, the second dimension (RS2: commitment) was composed of RS2_1, RS2_2, and RS2_3, and the third dimension (RS3: lifestyle) was composed of RS3_2, RS3_3, RS3_4, and RS3_5. The principal component matrix of recreation specialization is reported in Table 13 (p. 76).

Table 13 The Principal Component Analysis of Recreation Specialization Instrument

Item	Component		
	1 (RS1)	2 (RS2)	3 (RS3)
RS1_1	0.46	0.29	0.10
RS1_2	0.10	0.44	0.17
RS1_3	**0.84**	0.15	-0.01
RS2_1	-0.03	**0.67**	0.25
RS2_2	0.15	**0.82**	0.06
RS2_3	0.17	**0.71**	0.11
RS3_1	**0.71**	0.33	0.38
RS3_2	0.09	0.26	**0.63**
RS3_3	0.15	0.27	**0.70**
RS3_4	0.10	0.26	**0.73**
RS3_5	0.02	0.11	**0.71**
RS3_6	0.33	-0.15	0.49

Note: factor loading > 0.50 are in boldface and in a principal component combination; RS1 (experience), RS2 (commitment), and RS3 (lifestyle).

The researcher employed confirmatory factor analysis to assess the reorganized recreation specialization instrument after principal component analysis. However, the standard error of RS 2_1 and lifestyle dimensions are larger than 1.0, which indicates that the model needs to be modified before reviewing the goodness-of-fit index. As a result, RS2_1 was eliminated, because its standard error is the highest one (SE=1.9>1.0). After removing RS2_1, all the standard error (SE) of specialization items came between 0.18 and 0.71 (< 1.00) which indicates the model is appropriate for confirmatory factor

analysis. The Maradia's coefficient[2] (6.16) is smaller than 72 (=8×9, 8 is the number of instrument items), which shows the model reached the multivariate normality assumption. Table 14 (p. 79) displays the actual factor loadings (standard regression weights) and standard errors (error) of the final model. As a result, the model is composed of three dimensions: experience (RS1), commitment (RS2), and lifestyle (RS3). The experience sub-scale included RS1_3 and RS3_1, the commitment sub-scale included RS2_2 and RS2_3, and the lifestyle sub-scale included RS3_2, RS3_3, RS3_4, and RS3_5.

Within this new model, the chi-square statistic (CMIN=24.47, p=0.11>0.05) and chi-square divided by degree of freedom value (CMINDF=1.44<3.00) indicate that the model is a good fit. Moreover, the goodness of fit index (GFI= 0.98>0.90), normed fit index (NFI=0.94>0.90), and comparative fit index (CFI=0.98>0.90) indicate the model is good fit. The root mean square residual (RMR=0.04<0.08), standard root mean square residual (SRMR=0.04<0.08), and root mean square error of approximation (RMSEA=0.04<0.08) show that the model is an excellent fit of the data set. The final recreation specialization instrument model represented an overall good fit of the construct in the sample. Figure 8 represents the final instrument model (see p. 78).

[2] Maradia's coefficient should be lower than p (p+1), where p is the number of observed variables (Bollen, 1989)

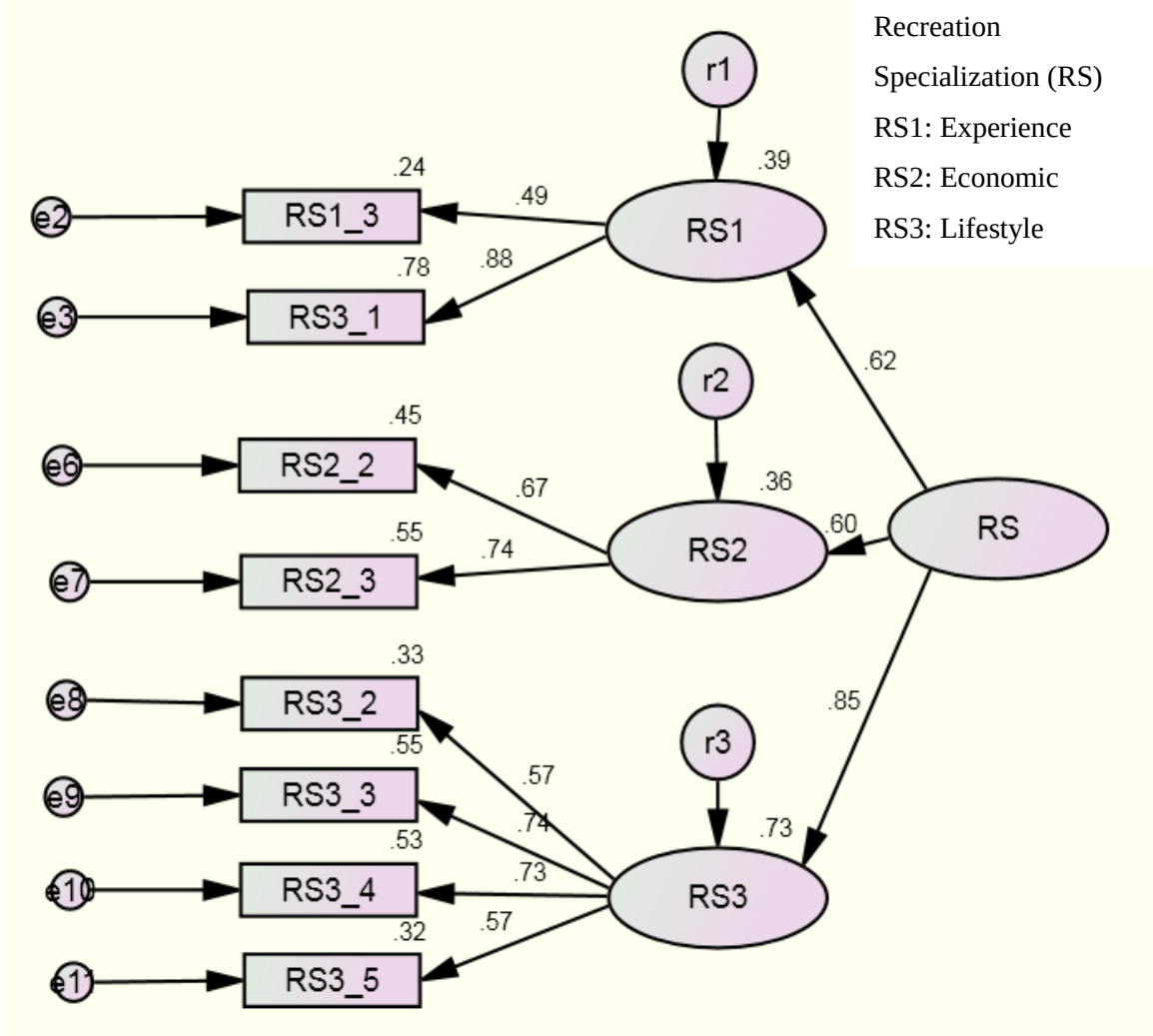


Figure 8 The Final Modified Instrument Model of Recreation Specialization

Note: RS (recreation specialization), RS1 (experience), RS2(commitment), RS3 (lifestyle); Each observed variables (items) was denoted as the instrument abbreviation, the order of dimension in the analysis, and number of item in the dimension. For example, RS3_3 represents the third item in the lifestyle dimension of the original instrument

Within the final recreation specialization instrument, all the regression weights ranged between 0.49 and 0.88, and the squared-multiple correlation of all items are 0.24 to 0.78 (>0.20). The composite reliability of three sub-scales are 0.66, 0.67, and 0.75(>0.60), and the overall CR is 0.74. The alpha value of the three sub-scales ranged from 0.60 to 0.72, and the entire instrument's alpha value is 0.71 (>0.60). The KMO of

the final recreation specialization's model is 0.77 (>0.50). Therefore, the final instrument model of recreation specialization is considered reliable and valid for this study. The regression weights, errors, squared multiple regressions, composite reliability, and alpha values of the final recreation specialization instrument model are reported in Table 14.

Table 14 The Regression Weights, Error, R^2, Composite Reliability, and Alpha Value of the Final Recreation Specialization Instrument Model.

Recreation Specialization	Regression Weights		Error	R^2	CR	Alpha
					0.74	0.71
RS -> RS1		0.62*	0.23	0.39	0.66	0.60
	RS1 -> RS1_2	0.49*	0.25	0.24		
	RS1 -> RS1_3	0.88*	0.68	0.78		
RS -> RS2		0.60*	0.18	0.36	0.75	0.61
	RS2 -> RS2_2	0.67*	0.31	0.45		
	RS2 -> RS2_3	0.74*	0.20	0.55		
RS -> RS3		0.85*	0.71	0.73	0.67	0.72
	RS3 -> RS3_2	0.57*	0.54	0.33		
	RS3 -> RS3_3	0.74*	0.67	0.55		
	RS3 -> RS3_4	0.73*	0.63	0.53		
	RS3 -> RS3_5	0.57*	0.52	0.32		

Note: * means that the effect is significant in $p<0.05$, two-tailed.

Instrument model of place attachment

The original instrument of place attachment is composed of three dimensions: place identity (PA1), place dependence (PA2), and social bonding (PA3), and each sub-scale has four questions. According to the modification index of the original model, the

error term of SL3_4 (e12) has the highest modified index (23.82) which means that the original model could become more fit to the sample. After removing PA3_4, all the standardized regression weights ranged from 0.36 to 0.94 (<0.95), the value of measurement errors are positive, and all the standard errors ranged between 0.14 and 0.34 (<1.00). The Maradia's coefficient[3] of final place attachment instrument is 36.70 (<132=11×12), which indicates that these items attain the requirement of normality in a multivariate level.

In terms of the goodness-of-fit of final place attachment instrument, the CMINDF decreased from 3.00 to 2.83 (<0.30), the RMR decreased from 0.09 to 0.08, the SRMR maintained as 0.06(<0.08), and the RMSEA decreased from 0.09 to 0.08. In addition, the GFI increased from 0.90 to 0.91 (>0.90), the NFI increased from 0.91 to 0.92 (>0.90), and CFI increased from 0.94 to 0.95 (>0.90). As a result, the final model is considered as an acceptable fit model. Figure 9 presents the final place attachment instrument model of the study and is on page 81.

