THE RELATIONSHIP OF TIME PERSPECTIVE TO TIME ALLOCATION, RECREATION EXPERIENCE PREFERENCES, AND WELLNESS

A Dissertation

by

KINDAL ALAYNE SHORES

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2005

Major Subject: Recreation, Park, and Tourism Sciences

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Approved by:

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ABSTRACT

The Relationship of Time Perspective to Time Allocation, Recreation Experience Preferences, and Wellness. (August 2005)

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Time perspective, as measured with the Zimbardo Time Perspective Inventory (ZTPI), has been empirically linked to many behaviors including health behaviors, time spent with family and friends, and career decisions. This dissertation research builds on investigations of time perspective by testing hypotheses about the relationship between each of Zimbardo's five time perspectives with *residual time allocation*, *recreation experience preferences,* and *health and life satisfaction*. Using a short questionnaire and time diary data, the relationship between how individuals frame time in the present, past, or future and how they allocate their discretionary time is described. Findings provide the foundation for continued study of the relationship of time perspective and recreation. Next, the relationship between an individual's time perspective and the benefits they seek from recreation are identified. Using results from a self-administered mail questionnaire, hypotheses about the benefits sought by adults with different time perspectives are tested. Finally, results from the mail questionnaire are again used to test hypotheses about the relationship between time perspective, physical health, psychological health and life satisfaction. Findings provide information about the

impact of different time perspectives on individual wellness and happiness. Moreover, results provide a tool for targeting adults in need of leisure education. In summary, this study provides a starting point for the use of time perspective in leisure research. Much replication, extension and application research will be required to extend findings from current results using student and general population samples.

The dissertation is organized in four sections. An introductory section presents the theoretical orientation for research. The second, third, and fourth sections explicate the relationship of Zimbardo's five time perspectives with *residual time allocation, benefits sought from recreation*, and *health and life satisfaction*.

DEDICATION

For Hans.

Together we have found joy in life, love, and work.

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Many individuals have contributed to my academic growth and personal development during my graduate work at Texas A&M. I would like to thank Dr. David Scott for nurturing my creativity, challenging me, and giving me the confidence to develop as an independent scholar. His advising and mentorship will serve as a model that I hope to emulate with my own graduate students.

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INTRODUCTION

In daily life, time is so pervasive that it is often taken for granted and given little thoughtful attention. However, philosophers such as Kant, Heidegger, and Augustine have contemplated the role of time in human experience. For example, Kant (1781/1965) believed that humans' ability to conceptualize time was an "innate ability" that gave depth and color to the experience of life. More recently, psychologists, sociologists, and leisure scientists have offered insights about time. For example, developmental psychologists Suddendorf and Corballis (1997) contend that monitoring time may be a basic function of human development that was vital to the evolution of human cognitive functioning. Accordingly, monitoring and interpreting time affects all aspects of our lives—work and play. Thus, to improve our understanding of leisure behavior specifically, the temporal dimension that accompanies all human activity must be understood. If social science is indeed about studying, understanding, and explaining human reality, then time should be treated as a both an influence and outcome to be studied (Adam, 1990).

To begin a study of time, what is meant by "time" must be defined. For this study, time refers to the seconds, minutes, and hours that make-up daily life. This time, clock time, is broken into two dominant segments: work time and discretionary time.

This dissertation follows the style of *Journal of Leisure Research.*

Time spent earning money is work-time. The discretionary time that is left for all other obligatory and enjoyable tasks at home, with family, and having fun is all called *free time* or *residual time*. However, since free time is not always free, the term "residual time" is adopted to clarify the nature of this time segment. During residual time personal care, exercise, family care, recreation, improvements and more are undertaken.

This study examines residual time because this is an area in which relative freedom of choice is available. As such, residual time can be an arena for recreation and leisure. Although there is no one agreed-upon definition of leisure, leisure has been described as free time, recreation activities, and a state of mind (Godbey, 1999). Mannell and Kleiber (1997) incorporate these definitions characterizing leisure as an activity chosen with relative freedom usually undertaken during free time with the potential to provide a feeling of joy, control or mastery. Given that an accepted characteristic of a leisure experience is *perceived freedom,* residual time is an important segment of time for the pursuit of leisure experiences. As such, this study is concerned with residual time.

Within the spheres of work and residual time, social science researchers have approached time from a variety of perspectives. Brislin and Kim (2003) identified ten concepts that summarize how culture impacts our interpretation of time. Among these are the study of how cultures entrain time, how individuals allocate time for task completion, how time influences consumer purchases, perceptions of time's passage, and individual's time orientations towards the past, present, and future. This study belongs to the final category.

Time Perspective

Edward Hall (1984) pointed out that temporal experience is central to human cognition and behavior—people do not know how to act until they frame the situation. Framing the situation requires people to first weigh their options by examining past experiences, note the present context, and consider future aspirations. The relative weight attributed to any one perspective determines a person's time perspective.

Theoretical Underpinning

This paper adopts Mead's conceptualization of time. Despite George Herbert Mead's prominence as providing the intellectual foundations for symbolic interactionism, most social scientists are unfamiliar with his perspective on temporality. Time was of utmost importance in the writings of Mead. For him, people live in the present and their interpretations of the present, past, and the future are *key* to the words, actions and intentions in the present (Mead,1934). His description of the present, past, and the future provide the theoretical understanding for how people interpret their "now" in light of the present context, past experiences, and future anticipations.

Similar to Mead's approach in symbolic interactionism, his approach to time also gives primacy to the present. To Mead, the present is the moment of interpretation (Flaherty & Fine, 2001) next to the "knife edge of the future". Regarding the past, Mead described how the past confronts the present with a series of events and facts. The effects of these facts, however, are mediated by attention and interpretation. Thus, the impact of past events on the present is uncertain. After selecting events from the past, the individual must then interpret these events, further problematizing the response

(Mead, 1936). These processes make for the constant reinterpretation of the past from the standpoint of the present. This reinterpretation of the past is a form of revisionism that Strauss (1969, p.67) described as "reseeding the past" such that pasts are brought into line with our presents. Similar to the influence of the past on the present, Mead (1932) described how the future can influence the present. Mead (1932) described an individual in the present envisioning a path or action in the future and in turn, constructing a sequence of actions to achieve or change this future.

Mead's perspective of time has been a springboard for research in the study of many social-psychological phenomena. For example, Glaser and Strauss (1968) turned to Mead and his conceptualization of time in their studies of "dying trajectories." Denzin (1982) interpreted Mead's use of time in his elucidation on the temporalities of consciousness. Maines repeatedly relied on Mead to interpret culture (1989), the experience of chronic illness (1983), and career and family planning (1987). Lopata (1986) expanded on Mead in his study of time perspective in widowhood. Most recently, Flaherty (1999) used Mead's writings as part of the foundation for his study of variation in the perceived passage of time. Flaherty's analysis of lived duration turns on the fact that self-consciousness is maximized when one confronts problematic circumstances – an observation from Mead's writings (Flaherty & Fine, 2001).

In this paper, the focus is on how personal interpretation of time impacts residual time behavior, attitudes, and outcomes. This shift moves our focus from a deterministic understanding of leisure behavior that privileges the past over the present to an interpretive understanding that gives weight to personal biases for the past, present, and

future.

Time Perspective Operationalized

Individuals are posited to have time personalities that guide their perception and allocation of time across many contexts (Anderson & Golden, 1989; Cotte & Ratneshwar, 2001; Denton, 1994). In a recent study of time personality and leisure, Cotte and Ratneshwar (2001) posited that individuals can be located on three different continuums based on their need for social interaction during free time (alone versus social dimension); their temporal orientation (past versus future dimension); and their approach to time management (one task versus multi-tasking dimension). An individual's combination of these three time dimensions is dubbed their timestyle. One dimension of Cotte and Ratneshwar's (2001) time style has received sophisticated conceptual development and empirical attention. This aspect, called temporal orientation or time perspective, has been the subject of many scales (e.g. Boyd & Zimbardo, 1997; Jones, Banicky, Lasane, & Pomare, 1996).

Attempts to capture time perspective have employed a range of evaluations including the Thematic Apperception Test (Wohlford, 1996), the Experiential Inventory (Cottle, 1968, Philipp, 1992), the Circles Test (Cottle, 1968), and time lines (Rappaport, 1990). However, none of these methods were able to generate reliable findings. Uni-dimensional scales developed to capture a single time orientation (i.e. Future or Present) have achieved reliable and valid results (e.g. Zaleski, 1994; Zuckerman, Koester, & Rosenthal, 1994). These measures, while useful, do not permit researchers to cull a sample into different time perspectives for comparison. The only scale to successfully

combine the uni-dimensional measures is the Zimbardo Time Perspective Inventory (ZTPI). The ZTPI is a 56-item psychometric scale, which has been recognized as reliable and valid. Within the ZTPI scale, five time biases have been identified: Past-negative, Past-positive, Present-hedonistic, Present-fatalistic and Future time perspectives.

The ZTPI will be adopted as our measure of time perspective. After a decade compiling research using exploratory and confirmatory factor analyses, measures of internal and test-retest reliability, and results indicating convergent, discriminant, and predictive validity in correlational, experimental, and case study research, the ZTPI was established (Boyd & Zimbardo, 1997). Items assess personal variations in time perspective profiles and specific time perspective biases. Time perspective variations are learned and modified by a variety of personal, social, and institutional influences but function as an individual differences variable. (Zimbardo & Boyd, 1999).

Five time perspectives (TP) are conceived as situationally determined but also as a relatively stable individual-differences variable. Over reliance on a temporal frame elicits a time bias, which results in one of the five time perspectives (Gonzalez & Zimbardo, 1985). Table 1.1 provides a summary of the five time perspectives.

The Past-negative time perspective reflects a generally unhappy, aversive view of the past. Negative attitudes toward the past can be due to actual experiences and traumatic events, *or* the negative memory of benign events (Zimbardo, 2002). Items that compose the past-negative category include "I think about the bad things that have happened to me in the past," "I think about the good things that I have missed out on in

my life," and "I often think of what I should have done differently in my life."

The second time perspective, Past-positive, reflects an attitude toward the past that reflects a warm, sentimental attitude toward the past (Kazakina, 1999). Items that load on the Past-Positive factor include "It gives me pleasure to think about the past," "I get nostalgic about my childhood," "I enjoy stories about how things used to be in the 'good old times,'" and "I like family rituals and traditions that are regularly repeated."

Next, a Present-fatalistic time perspective reveals a helpless and hopeless attitude toward the future and life that is underlined by an external locus of control (Epel, Bandura, & Zimbardo,1999; Zimbardo, 1994). Items that compose the Present-Fatalistic factor include "My life path is controlled by forces I cannot influence," "You can't really plan for the future because things change so much," and "Often luck pays off better than hard work."

In contrast to the Present-fatalistic time perspective, the Present-hedonistic time perspective reflects an impulsive, risk-taking, "devil may care" attitude toward time and life (Zimbardo & Boyd, 1999). Present-hedonistic items include "Taking risks keeps my life from becoming boring," "I do things impulsively," "I often follow my heart more than my head," and "When listening to my favorite music I often lose all track of time."

The ZTPI provides for only one forward looking factor, called simply the Future time perspective. This time perspective reflects a general future orientation and it emphasizes planning and punctuality (Raynor & Burbin, 1971; Shell & Husman, 2001). Items typical of the Future factor include "I am able to resist temptations when I know there is work to be done," "It upsets me to be late for appointments," "I complete

projects on time by making steady progress," and (negatively) "I take each day as it is rather than try to plan it out." Once elicited, a time perspective becomes a bias or dispositional style that is characteristic and predictive of how an individual will respond across a host of daily life choices.

TABLE 1.1
A Summary of Time Perspectives

Time Perspective	**Description**
Past-negative	A bias to think about and interpret the present in light of a generally unhappy, aversive view of the past
Past-positive	A bias to think about and interpret the present in light of a warm, sentimental attitude toward the past
Present-fatalistic	A bias to think about and interpret the present in light of a helpless and hopeless attitude toward life that is related to an external locus of control
Present-hedonistic	A bias to spend most time thinking about and interpreting the present in light of a hedonistic, risk-taking, "devil may care" attitude toward life.
Future	A bias to think about and interpret the present in light of anticipated goals and rewards.

State of Research on Time Perspective

Boyd and Zimbardo (1997) felt that a bias toward a particular time perspectives impacts an individual's attitudes and behaviors. Most research has tried to relate either future or present orientation to other psychological constructs and to their effects on behavior. Less attention has been given to past orientations.

The Future time perspective is defined as "a general capacity to organize and anticipate future events (Gjesme, 1983). In general, this time perspective has been related to many positive consequences for individuals in Western society, such as high

socioeconomic status, superior academic achievement, less sensation seeking, and fewer health risk behaviors (Raynor & Burbin, 1971; Shell & Husman, 2001). In fact, achievement and Future time perspective have been so strongly and positively linked in studies that researchers have argued that within Western cultures, having a future time perspective is tantamount to having a high achievement orientation (e.g. DeVolder & Lens, 1982; Nuttin, 1985; Raynor, 1970; Raynor & Burbin, 1971).

The bulk of research related to this time perspective has regarded Future time perspective as a predictive variable. Among these studies, a Future time perspective has shown an ability to predict attitudes, behavioral intentions and outcomes related to health and achievement (DeVolder & Lens, 1982). For example, in a study of factors predicting African American women's health attitudes, Lukwago et al. (2001) cited time orientation as a key factor influencing how Black women think about and care for their health. Hall (2002) hypothesized that Future time perspective would be linked to adolescents' long term thinking about health and physical activity. Study participants were randomly assigned to one of three groups—time perspective intervention, goal setting intervention, and control groups. Results provided the first empirical evidence that health behavior intentions may be enhanced by increasing long-term future time perspective. Significant effects in behavioral intentions emerged in subjects in favor of the time perspective intervention relative to goal setting intervention. Moreover, research has shown that low future time perspective scores have been related to poor educational achievement (Teahan, 1958) as well as to antisocial behavior (Barndt & Johnson, 1955; Davids, Kidder, & Reich, 1962). In a study of female prisoners, Chubick

and colleagues investigated the relationship between Future time perspectives and completion of a training program for self-improvement. When education was equated, prisoners who completed the program had significantly greater Future bias than those who left the program (Chubick, Rider, Owen, Witherspoon, & Witherspoon, 1999).

In addition to the predictive ability of the Future time perspective, researchers have tried to pinpoint characteristics of individuals who report this bias. Following analysis of 187 college student time diaries, Murrell and Mingrove (1994) concluded that there were no significant mean differences on the present time index as a function of race, gender or subject age. Regression analysis indicated that high need for achievement, high self-monitoring, and overall length of time diaries significantly predicted Future time perspective.

Whereas the Future time perspective has been exalted in Western cultures, for individuals holding a dominant Present-hedonistic or Present-fatalistic time perspective, risk-taking and negative life consequences have been cited. Particularly in the context of a future oriented society, these consequences include mental health problems, juvenile delinquency, crime and addiction. Keough, Zimbardo and Boyd (2001) observed significant associations between Present time perspectives and more frequent use of alcohol, drugs, or tobacco. Across 2,627 participants from 15 different undergraduate student samples, Keough and colleagues identified time perspective as an individual difference construct that should be considered when examining health related and addictive behaviors. Findings demonstrated that Present time perspectives were significant predictors of substance abuse even after controlling for personality

characteristics that have been linked with substance abuse. On the other hand, Oner (2002) described a Present time perspective as an adaptive mechanism. Following findings that individuals with present time orientations had high levels of self-monitoring, Oner suggested that like a chameleon, high self-monitoring individuals are able to adapt and feel secure in more and different surroundings.

Individuals with a bias for past orientations are disposed to frame decisions either positively or negatively in light of past experiences. In the few studies that have incorporated Past time perspectives, biases for past orientations have primarily been negative. Covas (2000) described results from her study of youth at risk. Questionnaire responses from 50 resilient and 50 non-resilient male adolescents revealed that the while the two groups were similar in the purpose in life and optimism scores, non- resilient respondents tended to focus on negative circumstances in the past (Covas, 2000). Kazakina (1999) described older, community-dwelling adults' views of their past, present and future. An investigation of 103 women aged 65 and older demonstrated that respondents reporting more distress and greater depression tended to attribute the preponderance of positive experiences to the past.

Despite the intriguing findings described above, the study of social-psychological time in general and time perspective specifically remains at the periphery of current research. According to Zimbardo and Boyd (1999), "Time perspective is a pervasive and powerful yet largely unrecognized influence on much human behavior" (p. 1271). Based on the centrality of time in human cognition and decision-making as well as the predictive validity of time perspective for behaviors, this research program focuses on

the centrality of time perspective for understanding recreation leisure attitudes and behaviors. This study contends that including time perspective as a factor explaining residual time behavior will enhance understanding of time allocation, recreation benefit preferences and the relationship of time perspective to health and life satisfaction.

Purpose

The primary contribution of this research is to introduce the construct of time perspective to the leisure literature. This study relies on previous research which links time perspective to a broad array of behaviors to develop and test hypotheses about the relationship of time perspective and recreation. Using an on-site questionnaire and time diary data, the relationship between how individuals frame time in the present, past, or future and how they allocate their discretionary time is described. Findings provide a foundation for the study of two dimensions of time: time perspective and time allocation. Next, the relationship between an individual's time perspective and the benefits they seek from recreation is identified. Using a self-administered mail questionnaire, the benefits sought by adults with different time perspectives are compared. Finally, results from the mail questionnaire provide information about associations between time perspective, health, and life satisfaction outcomes. Using the self-administered questionnaire the relationship between time perspective, physical health, psychological health and life satisfaction is examined. Findings provide information about the desirability of time perspectives for individual wellness and happiness. Moreover, results allow recreation service providers to target adults for leisure education according to their time perspective. In summary, this study applies the construct of time

perspective to inform researchers and recreation providers about adults' recreation behaviors and outcomes.

TIME PERSPECTIVE AND RESIDUAL TIME ALLOCATION

Introduction

Residual time is a segment of time when leisure is likely to occur. Although no one universal definition of leisure exists, leisure has been described as free time, recreation activities, and a state of mind (Godbey, 1999). Mannell and Kleiber (1997) describe leisure as an activity chosen with relative freedom usually undertaken during free time with the potential to provide a feeling of joy, control or mastery. Given that an accepted characteristic of a leisure experience is *perceived freedom,* residual time is an important segment of time for the pursuit of leisure experiences. As such, this study is concerned with residual time.

Residual time is an area of life that is the least constrained but is still susceptible to work spillover and the demands of other domains of life such as school, home, and family (Sylvester, 1999). Although work provides structure for daily life, it is overly simplistic to assume that work alone determines the amount and type of residual time available. According to Mannell and Reid (1999): "The social circumstances of people's lives as well as their attitudes, needs, and personality influence how work and leisure are organized and experienced" (p. 157). Consistent with this description, researchers have been keen to understand how people organize work, residual time, and leisure pursuits in their lives. Moreover, researchers have worked to uncover how individual patterns of time allocation reflect social roles, work roles, and dimensions of personality.

This paper introduces the social psychological concept of time perspective to leisure studies. It is argued that time perspective—the way an actor frames time in the past, present and future—is likely to be fundamental for understanding leisure behavior. As such, this study investigates the relationship of time perspective and time allocation. Findings describe three facets of residual time behavior: (1) The total amount of residual time reported by respondents in each time perspective, (2) The percentage of residual time respondents of each time perspective spend in recreation pursuits (recreation yield) and (3) The nature of activities pursued during residual time according to each time perspective. The total amount of residual time describes the theoretical maximum of recreation time available for individuals of each time perspective. The second measure, recreation yield, reports the relative importance of recreation to respondents with different time perspectives. The third indicator provides a snapshot of the character of recreation for respondents with different time perspectives. In sum, findings outline the relationship between how individuals frame time and how they allocate their residual time for recreation.

Review of Related Literature

To begin, it is important to delimit the study's area of interest. This study begins with the presumption that time represents something that can be allocated. According to Hirschman (1987) time can be "an objective entity existing in fixed, immutable units that are possessed by individuals" (p. 58). This kind of chronological time is widely used in social and physical sciences and is adopted for this study. The current study of chronological time deals with two broad segments: work time and residual time. Time

spent earning money is labeled work-time. Residual time refers to all remaining time which may be allocated to faith, family, fun or any number of activities. Recreation is often pursued within residual time. As such, this study is concerned with time allocation during residual time. Within this domain, activities classified as recreation will be determined by the respondent according to the criteria that they are "activities undertaken for their own sake" (Csikszentmihalyi, 1999).

Time Allocation

The allocation of clock time to work and recreation has entered the public consciousness. Today, people in most developed nations are bombarded by newspapers, television, articles, and books providing advice on how to balance work and non-work roles and obligations (Eriksen, 2001). However, the study of how time is allocated to work and recreation has a long tradition among social scientists. For example, early research used time-budget studies to examine shifts in time allocations and the meanings of these shifts for work and recreation.

In a seminal study of time allocation, *Time for Life: The Surprising Ways Americans Use Their Time,* Robinson and Godbey (1998) summarized results from years of time study. In 1965 and 1975 the University of Michigan collected one-day time diaries for 1,244 and 2,406 persons by in-home interview. These respondents were largely from urban areas in Michigan. In 1985, the University of Maryland undertook a more extensive nationwide sample of 5,358 participants. These individuals completed mail questionnaires and were interviewed over the telephone or in their homes. When results were compared across decades, the authors were able to enumerate changes in

time use since the 1960's. Robinson and Godbey found that in 1985, Americans worked for pay approximately 30 hours each week. Twenty-four hours were designated to home and family care, and 74 hours were spent on personal care. This left approximately 40 hours of residual time. These results were similar to findings reported by Zuzanek, Beckers, and Peters (1998) who examined trends in Dutch time allocation.

Over the past few decades, researchers have shifted their interest in time diaries to investigate time allocation patterns according to social variables. In particular, time allocation studies have been important for benchmarking change with the emergence of dual-earner families and concerns about gender equity. For example, Mattingly and Bianchi (2003) assessed gender differences in both quantity and quality of free time, including measures of contamination of free time by non-leisure activities such as household chores. A comprehensive review of time diary data collected in 1965, 1975, 1985, and 1995 described time allocation to work, recreation, and household chores across all marital statuses (Bianchi, Milkie, Sayer, & Robinson, 2000). The authors concluded that individuals' relative power and resources in relationships best accounted for discretionary time spent in household work instead of recreation.

In the most comprehensive analysis to date, Jonathan Gershuny (2000) described time diary data for twenty countries across multiple points in time. Results for these 40,000 individuals described time allocated to paid work, unpaid domestic work, and leisure. Results outlined time allocation patterns according to gender, employment status, family composition, and country. Two major conclusions were reached: (1) Time dedicated to paid work, unpaid work, and leisure has converged by country, by gender,

and by class; and (2) Work results in consumptive leisure which in turn, leads to more work. Time dedicated to unpaid household labor by gender and country mirrored previous family findings. Consistent with trends in unpaid work documented by Greenstein (2000) and Shelton (2000), men's participation in domestic work has increased and women's time dedicated to domestic work has decreased.

As described above, studies linking time allocation to social variables have provided insights into how people "spend" their time. However, Davies and Omer (1996) advocate the use of psychological variables to further understand time allocation. The utility of psychological variables for understanding time allocation has been evident in the limited empirical research on this topic. For example, in a study of white collar adults, Xie and Jamal (1993) described differences in the work and leisure time allocation of Type A personalities. Cookson (1986) successfully predicted time allocation patterns of continuing education adults using a personality measurement. Among adolescent girls and boys, Bruno (1996) noted that adolescents' time allocation preferences were significantly linked to their personality profiles. Finally, Ngidi and Sibaya (2002) identified a significant relationship between extroverted personalities and their time allocation to social relationships. Thus, personality has the ability to influence time allocation. This study investigates the relationship of time allocation and another dimension of personality: time perspective.

Time Perspective

Time perspective can be thought of as "a kind of multi-dimensional personality trait" (Xiting & Zhijie, 2001, p. 338). Individuals have time personalities that guide their

perception, framing, and allocation of time across many contexts (Anderson & Golden, 1989; Cotte & Ratneshwar, 2001; Denton, 1994; Flaherty & Fine, 2001). Specifically, most individuals exhibit a relative dominance of past, present, and future in their thoughts (Hornik and Zakay, 1996; Carmone, 1991). The interpretation of current situations in light of a temporal frame of reference is called a time perspective. Five time perspectives (TP) have been identified and include: (1) Past-negative, (2) Past-positive, (3) Present-fatalistic, (4) Present-hedonistic, and (5) Future. Time perspective is hypothesized to have a significant relationship with time allocation. For example, Hornik and Zakay (1996) described how individual characteristics were related to the formation of an individual's time perspective which then moderated time allocation. The authors described a significant causal relationship between personality type and time perspective. Further, Hornik and Zakay described results from their study of undergraduate students which linked time perspective to subject time allocation. Time allocation is one facet of temporal behavior. In a similar model of time allocation, Davies and Omer (1996) describe time perspective as one type of endogenous variable that impacts time allocation and the resultant leisure choices.

Empirical results provide tentative support for both conceptualizations. Early research by Lee and Ferber (1977) and a replication by Settle, Alreck, and Glasheen (1987) found that the more individuals directed their attention to the future, the more time they allocated for consumption. Conversely, individuals who were more likely to reflect on the past were conservative with time and money allocation. More recent findings in consumer behavior research describe the importance of time perspective in

activity choice: "Time perspective does not necessarily determine how much time is allocated to a broad activity type; rather, it emphasizes that time orientation determines the content of the activity" (Bergadaa, 1990, p. 257). In particular, Bergadaa described the travel behavior of individuals with biases for the present and the future. The author concluded that respondents with a Future time perspective tended to prefer self-organized trips and informative pleasure reading while travelers with a Present time perspective reported a preference for "beach reads" and package holidays. In a replication of this research, both the amount and type of recreation activity undertaken varied according to time perspective. Thus, this study hypothesizes that time perspective will show a significant relationship to time allocated to recreation.

Summary

Time allocation refers to how time is spent on work, recreation, or other obligations during daily life. For more than 50 years, social science researchers have studied factors related to time allocation. Among the factors which are considered important to time allocation are external and internal variables including gender, relative resources, age, and personality. This study examines one dimension of personality, time perspective, to understand how an individual's temporal bias is related to the time they allocate to recreation.

Psychological research has identified and described five time perspectives that shape how people interpret time. This variable, time perspective, is widely accepted as an important aspect of overall personality (Fraisse, 1963; Bergadaa, 1990, Davies & Omer, 1996; Xiting & Zhijie, 2001). However, research linking time perspective to time

allocation is limited and has not expressly investigated the relationship of time perspective to recreation time allocation. This study hypothesizes that time perspective will show a significant relationship to time allocated to recreation. Moreover, it is anticipated that time perspective will show a specific relationship with the nature of recreation activities undertaken by respondents. Accordingly, this study describes the amount of residual time available for recreation, the percentage of residual time dedicated to recreation, and the nature of recreation for respondents with each time perspective.

Methodology

Data Collection

Data were collected using a short questionnaire and time diaries completed over the course of two days. In early 2005, participation was solicited from approximately 200 undergraduate students enrolled in classes at East Carolina University in Greenville, North Carolina. With the cooperation of the College of Health and Human Performance faculty, contact was initiated in four large undergraduate classes. I was invited to describe the study to the students, and invite them to take part in the study. In three of the four classes taking part in the study, course instructors offered up to five extra credit points for students who chose to participate. Students who elected to participate in the study were given a survey packet to complete and return within a week's time. Of the 192 students invited to participate, 140 completed and returned survey packets. Thus, a 72.9% response rate was achieved.

Instrumentation

Data were drawn from the survey packet distributed to the students. The survey packet consisted of a short questionnaire as well as time diary worksheets for one weekday and one weekend day. The questionnaire provided feedback on respondents' time perspective. Time diaries provided information about respondent time allocation.

Time perspective was measured using the Zimbardo Time Perspective Inventory (ZTPI). Items describe a bias for each of the five time orientations and are rated from 1 to 5. A response of 1 is given when a statement "Is not characteristic of me" whereas an item is scored 5 if "this is very characteristic of me" (Zimbardo & Boyd, 1999, p.1271). After a decade compiling research using exploratory and confirmatory factor analyses, measures of internal and test-retest reliability and results indicating convergent, discriminant, and predictive validity in correlational, experimental and case study research, the ZTPI was established (Boyd & Zimbardo, 1997). Each of five time perspectives is conceived as a relatively stable individual-differences variable. Over reliance on a temporal frame elicits a time bias, which results in one of the five time perspectives (Gonzalez & Zimbardo, 1985).

Very basic socio-demographic information was also gathered as part of the short questionnaire. Respondents were asked to indicate their gender, age, and work status. To determine age, respondents were asked to provide their birth year in an open blank. An open-ended blank was also used to assess gender. Work status was determined according to four categories: (1) One or more full-time positions, (2) Part-time, (3) Unemployed, and (4) Other.

Time allocation was measured using time diaries. According to Shelton (2000),

time diaries are the gold standard of time allocation measures. The time diary instrument offers unique features for time assessment. First, it uses a zero-sum property. This means that if one activity is shortened, another activity must account for the available minutes. Thus, every minute of one day is accounted for and the sum of activities will always be 24 hours exactly. Travel, personal care, and doing many activities simultaneously can also be assessed using this method.

Time diary research ranges in what it demands of study participants. For example, Gershuny (2000), in his "Concise Atlas of Time Use," used one-day time diary accounts from 1,000 men and 1,000 women aged 20 to 60 from each of twenty countries. On the other hand, in their characterization of American time Robinson and Godbey (1998) relied on day-long and week-long time diaries. In an effort to balance subject hardship and data reliability, participants in this study completed time diaries for two days—one weekday and one weekend day. A standard time diary reporting form was used with the addition of one column which asked respondents to classify each undertaking as work (W), recreation (R), or other/obligation (O). All forms are provided in Appendix A.

Data Analysis

Data analysis was conducted in five parts. First, respondent characteristics were described using descriptive statistics and frequencies. Next, all respondents completing the survey packet were classified according to their time bias. To place questionnaire respondents in time perspective groupings, a K-Means Cluster analysis procedure was used. A cluster analysis is an exploratory data analysis tool to classify actors into groups

such that the degree of association is strong between members of the same cluster but weak between members of different clusters. For this, and all other statistical analyses in this study, missing data were dealt with using pairwise exclusion."

In the third and fourth phases of data analysis, two facets of time allocation were described: 1) The total amount of residual time reported by respondents of each time perspective, and 2) The percentage of residual time respondents allocated to recreation for respondents of each time perspective. Analysis of covariance was used to test for significant differences in the amount of residual time and recreation yield according to time type. A covariance model was selected to control for factors known to impact the amount of time available for recreation. Respondent gender, work status, and age were included as covariates. Gender has been identified as a critical factor moderating the availability of time for leisure pursuits as well as the amount of free time dedicated to leisure (e.g. Henderson, Hodges, & Kivel, 2002; Mattingly & Bianchi, 2003; Shaw, 1996; Shaw, 1999; Shelton, 2000). By definition alone, the amount of work an individual undertakes will necessarily impact the amount of non-work time available. Finally, age was included as a covariate because of findings which link work and recreation time allocation to aging and life stage changes (Freysinger, 1999; Kelly, 1999).