[3] Maradia's coefficient which need to be lower than p (p+1), where p is the number of observed variables (Bollen, 1989)

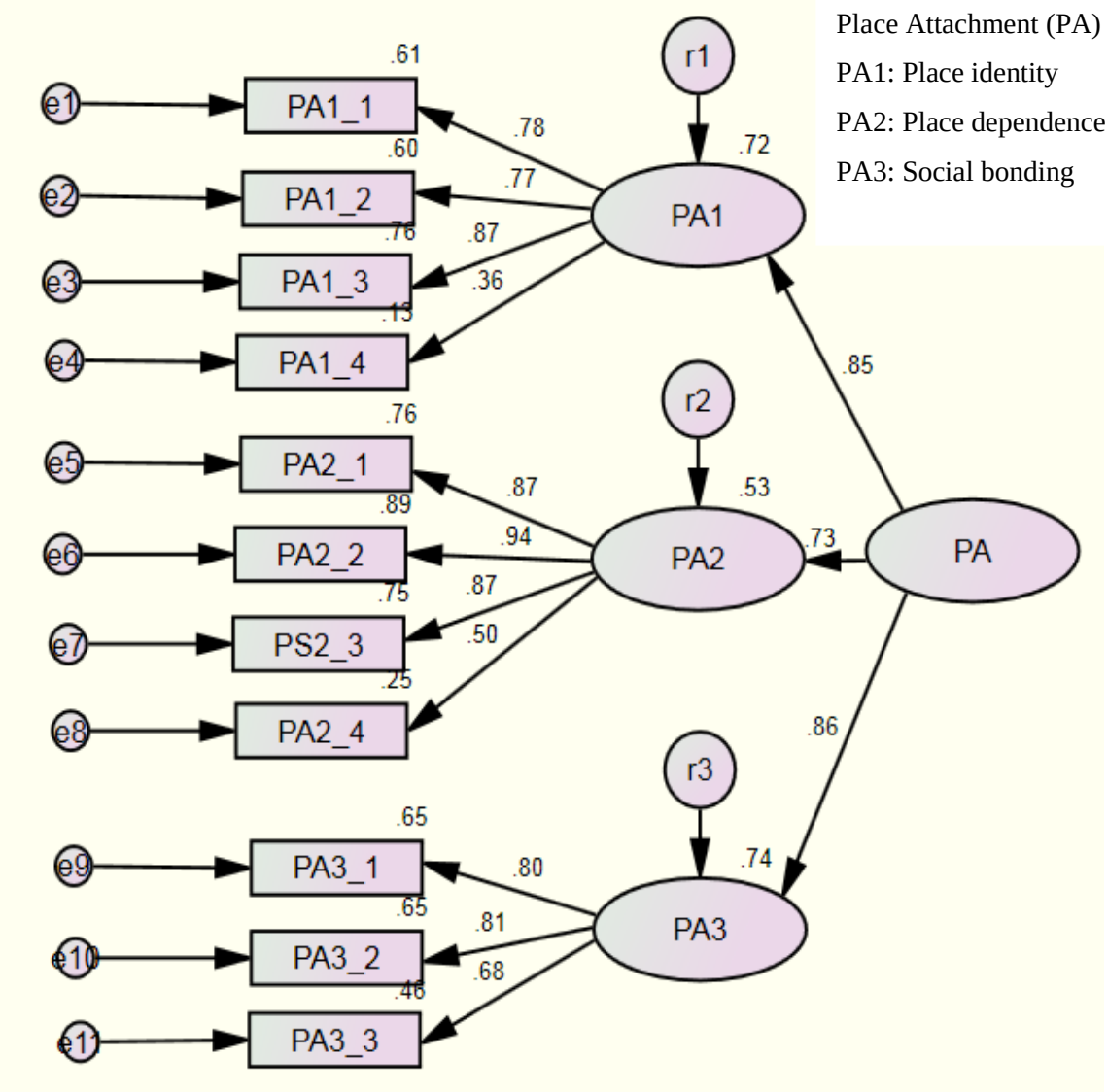


Figure 9 The Final Place Attachment Instrument Model of the Study

Note: PA (place attachment): PL1 (place identity), PL2 (place dependence), and PL3 (social bonding); each observed variables (items) was denoted as the instrument abbreviation, the order of dimension in the analysis, and number of item in the dimension. For example, PA2_2 represents the second item in the place dependence dimension of the original instrument.

In the place attachment instrument model, all the squared-multiple regressions ranged between 0.25 and 0.89 (>0.20), except PA1_4 (0.13). The composite reliability of PA1 (place identity), PA2 (place dependence), and PA3 (social bonding) respectively are 0.80, 0.88, and 0.81(>0.60). The overall alpha statistic of place attachment is 0.89, and

each dimension's alpha value ranged between 0.77 and 0.87. The KMO of the final place attachment instrument model is 0.88 (>0.50). Therefore, the overall reliability and validity of the final place attachment measurement is considered a good condition. Table 15 shows the regression weights, squared-multiple correlation, composite reliability, and alpha value of the instrument.

Table 15 The Regression Weights, Error, R^2, Composite Reliability, and Alpha Value of the Final Place Attachment Instrument Model

Place Attachment	Regression Weights		Error	R^2	CR	Alpha
					0.86	0.89
PA -> PA1		0.85*	0.14	0.72	0.80	0.77
	PA1 -> PA1_1	0.78*	0.28	0.61		
	PA1 -> PA1_2	0.77*	0.26	0.60		
	PA1 -> PA1_3	0.87*	0.32	0.76		
	PA1 -> PA1_4	0.36*	0.25	0.13		
RS -> RS2		0.73*	0.32	0.73	0.88	0.87
	PA2 -> PA2_1	0.87*	0.23	0.76		
	PA2 -> PA2_2	0.94*	0.25	0.89		
	PA2 -> PA2_3	0.87*	0.25	0.75		
	PA2 -> PA2_4	0.50*	0.25	0.25		
RS -> RS3		0.86*	0.34	0.74	0.81	0.80
	PA3 -> PA3_1	0.80*	0.30	0.65		
	PA3 -> PA3_2	0.81*	0.32	0.65		
	PA3 -> PA3_3	0.68*	0.27	0.46		

Note: * means that the effect is significant in $p<0.05$, two-tailed.

Measurement and structural model testing

The purpose of this study is to investigate the amateur athletes' serious leisure, recreation specialization, and place attachment through testing the model. After testing the three instrument models in the study: serious leisure, recreation specialization, and place attachment, the following section represents the structural equation modeling (SEM) procedure. In the model, there are five observed variables (SL1, SL2, SL3, SL4, and SL5) representing the serious leisure latent variable (SL), three observed variables (RS1, RS2, and RS3) representing the recreation specialization latent variable (RS), and three observed variables (PA1, PA2, and PA3) representing the place attachment latent variables (PA). These observed variables were computed from the averaged scores of remaining items from the prior instrument testing.

In the structural equation modeling (SEM), the measurement model needed to be examined first (Kline, 2005). The results showed that the majority of the goodness-of-fit indexes matched the criteria, such as CMINDF (2.72<3.00), GFI (0.92>0.90), RMR (0.05<0.08), SRMSR (0.05<0.08), RMSEA (0.08), and CFI (0.92>0.90), whereas chi-square p-value (<0.01) and NFI (0.89<0.90) failed to match the requirement. In addition, in the modification index output, one MI (covariance between e1 and e3) is greater than 15, which means modification of the model is needed. The modification is to modify one parameter at a time in order to maintain the final model's likeness as close as possible to the original model (no observed variables lost). The original measurement model is denoted as M0, and the following modified measurement model is labeled as M1. The modified measurement model (M1), having covariance between SL1 and SL3. The fit indexes of M0 and M1 are reported in Table 16 (p.84). Under the final measurement

model (M1), all the standardized regression weights scored between 0.38 and 0.81 (<0.95); all observed variables' error are positive, and all standard errors are between 0.09 and 0.11 (<1.00). The Maradia's coefficient of 31.88 is smaller than 132 (=11×12, 11 is the number of observed variables) which shows the model reached the multivariate normality assumption (Bollen, 1989). Because the measurement model is good fit within the data, the second step of SEM, structural model, can be tested.

Table 16 The Fit Indexes of the Original and Modified Measurement Model

Model No.	M0	M1
Modified Item	-	e1<->e3
MI	-	17.65
X^2 (CMIN)	p<0.01	p<0.01
X^2/d.f. (CMINDF)	2.72	2.23*
GIF	0.92*	0.94*
RMR	0.05*	0.04*
SRMSR	0.05*	0.04*
RMSEA	0.08	0.07*
NFI	0.89	0.91*
CFI	0.92*	0.95*

Note: * means the index reaches the fit criteria

Within the structural model, the fit indexes indicated that the structural model is considered as an acceptable fit. The majority of the fit statistics matched the requirement: CMINDF (2.55 <3.00), GFI (0.93>0.90), RMR (0.04<0.08), SRMSR (0.04<0.08), and CFI (0.94<0.90). In addition, both NFI (=0.90) and RMSEA (=0.08) are at the cut points which indicated that the model was an acceptable fit (Hu & Bentler, 1999). However, the

structural model's chi-square p-value (CMIN) is less than 0.05 which indicates that the model is not a good fit. As maintained in the previous section, the chi-square alone is not appropriate for evaluation of a good model fit, because chi-square (p-value) is strongly sensitive and unstable when the sample size is large (Jöreskog & Sörbom, 1993). As a result, the overall final model has a better fit than the original model and is considered as an acceptable model fit. The standardized parameter of the structural model is provided in Figure 10 on page 86.