The final data analysis phase describes the nature of activities pursued during residual time according to each time perspective. Data are described in two ways in this section. First, the most frequent activities pursued by members of each cluster are used to describe tendencies in the data. All frequency of participation in all activities (as

defined as work, recreation or obligation by the respondent) paint a picture of daily life for respondents with different time perspectives. Next, differences in recreation activity participation are identified and described. From the international time allocation coding list of 43 daily activities, 20 were selected as recreation activities. Then, frequency of participation in each type of recreation activity was compared across time perspective clusters using an analysis of variance and Bonferroni post-hoc tests. This analysis provides a snapshot of the recreation behavior for respondents with different time perspectives.

Results

Characteristics of Respondents

Although the range of socio-demographic questions included in the survey questionnaire was limited, respondents appear typical of an undergraduate student sample. Overall, respondents were in their twenties and reported working part-time. Fully 84% of students who completed the questionnaire were 18 to 25 years of age. The remaining 16% of students ranged from age 26 to 55 with all but one student under age 35. Half of respondents reported working part-time, while one third of students did not work. Full time workers comprised 17% of the sample. Lastly, equal numbers of male and female students completed the questionnaire packet. A complete summary of respondent characteristics is provided in Table 2.1.

TABLE 2.1
Demographic Characteristics of Time Diary Respondents

	Respondents
	%
Gender (N = 148)	
Female	50.0
Male	50.0
Age of Respondent (N = 139)	
18 years	4.7
19 years	11.9
20 years	10.1
21 years	28.1
22 years	12.2
23 years	6.8
24 years	8.6
25 years	2.2
> 25 years	15.5
Work Status (N = 140)	
Full time or more than one job	16.8
Part-time	50.0
Not employed	32.1
Other	1.1

Cluster Analysis

In order to assess respondents' time allocation, individuals were sorted into groups using cluster analysis. Cluster analysis is a statistical procedure that is used to classify cases or respondents based on their attitudes, perceptions, behaviors or other variables of choice. To determine classifications, cluster analysis uses an algorithm to maximize between group variations and minimize differences within cluster groupings. This procedure is statistically similar to an analysis of covariance, but is done in reverse. To determine the best cluster analysis solution, a number of iterations were undertaken and compared.

To begin, a Two-Step cluster procedure using a simple Euclidean distance

measure was undertaken to identify the ideal number of clusters. This procedure resulted in a six cluster solution with statistically significant cluster centers. Next, a series of K-Means cluster analyses were undertaken to confirm the six-cluster solution as "best." A K-Means analysis requires researchers to input a desired number of clusters for solution. Then, the computer identifies cases for each cluster which are as distinct as possible and that have most significant distance between groups. At this point 4, 5, 6, and 7 clusters solutions were demanded from the K-Means algorithm. Running means were used to identify cluster centers to avoid issues related to case order. When comparing these cluster solutions, statistical test values (F-values), cluster means, and case distances from cluster centers were considered. While these statistics are opportunistic since the procedure is working to form groups that differ, the relative size of the statistics provide feedback about each variable's contribution to distances between groups. On all criteria, the six group solution showed maximum variation between clusters and minimal variation within each cluster. Thus, the K-Means six cluster solution was selected for further data analysis.

Cluster means for each item are presented by cluster in Table 2.2. Based on these means, it is possible to describe items which scored above and below the sample averages for each cluster. This information allows identification of characteristics of each cluster that distinguish it from the other five. The six clusters are labeled and described as follows:

(1) *Undifferentiated*: (n = 16; 10.8%) Approximately one of every ten respondents was assigned to the first cluster. This cluster, labeled Undifferentiated, has few

significant cluster means and no observable pattern of time bias. Respondents classified in this group are considered impartial to any particular time perspective. Although respondents do not exhibit a time perspective, the emergence of this cluster was retained for data analysis to compare responses from individuals who have strong time biases to individuals who are relatively undifferentiated. Additionally, this cluster helps maintain a clear time bias in the other five clusters.

(2) *Present-hedonistic*: (n = 30; 20.3%) The 30 members of this cluster comprised 20.3% of sample respondents. High mean values depict members of this cluster as fun-loving, engaging, and impulsive. For example, the cluster center for the statements such as: "I try to live my life as fully as possible one day at a time," "I find myself getting swept up in the excitement of the moment," and "I prefer friends who are spontaneous rather than predictable," indicated higher levels of agreement than the overall sample mean. On the other hand, significantly lower than average sample means were observed for statements such as "I am able to resist temptations when I know that there is work to do," and "I complete projects by making steady progress." Both positive and negative items have been identified as attributes of Present-hedonistic time perspective individuals. As such, this cluster is labeled Present-hedonistic.

TABLE 2.2
K-Means Cluster Analysis of Time Perspective Scale

	Undifferentiated	**Present-hedonistic**	**Past-Positive**	**Past-negative**	**Future**	**Present-fatalistic**
	M	***M***	***M***	***M***	***M***	***M***
It's more important for me to enjoy life's journey than to focus on the outcome	**4.48**	**4.58**	3.33	3.17	**2.21**	**4.71**
Getting together with one's friends to party is one of life's important pleasures	.47	**4.48**	3.17	3.01	3.31	**4.71**
Familiar childhood sights, sounds, and smells bring back happy memories	3.23	3.43	**4.78**	**(1.93)**	3.75	**(2.58)**
Fate determines much in my life	3.11	**(1.93)**	2.96	2.94	3.76	**4.10**
I often think of what I should have done differently in my life	3.03	3.17	**(1.81)**	**4.50**	**3.75**	2.74
My decisions are mostly influenced by people and things around me	**4.02**	**(1.85)**	3.33	**2.39**	**2.15**	**4.74**
I do things impulsively	3.39	**4.08**	**(2.72)**	**(2.61)**	2.98	**4.94**
If things don't get done on time, I don't worry about it	2.98	**4.67**	2.69	3.22	**(1.92)**	**4.52**
It gives me pleasure to think about my past	3.12	3.07	**4.28**	**1.57**	3.50	2.58
When I want to achieve something, I set goals and consider specific means to achieve it	3.02	2.77	3.35	3.50	**4.53**	**(1.61)**
On balance, there is much more good to recall than bad in my past	3.21	**3.64**	**4.63**	**(1.53)**	3.56	3.10
Meeting tomorrow's deadlines and doing other necessary work comes before today's fun	3.10	**(2.55)**	3.41	3.22	**4.07**	**(1.06)**
Since whatever will be will be, it doesn't really matter what I do	2.86	**(1.63)**	3.28	**(2.11)**	2.80	3.32
When listening to my favorite music, I often lose all track of time	**3.84**	**4.21**	**3.91**	2.94	3.07	**4.42**
I enjoy stories about the "good old times"	3.09	3.43	**4.58**	**(1.64)**	3.56	2.58
Painful past experiences keep being replayed in my mind	2.89	2.35	**(2.15)**	**4.21**	2.61	2.42
I try to live my life as fully as possible one day at a time	3.80	**4.63**	3.89	3.36	3.36	**4.94**
It upsets me to be late for appointments	3.22	**(2.58)**	3.33	3.17	**4.21**	**(1.71)**
Ideally, I would live each day as if it were my last	3.83	**4.48**	**(3.31)**	3.61	**(3.17)**	4.71
Happy memories of good times spring readily to mind	3.39	3.43	**4.78**	**(1.93)**	3.75	3.58
I meet obligations to friends and authorities on time	3.37	**(1.93)**	2.96	2.94	3.76	**(2.10)**
I've taken my share of abuse and rejection in the past	2.27	3.07	**(1.81)**	**4.48**	2.50	2.74
I make decisions on the spur of the moment	3.28	**3.85**	3.33	3.15	**(2.39)**	**4.74**
I take each day as it is rather than try to plan it out	3.25	**(2.08)**	2.72	2.98	2.61	**4.94**
My past has too many unpleasant memories to think about it	2.91	2.67	**(1.69)**	**4.22**	2.92	3.52
It is important to put excitement in my life	3.69	**4.37**	2.98	3.50	**(1.57)**	3.58
I've made mistakes in the past that I wish I could undo	3.35	3.77	2.35	**4.37**	2.53	2.61
I feel it's more important to enjoy what you're doing than to get work done	**2.89**	**4.64**	3.75	3.56	**(1.53)**	**4.10**
I get nostalgic about my childhood	**3.84**	2.68	**4.22**	**(2.22)**	2.80	3.06

TABLE 2.2 Continued…

	Undifferentiated	Present-hedonistic	Past-Positive	Past-negative	Future	Present-fatalistic
	M	***M***	***M***	***M***	***M***	***M***
Before making a decision, I weigh the costs against the benefits	3.37	3.20	3.04	3.08	**4.19**	**(2.00)**
Taking risks keeps my life from becoming boring	3.68	**4.47**	3.69	3.94	**(1.59)**	3.35
Things rarely work out as I expected	3.14	2.63	3.30	3.67	2.54	**4.45**
It's hard for me to forget unpleasant images of my youth	2.61	2.93	**(1.52)**	**4.56**	2.21	2.32
It takes joy out of the process and flow of my activities, if I have think through it	3.32	3.92	2.81	2.78	**(1.34)**	**4.94**
Even when I am enjoying the present, I am drawn to comparisons with the past	2.89	**(1.65)**	**3.91**	**(1.55)**	2.90	2.36
You can't really plan for the future because things change so much	2.92	2.22	3.15	2.50	**(2.11)**	**4.32**
My life path is controlled by forces I cannot influence	2.72	2.78	3.06	3.22	**(2.00)**	**4.92**
It doesn't make sense to worry about the future-there's nothing we can do about it	2.69	2.75	3.20	2.83	3.12	**4.45**
I complete projects on time by making steady progress	3.16	**(1.68)**	3.46	3.04	**4.12**	**(2.42)**
I find myself tuning out when family members talk about the way it used to be	2.72	2.72	2.06	**4.40**	**3.56**	2.45
I take risks to put excitement in my life.	3.48	**4.50**	3.28	3.50	2.66	3.45
I make lists of things to do	3.26	3.12	3.06	3.44	**4.67**	**(2.00)**
I often follow my heart more than my head	3.91	**4.69**	2.49	2.06	2.06	3.32
I am able to resist temptations when I know that there is work to complete	3.42	**(2.65)**	3.35	3.17	**4.05**	2.32
I find myself getting swept up in the excitement of the moment	3.65	**4.38**	3.24	3.21	2.56	4.03
Life today is too complicated: I would prefer the simpler past	2.87	2.91	**4.35**	2.83	**(1.90)**	2.39
I prefer friends who are spontaneous rather than predictable	**4.01**	**4.72**	2.98	2.61	3.08	4.84
I like family rituals and traditions that are regularly repeated	3.10	**(1.89)**	**4.58**	**(1.58)**	3.66	2.87
I think about the bad things that have happened to me in the past	2.99	3.33	**(1.46)**	**4.75**	2.44	3.65
I keep working at difficult, uninteresting tasks if they will help me get ahead	3.22	2.50	3.13	2.28	**4.85**	2.76
Spending what I earn on pleasures today is better than saving	3.22	**3.95**	2.24	2.89	**(1.24)**	**4.92**
Often luck pays off better than hard work	2.96	2.59	2.93	3.28	**(2.19)**	**4.64**
I often think about the good things that I have missed out on in life	2.55	2.60	2.94	**4.28**	2.46	**(2.06)**
I like my close relationships to be passionate	3.50	**4.28**	3.69	3.19	3.69	**4.42**
There will always be time to catch up on my work	3.12	**4.40**	3.38	2.89	2.74	**3.94**
Respondents (n, %)	**16**	**30**	**27**	**17**	**29**	**29**
	10.81%	**20.27%**	**18.24%**	**11.49%**	**20.71**	**20.71**

*Listed in order of administration in questionnaire.

Note. Judgments were made on 5-point scale (1=This is very uncharacteristic of me, 2=Uncharacteristic, 3=Neutral, 4=Characteristic, 5=This is very characteristic of me). Highlighted means are significantly different from the sample mean ($p < .001$).

(3) *Past-positive*: (n = 27; 18.2%) The Past-positive cluster includes 27 members. Assessment of significant means depicts members of this cluster as reflective, contented, and nostalgic. Above average cluster center means were identified for statements such as "I get nostalgic about my childhood," "Familiar childhood sights, sounds, and smells often bring back a flood of happy memories," and "I like family rituals and traditions that are regularly repeated." Below average cluster centers were observed for statements such as, "I think about the bad things that have happened to me in the past."

(4) *Past-negative*: (n = 17; 11.5%) The fourth cluster is comprised of 17 members and is characteristic of a Past-negative time perspective. This cluster is the apparent opposite to the previous, Past-positive grouping. Assessment of significant means reveals members who are cheerless and have had unsettling experiences in their past. High levels of agreement with statements such as, "I've taken my share of abuse and rejection in the past," "It's hard for me to forget unpleasant images of my youth," and "I've made mistakes in the past that I wish I could undo" uncovers the characteristic sadness and negativity of cluster members.

(5) *Future:* (n = 29; 20.7%) The cluster of Future time perspective respondents includes 29 members. Members of this cluster can be characterized as hard-working and goal-oriented. High mean scores for statements such as, "When I want to achieve something, I set goals and consider specific means to achieve it," and "Meeting tomorrow's deadlines and doing other necessary work comes before today's fun," underlie respondents' belief in delayed gratification and purposeful living. This cluster is also characterized by disagreement with other statements

such as, “If things don't get done on time, I don't worry about it.” An achievement orientation is apparent among cluster members.

(6) *Present-fatalistic*: (n = 29; 20.7%) Approximately one in five respondents is a member of the final cluster. This cluster represents a Present-fatalistic time perspective. Members of this cluster are impetuous and thrill seeking like their Present-hedonistic counterparts. In contrast, members of the Present-fatalistic cluster are also pessimistic and exhibit an external locus of control. This is exhibited by significant agreement with statements such as “Fate determines much in my life,” “Things rarely work out as I expected,” and “Often luck pays off better than hard work.”

An understanding of each cluster is improved by description of respondent classification according to socio-demographic variables. As shown in Table 2.3, men and women were distributed among all six clusters fairly equitably. Women were slightly more likely to exhibit a Past-positive time perspective while men had a higher representation in Present time perspectives. With regard to age, none of the 23 respondents aged 24 years or older were classified as Past-negative. Moreover, a Future time perspective was most common among the very youngest and oldest students. Possible distinctions in time perspective were observed according to respondents’ employment status. Respondents who reported working full time were primarily split between Future and a Past-Positive biases. Conversely, unemployed respondents tend to be biased as Present-fatalistic more than any other time perspective. Of the 70 students working part-time, 30.7% were classified as Future oriented and 21.4% were Present-Hedonistic.

TABLE 2.3
Cross Tab Results for Variation in Cluster Membership

	Undifferentiated %	Present-hedonistic %	Past-Positive %	Past-negative %	Future %	Present-fatalistic %
Gender						
Male (n= 74)	12.1	22.9	16.4	4.3	20.0	24.3
Female (n= 74)	10.7	20.0	22.1	7.9	21.4	17.9
Age of Respondent						
18 years (n= 7)	7.1	14.3	21.4	0.0	35.7	21.4
19 years (n= 16)	9.1	33.3	27.3	6.1	24.2	0.0
20 years (n= 14)	17.9	14.3	42.9	7.1	10.7	7.1
21 years (n = 35)	10.3	26.9	16.7	6.4	29.5	10.3
22 years (n=17)	8.8	8.8	26.5	17.6	8.8	29.4
23 years (n= 19)	36.8	16.5	20.0	10.5	10.5	11.6
24 years (n= 12)	8.3	50.0	6.2	0.0	8.3	27.2
25 years (n= 3)	33.3	66.7	0.0	0.0	0.0	0.0
> 25 years (n= 20)	4.7	0.0	19.0	0.0	33.3	42.9
Work Status						
Full time/more than one job (n= 23)	10.6	4.3	44.7	0.0	40.4	0.0
Part-time (n= 70)	9.3	21.4	12.9	5.7	30.7	15.7
Un-employed (n= 45)	15.6	11.1	7.8	10.0	14.4	41.1
Other (n= 2)	0.0	50.0	50.0	0.0	0.0	0.0

Residual Time

After assigning each respondent to a time perspective cluster, the total amount of residual time was examined for respondents with different time perspectives. As described in the methodology, descriptive statistics and an ANCOVA were undertaken to compare time perspectives. Time perspective clusters served as the independent variable and quantity of residual time was the dependent variable. Residual time potential was determined by summing the number of minutes a respondent classified as "work" and subtracting this value from the total minutes in each day (1440). This total represents the residual time which was available for sleep, personal care, obligations, recreation or other activities as the respondent desired. For ease of interpretation, the average number of minutes per hour of clock time is reported. Thus, a score of 45.7 for Future time perspective respondents means that these cluster members averaged approximately 46

minutes of residual time for each hour of the day.

TABLE 2.4
Results of Analysis of Covariance Testing Residual Time (n=260)

Source of Variation	Sum of Square	d.f.	Mean Square	F-Value	P-Value
Covariate (age)	125774.45	1	125774.45	2.72	.09
Covariate (work status)	755201.27	1	755201.27	16.34	.00
Covariate (gender)	279851.75	1	279851.75	6.06	.02
Time perspective	700569.58	5	140113.92	3.03	.10
Residual	11551930.48	250	46207.72		
Total	14159242.67	259			

As shown in Table 2.4, no difference in the potential for recreation was observed between different time perspective clusters. However, results did approach significance. Future respondents appeared to have less residual time than respondents with Present time perspectives. In the order of ascending means, are respondents with Future (M = 45.7), Past-negative (M = 46.7), Past-positive (M = 47.1), Undifferentiated (M = 48.7), Present-hedonistic (M = 50.4), and Present-fatalistic (M =51.1) time perspectives.

Significant differences were observed for two covariates--gender and employment status. Men averaged 49 minutes of residual time each hour whereas women averaged 46.5 minutes of residual time. Across the span of a week, this seemingly small difference amounted to a 7.3 hour differential in residual time. Full time workers had the least amount of residual time (*M= 46.1)* and unemployed workers the most (M= 52.1). Part-time employees reported 1153 minutes of non-work time each day which provides an average of 48 minutes of residual time each hour. It is therefore not surprising that female respondents working full-time and exhibiting a Future time perspective averaged the lowest amount of residual time (n= 4; M = 44.0).

Recreation Yield

Next, the percentage of residual time dedicated to recreation was examined according to each time perspective. To calculate this value, recreation yield, the quantity of respondents' self-described recreation was divided by the total amount of residual time available to that individual. ANCOVA results, summarized in Table 2.5, revealed significant differences in time allocated to recreation according to time perspective. Recreation yields by time perspective ranged from 31% for respondents with a Future time perspective to 61% for respondents with a Present-Fatalistic time perspective. Bonferroni post-hoc tests differentiated the six clusters into four groups. These differences are described in Table 2.6. Present-fatalistic and Present-hedonistic respondents had significantly more recreation yield from their residual time than respondents in the next two time perspectives, Past-Positive and Undifferentiated. Lastly, Past-negative respondents reported significantly more recreation yield than respondents with Future time perspectives but less recreation yield than respondents with Past-Positive and Undifferentiated time biases. In terms of minutes, respondents allocated the following to recreation: Present-fatalistic (31.2 min.), Present-hedonistic (29.0 min), Undifferentiated (21.3 min), Past-positive (21.2 min), Past-negative (17.5 min), and Future (14.2 min). This means that within the span of one hour, respondents with Present time perspectives averaged more than twice the recreation time than respondents with a Future time perspective.

TABLE 2.5
Results of Analysis of Covariance Testing Recreation Yield (n=258)

Source of Variation	Sum of Square	d.f.	Mean Square	F-Value	P-Value
Covariate (age)	1891.75	1	1891.75	1.09	.30
Covariate (work status)	4919.77	1	4919.77	2.83	.09
Covariate (gender)	7768.33	1	7768.33	4.46	.04
Time perspective	26955.01	5	5391.00	3.10	.01
Residual	433478.49	249	1740.88		
Total	474840.07	257			

TABLE 2.6
Mean Comparisons of Recreation Yield by Time Perspective

	Undifferentiated *M*	Present-hedonistic *M*	Past-Positive *M*	Past-negative *M*	Future *M*	Present-fatalistic *M*
Recreation Yield	43.76_{b}	57.55_{a}	45.01_{b}	37.48_{c}	31.15_{d}	61.13_{a}

Note: Means are adjusted to account for covariates in the model including age, work status, and gender.

In addition to time perspective, gender had a significant relationship with the amount of residual time dedicated to recreation. On average, men dedicated 48.4% of their residual time to recreation whereas 42.7% of women's residual time was dedicated to recreation. Since women have less residual time and a lower recreation yield from that time, women experienced significantly less recreation than men on an hourly basis. Among study respondents, the combined difference of residual time and recreation yield resulted in 23.7 minutes of recreation each hour for men compared to 19.8 minutes per hour for women.

Nature of Recreation

An understanding of the quantity of recreation emerges from the analyses described

above. However, to understand what types of recreation are undertaken by respondents with different time perspectives, the nature of recreation is described. Since this is the first study linking recreation time allocation to time perspective, no formal hypotheses were presented for testing. Instead, the most frequent activities pursued by members of each cluster are used to describe tendencies in the data. In addition differences in recreation activity participation are identified and described using an analysis of variance and Bonferroni post-hoc tests. This analysis provides a snapshot of the recreation behavior for respondents with different time perspectives. These findings should allow for hypothesis development and testing in future data sets.

Coding time diary results into activity categories was done according to the procedure outlined by Gershuny (2000). All primary and secondary activities were assigned to one of 40 pre-determined categories provided by the International Time Use Society. A primary activity is the main activity undertaken for a given period. A secondary activity is the next activity listed under the column heading "Other activity." While this does not preclude participation in additional activities, the following analysis is based on primary and secondary activities. All activity coding was completed by the primary author in order to maintain consistency in coding. Activity categories were determined following more than forty years of time diary research and are provided so that time diary data can be compared from different studies around the world (Gershuny, 2000). However, when an activity did not fall into one of the forty categories provided, an alternative category was created. For this study, 3 alternative categories were required which resulted in 43 activity categories.

To begin a description of time allocation by time perspective, it is useful to have an

overview of time allocation for all respondents. For this purpose, the mean time allocated to work, school/class, personal care, other obligations and recreation is described in Table 2.7. Study respondents spent the most time, more than 1/3rd of every 24 hours on self-maintenance (sleep, dress/toilet, meals/snacks). Almost another third of respondent time was set aside for recreation. More than 20 activities from knitting to tailgating comprised this segment of time. Respondents allocated 172 minutes each day to class and course study and another 152 minutes for paid employment. This left just over 10% of their day for obligatory tasks such as housework, preparing meals, and running other errands.

TABLE 2.7
Average Daily Minutes Spent in Activity Domains

		Sample Mean
Paid Work	M	152
	%	10.56
Self maintenance	M	508
	%	35.27
Other/Obligation	M	146
	%	10.14
Class or studies	M	172
	%	11.94
Recreation	M	462
	%	32.08
Total Minutes		**1440**

Next, the most frequent activities are described according to each time perspective. Table 2.8 provides rankings for the most frequent activities for respondents in each time perspective. Rankings are provided according to the minutes spent participating in each activity and treat weekdays and weekends separately. Table 2.9 provides the average

minutes spent on each of the top activities for each time perspective. Obligatory, work, and recreation activities are included in this list because individuals were given the responsibility of labeling activities. This means that it is possible that for a given activity such as "Travel (non-commute)" different respondents may have reported this activity as work, recreation and obligation. A summary of recreation activity preferences for each cluster follows:

(1) *Undifferentiated* (n = 16; 10.8%): Outside of sleep, paid work, and personal hygiene the 16 respondents with an Undifferentiated time perspective dedicated their residual time to television, visiting with friends, studying, going to bars, and working on the computer. On both weekdays and weekend days, respondents in this cluster watched television for just over two hours (127 min, 134 min). Respondents with an Undifferentiated time perspective also reported spending between 30 minutes an hour each day shopping, dining out at restaurants, studying, visiting friends, enjoying meals or snacks, attending parties or tailgates, working on the computer, shopping, and going to bars. On weekdays, paid work and class attendance accounted for 160 and 122 minutes respectively. In addition, respondents in this cluster traveled (non-commuting) an average of 37 minutes on weekend days.

TABLE 2.8
Activity Frequency Rankings by Time Perspective

	Undifferentiated		Present-hedonistic		Past-Positive		Past-negative		Future		Present-fatalistic	
Activity	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Sleep	1	1	1	1	1	1	1	1	1	1	1	1
Paid work	2	3	2	3	2	2	3	3	2	2	2	3
TV, Videos	3	2	4	2	4	3	2	2	4	3	4	2
School/Class	4	21	3	21	3	21	4	21	3	16	3	21
Dress/Hygien	6	5	7	8	6	5	7	10	6	5	6	6
Study	5	8	6	12	5	4	9	16	5	4	5	11
Visit friends	8	4	9	4	7	5	9	7	12	11	10	4
Meals/Snacks	9	6	13	11	10	5	6	5	14	10	13	9
Pub	7	9	5	4	9	11	5	4	6	8	7	5
Parties/Tailga	14	7	8	7	13	13	13	10	16	8	8	6
Computer	10	9	13	14	13	9	7	8	10	7	13	14
Restaurant	13	12	11	6	12	17	11	9	9	12	12	8
Shopping	12	13	10	13	10	12	14	13	11	13	8	11
Commute	10	16	12	16	8	16	12	15	14	17	11	17
Active sport	15	14	15	9	15	14	16	18	12	6	15	9
Travel (non-	20	11	20	18	19	8	20	18	20	15	20	15
Civics/Club	16	20	18	19	20	10	19	20	8	17	16	19
Phone	17	18	17	17	17	17	15	14	17	19	17	18
Passive sport	19	14	19	15	20	20	17	12	21	21	19	16
Cinema/theat	18	19	16	10	18	19	18	5	19	20	18	11
Religious	20	17	21	20	16	15	21	16	17	14	21	20

TABLE 2.9
Time Allocated to Activities by Time Perspective[a]

	Undifferentiated		Present-hedonistic		Past-Positive		Past-negative		Future		Present-fatalistic	
Activity	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
Sleep	433	482	325	362	440	490	462	502	402	480	336	379
Paid work	160	117	120	88	165	125	104	96	205	180	139	86
TV, Videos	127	134	70	100	108	121	179	205	82	122	70	96
School/Class	122	10	92	1	132	12	84	0	130	25	122	2
Dress/Hygien	56	51	42	49	58	54	50	42	46	50	47	51
Study	58	41	44	31	60	73	44	19	62	82	53	30
Visit friends	40	54	39	62	44	54	44	59	30	34	36	63
Meals/Snacks	39	50	25	33	36	54	51	62	26	35	25	36
Pub	46	40	45	62	38	38	65	68	46	40	39	54
Parties/Tailga	35	43	40	52	33	35	35	42	25	40	38	51
Computer	38	40	25	26	33	40	50	54	34	42	25	26
Restaurant	36	33	35	54	35	22	42	51	36	33	31	48
Shopping	37	32	36	30	36	37	32	32	31	32	38	30
Commute	38	22	27	18	42	27	37	24	26	20	33	19
Active sport	27	23	20	42	22	32	16	18	30	44	21	36
Travel (non-	6	37	5	12	8	46	8	18	10	29	3	21
Civics/Club	23	15	13	10	6	39	15	7	38	20	16	11
Phone	17	19	15	17	20	22	21	26	14	17	14	17
Passive sport	9	23	10	20	6	15	24	40	5	11	6	20
Cinema/theat	14	18	18	40	12	16	15	62	12	15	10	30
Religious	6	21	2	6	21	32	4	19	14	30	1	7

[a] The minutes do not add up to a equal a full day (1440) because international coding procedures were used and provide 43 activity categories as well as participation in more than one activity at a time.

(2) *Present-hedonistic* (n = 30; 20.3%): As with respondents in every cluster, sleep consumed more residual time than any other activity. However, respondents in the Present-hedonistic time perspective cluster slept less on weekdays and weekends than respondents of any other time perspective. Instead, respondents spent a good deal of time away from home in social gatherings at bars, parties or tailgates, and visiting with friends. On weekend days, respondents reported spending an average of 62 minutes each at bars and visiting friends and another 52 minutes at parties. Present-hedonist respondents also spent approximately 54 minutes per weekend day dining at restaurants and another 40 minutes watching movies or sports outside of their home. On the other hand, cluster members spent less than average time studying, shopping and working on the computer.

(3) *Past-positive* (n = 27; 18.2%): Like all respondents, the 27 respondents assigned to the Past-positive cluster spent most of their residual time sleeping , working, and watching television. However, it is notable that on both weekdays and weekend days, Past-positive respondents reported higher participation than all other groups in religious activity and civic participation. On weekdays, Past-positive respondents appear to have a structured day highlighted by residual time spent working (165 min), in class (132), preparing and eating meals (36), and studying (60 min). On weekends, these activities are undertaken and augmented with commuting (42 min; often to visit family), participating in civic organizations (39 min), working on the computer (40 min), and taking part in religious activity (32 min). While these activities are healthy and support

relationship and community bonds, respondents with a Past-positive time perspective still spent time at parties and bars, albeit less time than most other respondents (38 min; 35 min).

(4) *Past-negative* (n = 17; 11.5%): The residual time pursuits of the 17 respondents classified as Past-negative tended to be stationary activities, such as television viewing, working on the computer, playing passive sports, dining out at restaurants, talking on the phone, and attending bars, movies, or sporting events. On weekdays, respondents with this time perspective spent the most time sleeping (496 min), followed by five hours of watching television (300 min), going to bars (115 min), and working at their place of employment (105 min). Further, respondents classified as Past-negative spent a great deal of time in passive sports. According to notes taken during data entry, gambling and card playing were among the most popular passive sports reported. Weekends were also comprised of sleep, television viewing, pub outings, as well as computer and online gaming for up to 90 minutes. Passive sports such as gambling and cards were undertaken for an additional 40 minutes on weekend days. Lastly, it is also important to note the amount of residual time respondents with a Past-negative time perspective spent sleeping. With an average of 524 minutes across weekdays and weekends, respondents averaged 8.8 hours of sleep nightly.

(5) *Future* (n = 29; 20.7%): One in five respondents was classified as Future time perspective. On weekdays, these 29 individuals spent much of their residual time in constructive activities including work (205 min), class (130 min), studying (62

min), civic organizations (38 min), and active sports (30 min). On weekends, additional time was dedicated to studying (82 min), work (180 min), physical activity (44 min) and religious activity (30), but time was also allocated to television (122 min), shopping (32 min), partying (40 min) and at bars (40 min). Overall, the residual time of respondents with a Future time perspective was spent in more structured activities than respondents of other time perspectives. Class, studies, and work figured largely in the daily life of these respondents but time was also allocated to friendships, social organizations, and sport.