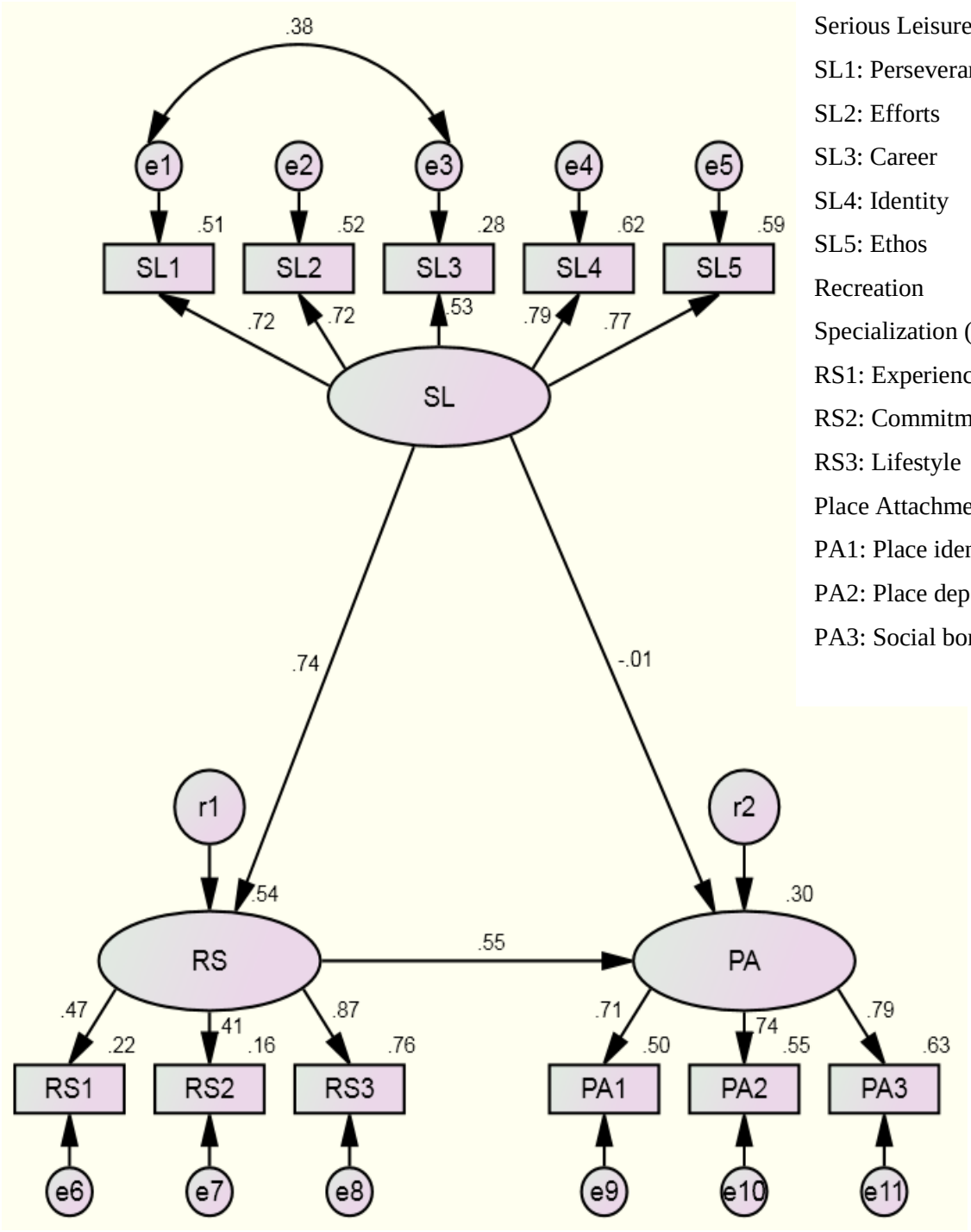


Figure 10 The Final Modified Structural Model of the Relationship among Serious Leisure, Recreation Specialization, and Place Attachment.

Note: latent variables: SL (serious leisure), RS (recreation specialization), PA (place attachment); observed variables: SL1 (perseverance), SL2 (efforts), SL3 (career), SL4 (identity), SL5 (ethos), RS1 (experience), RS2 (commitment), RS3 (lifestyle), PA1 (place identity), PA2 (place dependence), PA3 (social bonding); e1 to e11 represent the error terms of observed variables, r1 and r2 represent the errors of latent variables.

Under the construct of the modified model, after modifying the covariance between perseverance and career dimension (e1 & e3), serious leisure (SL, latent variable) has moderate to strong loadings on all five observed variables (SL1, SL2, SL3, SL4, and SL5), all of which ranged from 0.53 to 0.79. The identity of the serious leisure dimension represents the highest relationship within the participants' systematic leisure pursuit. The covariance between perseverance (SL1, e1) and career development (SL3, e3) is significantly and positively correlated (0.38). Recreation specialization (RS, latent variable) has the strongest direct relationship with the lifestyle (RS3, β=0.87) and less direct impact on past experience (RS1, β=0.47) and commitment (RS2, β=0.41) observed variables. Place attachment (PA, latent variable) has 0.71, 0.74, and 0.79 regression weights on the three observed variables (PA1, PA2, and PA3).

After modifying the covariance between e1 and e3, the direct impact from serious leisure to recreation specialization is 0.74 ($p<0.05$) and squared multiple correlation is 0.54, which is the total effect on recreation specialization. Recreation specialization also has direct impact on place attachment and its regression weight is 0.55 ($p<0.05$). Through recreation specialization, serious leisure has an indirect impact on place attachment ($0.74\times0.55=0.41$, $p<0.05$), while the direct impact of serious leisure to place attachment is not statistically significant (SL->PA: $\beta=-0.01$, $p=0.96>0.05$). Recreation specialization, in this model, creates an indirect impact between serious leisure and place attachment. Table 17 on page 88 shows the direct effect, indirect effect, and covariance of the final modified model.

Table 17 The Direct Effects, Indirect Effects, and Covariance of the Final Modified Model

Direct Effect				
	Regression Weights		Error	R^2
Serious Leisure	SL -> SL1	0.72*	0.21	0.51
	SL -> SL2	0.72*	0.25	0.52
	SL -> SL3	0.53*	0.27	0.28
	SL -> SL4	0.79*	0.27	0.62
	SL -> SL5	0.77*	0.26	0.59
Recreation Special	RS -> RS1	0.47*	0.13	0.22
	RS -> RS2	0.41*	0.10	0.16
	RS -> RS3	0.87*	0.21	0.76
Place attachment	PA -> PA1	0.71*	0.22	0.50
	PA -> PA2	0.74*	0.25	0.55
	PA -> PA3	0.79*	0.24	0.63
SL -> RS		0.75*	0.19	0.54
RS -> PA		0.55*	0.12	0.30
SL -> PA		-0.01	0.17	0.00
Indirect effect and covariance				
SL -> RS -> PA		0.41*		
e1<-> e3		0.38*		

Note: * means that the effect is significant at the p<0.05 level, two-tailed.

Path Analysis of the Observed Variables

Path analysis is applied to investigate the relationship between observed variables (Stevens, 2009). The researcher examined the associations among the dimensions of

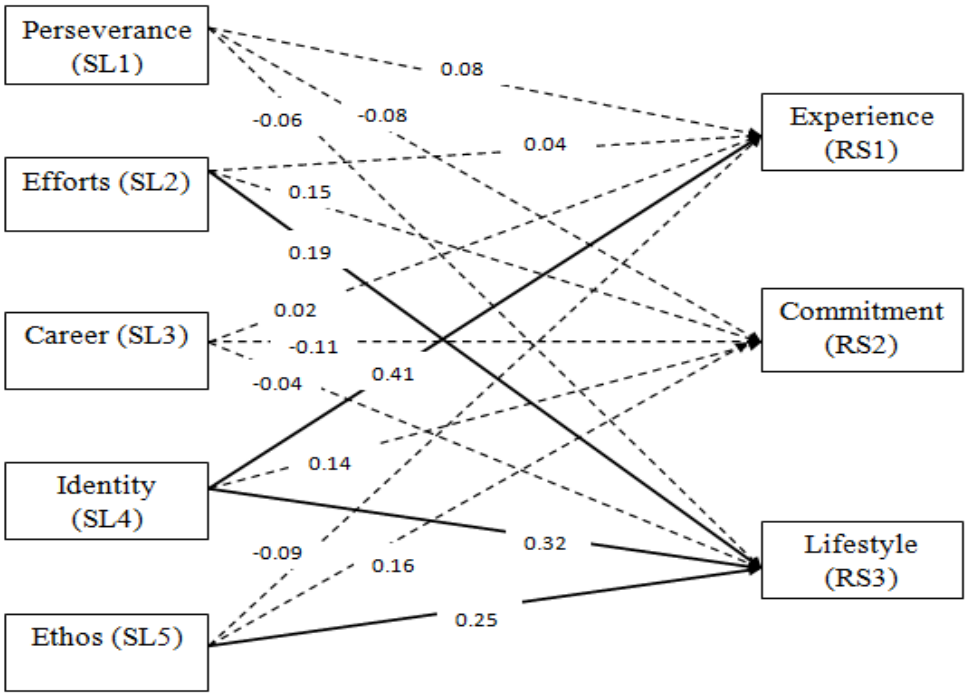
serious leisure, recreation specialization, and place attachment, path analysis using the regression program in SPSS 19. There are five serious leisure observed variables: SL1 (perseverance), SL2 (efforts), SL3 (career), SL4 (identity), and SL5 (unique ethos), three recreation specialization observed variables: RS1 (experience), RS2 (commitment), and RS3 (lifestyle), and three place attachment observed variables: PA1 (place identity), PA2 (place dependence), and PA3 (social bonding). This statistic process provides detailed information about how these observed variables influence each other and the direct relationships among. The following section reports the direct relation among these observed variables.

The dimensions between serious leisure and recreation specialization

The results show that although all the serious leisure dimensions (SL1, SL2, SL3, SL4, & SL5) contribute to the dimensions of recreation specialization (RS1, RS2, & RS3), there are four direct, positive, and statistically significant relationships that were supported in the study sample. The standardized coefficient beta weights and p-values between these pairs were reported as follows: (1) the efforts dimension of serious leisure (SL2) has positive and significant impact on the lifestyle dimension of recreation specialization (RS3), and its beta weight is 0.19 ($p=0.01<0.05$); (2) the identity dimension of serious leisure (SL4) has positive and significant influence on the past experience (RS1) and lifestyle (RS3) of recreation specialization, and their standardized coefficient beta are 0.41 ($p<0.05$) and 0.32 ($p<0.05$) respectively; and (3) the unique ethos dimensions of serious leisure (SL5) has positive and significant impact on the lifestyle (RS3) in recreation specialization, and its beta weight is 0.25 ($p<0.05$).

In other words, the perseverance (SL1) and career development (SL3) dimensions do not have statistically significant contribution on any recreation specialization dimensions. An illustration of the relationship between the dimensions of serious leisure and recreation specialization is in Figure 11. The solid lines indicate the positive and significant impact among serious leisure and recreation dimensions and the dotted lines represent other non-significant impact.

Figure 11 The Standardized Coefficient Beta Weight between Serious Leisure and Recreation Specialization Dimensions

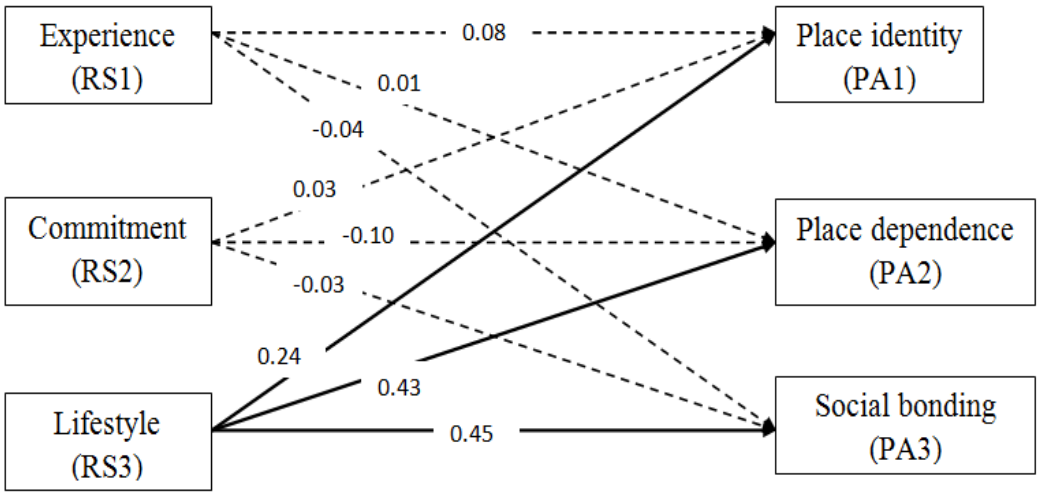


The dimensions between recreation specialization and place attachment

Figure 12 (p. 91) shows the relationship among recreation specialization dimensions (RS1, RS2, & RS3) and place attachment dimensions (PA1, PA2, & PA3). The solid lines indicate the positive and significant impacts and the dotted lines represent other non-significant impacts. The lifestyle of recreation specialization (RS3) provided a

positive and significant direct impact on all three place attachment dimensions: place identity (PL1), place dependence (PL2), and social bonding (PL3). Their standardized coefficients are 0.24 ($p<0.05$), 0.43 ($p<0.05$), and 0.45 ($p<0.05$) respectively which indicates that the participants' lifestyle is strongly associated with their emotional attachment to the place. On the other hand, the other two dimensions of recreation specialization, experience (RS1) and commitment (RS2), contributed minor and non-significant influences on the three place attachment dimensions.