(6) *Present-fatalistic* (n = 29; 20.7%): At first glance, weekday time allocation among respondents with a Present-fatalistic time perspective appears similar to respondents with an Undifferentiated or even Future time perspective. For example, the top four weekday activities for respondents with a Present-fatalistic time bias were sleeping, paid work, school, television viewing, and studying, in that order. However, beyond those activities, the four remaining activities in this time cluster were all undertaken outside of home—going to bars, attending parties and tailgates, shopping, and visiting friends. Assessment of weekend activities provides an even clearer distinction for respondents who have a Present-fatalistic time perspective. On weekends, these respondents were very social and active spending more residual time than the sample average visiting bars (54 min) attending parties (43 min), visiting friends (63 min) attending movies or sporting events (30 min), being physically active (36 min) and dining out at restaurants (48 min). Thus, in respect to their residual time allocation, the

residual time pursuits of Present-fatalistic respondents were very similar to those of respondents with a Present-hedonistic time perspective. In particular, both groups of respondents engaged in social activities and dining out more than respondents in all other time perspectives.

The frequency of participation in all activities describes daily life for respondents with different time perspectives. However, to better understand the recreation pursuits of respondents with different time perspectives, time allocated to recreation activities must be compared. For this, 20 activities were selected and classified as recreation activities. These activities were then factor analyzed which reduced the 20 activities to four major types. A principal components factor analysis with Varimax rotation was undertaken. While no factor number was specified, an eigenvalue of 1.0 or greater was required for factor convergence. In the first iteration of analysis, one item did not demonstrate a simple loading structure and was removed from analysis (tanning). Following item removal, a four factor solution was achieved and is presented in Table 2.10. As shown below, each factor demonstrated shared conceptual meaning, a simple loading structure, eigenvalues greater than 1.0 and an alpha reliability score greater than .70.

TABLE 2.10
Recreation Experience Factor Analysis

	Mean	Factor Loading	Eigen-value	Variance Explained	Alpha
Active and Outgoing Recreation			3.14	13.65	.79
Restaurant	34.56	.768			
Dances/parties	39.06	.738			
Phone	17.60	.689			
Active Sport	25.18	.665			
Conversation	14.13	.671			
Quiet Recreation			2.86	12.43	.82
Religious activity	14.62	.907			
Visit friends	47.21	.835			
Knit/sew	3.21	.807			
Walk	7.48	.628			
Hobby Recreation			2.80	12.19	.76
Travel	22.87	.778			
Gardening/pets	10.85	.701			
Entertaining friends	15.32	.681			
Cinema/theatre	18.62	.664			
Shopping	34.79	.576			
Passive Recreation			1.93	8.40	.71
Television/videos	127.33	.615			
Computers	39.96	.598			
Passive sport	16.98	.627			
Bars	42.94	.664			
Listening to music, ipods	5.33	.651			

With four categories of recreation identified, the frequency of participation in each type of recreation activity was compared across time perspective clusters using an analysis of variance and Bonferroni post-hoc tests. Saved regression factor scores served as the dependent variable in analysis and time perspective clusters served as the independent variable. As shown in Table 2.11, time allocation to active and outgoing recreation, quiet recreation, hobby recreation and passive recreation was significantly different by time perspective. Additional tables describing the factor analysis are

provided in Appendix C.

TABLE 2.11
Analysis of Variance in Recreation Time Allocation

		Sum of Squares	df	Mean Square	F	p-value
Active and Outgoing Recreation	Between	39.47	5	7.89	9.07	.00
	Within	216.72	249	0.87		
	Total	256.18	254			
Quiet Recreation	Between	121.63	5	24.33	45.19	.00
	Within	134.04	249	0.54		
	Total	255.67	254			
Hobby Recreation	Between	42.57	5	8.51	10.11	.00
	Within	209.76	249	0.84		
	Total	252.33	254			
Passive Recreation	Between	83.07	5	16.61	24.19	.00
	Within	170.98	249	0.69		
	Total	254.05	254			

Post-hoc results, presented in Table 2.12, help identify where significant differences lie. For example, consider the frequency of participation in Active/Outgoing recreation. The high, positive values indicate that Present-hedonistic and Present-fatalistic respondents were significantly more likely than respondents of all other time perspectives to allocate time for Active and Outgoing recreation pursuits such as going to parties, talking on the phone or dining out at restaurants. Conversely, respondents with a Future time perspective were least likely to allocate time for this type of

recreation. With regard to quiet pursuits such as religious activity, visiting friends, walking, and knitting, respondents with either Present time perspective were least likely to allocate time these activities. Instead, Past-positive respondents spent the most time in these pursuits, followed by Future and Past-negative respondents. A wide range of hobbies were most frequently undertaken by respondents with Past-positive and Future time perspectives. Hobbies attracted less time and attention from Past-negative and Undifferentiated respondents and once again, respondents with Present time perspectives were least likely to participate. The final category of recreation activity includes passive recreation activities such as watching television, using computers, listening to music, attending bars and playing passive sports. Respondents with a Present-fatalistic time perspective were most likely to allocate time for these activities. Passive recreation was also popular with respondents with a Past-negative time perspective although significantly less so than Present-fatalistic respondents.

TABLE 2.12
Mean Comparisons of Recreation Time Allocation by Time Perspective

		Undifferentiated	Present-hedonistic	Past-Positive	Past-negative	Future	Present-fatalistic
Active/ outgoing	*M*	.05 $_{b}$	.48 $_{a}$	-.05 $_{b}$	.01 $_{b}$	-.27 $_{c}$	.38 $_{a}$
Quiet	*M*	-.18 $_{c}$	-.52 $_{d}$	.94 $_{a}$	-.07 $_{b}$	.03 $_{b}$	-.44 $_{d}$
Hobby	*M*	-.02 $_{b}$	-.20 $_{c}$	.22 $_{a}$	.02 $_{b}$	.27 $_{a}$	-.33 $_{c}$
Passive	*M*	-.18 $_{c}$	-.15 $_{c}$	-.16 $_{c}$	.60 $_{b}$	-.64 $_{d}$	.84 $_{a}$

Note. Judgments were standardized and saved as regression factor scores ranging from -1 to 1. Means in the same column that do not share subscripts differ at $p < .05$ in the Bonferroni significant difference comparison.

Discussion and Conclusions

Researchers in psychology have linked time perspective to attitudes and behaviors in many domains. However, recreation behavior had not been investigated. Researchers in recreation have described how the experience work and recreation may differ as a function of their individuals' personality (Kabanoff & O'Brien, 1980; Mannell & Reid, 1992). However, time perspective had not been investigated. This study links these two ideas from two different disciplines by investigating the relationship of time perspective and time allocation. Findings suggest that this hypothesized link may exist. Among study respondents, time perspective had a significant relationship with the percentage of residual time dedicated to recreation.

Cluster Analysis

First, cluster analysis findings identified all five theoretical categories of time perspective within the study sample. Previous studies using similarly limited populations have observed 3, 4, and 5 of the time perspectives (e.g. DeVolder & Lens, 1982; Hamilton, Kives, Micevski, & Grace, 2003; Keough, Zimbardo, & Boyd, 2001; Shell & Husman, 2001). Thus, the simple presence of each group bolsters the validity and reliability of the ZTPI scale.

Next, cluster analysis findings extend knowledge of time perspective by identifying an Undifferentiated category of respondents. In previous studies, no category has accounted for those respondents who resisted classification into any one time bias. The emergence of a group of individuals as Undifferentiated extends existing theory. Previous studies relying on time perspective have not addressed the possibility

that some respondents may not have a single, strong time bias. Current findings indicate that this is possible and thus, may be replicated in future time perspective research.

Residual Time

Overall, the amount of time available for non-work pursuits was very high. This can be attributed to the uniqueness of an undergraduate student sample. However, despite findings that respondents averaged more than 40 minutes of residual time each hour, patterns emerged which are consistent with the literature linking gender, work, and time allocation.

No differences were observed in the quantity of residual time according to each time perspective. This finding tells researchers that despite identifiable differences in interpretation of time in terms of the past, present, and future, the amount of residual time available to individuals is similar. On the other hand, the quantity of residual time reported by respondents was related to individuals' work status and gender. These findings were expected in light of previous literature linking employment status and gender to work and leisure time. For example, it should not be surprising that people who report working full time have the least non-work time available while people who are unemployed spend less time working.

It is perhaps more interesting to examine the relationship between gender and available residual time. On average, women had 7.3 fewer hours of residual time each week despite controlling for work status and time perspective. What is more, the overwhelming majority of women in this sample were students who were not yet grappling with the time commitments of the second shift (Hoschild & Machung, 2003).

The second shift is a term that refers to the dual roles many women taken on when they participate in economic work in addition to caring for a home or family during their hours outside of paid employment. A possible explanation for this disparity may reside in the study methodology. By allowing respondents to determine whether an activity was work, recreation, or obligation/other, women may have been more inclined to describe activities as work which were outside boundaries of paid work (which was captured by the analysis of covariance). For example, during time diary coding, research notes were taken. Among these notes was the observation that many women characterized their physical activity as work while no instance of this was observed among male respondents. Regardless of the validity of this explanation, women's description of non-economic work as work is interesting in itself.

Recreation Yield

For respondents with different time perspectives, significant differences were observed in the percentage of residual time allocated to recreation. This finding supports the fundamental idea driving this study: How people think about time impacts how their residual time is allocated. What is more, time perspective explained as more variance in recreation yield than age, work status, and gender.

Differences observed in time allocation, provide insight into the value of recreation in respondents' lives. For example, the observation that respondents with a Future time perspective spend less than one-third of their time in recreation indicates that recreation is less important to individuals focused on future goals than it is to individuals interpreting time in the present. Activities undertaken for their own sake were

significantly more important to respondents with both Present time perspectives. Overall, respondents who interpreted the present in terms of current desires were most likely to pursue recreation during their free time. Respondents who interpreted the present in terms of their future goals and expectations were least likely to pursue recreation during their free time. Future research should identify the prevalence of each time perspective across regions of the United States as well as among different cultural groups. These findings could provide insight into the importance of recreation to that region or culture.

Next, it is important to address the significant relationship observed between gender and recreation yield. Men allocated a greater percentage of their residual time to recreation than did women. At first glance, the 5.3% difference between men and women's recreation yield may appear small, particularly in light of a 30% difference observed between different time perspectives. However when this finding is interpreted alongside women's lower recreation yield, we find that men participate in recreation an average of 93 more minutes than women each day. Understanding factors that account for differences in men and women's recreation yield is already a rich area of inquiry. In addition to possible differences in respondent coding described above, researchers have identified relationship power (Bianchi, Milkie, Sayer, & Robinson, 2000), an ethic of care, a lack of entitlement (Shaw, 1999; Henderson, Hodges & Kivel, 2002), and "doing gender" (Shelton, 2000) as explanations for differential recreation time. However, the emergence of this large differential in recreation at such a young life stage merits

specific inquiry. The social processes teaching women to put others needs before their own or that women don't deserve play must be elucidated.

Nature of Residual Time Allocation

We now turn our attention to the nature of residual time activities. It is important to recognize that the residual time pursuits of sample respondents reflect their life stage, work status, gender and other personal characteristics in addition to time perspective. Not surprisingly, the college-aged sample reported attending parties, bars, sporting events, as well as allocating time for studying and attending class. However, even within these typical "college" activities, the comparison across time biases provides useful information about the nature of recreation for respondents with different time perspectives. Descriptors emerged during the discussion of the residual time allocation. Although further inquiry is needed, we can tentatively describe the recreation of each time perspective cluster as follows: Past-negative respondents tended to spend more time in stationary, passive pursuits including sleep, gaming, and television viewing. Respondents classified as Past-positive seemed to allocate a greater amount of time to religious, community, and family activities than most other respondents. Individuals with biases for Present-hedonistic and Present-fatalistic time perspectives tended to participate in social activities outside of their homes. Lastly, respondents with a future time perspective appeared most likely to spend time in constructive, structured activities ranging from physical activity to civic participation or work. The utility of these descriptors was borne out by the second state of recreation activity analysis.

Additional Implications for Recreation Service Provision

A perpetual question among recreation service providers asks why people do not take advantage of recreation offerings in their communities (Jackson & Scott, 1999). While constraints and social characteristics provide some insights into leisure behavior, study findings indicate that time perspective can improve our understanding of recreation behavior. The thirty percent range in time allocated to recreation between time perspective clusters tells researchers and practitioners that the time perspective may be a factor moderating who does and who does not avail themselves of recreation offerings. In addition, our understanding of the nature of residual time allocation provides insight about the types of offerings respondents with different time perspectives will and will not use.

Current study results allow us to hypothesize that individuals with a Future time perspective will be more likely to attend a structured recreation program than respondents with a Past-negative time perspective. Moreover, given the propensity of respondents with a Future time perspective to pursue constructive recreation, programs offering physical activity benefits, volunteer opportunities, and social-network building would likely be welcomed by these respondents. Conversely, respondents with Present-hedonistic and Present-fatalistic time biases may be unlikely to register for formal recreation offerings. Since these respondents tend to make impulsive, emotional decisions, providing drop-in programs and un-structured recreation offerings may be wise. Provision of a community space for socialization such as Oldenburg's "Great

Good Place" (1999) may be a beneficial means to provide recreation for these present-oriented respondents.

On this topic, it is also interesting to note that activities which are likely to appeal to respondents with a Future time perspective comprise the typical offerings of recreation and park departments. Ironically, study findings also indicate that respondents with a Future time perspective allocate the least amount of their residual time to recreation. Thus, recreation service providers may find themselves in the unenviable position of providing recreation activities for constituents that place a relatively low premium on recreation. Conversely, respondents who "live for today" and "try to live each day as fully as possible" have few opportunities provided by service providers to undertake the unstructured, hedonistic recreation they may desire. Future research investigating links between individuals' time perspective and their recreation experience preferences will provide important feedback for recreation service providers.

Concluding Thoughts

Finally, results from the current study indicate that time perspective has a significant relationship with the amount and type of residual time allocated to recreation. In addition, current findings support previous research that has linked gender and work status to the amount of non-work time available for recreation. In light of these relationships, and the ability of time perspective to explain more variance in recreation yield than other variables, future studies should include time perspective as an explanatory variable in attempts to understand recreation behavior. Studies describing recreation experience preferences, recreation behavior, and recreation outcomes can

benefit from the inclusion of a time perspective variable. What is more, research into leisure behavior should incorporate a combination of statuses in order to better understand why people do what they do with their free time. Similar to multiple hierarchical studies which examine the combination age, gender, race/ethnicity, and socio-economic status to understand recreation attitudes and behaviors (e.g. Lee, Scott, & Floyd, 2001; Arnold & Shinew, 1998) studies of recreation behavior should examine the combined effects of gender, work status, and time perspective. It is likely that the effects of each individual variable will be multiplied when they are combined in one individual.

TIME PERSPECTIVE AND RECREATION EXPERIENCE PREFERENCES

Introduction

A primary goal of commercial and public recreation providers is to identify and satisfy the recreation demand of their customers. However, neither researchers nor practitioners know how customers' framing of time is related to their desire for recreation during residual time. An understanding of how individuals' time perspective is linked to the type of recreation they seek is valuable information for identifying and meeting customer demand.

Social-psychological research suggests that time perspective is an important construct for understanding human behavior broadly (Boyd & Zimbardo, 1997; Zimbardo, 2002; Zimbardo, Keough, & Boyd, 1997). Time perspective (TP) is a tendency to interpret the present in light of one's past experiences, present stimuli, or future aspirations (Zimbardo & Boyd, 1999). It has been conceived as a relatively stable trait, and reliance on a temporal frame elicits a time bias which results in one of five time perspectives. These have been labeled *past negative*, *past positive*, *present hedonistic*, *present fatalistic,* and *future oriented* (Gonzalez & Zimbardo, 1985). Time perspective has been linked to behaviors related to academic achievement (DeVolder & Lens, 1982; Nuttin, 1985; Raynor, 1970; Raynor & Burbin, 1971), sensation seeking (Keough, Zimbardo, & Boyd, 2001), and health risk and health maintenance (Lukwago et al., 2001), and self-monitoring (Oner, 2002).

Given findings that time orientation is a fundamental dimension of individual identity, differences in time orientation should yield significant differences in individual choices for residual time (Block, 1990; Philipp, 1992). This suggests that personal time perspective is likely to be important for understanding leisure benefits sought during free time. With a goal of identifying and meeting customers' recreation needs, this study will work to understand the relationship between time perspective and the type of recreation benefits an individual seeks. Thus, the current study will be guided by the following hypothesis:

H1: Individuals with different time perspectives will exhibit different recreation benefit preferences.

After next describing different time perspectives and findings related to recreation behavior, specific hypotheses will be described for each time perspective.

Review of Related Literature

Benefits Sought from Recreation

The idea that individuals participate in recreation to achieve benefits is ancient. In the times of Aristotle, free time was recognized as a privilege that allowed for contemplation and civic participation (Sylvester, 1999). During the mid to late 1800s, capturing specific benefits was the basis for establishing parks and recreation programs in the United States, Canada, and England (Allen & Jarvi, 1998; Sessoms, 1993). In the early 20th century, reformers recognized a need to provide wholesome play opportunities

for children that would contribute to character development and result in reduced crime. Reformers also felt recreation and parks could alleviate stress from stultifying work (Cross, 1990). The idea that recreation could benefit people provided a justification for public services and the foundation of modern parks and recreation agencies.

From these early foundations, modern day researchers conceptualized the benefits of leisure (e.g. Driver, 1998; Tindall, 1995). In 1980, Dennis Howard and John Crompton returned to these early concepts and were among the first to express what we now refer to as the Benefits Approach to Leisure (BAL). They wrote, "The question to ask is, what is the best way these benefits [of managing park and recreation resources] can be facilitated, given the resources available" (p. 217). Research on the benefits of leisure and an absence of management models to capture these benefits prompted an Applications Workshop which was held in 1991. This workshop provided a systematic, conceptually integrated and operational means of elucidating and promoting the benefits of leisure. This system ultimately became known as the BAL.

The BAL emerged as both a philosophy about leisure in society and a system for directing leisure research, instruction, policy development, and management. In contrast to other leisure service delivery models, the BAL views the management of inputs and of system structure only as necessary means to attain the ends—desired outcomes or impacts. Thus, it views the management as one of optimizing net benefits that accrue to individuals, groups of individuals such as family units, local communities, and the biophysical world and processes being managed.

The BAL was widely publicized and adopted in the late 1990s. After the initial

presentation of the benefits approach to leisure, the National Recreation and Park Association dedicated themselves to promoting the Benefits of Leisure (Park, 1998). This organizational backing led to a keen interest in the benefits concept. For example, following the introduction of a Benefits of Parks and Recreation training program, more than 500 parks and recreation professionals took part in less than eight months (Driver & Bruns, 1999). The attraction of the BAL was its simplicity: According to Dustin, McAvoy, and Goodale (1999), the BAL "provides a straightforward approach to explaining and justifying the expenditures for community leisure services by demonstrating how such services enhance a community's welfare" (p. 33).

As described by Dustin et al. (1999), a key tenet of the benefits approach to leisure is that leisure services provide a more vast range and number of aggregate benefits to society than any other social service. Coupled with the perception of leisure services as non-necessary, the benefits approach to leisure can fill an important function of elucidating the pervasiveness of leisure benefits. Increasing political parity by promoting scope and social significance of leisure is fundamental to the benefits movement.

The utility of the BAL is not limited to its role as a political or positioning argument. Within the leisure services field the benefits approach to leisure has been applied in three key ways. First, the BAL is used to optimize benefits opportunities. This is also described as an *Improved Condition*. An improved condition is a net gain for an individual, group of individuals or another entity such as the physical environment, wildlife etc. Second, the BAL is used as a social intervention to prevent,

resolve, or reduce the adverse impacts of social problems. This type of benefit is described as the *prevention of a worse condition*. Driver and Bruns (1999) provided examples such as maintained friendships, health, community stability and prevention of social problems associated with at-risk-youth. The third application of the BAL is to realize *a specific satisfying psychological experience* (aka psychological outcomes). Unlike other benefits, these outcomes accrue only to individuals.

Within the three applications of the BAL over one hundred benefits have been identified in all realms of human activity including work, health, transportation, housing, and education. Research findings continue to expand this list and challenge existing categories. For example, in 1995 Barry Tindall summarized the ability of public recreation and park agencies to initiate or manage the production of four major benefits categories: (1) Community and Personal Security, (2) Health and Welfare, (3) Education and Awareness, (4) and Job Creation and Maintenance. These categories, while representative of many recreation benefits provided, have been supplanted by a broader typology offered by Driver and Bruns (1999). Four general categories of leisure benefits include, (1) Personal Benefits, (2) Social and Cultural Benefits, (3) Economic Benefits, and (4) Environmental Benefits. Personal benefits (aka private benefits) are those leisure benefits that accrue only to participants. Conversely, social and cultural, economic, and environmental benefits (aka public benefits) accrue to the community at large (Crompton & Lamb, 1986).

Research related to each of these four broad categories has developed unevenly. Early benefits researchers focused on the individual as the level of analysis and

described the personal benefits of leisure. During the late 1970s most benefits research was focused on the psychological benefits of leisure with three individuals driving in this research agenda—Crandall (e.g. Crandall, 1979; Crandall, 1980; Crandall & Thompson, 1978; London, Crandall, Fitzgibbon, 1977), Tinsley (Tinsley 1978; Tinsley, Barrett, & Kass, 1977; Tinsley & Kass, 1978, 1979; Trafton & Tinsley, 1980) and Driver (e.g. Driver & Knopf, 1977). Interest in research on the psychological benefits of leisure intensified during the early 1980s. For example, the 13th volume of the *Journal of Leisure Research* featured four articles related to this topic. In 1984, Tinsley undertook a review to summarize the research related to the psychological benefits of leisure and leisure counseling. To identify benefits sought, Tinsley began by identifying 40 psychological needs. From 40 primary and secondary needs, 27 needs were selected that the author perceived were relevant to leisure experiences. Then, 8 benefit categories were identified which could potentially meet the 27 needs. Following a review of related needs and benefits research literature, the psychological benefits of leisure included, (1) Self-expression, (2) Companionship, (3) Power, (4) Compensation, (5) Security, (6) Service, (7) Intellectual aestheticism, and (8) Solitude.

Historically, personal benefits have received the most attention and more than sixty personal benefits available through leisure participation have been identified (Driver & Bruns, 1999). Although much more attention is now being directed towards community, health, and economic benefits of recreation, the recreation experience remains an important concern for commercial and public recreation providers. Thus, we investigate the relative importance of different personal benefits to recreation customers

with diverse time perspectives.

TABLE 3.1
Personal Benefits Attributed to Leisure by Research

Psychological Benefits

Better mental health & maintenance
- Holistic sense of wellness
- Stress management
- Catharsis
- Prevention and/or reduction in depression, anxiety, and anger
- Positive changes in mood and emotion

Personal development and growth
- Self-confidence
- Self-reliance
- Self-competence
- Self-assurance
- Value clarification
- Improved academic and cognitive performance
- Independence and autonomy
- Sense of control over one's life
- Humility
- Leadership
- Aesthetic environment
- Creativity enhancement
- Spiritual growth
- Adaptability
- Cognitive efficiency
- Problem solving
- Nature learning
- Cultural and historic awareness
- Environmental awareness and understanding
- Tolerance
- Balanced competitiveness
- Balance living
- Prevention of problems to at-risk youth
- Acceptance of personal responsibility

Personal Appreciation and Satisfaction
- Sense of freedom
- Self-actualization
- Flow and absorption
- Exhilaration
- Stimulation
- Sense of adventure
- Challenge
- Nostalgia
- Quality of life and/or life satisfaction
- Creative expression
- Aesthetic appreciation
- Nature appreciation
- Spirituality
- Positive change in mood or emotion

Psychophysiological Benefits
- Cardiovascular benefits, including stroke prevention
- Prevention or reduction of hypertension
- Reduced serum cholesterol and triglycerides
- Improved control and prevention of diabetes
- Prevention of colon cancer
- Reduced spinal problems
- Decreased body fat and/or weight control
- Improved neuropsychological functioning
- Increased bone mass and strength
- Increased muscle strength & better connective tissue
- Respiratory benefits
- Reduced incidence of disease
- Improved bladder control among elderly
- Increased life expectancy
- Management of menstrual cycles
- Management of arthritis
- Improved functioning of the immune system
- Reduced consumption of alcohol and use of tobacco

Source: Adapted from Driver & Bruns (1999, p. 352)

In a state-of-the knowledge text published at the turn of the century, leading benefits researchers Bev Driver and Donald Bruns (1999) detailed two major categories of personal benefits. Table 3.1 lists these categories and the sixty-one personal benefits that have been attributed to leisure by research (p. 352).

With an opportunity to provide such an array of personal benefits, identifying the benefits customers' desire and providing these outcomes is of central importance. According to Driver and Bruns (1999), the key to understanding benefit achievement is to focus on the *production* process of benefits. The concept of recreation as a two-stage production system undergirds the BAL as a service delivery system. A schematic of this production process is provided in Figure 1.

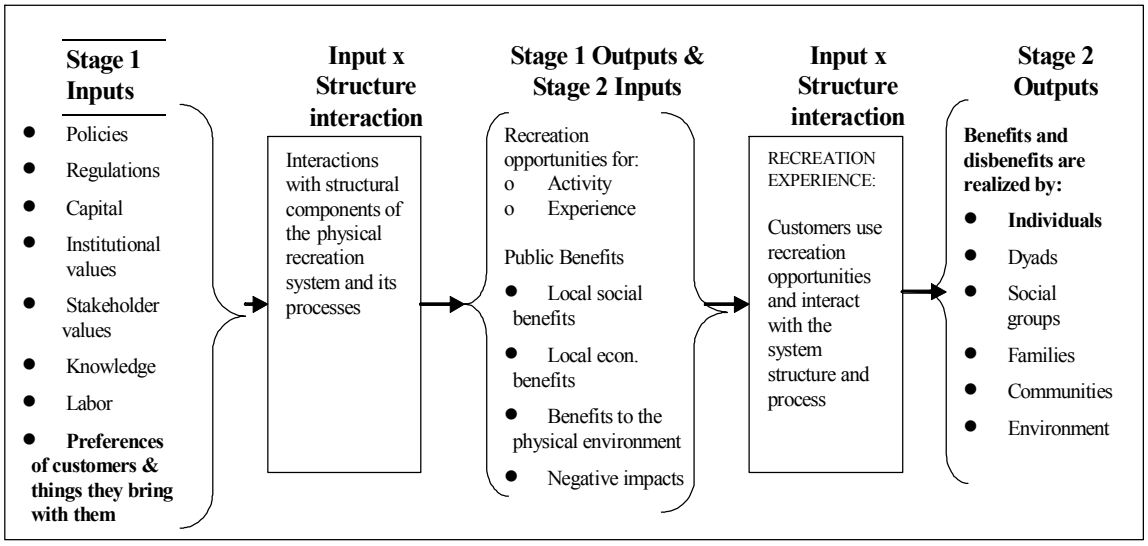

Figure 1: The process of producing benefits through recreation

Source: Adapted from Driver & Bruns (1999, p. 357).

In the first stage, inputs come from recreation managers, potential customers, the community, and the natural environment. These inputs include departmental policies, available capital, employee skills, knowledge, local regulations, community stakeholder values, and of course, the preferences of customers and the things they bring with them. The inputs for the system then interact with the system's structure. This interaction results in outputs from the first stage. Outputs include public benefits such as social and economic benefits for the local community, environmental protection, negative impacts of managerial action or inaction, and the production of recreation opportunities. Stage 1 outcomes serve as stage 2 inputs. This time interaction takes the form of participation in a recreation experience. Stage 2 outputs are the personal benefits accruing to individuals as well as those benefits and disbenefits accruing to dyads, families, communities, and the environment. The areas of interest in the present study are highlighted with bold typeface in Figure 1. This study investigates how Stage 1 inputs "Preferences of customers and things they bring with them" is related to the outputs sought by individuals.

A handful of studies have investigated how customer preferences and values are related to recreation benefits. For example, Yoshioka, Nilson, and Simpson (2002) compared desired psychological benefits of leisure participation in American, Canadian, Japanese, and Taiwanese college students. A sample 449 respondents completed the Recreation Experience Preference (REP) and describe a preference for the following recreation benefits: achievement; nature appreciation; solitude or escape; family; and thrills or fun. In one of a few studies to catalog individual differences in benefits sought,

the authors observed significant differences by national origin for two of the five desired psychological benefit domains. North American students were more likely than Asian students to seek fun or thrills but were less likely to pursue achievement benefits.

In another study employing the REP, McIntyre, Cuskelly, and Auld (1991) identified the various "packages" of perceived benefits that visitors nominated as important outcomes of their visit to urban parks. The perceived benefits of urban parks were identified as nature appreciation, novelty, social, familiar, and personal development. After identifying the benefits users sought, the authors' classified the respondents into four homogeneous sub-groups based on their preferences for these perceived benefits. The resultant analysis suggests that leisure service providers can effectively segment recreation customers according the type of benefits they seek from the experience.

Time Perspectives and Recreation Behavior

To date, no studies have explicitly investigated the relationship of time perspective and the benefits desired from recreation. However, two studies have linked time perspective and recreation participation. Steven Philipp (1992) used the Experiential Inventory to assess the time perspective of 149 respondents selected in a Southwestern metropolitan city. After identifying respondent time perspective, participation and non-participation in each of 39 leisure activities was reported. Philipp reported that 15 of the 39 leisure activities under investigation were significantly associated with one or more time orientations. This finding provides tentative support for the notion that as an individual differences variable, time perspective is likely to

impact decisions about discretionary time behavior.

In another study, Zimbardo and Boyd (1999) observed the relationship of different time perspectives and free time behavior in a series of intensive interviews. Although the primary purpose of this research was to provide a profile of each time perspective, composite portraits of each TP included implications for recreation participation and benefits preferences. Following completion of the ZPTI, respondents scoring above the 95th percentile on one of the TP factors were interviewed. Composite portraits of each TP were described and implications for recreation participation and benefits sought were apparent. Those scoring high on past-negative seemed to derive little pleasure from their free time. According to the authors, they described minimal and unsatisfactory interpersonal relationships. In addition, past-negative respondents indicated that they exercised less often during free time and enjoyed gambling more than those in other TP groups. The authors concluded that, "In general, there were few aspects of their current life in which they reported taking pleasure" (p. 1281). Following these tentative findings it is hypothesized:

H1a: Past-negative respondents will be significantly less likely than other respondents to desire physical fitness benefits from recreation.

Portraits of present-hedonistic respondents described the frequent use of alcohol during free time as well as an absence of spiritual activities during residual time (Keough, Zimbardo, & Boyd, 2001; Zimbardo & Boyd, 1999). However, these

individuals tended to be highly energetic, and participated in many recreation activities and a broad spectrum of sports. These findings provide the basis for the next hypothesis:

H1b: Present-hedonistic respondents will be significantly less likely than other respondents to desire spiritual benefits from recreation.

Interviews with future oriented individuals revealed highly organized, ambitious, goal-directed individuals who felt pressed for time and were willing to sacrifice residual time enjoyment to achieve career objectives (Lang & Carstensen, 2002; Zimbardo, 1994). Future TP individuals reported high stress levels and little free time in their current lives. Given the primacy of achievement among individuals with a Future TP, the current study expects:

H1c: Future TP respondents will be significantly more likely than other respondents to desire learning benefits from recreation.