Figure 12 The Standardized Coefficient Beta Weight between Recreation Specialization and Place Attachment Dimensions

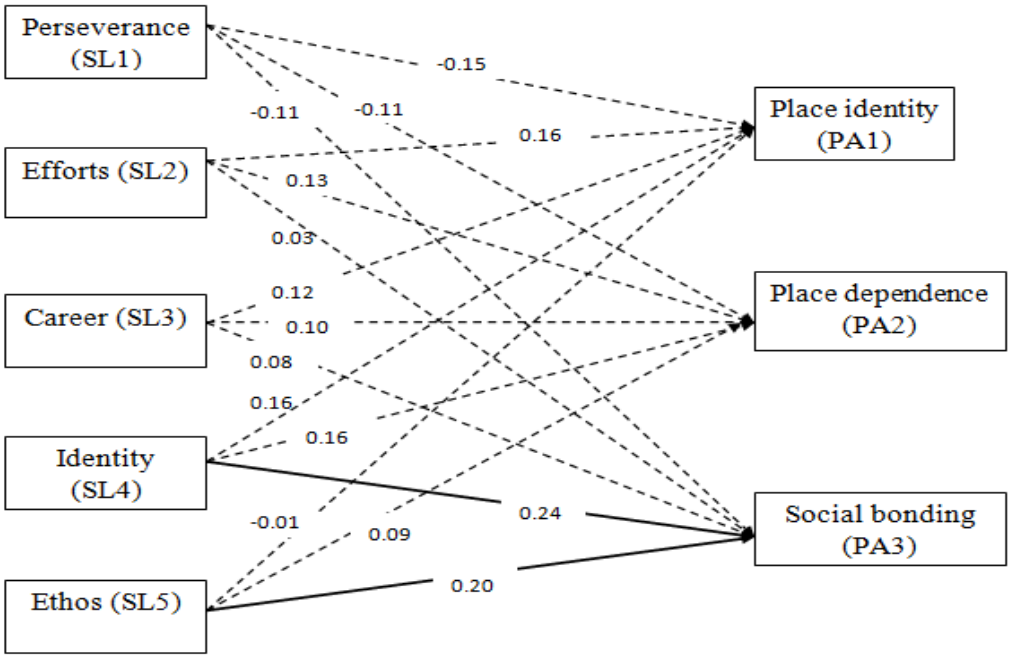


The dimensions between serious leisure and place attachment

In this investigation, the researcher focused on two sets of observed variables: five serious leisure observed variables (SL1, SL2, SL3, SL4 & SL5) and three place attachment observed variables (PA1, PA2 &PA3). The solid lines show the positive and significant impacts and the dotted lines show other non-significant impacts. As can be seen in Figure 13 (p. 92), there are two statistically significant positive impacts associated

with serious leisure and place attachment dimensions. The standardized coefficient between identity (SL4) and social bonding (PA3) is 0.24 ($p<0.05$) and between ethos (SL5) and social bonding (PA3) is 0.20 ($p=0.02<0.05$). The other serious leisure dimensions provided minor and non-significant impacts on place attachment dimensions.

Figure 13 The Standardized Coefficient Beta Weight between Serious Leisure and Place Attachment Dimensions



Conclusions Based on the Findings

H1: Amateur athletes' systematic pursuit (serious leisure) is positively related to their level of recreation specialization.

In the final structural model, after modifying the covariance between e1 and e3, the direct relationship from serious leisure to recreation specialization is 0.74, which shows they are positively and significantly ($p<0.05$) related. Therefore, researcher fails to reject the first hypothesis of this research study (H1).

H2: Amateur athletes' systematic pursuit (serious leisure) has an indirect positive influence on their place attachment through their recreation specialization.

Through recreation specialization, the indirect relationship between serious leisure and place attachment is 0.41 ($p<0.05$) which is larger than the direct impact from serious leisure to place attachment ($\beta=-0.01$, $p=0.96>0.05$). Therefore, the researcher fails to reject the second hypothesis of this study (H2).

H3: Amateur athletes' systematic pursuit (serious leisure) is positively related to their place attachment.

Within this model, the direct relationship between serious leisure and place attachment ($\beta= -0.01$, $p=0.96>0.05$) is close to zero, which means there is no statistical evidence to state the two are significantly related. Therefore, the researcher rejects the third hypothesis (H3) and postulates that amateur athletes' serious leisure and place attachment has no relationship in the data.

H4: There is a significant relationship between amateur athletes' serious leisure and recreation specialization characteristics (dimensions).

The result shows that there are four direct, positive, and significant relationships between serious leisure and recreation specialization dimensions: efforts (SL2) and lifestyle (RS3); identity (SL4) and experience (RS1); identify (SL4) and lifestyle (RS3); and unique ethos (SL5) and lifestyle (RS3). All of the beta weights of these four significant relations ranged from 0.19 to 0.41. The researcher fails to reject the fourth hypothesis (H4) because there are four significantly direct and positive impacts between amateur athletes' serious leisure and recreation specialization dimensions. All other

dimensions of serious leisure did not provide a statistical significant contribution to recreation specialization.

H5: There is a significant relationship between amateur athletes' recreation specialization and place attachment characteristics (dimensions).

The lifestyle of recreation specialization (RS3) provided positive and significant direct impacts on all three place attachment dimensions: place identity (PL1), place dependence (PL2), and social bonding (PL3). The standardized coefficients ranged between 0.24 and 0.45 ($p<0.05$) which indicated that participants' lifestyle is strongly associated with their emotional attachment to the place. Yet, the other two dimensions of recreation specialization have a minor impact on participants' place attachment. Therefore, the researcher fails to reject the fifth hypothesis (H5).

H6: There is a significant relationship between amateur athletes' serious leisure and place attachment characteristics (dimensions).

There are two statistically significant positive impacts associated with serious leisure and place attachment dimensions: identity (SL4) and social bonding (PA3); and ethos (SL5) and social bonding (PA3). Their standardized coefficients are 0.20 ($p=0.02<0.05$) and 0.24 ($p<0.05$). Yet, the other serious leisure dimensions provided minor and non-significant impacts on place attachment dimensions. Therefore, the researcher fails to reject the sixth hypothesis (H6).

CHAPTER V

CONCLUSION

Introduction

This chapter is a summary of the findings reported in Chapter 4 and is divided into four sections, including the discussion of research findings, limitations of the study, and implications and recommendations for future studies. First, the research findings are summarized briefly and prior studies associated with this study are discussed for comparing with the study findings. The second section indicates how the result of the study can be grouped into the future development of related theories and studies. Third, the limitations of the study are discussed. Finally, recommendations for future research are discussed.

Discussion of Research Findings

The purpose of this study was to investigate how amateur athletes' systematic leisure pursuit and recreation specialization vary according to their attachment to a specific place. The discussion of the research findings is divided into two sections which were related to the two major objectives referred in Chapter 1. The first section is associated with the first objective of the study: to investigate the amateur athletes' serious leisure, recreation specialization, and place attachment by examining the structural model. The second

section is associated with the second objective of the study. The second objective is to compare amateur athletes' serious leisure characteristics (dimensions) between serious leisure and recreation specialization, between recreation specialization and place attachment, and between serious leisure and place attachment. Within the research framework, the first, second, and third hypotheses (H1, H2, & H3) are discussed in the first section of the research findings, and the fourth, fifth, and sixth hypotheses (H4, H5, & H6) are covered in the second section.

Relationships among serious leisure, recreation specialization, and place attachment

Although the original model was not considered as a good model fit, after modifying the relationship between perseverance (SL1, e1) and career (SL3, e3) while holding other sectors constant, all the model fit indexes reached the criteria of all fit statistics, except the p-value of CMIN ($p<0.05$). Theoretically, both perseverance and career development of serious leisure participants are associated with a long-team time engagement in the recreation activity and substantial commitment to their pursuit (Kim, Dattilo, & Heo, 2011). Perseverance supports leisure participants to overcome psychological and physical difficulties during their experiences, such as anxiety, embarrassment, and physical dangers (Stebbins, 2011). The career quality in serious leisure is a long-term development with special turning points or stages of involvement and personal commitment (Stebbins, 1992 & 2005). In other words, individuals who are serious with their leisure pursuit may not only have higher possibility to develop their career in their leisure but also be willing to overcome the difficulties on their way of pursuing leisure.

Research in serious leisure has shown that different activities, sports, and types of participants may vary in different theoretical constructions (Hastings, Kurth, Schloder, & Cyr, 1995; Stebbins, 1992). The study included 18 items and five sub-dimensions from Serious Leisure Inventory and Measurement (SLIM), and the findings show that the model fit of the serious leisure instrument for softball and volleyball players was composed of 12 items within the five sub-dimensions, maintaining the same as Stebbins' serious leisure characteristics: perseverance, significant efforts, career development, strong identity, and unique ethos (Gould et al., 2008).

Within the final model, the research failed to reject H2 which indicates that the recreation specialization could be used as a factor between serious leisure and place attachment for understanding the possible relationship between participants' systematic pursuit and their attachment to a place. To be clear, the H2 is composed of two directional relationships including a positive and significant relationship between serious leisure and recreation specialization and specialization and place attachment. Because of the significant and positive combination of the two relationships, the indirect relationship between serious leisure and place attachment is 0.41. The current study reveals that through the development of specialization in their leisure pursuit, the participant embraced their experience, commitment, and lifestyle to facilitate their personal connection with the place, even through the direct relationship between leisure involvement and place attachment did not exist in the data set.

In terms of recreation specialization, Tsaur and Liang (2008) employed McFarlane's recreation specialization instrument originally for testing level of specialization for bird watchers. They found that the three major dimensions: experience,

commitment, and lifestyle, which were determined the same as those in McFarlane's original design, while the items within these dimensions must be altered due to the different activities. Similarly, the findings of this study also support that the instrument is a good fit model with appropriate reliability and validity under the three sub-scales' construct. However, since the target population was varied, the items within the sub-dimensions were slightly different. Hailu et al. (2005) noted that the past experience varied participants' leisure involvement. This current study further explains that under the experience dimension, amateur athletes' perceived skills and their knowledge of the activity are better representative indicators than their years of involvement and weekly frequency of play in community-based recreation.