H1d: Future TP respondents will be significantly more likely than other respondents to desire competence testing benefits from recreation.

Past-positive individuals are described as somewhat introverted and shy (Zimbardo, 1999). These individuals dedicated their residual time to spiritual activities and spent time with fewer, closer friends. A past-positive TP was linked to involvement

in a current romantic relationship. Following these findings from the in-depth interviews it is hypothesized that:

H1e: Past-positive respondents will be significantly more likely than other respondents to desire family togetherness benefits from recreation.

H1f: Past-positive respondents will be significantly more likely than other respondents to desire spirituality benefits from recreation.

Finally, present fatalistic individuals tended to be dissatisfied with their present life and did not think that it would improve. They were largely apathetic to spending time with friends, reported many sexual partners and "wanted to live shorter lives than other interviewees" (Zimbardo & Boyd, 1999, p. 1281). Similar to past-negative interviewees, residual time did not seem to yield much satisfaction or reward for these individuals. The fatalistic component of the present-fatalistic TP will be tested with regard to risk taking during recreation:

H1g: Present-fatalistic respondents will be significantly more likely than other respondents to desire risk-taking benefits from recreation.

Summary

A review of recreation and leisure research indicates that recreation offers many personal benefits to participants. Moreover, what people seek from their discretionary

time is likely related to how they interpret time—as focused on the past, present, or future. Through the assessment of benefits sought from recreation, this research will advance our theoretical and practical understanding of leisure. First, by deepening our understanding the input associated with the "preferences of customers" we add depth to the model of the benefit production process. Moreover, by increasing our knowledge of how personal attributes influence recreation, we provide information to improve the provision of desired recreation experience. Continuing research describing the apparent and latent demand of recreation consumers contributes to the overarching goal of the BAL—increasing the relevance and political stature of recreation.

Methodology

Data Collection

Data were collected using the described self-administered mail questionnaire. In early 2005, questionnaires were distributed by mail to 1,200 homes in Greenville, North Carolina. Greenville is a community of 61,112 permanent residents and home to East Carolina University and a population of 23,000 students. Greenville is located 86 miles east of Raleigh and 86 miles west of the Atlantic Ocean in the north central coastal plain region of Eastern North Carolina, (Greenville Statistics, 2005, 1). All adults over the age of 18 and living in the Greenville were considered the study population. From this population, our sample was randomly selected by computer from a master list of households receiving public utilities.

Questionnaires were sent to selected households with a cover letter endorsed by the Director of Greenville Parks and Recreation and included a self-addressed, postage-

paid envelope for returning the questionnaire. The cover letter informed potential respondents of the study's purpose and indicated the importance of their input. In addition, an information sheet was provided which provided contact information for respondents wanting more information about the study procedures and gave instructions for completing and returning the questionnaire. These instructions invited the adult member of the household with the most recent birthday to complete the questionnaire.

From the original sample of 1200, 114 addresses were unusable or duplicated. For the remaining 1,086 individuals sampled, a modified Dillman technique including a postcard reminder and follow-up questionnaire mailing resulted in 450 useable questionnaires. Thus, a 41.4% response rate was achieved.

Instrument

Data for hypothesis testing were drawn from the self-administered questionnaire that included 6 sections on four printed pages and took respondents an estimated 14 minutes to complete. Relevant to this study were questionnaire segments related to respondents' time perspective and benefits sought from recreation.

Time perspective was measured using the Zimbardo Time Perspective Inventory (ZTPI). Items describe a bias for each of the five time orientations and are rated from 1 to 5. A response of 1 is given when a statement "Is not characteristic of me" whereas an item is scored 5 if "this is very characteristic of me" (Zimbardo, 1999, p.1271). Five time perspectives (TP) are conceived as situationally determined but as a relatively stable individual-differences variable. Over reliance on a temporal frame elicits a time bias, which results in one of the five time perspectives (Gonzalez & Zimbardo, 1985).

The Past-negative TP, reflects a generally unhappy, aversive view of the past. Items that compose the past-negative category include "I think about the bad things that have happened to me in the past," "I think about the good things that I have missed out on in my life." In contrast, the Past-positive TP reflects an attitude toward the past that reflects a warm, sentimental attitude toward the past (Kazakina, 1999). Items that load on the Past-Positive factor include "It gives me pleasure to think about the past," "I get nostalgic about my childhood," and "I enjoy stories about how things used to be in the 'good old times."

Next, Present-fatalistic TP reveals a helpless and hopeless attitude toward the future and life that is underlined by an external locus of control (Epel, Bandura, & Zimbardo,1999; Zimbardo, 1994). Items that compose the Present-Fatalistic factor include "My life path is controlled by forces I cannot influence," "You can't really plan for the future because things change so much," and "Often luck pays off better than hard work." In contrast to Present-fatalistic, the Present-hedonist TP items include "Taking risks keeps my life from becoming boring," "I do things impulsively," and "I often follow my heart more than my head."

The fifth factor, called simply the Future TP emphasizes planning and punctuality (Raynor & Burbin, 1971; Shell & Husman, 2001). Items typical of the Future factor include "I am able to resist temptations when I know there is work to be done," "It upsets me to be late for appointments." Once elicited, a time perspective becomes a bias or dispositional style that is characteristic and predictive of how an individual will respond across a host of daily life choices.

After a decade compiling research using exploratory and confirmatory factor analyses, measures of internal and test-retest reliability and results indicating convergent, discriminant, and predictive validity in correlational, experimental and case study research, the ZTPI was established (Boyd & Zimbardo, 1997). Each of five time perspectives (TP) is conceived as a relatively stable individual-differences variable. Over reliance on a temporal frame elicits a time bias, which results in one of the five time perspectives (Gonzalez & Zimbardo, 1985).

Benefits desired from recreation participation were identified using Recreation Experience Preference (REP) scales. These inventories were developed to assess subjective leisure benefits. This was well suited to our research protocol: "to identify and assess the relative importance of benefits-implying reasons why recreationists select particular activities and environments (Driver, Tinsley, & Manfredo, 1991). The REP refers to not one scale, but 43 scales which measure the extents to which specific experiences are desired from leisure activities. The term "scale" is used to highlight the multidimensionality of each of the 43 expected benefits. Given the vast number of items needed to identify preferences among 43 benefits, the 43 REP scales are more often discussed as part of 19 recreation preference domains (Driver, Tinsley, & Manfredo, 1991).

Of the 19 frequently used benefit domains, six were selected for inclusion in this study. Based on past time perspective literature, these benefits were selected to test hypotheses about the benefit preferences of individuals with different time perspectives. In addition, these benefit domains provide information about the desired outcomes

related to sociability (*Benefit domains include:* Family Togetherness,) achievement (*Benefit domains include:* Learning, Competence testing, physical fitness) and psychological state goals (*Benefit domains include:* Spirituality; Risk taking).

Factor analysis was then used to determine if the six benefit domains were present in the current data set. Principal component factor analysis without rotation was undertaken. As shown in Table 3.2, factor loadings ranged from .74 to .98 and demonstrated a simple factor structure identical to the scale provided by Manfredo, Driver, & Tarramt (1996). In addition, all eigenvalues were over one. Cronbach alpha reliability tests were used to test the internal consistency of the benefit domains. Alpha scores were generated from factor scores and an alpha of 0.70 or greater was deemed acceptable. Table 3.2 presents the six potential recreation benefits, items for measuring the benefit, mean, domain factor loading, eigenvalues, variance explained and alpha scores for each factor. Results confirmed previous studies, identifying all six benefit domains.

TABLE 3.2
Recreation Experience Preference (REP) Scales

	Mean	Factor Loading	Eigen-value	Variance Explained	Alpha
Family Togetherness			3.74	26.21	.84
To do something with your family	2.96	.92			
To bring your family closer together	2.81	.88			
Spirituality			2.87	20.27	.78
To develop personal spiritual values	2.66	.88			
To grow and develop spiritually	2.55	.92			
To reflect on your spiritual values	2.50	.74			
Physical Fitness			1.53	17.11	.76
To get exercise	2.96	.83			
To keep physically fit	2.99	.78			
To feel good after being physically active	2.99	.85			
Learning			1.22	14.10	.69
To develop my knowledge about things	2.77	.84			
To learn about things	2.82	.85			
Competence Testing			1.20	13.19	.72
To test your abilities	2.63	.74			
To learn what you are capable of	2.61	.87			
Risk Taking			1.11	8.31	.75
To take the risks	1.72	.83			
To chance dangerous situations	1.61	.95			
To experience the risks involved	1.75	.91			

Data Analysis

To begin data analysis, respondents were first classified according to their time bias. Cluster analysis is an exploratory data analysis tool used to classify cases (people) into groups such that the degree of association is strong between members of the same cluster and weak between members of different clusters. The term cluster analysis encompasses a number of different methods (each using a different algorithim) for grouping objects or people into groups based on their similarity or difference. Major types of cluster analysis include Joining (aka Tree Clustering), Two-Way Clustering, and

K-Means Clustering. Since time perspective scales allowed researchers to estimate the number of expected clusters in advance, the K-Means Cluster analysis was used to place respondents in time perspective groupings. Thus, for this data set, each resultant cluster describes the time perspective category to which its members are biased. For this, and all other statistical analyses in this study, missing data were dealt with using pairwise exclusion.

Next, analysis of covariance (MANCOVA) was used to compare respondents' desired recreation benefit preferences across the time perspective clusters. An analysis of covariance was selected to control for potential differences in demographic characteristics such as gender, age, race/ethnicity, work status, educational attainment, or income, in different time perspective clusters. Given that different population groups may well exhibit different time perspectives, it is logical to include these variables as covariates. Where significant differences were observed using MANCOVA, Bonferonni post-hoc tests were undertaken to determine which time perspectives are related to differences in residual time preferences. This allowed testing of hypotheses 1a-g summarized in Table 3.3. Descriptive statistics were also used to describe the demographic characteristics of respondents in each time perspective cluster.

TABLE 3.3
Summary of Benefits Hypotheses for Investigation

Time Perspective Investigated	Benefit Preference Investigated	Hypothesis
All	All	**H1:** Individuals with different time perspectives will exhibit a different recreation benefit preferences.
Past-negative	Physical fitness	**H1a:** Past-negative respondents will be significantly less likely than other respondents to desire physical fitness benefits from recreation.
Present-hedonistic	Spiritual	**H1b:** Present-hedonistic respondents will be significantly less likely than other respondents to desire spiritual benefits from recreation.
Future	Learning	**H1c:** Future TP respondents will be significantly more likely than other respondents to desire learning benefits from recreation.
Future	Competence testing	**H1d:** Future TP respondents will be significantly more likely than other respondents to desire competence testing benefits from recreation.
Past-positive	Family togetherness	**H1e:** Past-positive respondents will be significantly more likely than other respondents to desire family togetherness benefits from recreation.
Past-positive	Spirituality	**H1f:** Past-positive respondents will be significantly more likely than other respondents to desire spirituality benefits from recreation.

Results

Characteristics of Respondents

Table 3.4 provides a summary of the characteristics of the individuals who completed and returned the survey. Wherever possible, census results describing the Greenville population in the year 2000 are provided for comparison (Greenville city NC QuickLinks, 2000). Overall, sample respondents were more likely to be female, older, and reporting higher levels of formal education than Greenville citizens as a whole. Approximately two-thirds of respondents were women (66%). Of the 450 respondents, only 39% were younger than 45 whereas citizens under 45 comprise 67% of the

Greenville population. The community, however, is earning a reputation as a retirement destination and is home to many older adults: Census data indicates that 11.9% of the population is aged 65 or older. Twenty-two percent of sample respondents indicated they were aged 65 or older. With regard to respondents' level of education, approximately 10% reported that their highest level of education was 12th grade or less. This compares to 13.9% of the Greenville population. Respondents reporting some college or a college degree were 21.9% and 27% respectively. This is similar to the community at-large. On the other hand, the sample included 25.2% individuals reporting graduate and professional degrees. This is much higher than the Greenville average of 14.4%.

Although comparative census data were unavailable to compare respondents' annual incomes, work status, this information helps us to understand selected characteristics of our respondents nonetheless. Annual household incomes between $20,000-60,000 were most common and comprised 47% or respondent income categories. Just over 10% of respondents also reported incomes at both ends of the financial spectrum: 12% reported annual household incomes less than $20,000, and 10% reported annual incomes greater than $100,000. Respondents were most likely to report working full-time (39%) or indicate that they were retired (26%). Another 14% indicated they worked part-time. More than one in ten individuals worked a full time job and additional part-time shifts. Finally, 9.6% of respondents said they were unemployed and seeking work at the time they completed the questionnaire.

TABLE 3.4
Demographic Characteristics of Respondents and All Greenville Residents

	Respondents	**All Residents**
	%	**%**
Gender (N=433)		
Female	66.1	53.7
Male	33.9	46.3
Age of Respondent (N = 434)[a]		
18-24 years	7.6	29.3
25-34 years	15.0	22.4
35-44 years	16.0	15.6
45-54 years	13.9	13.3
55-64 years	25.5	7.6
65 -74 years	14.8	6.2
75 years or older	7.2	5.7
Highest Level of Formal Education Completed (N=433)		
No formal education	0.7	---
< 6th grade	0.2	5.2
Grade 6-12	8.5	8.7
High school graduate	15.7	19.4
Some college	21.9	20.7
College graduate	27.7	31.7
Professional or graduate degree	25.2	14.4
Annual Household Income (N=429)		
< $20,000	11.7	---
$20,000-39,999	25.4	---
$40,000-59,999	21.5	---
$60,000-$79,999	15.6	---
$80,000-99,999	15.4	---
≥ $100,000	10.3	8.0
Race or Ethnicity (N=427)[b]		
African American or Black	14.2	34.1
Asian American	3.3	2.1
Hispanic American	14.2	4.1
Caucasian	64.6	61.4
Native American	2.1	2.3
Other	1.6	1.3
Work Status (N=437)		
Full time	39.3	---
Full time and second job	10.8	---
Part-time	14.1	---
Un-employed (seeking work)	9.6	---
Retired	26.2	---
Other	4.4	---

[a] Census data refers to 9th grade where this questionnaire asked about their completion of 6th grade.

Lastly, it is important to note the racial and ethnic diversity of the sample. QuickLinks Census statistics (2000) tell us that Greenville, NC is comprised of approximately 61% Caucasian, 34% African-Americans, 4% Hispanics, and 2% Asian-Americans and Native Americans respectively. Although the respondent characteristics do not mirror census data, a diverse set of respondents was achieved nevertheless. Sixty-five percent of respondents identified themselves as Caucasian. African American and Hispanic respondents comprised 14% of the sample respectively. This represents a very low percentage of African Americans and a very high percentage for Hispanic Americans. Finally, three percent of the sample respondents were Asian American and two percent of sample respondents were Native-American.

Telephone interviews were conducted with 80 non-respondents to determine whether individuals who did not return the questionnaire were fundamentally different than respondents completing the questionnaire. No significant differences in time perspective, demographic characteristics, or benefits sought from recreation were identified. Thus, non-respondent bias is not a concern impacting study findings.

Cluster Analysis

The first task for hypothesis testing was to classify respondents into groups using cluster analysis. Cluster analysis is a statistical procedure that is used to group people together based on their attitudes, behaviors, demographics, or some combination of these. A cluster analysis has been described as an "ANOVA in reverse" since the ratio of between group variability and within group variability is used to identify the distance between cluster groups. Unlike many commonly used statistical procedures, findings

from cluster analysis are not straightforward and there are no clear cut guidelines for interpreting results as meaningful or not meaningful. Since a cluster analysis does not identify a “best” statistical solution, several different cluster solutions were produced to select the most meaningful results.