In the study, the amateur athletes' systematic leisure pursuit is not statistically related to their attachment to the place (H3). Similarly, Kyle, Absher et al. (2003) have argued that the theoretical assumption that higher involvement tends to lead to a stronger attachment to recreation settings might be superficial and misleading. They concluded that the result of trail users provides a limited explanation as to how leisure involvement and place attachment were related. Although their sample was different from this study, the findings in these studies acquired a similar result: the recreational participants' involvement may not directly relate to their emotional tie to the place for their recreation experience.

Through prior research discussion and the researcher's personal observation, there are several possible explanations as to explain why the relationship between serious leisure and place attachment were not determined to be statistically significant. First, the participants may have other options to substitute for the recreation place (Kyle, Absher et

al., 2003). In other words, when participants have other preferred places for playing softball or volleyball, they may lack the attachment to the place and gain less emotional bond to the designated place. Second, the community recreation facilities, such as the softball field and volleyball courts, usually need to match certain standards; therefore, the place or field may not be as important as the activity itself or social interaction with others. In other words, as far as the place provides a standardized service, the participants might not be focused on the place they play and then create less emotional attachment to it.

Third, although many considerations of the physical environment in people's leisure behavior have been discussed, the major issue is that the freedom to choose a special leisure setting may not be the same as the freedom to choose a personal leisure pursuit; therefore, the option of recreation settings may be limited and people may not have perceived freedom selecting the settings (Kyle, Bricker, Graefe, & Wickham, 2004). Kyle, Bricker, et al. (2004) further indicated that the threat of freedom in use of a particular resource, such as operation time and limited access, might result in a limited connection with a place. Therefore, the researcher argues that the amateur athletes may not consider place as the key element of their leisure but may view the activity selection and use of time as the major factors of their freely chosen leisure involvement. For example, during the data collection process, a few research participants commented that the softball fields were the only standardized facilities in town so that if they want to play softball as a full team, the field was the only option. In this case, due to the lack of perceived freedom on the setting selection, the leisure setting may not be a significant element within the context of their leisure experience.

Finally, the final structural model of the study had limited variables associated with place attachment so the factor that might cause a direct impact on place attachment remains unclear. As with previous studies, there are several factors which have been discussed. For instance, Williams and Vaske (2003) suggested the social and demographic variables, such as age, sex, and willingness to pay for recreation, might be expected to be correlated with place attachment. Both Kyle, Mowan, and Tarrant (2004) and Morgan (2010) noted that individuals' motivation is an essential factor to drive them to the point of having an emotional bonding with a place. Hwang, Lee, and Chen (2003) mentioned that the satisfaction of the recreation involvement was also associated with the recreationalists' attachment to the place. Anderson and Fulton (2008) indicated that individuals' recreation preference, such as personality, activity constraints, and social norms, were related to their place attachment. To sum up, some influential variables, discussed above, had been left out from the current study for investigating the relationship between serious leisure and place attachment, and further studies might be needed to determine whether or not there may be a direct relationship between leisure involvement and place attachment and to examine which factors might have significant impact on individuals' bonding to a place.

Relationships among dimensions/observed variables

This section presents a discussion of the findings associated with the second objective: to compare dimensions between serious leisure and recreation specialization (H4), between recreation specialization and place attachment (H5), and between serious leisure and place attachment (H6) for amateur athletes. In other words, the three

hypotheses focused on the relationship of paired observed variables rather than including all the three major factors.

The H4 stated that there is a significant relationship between amateur athletes' serious leisure and recreation specialization characteristics (dimensions); this hypothesis is supported by examining the relationship between the dimensions of serious leisure and recreation specialization. The result shows that a strong identity of an amateur athletes' leisure pursuit is a significant predictor which is statistically related to participants' experience and lifestyle in recreation specialization. The unique ethos dimension of these amateur athletes also creates a direct effect on the lifestyle dimensions of recreation specialization. Moreover, the effort required in the serious leisure dimension is another statistically influential predictor to the lifestyle dimension in recreation specialization. In the study, the researcher argues that the recreationists' lifestyle is strongly influenced by the serious leisure characteristic. Similarly, Tsaur and Liang (2008) concluded that the lifestyle dimension in recreation specialization is strongly influenced by the seriousness of birdwatchers.

Some prior studies mentioned a possible relationship between serious leisure and recreation specialization. For example, by using confirmatory factor analysis, McFarlane (1994) and Lee and Scott (2004) found that the past experience dimension had the highest correlation with the level of specialization. The study further approves that the amateur athletes' leisure identity is the best indicator for understanding their experience of the activity. Moreover, by using path analysis, this current study argues that none of the serious leisure observed variables had direct impact on the economic commitment which supports Tsaur and Liang' conclusion that economic commitment was the weakest

indicator for the amateur athletes' level of specialization. A possible explanation about the weakness between economic commitment and recreation specialization is that beginners or newcomers may purchase high-priced equipment to make a fashion statement, but more experienced participants may carry their already-owned-equipment over time (Bryan, 1977; N. McIntyre & Pigram, 1992). In other words, the serious characteristics of leisure pursuit may not be the best indicator representing economic commitment. In addition, from the researcher's observation and conversations with research participants, another possible explanation is that these amateur players shared their equipment with their teammates, such as softball bats or gloves, or they did not view these sport wear or shoes as a purchase specifically for their leisure activities but for a more general purpose. Therefore, the researcher argues that the community-based amateur athletes may not have to spend a large amount of money buying equipment or gear for the activity, and the economic commitment results in the weakest relationship in the framework between serious leisure and recreation specialization.

In the study, the identification and the unique ethos of serious leisure are two of the strongest indicators reflecting the amateur athletes' serious leisure qualities on their level of specialization. Green and Jones (2005) noted that social identity and unique ethos are key elements for both active and passive sport tourism participants, and a strong identity and subculture results from seriousness participation. Tsaur and Liang (2008) also indicated that serious leisure participants tended to develop their own subculture composed of special beliefs, values, and performance standards which assists in distinguishing them from other groups. Moreover, several studies for Taekwondo amateurs mentioned that the activity itself was an essential approach to assist participants

in understanding the culture, philosophy, and acquired performance and techniques and to lead the development of a special social world and provision of social work (Kim, Dattilo, & Heo, 2011; C. Lee, Kim, & Song, 2005).

The results supported H5: there is a significant relationship between amateur athletes' recreation specialization and place attachment characteristics (dimensions). The lifestyle dimension of recreation specialization provides positive and significant direct impacts on all three place attachment dimensions: place identity, place dependence, and social bonding, but other dimensions in specialization did not create a statistically significant relationship with any place attachment dimension. Therefore, the researcher concludes that the amateur athletes' lifestyle is the strongest indicator associated with their emotional attachment to the place.

Looking at the analysis closely, in this current study lifestyle is the best predictor to understand what a place really means to recreationists. An exploratory study for investigation of the relationship between level of specialization and place attachment by Bricker and Kerstetter (2000) indicated that the lifestyle of specialization provided a deep sense of attachment and connected a place to an individual's life. They concluded that people with higher levels of recreation specialization were more likely to value the importance of place identity than low and medium level recreation specialists, whereas place dependence does not have significant impact on any level of whitewater recreationist. In other words, their result implied that the level of skill, investment, and experience were associated with their emotional bond with the place; however, in the current study, the recreationists' experience and commitment (investment) were not

directly related to the place attachment. It is possible that recreationists' emotional bonds varied within different activities and environments (Kyle, Bricker, et al., 2004).

The sample in this study was collected within a community-based recreation program, and 75% of the research participants lived within a 10 mile distance and were residents in the City of Stillwater. Therefore, the recreationists in the study may have considered sport participation in the community as part of their healthy and active lifestyle (Vail, 2007). In addition, the purpose of the adult program in the City of Stillwater is to provide an opportunity for adults who are interested in recreation, socialization, and physical fitness to enhance their skill level and have fun within competitive games. In the study, the amateur athletes did not consider skill improvement as the major goal of their participation, even it is one of the purposes of the program (City of Stillwater, 2011). As a result, within this data set, comparing to lifestyle dimension, the level of skill and investment of their leisure pursuit showed to be relatively limited as predictors of the relationship with the tie to the place.

The finding in this study supported H6: there is a significant relationship between amateur athletes' serious leisure and place attachment characteristics (dimensions). Two positive and significant impacts were found: between serious leisure identity and social bonding of the place and between serious unique ethos and social bonding of the place. Theoretically, the social bonding of place attachment and the identity and unique ethos of serious leisure are closely associated with a connection with something else, including people and environment. For example, the idea of social bonding in place attachment framework is to explain that when individuals experience meaningful social interaction in recreation settings, the settings are considered as part of personal experience and share

meanings and memories with individuals (Kyle, Bricker, et al., 2004). Identity of serious participants in leisure permits the participants to distinguish themselves with other people and serves to enhance their personal expression to other people (Green & Jones, 2005; Kane & Zink, 2004). Moreover, unique ethos in serious leisure concept means that these amateur athletes shared similar attitudes, beliefs, values, and goals within their leisure social world but other outsiders may not understand the sub-culture or ethos (Heo, Lee, Pedersen, & McCormick, 2010; Stebbins, 2006). As a result, the study concludes that the identity and unique ethos of serious leisure are the best predictors representing the meaningful social relationship which facilitate the participants' attachment to a place. Although the isolated investigation of the dimensions between serious leisure and place attachment identified some significant relationships, the relationships were relatively weak in the structural model which is estimating all the relationships among all the variables (Stevens, 2009).

Implication of Future Studies

The confirmatory factor analysis of the instrument model of serious leisure, recreation specialization, and place attachment provides solid evidence for supporting the frameworks of these existing measurements, but minor modification of items might be needed. First, the characteristics of serious amateur athletes in the study maintained a good fit within the five sub-dimensions of serious leisure: perseverance, efforts, career, identification, and unique ethos, excluded the benefits or outcome dimensions (Gould et al., 2011; Gould et al., 2008; Kim et al., 2011). Second, the study supports the premise that recreation specialization is composed of three major dimensions: experience, commitment, and lifestyle which is consistent with McFarlane's design (1994), while the

items within these dimensions might be different due to the nature of different activities. Similarly, Tsaur and Liang (2008) indicated that because the pattern of recreationalists' specialization is varied related to the activity itself, the instrument modification is essential for a specific activity. Third, in terms of the place attachment instrument of the study, the study reveals the place attachment was composed of place attachment, place dependence, and social bonding (Kyle et al., 2005). The results of the study confirms that place attachment is as a multidimensional construct and social bonding should be viewed as an individual dimension representing the relationship between people and place (Kyle, Bricker, et al., 2004; Kyle & Chick, 2007). .

Within the final structural model, the results show the relationship among serious leisure, recreation specialization, and place attachment for amateur athletes. The amateur athletes' systematic leisure pursuit is significantly and positively related to recreation specialization. Recreation specialization results in an indirect and positive relationship between serious leisure and place attachment, whereas the direct relationship between serious leisure and place attachment is not determined. The results suggest that although the amateur athletes' systematic leisure pursuits did not directly influence their attachment to the place where their leisure occurred, the experience, commitment, and lifestyle of their specialization would enhance the relationship between serious leisure and recreation specialization. However, theoretically, many researchers have indicated the possible relationship between the leisure involvement and place attachment (Bricker & Kerstetter, 2000; Henderson & Frelke, 2000; P. Morgan, 2010). The study argued that the general perceived leisure pursuit of an individual may have limited evidence to create an attachment to a place, whereas when individuals' recreational behavior occurs at a

particular place, participants might be more likely to create a connection between their personal leisure experience and attachment to the place. Therefore, in order to have a better understanding of place attachment and individuals' leisure experience, participants' actual leisure behavior associated with the place, such as the years of using the place and the distance from their home to the place.

Practically, the study also provided an understanding of how amateur athletes' develop a relationship between their level of recreational specialization and the attachment to recreation settings. Regardless whether or not individuals' leisure involvement has a direct impact on the emotional bonding to the place, the recreation and leisure professional would acknowledge that the systematic pursuit could be one of the predictors of place attachment (Kyle, Absher, et al., 2003). Even though the results of the study did not support the direct relationship between serious leisure and place attachment, the participants' recreation specialization is considered as a factor which is able to enhance a relationship between serious leisure and place attachment. In other words, through understanding participants' behavioral development of specialization, such as lifestyle, park and recreation agency managers might be better able to recognize participants' perception of community-based recreation, design recreational plan, and consistently maintain the quality of recreation settings (Kyle, Bricker, et al., 2004). Therefore these serious leisure participants could keep pursuing their personal interests within their community or nearby area (Bricker & Kerstetter, 2000; Kyle, Absher, et al., 2003; Stebbins, 2006).

Based on the results and conclusion of the study, some suggestions for community based sports program on how to increase amateur athletes' place attachment

and how to provide a better program for players with different level of specialization in the City of Stillwater or other similar programs can be proposed.

(1) Recognizing the characteristics of adult sport program participants: the six qualities of serious leisure characterized the amateur athletes' attribution of systematic leisure pursuit. They were persistent and viewed leisure as a career development and progress. They shared similar ideas and values with their teammates and strongly identify themselves as softball or volleyball amateur players. In other word, these amateur athletes did not consider leisure as just a fun or unimportant aspect of their life but a long-term commitment and involvement. Therefore, the adult sport program is an essential program for amateur athletes in the community.

(2) Emphasizing amateur athletes' place attachment through social interaction: as a team sports, such as softball or volleyball, social interaction is the natural focus of the activities. The socialization aspect also forms amateurs to connect with and attach to the place. If recreation providers could offer special projects/events at the fields or courts, besides regular play, amateur athletes would have more opportunities interacting with teammates, friends, family, or other people in the community which might create personal memories and enhance their attachment to the place as well.

(3) Improving the quality of the program and the fields/courts: the amateur athletes' lifestyle is closely related to their level of specialization and place attachment. Therefore, the agency should use the program as an approach to develop a healthy and active lifestyle in the community and provide a more flexible schedule for amateur athletes practicing or playing at these public recreation settings. Furthermore, the agency

could cooperate with health agencies or organizations related or other local sports for improving the scope of the service in the community.

Limitations of the Study

The data collected in this current study have several limitations. First, due to the scheduled game time, some participants responded to the survey before the game and some responded after the game. Therefore, it is possible that the outcome of the game (win or loss) would influence whether players decided to respond to the survey or may have influenced their answers on the survey. Second, the sample was collected by convenient and stratified sampling. Even though the sample was selected across various league groups, such as coed, men's, and senior leagues, a limitation of the study is that the sample relied on a single regional and seasonal sport program in the City of Stillwater, Oklahoma, in which the finding may be limited due to the geographic limitation. Third, theoretically, random selection is the best sampling approach for employing structural equation modeling (Reisinger & Mavondo, 2007), while the sample in the study was not drawn through a random sampling approach. Finally, the participants of the study finished their survey on-site (outdoor environment) and some game nights were chilly and windy, therefore, the weather and environment condition may have impacted their interests in participating and the consistency of the response.

Recommendations for Future Research

The first recommendation for future research is related to the limitations of the current study. As mentioned in the previous section, by applying structural equation modeling, using random sampling results in a less systematic error and bias data set

(Reisinger & Mavondo, 2007).Therefore, within a community-based recreation setting, researchers may cooperate with the local parks and recreation department and have the program participants' e-mail list. Researchers could select the possible survey participants by a systematic sampling approach and accomplish the survey on-line. To do so, the study participants not only will be less influenced by the on-site environment condition, but also avoid the on-site sample bias referring to low variance and high score on their response, which might distort the validity and reliability of the findings (Williams & Vaske, 2003). As a result, the researcher suggests that future research should be done by random selection and an off-site survey which may increase the possibility generalizing the findings.

While previous research has considered leisure involvement as an indicator to place attachment (Bricker & Kerstetter, 2000; Moore & Graefe, 1994), the relationship between serious leisure and place attachment in the study is not statistically significant. Therefore, further research is needed to investigate the relationship between amateur athletes' leisure experience and their place attachment by conducting in-depth or focus group interviews. To do so, researchers might understand why amateur athletes lack attachment to the place where they enjoy their personal recreation interests or what the positive or negative connections between the place and the players are. In addition, some other factors related to individuals' emotional bonding of a special place, such as individuals' motivation (Kyle, Mowen, et al., 2004), demographic information (Williams & Vaske, 2003), or recreation preference (Anderson & Fulton, 2008), might need to be included in future study in order to discover a possible relationship between individuals' leisure experience and place attachment.

Future researchers need to improve or redesign the instrument for measuring the amateur athletes' level of specialization. Comparing to the serious leisure and place attachment instrument, the recreation specialization instrument was relatively less stable and reliable in the study. For example, the serious leisure instrument was designed to apply to different activities easily and the place attachment instrument has been used in various physical settings, but the recreation specialization instrument was originally and specifically used for measuring bird watchers' level of specialization. Because of the natural differences between individual outdoor recreation activities (e.g. bird watching, hiking) and recreation sports (e.g. softball, volleyball), it is necessary to review the theoretical concept and the characteristics of sports and develop a recreation specialization instrument for sport-oriented recreation activities. To do so, the possible sport-oriented specialization instrument would help practitioners to understand their program participants' level of specialization and create better programs for participants with different skill and experience level.

Finally, there are two suggestions for future study using confirmatory factor analysis (CFA) or structural equation modeling (SEM) approach: (1) using 7-Likert or 9-Likert scale instead of 5-Likert scale would ensure respondents had more options and have a wider range to express the possible variability (Gould et al., 2008); (2) using closed-ended questions for all items would avoid extreme outliers and un-normal distribution data, because multivariate statistics, such as CFA and SEM, are extremely sensitive about the violation of normality.

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APPENDICES

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Appendix A: The Official Permission for Conducting the Survey

CITY OF stillwater
Parks & Recreation

September 23, 2011

To Whom it May Concern:

Stella Liu has permission from the City of Stillwater Parks and Recreation Department to conduct research concerning adult sports programs. This may include conducting surveys at game sights and contacting team managers and players.

If you have any further questions please feel free to contact me at 533-3509. Thank you.

Sincerely,

Barbara Bliss
Adults Sports Supervisor
City of Stillwater Parks and Recreation
315 E. 9th Street
Stillwater, Ok 74074
(405) 533-3509
bbliss@stillwater.org

Appendix B: The E-mail Notice of the Study for Program Supervisor

To: Barbara Bliss

Title: Please forward the study information to team managers and coaches

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Dear Barbara,

Thank you for your help to my research and please forward the study information to team managers and coaches of softball and volleyball.

Stella

Dear Team Manager and Coach:

We know you love sports. Now, I want to investigate how much your sports means to you in your leisure and in your life. I am Hung-Ling (Stella) Liu, a doctoral student in Leisure Studies at Oklahoma State University. Between October 10th and October 27th, I will be conducting an on-site survey of team members. Please encourage your team to take 15-20 minutes to complete this survey. The input from these amateur athletes is especially important for this study.
Thank you very much.

Stella Liu
Doctoral Student and Graduate Assistant
Oklahoma State University, Leisure Studies

stella.liu@okstate.edu

Appendix C: On-site Survey Script

Principal researcher: Hung-Ling (Stella) Liu

Research assistants: Anne Coleman and Justin Nelsen

Hi, I am _____ a graduate student in Leisure Studies Program at Oklahoma State University. I am doing a research on amateur softball or volleyball athletes. Are you a softball or volleyball player of tonight's game?

- if no, "thank you and have a good day"
- if yes, " I am wondering if I could have 15 minutes of your time to participation the study.
    - if no, "thank you and have a good day"
    - if yes, " this study is to investigate the relationship among leisure involvement, recreation specialization, and place attachment. Here is the participant information sheet and please spend some time reading it. Your participation will provide a great contribution to operate and develop a better understanding of place-human relationship and the future sports program.
        - if no, "thank you and goodbye"
        - if yes, "please let me know, if you have any questions while you are responding the survey"
        - (When respondents return the survey) Please keep the information sheet and thank you for your cooperation and participation in the study.

Appendix D: The OSU IRB Document

Oklahoma State University Institutional Review Board

Date	Monday, October 10, 2011	Protocol Expires:	9/21/2012
IRB Application	ED11152		
Proposal Title:	The Relationship Among Serious Leisure, Recreation Specialization and Place Attachment of Amateur Athletes		
Reviewed and Processed as:	Exempt **Modification**		

Status Recommended by Reviewer(s) **Approved**

Principal Investigator(s) :

Hung-Ling Liu	Lowell Caneday
117 Colvin Center	180 Colvin Center
Stillwater, OK 74078	Stillwater, OK 74075

The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB

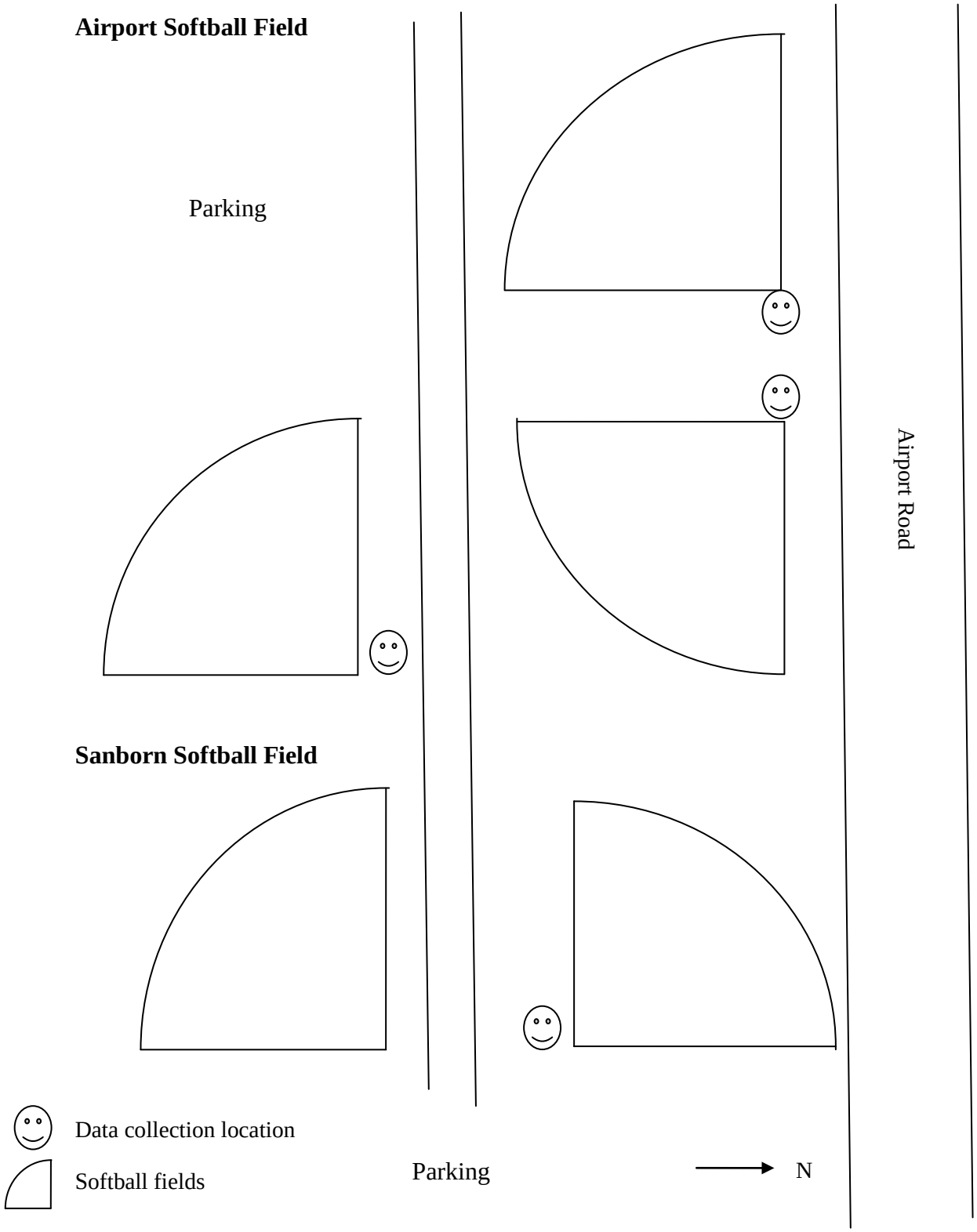
☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

Signature : Shelia H. Kennison

Shelia Kennison, Chair, OSU Institutional Review Board

Monday, October 10, 2011
Date

Appendix E: The Airport and Sanborn Softball Fields in Stillwater



Appendix F: The Armory Volleyball Courts at the Recreation Center in Stillwater

Appendix G-1: Softball Survey

The relationship among Serious Leisure, Recreation Specialization, and Place Attachment for Amateur Athletes

Participant Information Sheet

Principal investigator (PI): Hung-Ling (Stella) Liu, MEd, doctoral student in Leisure Studies, College of Education, Oklahoma State University (OSU, Stillwater)

Purpose: The main purpose of the study is to investigate how the systematic leisure pursuit (serious leisure) and leisure commitment (recreational specialization) vary with the relationship of people and a particular place (place attachment).

Risk of Participation: There is no apparent risk of physical or psychological harm.

Benefits: The result of this current study is to gain a deeper understanding of seriousness of leisure, level of specialization, and emotional bond in community-based recreation to improve the management of public land for recreation purpose.

Procedures: The entire survey, 10 to 18 items of four sections, will take approximately 15-20 minutes.

Confidentiality: (1) The survey is totally anonymous and do not include any identifiable information of participations; (2) The consent records and data file have been approved by the OSU IRB authority; (3) The paper-based record will be stored in a locked cabinet in principle investigator's office at OSU campus and destroyed after one year; (4) The electronic will be saved in a personal computer with password access only and destroyed after five years from accomplish the study.

Participant Rights: Participants voluntarily response the current survey. You are free to decline to response the survey and may stop or withdraw from your participation anytime. There is no penalty for withdrawing the participation.

Contacts: Please feel free to contact the researcher or the advisor, if you have any questions or concerns about this survey.

PI's Advisor: Lowell Caneday, 180 Colvin Center, OSU-Stillwater campus, 405-744-5033, lowell.caneday@okstate.edu	**Principal Investigator:** Hung-Ling (Stella) Liu, 180 Colvin Center, OSU-Stillwater campus, 405-744-5503, stella.liu@okstate.edu

If you have questions about your right as a research volunteer, you may contact the Oklahoma State University Institutional Review Board (IRB) Chair, Dr. Shelia Kennison, IRB Chair at 219 Cordell North, Stillwater, OK74075, 405-744-3377 or irb@okstate.edu

***By choosing to proceed, you are giving your consent to participate in this research.*

Serious Leisure

The purpose of this section, total 18 items, is to assess the level of your leisure involvement and systematic leisure pursuit in your daily life. Please answer these questions according to your general experience and feelings of your specialty activity. For each item, circle the degree of your agreement or disagreement with each statement. The scale is from 1 (Strongly Disagree) to 5 (Strongly Agree).

	Strongly Disagree	Moderately Disagree	Neutral	Moderately Agree	Strongly Agree
1. If I encounter obstacles in softball, I persist until I overcome them.	1	2	3	4	5
2. By persevering, I have overcome adversity in softball.	1	2	3	4	5
3. I overcome difficulties in softball by being persistent.	1	2	3	4	5
4. I try hard to become more competent in softball.	1	2	3	4	5
5. I practice to improve my skills in softball.	1	2	3	4	5
6. I am willing to exert considerable effort to be more proficient at softball.	1	2	3	4	5
7. I have improved at softball since I began participating.	1	2	3	4	5
8. Since I began softball, I have improved.	1	2	3	4	5
9. I feel that I have made progress in softball.	1	2	3	4	5
10. For me, there are certain softball related events that have influenced my softball involvement.	1	2	3	4	5
11. There are defining moments within softball that have significantly shaped my involvement in it.	1	2	3	4	5
12. There have been certain high or low points for me in softball that have defined how I became involved in softball.	1	2	3	4	5
13. I share many of the sentiments of my fellow softball devotees.	1	2	3	4	5
14. Other softball enthusiasts and I share many of the same ideals.	1	2	3	4	5
15. I share many of my softball group’s ideals.	1	2	3	4	5
16. Others that know me understand that softball is important to me.	1	2	3	4	5
17. I am often recognized as one devoted to softball.	1	2	3	4	5
18. Others recognize that I identify with softball.	1	2	3	4	5

Recreation Specialization

The purpose of this section, total 12 items, is to assess your level of specialization of the activity. First, please answer the first six questions according to your past experience and economic commitment.

1. How many years have you been involved in this leisure activity? _____ years

2. How many times do you play softball per week? _____ days

3. What is your perceived skill level in this recreation activity?

Casual Novice Intermediate Advanced

4. How much money did you spend on softball sportswear and supplies in the past year? _____ USD

5. How many softball bats do you have? _____ item(s)

6. How many softball gloves do you have? _____ item(s)

Secondly, please answer the following questions and circle the degree of your agreement or disagreement with each statement. The scale is 1 (Strongly Disagree) to 5 (Strongly Agree).

	Strongly Disagree	Moderately Disagree	Neutral	Moderately Agree	Strongly Agree
7. I have a very profound knowledge of softball techniques and rules.	1	2	3	4	5
8. I like to read magazines and books which are associated with softball.	1	2	3	4	5
9. I would rather play softball than do most anything else.	1	2	3	4	5
10. I enjoy discussing softball with my friends.	1	2	3	4	5
11. I organize my weekly schedule to "protect" my softball commitment.	1	2	3	4	5
12. I usually watch TV shows and events associated with my sports interest.	1	2	3	4	5

Place Attachment

The purpose of this section, total 12 items, is to assess your personal attachment to a particular physical location at which you pursue and enjoy your leisure time. Please answer these questions according to your general experience and feelings of your specialty activity. Circle the degree of your agreement or disagreement with each statement. The scale is from 1 (Strongly Disagree) to 5 (Strongly Agree).

	Strongly Disagree	Moderately Disagree	Neutral	Moderately Agree	Strongly Agree
1. The Airport/Sanborn fields mean a lot to me.	1	2	3	4	5
2. I really enjoy my time at the Airport/Sanborn fields.	1	2	3	4	5
3. I identify strongly with Airport/Sanborn fields as the place that I enjoy for softball.	1	2	3	4	5
4. I feel no commitment to Airport/Sanborn fields.	1	2	3	4	5
5. I enjoy playing at Airport/Sanborn fields more than any other field.	1	2	3	4	5
6. I get more satisfaction out of playing at Airport/Sanborn fields more than other fields.	1	2	3	4	5
7. Playing softball here is more important than playing on any other field.	1	2	3	4	5
8. I wouldn't substitute any other activity for the type of recreation I do at Airport/Sanborn field.	1	2	3	4	5
9. I have a lot of good memories about Airport/Sanborn field.	1	2	3	4	5
10. I have a special connection to Airport/Sanborn field and the people who play ball with me.	1	2	3	4	5
11. I do tell many people that I play softball at Airport/Sanborn field.	1	2	3	4	5
12. I will bring my family/friends to Airport/Sanborn field.	1	2	3	4	5

Demographic information

This section contains the basic demographic information of the respondent/participant. Please fill out in the blank or check the box which is representing you and your situation.

1. Gender: □ Male □ Female

2. Age: _____ years

3. Highest education achieved: □Junior High School □Senior High School □Junior College □Bachelor's Degree □Graduate School

4. Marital status: □Married □ Not Married

5. Monthly income: □$ 2,000 or less □ $2,001-$3,000 □ $3,001-$4,000 □$4,001-$5,001 □ $5,001-$6,000 □ $6,001-$7,000 □$7,001 or more

6. Ethnic group: □Caucasian □African-American □Hispanic □Asian □ Native American □Other_____

7. Resident in City of Stillwater, Oklahoma: □Yes □No

8. Student at a college or university: □Yes □No

9. Years of living in Stillwater area: _____ Years

10. Distance from your house to the field: □Under 3 miles □3 to 10 miles □10 to 20 miles □20-50 miles □ 50 or more miles

Thank you for your cooperation and participation in the study.

Appendix G-2: Volleyball Survey

The relationship among Serious Leisure, Recreation Specialization, and Place Attachment for Amateur Athletes

Participant Information Sheet

Principal investigator (PI): Hung-Ling (Stella) Liu, MEd, doctoral student in Leisure Studies, College of Education, Oklahoma State University (OSU, Stillwater)

Purpose: The main purpose of the study is to investigate how the systematic leisure pursuit (serious leisure) and leisure commitment (recreational specialization) vary with the relationship of people and a particular place (place attachment).

Risk of Participation: There is no apparent risk of physical or psychological harm.

Benefits: The result of this current study is to gain a deeper understanding of seriousness of leisure, level of specialization, and emotional bond in community-based recreation to improve the management of public land for recreation purpose.

Procedures: The entire survey, 10 to 18 items of four sections, will take approximately 15-20 minutes.

Confidentiality: (1) The survey is totally anonymous and do not include any identifiable information of participations; (2) The consent records and data file have been approved by the OSU IRB authority; (3) The paper-based record will be stored in a locked cabinet in principle investigator's office at OSU campus and destroyed after one year; (4) The electronic will be saved in a personal computer with password access only and destroyed after five years from accomplish the study.

Participant Rights: Participants voluntarily response the current survey. You are free to decline to response the survey and may stop or withdraw from your participation anytime. There is no penalty for withdrawing the participation.

Contacts: Please feel free to contact the researcher or the advisor, if you have any questions or concerns about this survey.

PI's Advisor: Lowell Caneday, 180 Colvin Center, OSU-Stillwater campus, 405-744-5033, lowell.caneday@okstate.edu	**Principal Investigator:** Hung-Ling (Stella) Liu, 180 Colvin Center, OSU-Stillwater campus, 405-744-5503, stella.liu@okstate.edu

If you have questions about your right as a research volunteer, you may contact the Oklahoma State University Institutional Review Board (IRB) Chair, Dr. Shelia Kennison, IRB Chair at 219 Cordell North, Stillwater, OK74075, 405-744-3377 or irb@okstate.edu

***By choosing to proceed, you are giving your consent to participate in this research.*

Serious Leisure

The purpose of this section, total 18 items, is to assess the level of your leisure involvement and systematic leisure pursuit in your daily life. Please answer these questions according to your general experience and feelings of your specialty activity. For each item, circle the degree of your agreement or disagreement with each statement. The scale is from 1 (Strongly Disagree) to 5 (Strongly Agree).

	Strongly Disagree	Moderately Disagree	Neutral	Moderately Agree	Strongly Agree
1. If I encounter obstacles in volleyball, I persist until I overcome them.	1	2	3	4	5
2. By persevering, I have overcome adversity in volleyball.	1	2	3	4	5
3. I overcome difficulties in volleyball by being persistent.	1	2	3	4	5
4. I try hard to become more competent in volleyball.	1	2	3	4	5
5. I practice to improve my skills in volleyball.	1	2	3	4	5
6. I am willing to exert considerable effort to be more proficient at volleyball.	1	2	3	4	5
7. I have improved at volleyball since I began participating.	1	2	3	4	5
8. Since I began volleyball, I have improved.	1	2	3	4	5
9. I feel that I have made progress in volleyball.	1	2	3	4	5
10. For me, there are certain softball related events that have influenced my volleyball involvement.	1	2	3	4	5
11. There are defining moments within volleyball that have significantly shaped my involvement in it.	1	2	3	4	5
12. There have been certain high or low points for me in volleyball that have defined how I became involved in it.	1	2	3	4	5
13. I share many of the sentiments of my fellow volleyball devotees.	1	2	3	4	5
14. Other volleyball enthusiasts and I share many of the same ideals.	1	2	3	4	5
15. I share many of my volleyball group's ideals.	1	2	3	4	5
16. Others that know me understand that volleyball is important to me.	1	2	3	4	5
17. I am often recognized as one devoted to volleyball	1	2	3	4	5
18. Others recognize that I identify with volleyball.	1	2	3	4	5

Recreation Specialization

The purpose of this section, total 12 items, is to assess your level of specialization of the activity. First, please answer the first six questions according to your past experience, lifestyle, and economic commitment.

1. How many years have you been involved in this leisure activity? _____ years

2. How many times do you play volleyball per week? _____ days

3. What is your perceived skill level in this recreation activity?

Casual Novice Intermediate Advanced

4. How much money did you spend on volleyball sportswear and supplies in the past year? _____ USD

5. How many volleyball protective devices, such as elbow, knees pads, do you have? _____ item(s)

6. How many pairs of volleyball shoes do you have? _____ item(s)

Secondly, please answer the following questions and circle the degree of your agreement or disagreement with each statement. The scale is 1 (Strongly Disagree) to 5 (Strongly Agree).

	Strongly Disagree	Moderately Disagree	Neutral	Moderately Agree	Strongly Agree
7. I have a very profound knowledge of volleyball techniques and rules.	1	2	3	4	5
8. I like to read magazines and books which are associated with volleyball.	1	2	3	4	5
9. I would rather play volleyball than do most anything else.	1	2	3	4	5
10. I enjoy discussing volleyball with my friends.	1	2	3	4	5
11. I organize my weekly schedule to "protect" my volleyball commitment	1	2	3	4	5
12. I usually watch TV shows and events associated with my sports interest.	1	2	3	4	5

Place Attachment

The purpose of this section, total 12 items, is to assess your personal attachment to a particular physical location at which you pursue and enjoy your leisure time. Please answer these questions according to your general experience and feelings of your specialty activity. Circle the degree of your agreement or disagreement with each statement. The scale is from 1 (Strongly Disagree) to 5 (Strongly Agree).

	Strongly Disagree	Moderately Disagree	Neutral	Moderately Agree	Strongly Agree
1. The Armory Courts mean a lot to me	1	2	3	4	5
2. I really enjoy my time at the Armory Courts.	1	2	3	4	5
3. I identify strongly with the Armory Courts as the place that I enjoy for volleyball.	1	2	3	4	5
4. I feel no commitment to the Armory Courts.	1	2	3	4	5
5. I enjoy playing at the Armory Courts more than any other field.	1	2	3	4	5
6. I get more satisfaction out of playing at the Armory Courts more than other places.	1	2	3	4	5
7. Playing volleyball here is more important than playing at any other place.	1	2	3	4	5
8. I wouldn't substitute any other activity for the type of recreation I do at the Armory Courts.	1	2	3	4	5
9. I have a lot of good memories about the Armory Courts.	1	2	3	4	5
10. I have a special connection to the Armory Courts and the people who play ball with me.	1	2	3	4	5
11. I do tell many people that I play volleyball at the Armory Courts.	1	2	3	4	5
12. I will bring my family/friends to the Armory Courts.	1	2	3	4	5

Demographic information

This section contains the basic demographic information of the respondent/participant. Please fill out in the blank or check the box which is representing you and your situation.

1. Gender: □ Male □ Female

2. Age: _____ years

3. Highest education achieved: □Junior High School □Senior High School □Junior College □Bachelor's Degree □Graduate School

4. Marital status: □Married □ Not Married

5. Monthly income: □$ 2,000 or less □ $2,001-$3,000 □ $3,001-$4,000 □$4,001-$5,001 □ $5,001-$6,000 □ $6,001-$7,000 □$7,001 or more

6. Ethnic group: □Caucasian □African-American □Hispanic □Asian □ Native American □Other_____

7. Resident in City of Stillwater, Oklahoma: □Yes □No

8. Student at a college or university: □Yes □No

9. Years of living in Stillwater area: _____ Years

10. Distance from your house to the field: □Under 3 miles □3 to 10 miles □10 to 20 miles □20-50 miles □ 50 or more miles

Thank you for your cooperation and participation in the study.

VITA

Hung-Ling Liu

Candidate for the Degree of

Doctor of Philosophy/Education

Thesis: THE RELATIONSHIP AMONG SERIOUS LEISURE, RECREATION SPECIALIZATION, AND PLACE ATTACHMENT FOR AMATEUR ATHLETES

Major Field: Leisure Studies, Recreation Management

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Health, Leisure, and Human Performance at Oklahoma State University, Stillwater, Oklahoma in May 2012.

Completed the requirements for the Master of Education in Sports and Leisure Management at National Taiwan Normal University, Taipei, Taiwan in 2005.

Completed the requirements for the Bachelor of Education in Early Childhood Education at National Hsin-Chu Teacher's College, Hsin-Chu, Taiwan in 200.

Experience:

2010 - 2012	Graduate Research Assistant: Oklahoma Statewide Comprehensive Outdoor Recreation Plan (SCORP)
2009 - 2010	Graduate Teaching Assistant: Oklahoma State University

Professional Memberships:

2008 - Present	National Recreation and Parks Association
2010 - Present	Rho Phi Lambda Honorary Recreation, Park, and Leisure Service Fraternity
2011 - Present	Oklahoma Parks and Recreation Society

Name: Hung-Ling (Stella) Liu Date of Degree: May, 2012

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: THE RELATIONSHIP AMONG SERIOUS LEISURE, RECREATION SPECIALIZATION, AND PLACE ATTACHMENT FOR AMATEUR ATHLETES

Pages in Study: 140 Candidate for the Degree of Doctor of Philosophy

Major Field: Health, Leisure, and Human Performance

Scope and Method of Study:

Leisure is a central and dominant aspect of an individual's daily life, and serious leisure theory could be used to understand individuals' systematic pursuit for their leisure. A recreation setting can facilitate or hinder not only the recreation activity itself but also the perceived quality experience of recreationalists. Therefore, the purpose of the study is to investigate how the systematic leisure pursuit and leisure commitment vary relative to the relationship of people and a particular place (place attachment). The amateur athletes, including softball and volleyball, enrolled in the adult sports program in the City of Stillwater, Oklahoma in fall 2011, were the target population in the study. The structural equation modeling and path analysis were applied in the study to investigate the causal relationship among serious leisure, recreation specialization, and place attachment and to compare the relationships among their sub-dimensions.

Findings and Conclusions:

The research findings show that amateur athletes who were serious with their leisure pursuit not only have higher possibility to develop their career in their leisure but also are more willing to overcome the difficulties on their way of pursuing leisure. The characteristic of serious leisure is positively related to the players' level of specialization and creates indirect impact with emotional attachment to a specific physical setting through recreation specialization. However, the direct and positive relationship between serious leisure and place attachment was not approved in the data set. In addition, in terms of the relationship among dimensions, the identity and ethos of serious leisure had significant impacts on lifestyle dimension in recreation specialization. The lifestyle dimension in specialization was the best indicator to predict the participants' attachment to the place. The identity and ethos of serious leisure were also considered as significant factors to create place attachment within the social bonding concept.

ADVISER'S APPROVAL: _____

Dr. Lowell Caneday