To begin, a Two-Step cluster procedure was used. This was selected because it does not require the researcher to specify the number of clusters but instead produces the best possible cluster solution. This allowed confirmation of the suspected existence of five to six clusters. The procedure resulted in six distinct clusters. Next, these results were confirmed using a K-Means cluster analysis. A K-Means analysis asks researchers to "tell" the computer to form an exact number of clusters which are as distinct as possible. In K-means clustering, the program algorithm tries to moves cases from group to group to get the most significant distance between groups. At this point we identified solutions with 4, 5, 6, and 7 clusters. With 4, 5, 6, and 7 cluster solutions, we then examined the F values from the analysis of variance performed on each dimension. Next, the means of each cluster were examined to determine how distinct our clusters were. The six group solution showed maximum variation between clusters and minimal variation within each cluster. Thus, the K-Means six cluster solution was selected for further data analysis.

Referencing results shown in Table 3.5, it is possible to describe items which scored above and below the sample averages among the members of each cluster. This information allows us to identify characteristics of each cluster that distinguish it from the other five. Cluster labeling was simplified since the first five clusters were

characterized by an essential bias for one time perspective. The sixth cluster was characterized by combinations of statements from all time perspectives and few significant leanings within the items. The six clusters are labeled and described as follows:

(1) Present-hedonistic: (n = 30; 6.9%) The 30 members of this cluster comprised 6.9% of the 433 respondents. Examination of significant means provides a portrayal of energetic, impulsive, passionate respondents who are living for the moment. For example, the cluster center for the statements such as: "It's more important for me to enjoy life's journey than to focus on the outcome," "I make decisions on the spur of the moment", and "I find myself getting swept up in the excitement of the moment" indicated higher levels of agreement that the overall sample mean. Conversely, this cluster had lower sample means for statements such as "I am able to resist temptations when I know that there is work to do," and "I make lists of things to do." These and other significant items shown in Table 3.5 have been identified as key attributes of Present-hedonistic time perspective individuals.

(2) Present-fatalistic: (n = 26; 5.9%) The smallest of the six clusters, the 26 members assigned to the Present-fatalistic cluster are similar to individuals in the Present-hedonistic category save two important distinctions. First, while both groups live for the moment, respondents' mean scores suggest that respondents in this cluster are more pessimistic overall than Present-hedonistic cluster members. Second, a pervasive external locus of control characterizes this

cluster. Statistically significant statements such as "Fate determines much in my life," "Things rarely work out as I expected," and "Often luck pays off better than hard work" highlight this key distinction.

(3) Future: (n = 119; 27.2%) The second largest cluster has been labeled the Future time perspective cluster. Members of this cluster can be characterized as achievement oriented and focused. A high mean score for statements such as "I keep working at difficult, uninteresting tasks if they will help me get ahead" are typical of members' ability to delay gratification—something very uncharacteristic of Present-hedonistic and Present-fatalistic respondents. Other examples of statements characterizing this cluster include, "When I want to achieve something, I set goals and consider specific means for achieve it," and "Meeting tomorrow's deadlines and doing other necessary work comes before today's fun." This cluster is also characterized by disagreement with other statements such as, "If things don't get done on time, I don't worry about it." A mindset of determination is apparent among cluster members.

(4) Past-positive: (n = 188; 47.0%) This cluster, labeled the Past-positive cluster, is the largest of the six clusters with 188 members. Assessment of significant means depicts members of this cluster as nostalgic, happy, and without past regrets. Cluster centers are above average for the following statements as well as others: "It gives me pleasure to think about my past," "Familiar childhood sights, sounds, smell often bring back a flood of happy memories," and "Happy memories of good times spring readily to mind." Below average cluster centers

were observed for statements such as, “I think about the bad things that have happened to me in the past.”

(5) Past-negative: (n = 38; 8.7%) The fifth cluster is comprised of 38 members and includes statements that have been linked with a Past-negative time perspective. This cluster, labeled, Past-negative, describes members who are unhappy and have had disquieting experiences in their past. High levels of agreement with statements such as, “I've taken my share of abuse and rejection in the past,” “It's hard for me to forget unpleasant images of my youth,” and “I've made mistakes in the past that I wish I could undo” uncovers respondents’ troubling pessimism.

(6) Undifferentiated: (n = 36; 8.2%) The sixth and last cluster has very few significant cluster means and no observable pattern of time bias. Thus, the 36 members assigned to this cluster are considered Undifferentiated. In other studies of time perspective, individuals have automatically been assigned to a time perspective—even when only a weak bias exists. This cluster is unique because members of the first five clusters exhibit a clear time bias whereas these cluster members are undifferentiated Table 3.5 provides a summary of cluster analysis results.

TABLE 3.5
K-Means Cluster Analysis of Time Perspective Scale

	Cluster 1 Present-hedonistic	**Cluster 5 Present-fatalistic**	**Cluster 3 Future**	**Cluster 4 Past-positive**	**Cluster 5 Past-negative**	**Cluster 6 Undifferentiated**
	M	*M*	*M*	*M*	*M*	*M*
It's more important for me to enjoy life's journey than to focus on	**4.03**	**4.04**	**(2.51)**	3.38	3.39	3.39
I believe that getting together with one's friends to party is one of life's important pleasures	**4.47**	**4.00**	**(2.39)**	3.71	3.13	2.86
Familiar childhood sights, sounds, smell often bring back a flood of happy memories	4.04	**(2.50)**	3.41	**4.24**	**(2.01)**	3.98
Fate determines much in my life	2.97	**4.44**	**(1.93)**	2.88	2.65	2.91
I often think of what I should have done differently in my life	2.82	2.98	2.98	2.75	**4.29**	2.79
My decisions are mostly influenced by people and things around me	2.97	**3.92**	3.41	2.43	2.75	2.84
I do things impulsively	**4.16**	**4.36**	**(2.20)**	2.71	2.91	2.67
If things don't get done on time, I don't worry about it	**4.38**	**4.98**	**(1.45)**	2.63	2.94	2.91
It gives me pleasure to think about my past	**(2.97)**	2.48	3.24	**4.47**	1.94	3.16
When I want to achieve something, I set goals and consider specific means for achieve it	3.92	1.92	**4.33**	3.33	3.66	3.38
On balance, there is much more good to recall than bad in my past	4.02	3.52	3.55	4.25	**(1.84)**	4.00
Meeting tomorrow's deadlines and doing other necessary work comes before today's fun	**(1.90)**	**(1.12)**	**4.63**	2.88	3.43	**3.83**
Since whatever will be will be, it doesn't really matter what I do	**2.84**	**4.06**	2.38	2.13	2.21	**2.71**
When listening to my favorite music, I often lose all track of time	**3.49**	**4.92**	2.85	**3.63**	3.04	3.32
I enjoy stories about the "good old times"	3.08	2.98	3.42	**4.02**	**(1.98)**	3.62
Painful past experiences keep being replayed in my mind	2.50	2.96	**3.00**	2.29	**3.61**	2.79
I try to live my life as fully as possible one day at a time	**4.41**	**4.52**	3.25	3.63	3.63	3.70
It upsets me to be late for appointments	**(3.11)**	**(2.02)**	3.88	**(2.88)**	3.06	3.67
Ideally, I would live each day as if it were my last	**4.42**	**4.98**	3.44	3.63	**(3.00)**	3.28
Happy memories of good times spring readily to mind	4.03	3.00	3.03	**4.63**	**(2.69)**	4.09
I meet obligations to friends and authorities on time	**(2.38)**	**(2.00)**	3.99	**(2.50)**	3.85	**(3.24)**
I've taken my share of abuse and rejection in the past	**(2.26)**	3.04	3.05	2.88	**4.30**	**(2.27)**
I make decisions on the spur of the moment	**4.61**	**4.88**	**(2.28)**	**(2.13)**	3.01	3.17
I take each day as it is rather than try to plan it out	**4.23**	**4.88**	2.95	**(1.63)**	2.85	2.85
My past has too many unpleasant memories to think about it	2.03	**3.56**	2.83	2.17	**4.33**	2.73
It is important to put excitement in my life	**4.52**	3.94	3.13	**(2.88)**	3.75	3.07
I've made mistakes in the past that I wish I could undo	2.97	2.98	3.39	3.08	**4.27**	2.60
I feel it's more important to enjoy what you're doing than to get work done o	**4.08**	**4.12**	2.12	2.75	2.66	2.17

Table 3.5 Continued…

	Cluster 1 Present-hedonistic	Cluster 2 Present-fatalistic	Cluster 3 Future	Cluster 4 Past-positive	Cluster 5 Past-negative	Cluster 6 Undifferentiated
	M	*M*	*M*	*M*	*M*	*M*
I get nostalgic about my childhood	3.37	**(2.00)**	3.25	**4.43**	**(1.85)**	3.10
Before making a decision, I weight the costs against the benefits	3.24	**(1.96)**	3.95	3.13	3.54	3.14
Taking risks keeps my life from becoming boring	**3.83**	3.04	2.93	2.38	2.88	2.68
Things rarely work out as I expected	2.87	**4.46**	2.19	**(1.75)**	**3.72**	**2.99**
It's hard for me to forget unpleasant images of my youth	2.42	1.96	**2.76**	2.10	**4.04**	2.64
It takes joy out of the process and flow of my activities, if I have think through it	**4.81**	**4.96**	2.56	2.75	2.46	3.00
Even when I am enjoying the present, I am drawn back to comparisons with the past	3.16	**(2.16)**	**3.29**	**3.77**	**(1.96)**	2.71
You can't really plan for the future because things change so much	2.63	**4.26**	1.97	2.14	2.67	2.11
My life path is controlled by forces I cannot influence	2.65	**3.96**	1.87	2.00	**3.56**	2.80
It doesn't make sense to worry about the future since there is nothing we can do about it	2.69	**3.42**	1.96	2.14	**3.45**	2.08
I complete projects on time by making steady progress	3.38	**(2.04)**	3.94	3.57	3.60	**(2.94)**
I find myself tuning out when family members talk about the way it used to be	2.46	**4.00**	2.37	**(1.86)**	**4.05**	**(2.03)**
I take risks to put excitement in my life.	**4.34**	**4.04**	2.89	**(2.00)**	2.76	3.03
I make lists of things to do	**(2.00)**	3.76	3.94	3.14	3.67	3.43
I often follow my heart more than my head	**4.13**	3.02	**(2.51)**	**3.71**	3.15	2.93
I am able to resist temptations when I know that there is work to complete	**(2.69)**	**(2.48)**	**4.03**	3.26	3.42	3.65
I find myself getting swept up in the excitement of the moment	**3.74**	**4.00**	3.02	3.23	3.27	2.60
Life today is too complicated: I would prefer the simpler past	3.00	2.98	3.24	**3.57**	**(2.03)**	2.84
I prefer friends who are spontaneous rather than predictable	**3.82**	**4.72**	3.24	3.14	3.18	3.55
I like family rituals and traditions that are regularly repeated	3.11	1.98	3.07	**4.41**	**(1.75)**	3.33
I think about the bad things that have happened to me in the past	2.39	2.96	**3.05**	**(1.86)**	**3.93**	2.77
I keep working at difficult, uninteresting tasks to get ahead	3.14	**(2.02)**	**4.26**	3.00	3.27	3.20
Spending what I earn on pleasures today is better than saving	**3.96**	**4.80**	2.25	**3.14**	2.49	2.90
Often luck pays off better than hard work	2.81	**3.96**	1.83	**(1.43)**	2.48	2.45
I often think about the good things that I have missed out on in life	2.24	2.02	3.12	2.14	**3.82**	2.90
I like my close relationships to be passionate	**4.05**	**4.04**	**(2.81)**	**(2.71)**	3.40	3.27
There will always be time to catch up on my work	3.47	**4.00**	2.31	2.43	2.81	2.51
Respondents (n, %)	**30 6.9%**	**26 5.9%**	**119 27.2%**	**188 47.0%**	**38 8.7%**	**36 8.2%**

*Listed in order of administration in questionnaire. Note. Judgments were made on 5-point scale (1=This is very uncharacteristic of me, 2=Uncharacteristic, 3=Neutral, 4=Characteristic, 5=This is very characteristic of me). Highlighted means are significantly different from the sample mean ($p < .001$).

An understanding of each cluster is improved by description of respondent classification according to seven socio-demographic variables. Table 3.6 shows cross tab results comparing each demographic variable and cluster breakdowns. In addition, this same table with row percentage calculations is available in Appendix C.

First, male and female respondents were most likely to be classified in Past-positive or Future clusters. However, male respondents showed greater variability in their time perspectives. For example, one in ten male respondents was classified as Present-hedonistic and Past-negative respectively. Only one in twenty female respondents were classified as Present-hedonistic and one in 14 were assigned to the Past-negative cluster. Equal ratios of men and women appear to be Undifferentiated toward any one time perspective.

Second, age seems to have little bearing on time perspective classification for sample respondents. Older adults appear slightly more likely than other respondents to be classified as Past-positive or Undifferentiated, and Present-Hedonistic and are less likely to be classified as Past-negative or Present-fatalistic. Young and middle aged adults all six time perspective types.

Next, cross tab results suggest that respondents' with higher level of education are most likely to be deemed Future or Past-Positive and least likely to be classified as Present-hedonistic. On the other hand, respondents reporting their highest level of education between grades six and high school graduation tended to be classified as Present-hedonistic and Present-fatalistic more than other respondents. Undifferentiated respondents show little educational bias. With regard to income, results follow the same

trends observed in educational attainment. Higher incomes are correlated with an

TABLE 3.6
Variation in Cluster Membership by Demographic Characteristics

	Present-hedonistic	**Present fatalistic**	**Future**	**Past-positive**	**Past-negative**	**Undifferentiated**
	%	%	%	%	%	%
Gender						
Male (n= 147)	9.5	8.5	23.8	38.8	10.9	8.2
Female (n= 286)	5.6	4.5	29.4	44.8	7.3	8.4
Age of Respondent						
18-24 years (n= 33)	6.1	3.0	9.1	69.7	6.1	6.1
25-34 years (n= 65)	6.2	6.2	30.8	38.5	15.4	3.1
35-44 years (n= 61)	7.2	11.6	17.4	47.8	8.7	7.2
45-54 years (n= 60)	6.7	6.7	38.3	38.3	6.7	3.3
55-64 years (n= 110)	7.3	8.2	30.9	39.1	9.1	5.5
65 -74 years (n= 64)	6.3	0.0	32.8	40.6	7.8	12.5
75 years or older (n= 31)	9.7	0.0	16.1	41.9	3.2	29.0
Highest Level of Formal Education Completed						
No formal education (n= 3)	0.0	0.0	33.3	0.0	66.7	0.0
< 6^{th} grade (n= 1)	0.0	0.0	0.0	0.0	100.0	0.0
Grade 6-12 (n= 37)	21.6	43.2	2.7	2.7	21.6	8.1
High school graduate (n= 68)	16.2	11.8	10.3	35.3	16.2	10.3
Some college (n= 95)	2.1	2.1	27.4	56.5	11.6	6.3
College graduate (n= 120)	6.7	0.0	30.0	52.5	4.2	6.7
Professional or grad degree (n= 109)	0.9	0.0	43.1	47.7	0.9	7.3
Annual Household Income						
< $20,000 (n= 48)	2.1	18.8	10.4	52.1	6.3	10.4
$20,000-39,999 (n= 104)	23.1	7.7	15.4	26.0	19.2	8.7
$40,000-59,999 (n= 88)	0.0	9.1	23.9	51.1	11.4	4.5
$60,000-$79,000 (n= 64)	0.0	0.0	31.3	53.1	3.1	12.5
$80,000-99,999 (n= 63)	6.3	0.0	50.8	38.1	1.6	3.2
≥ $100,000 (n= 42)	2.4	2.4	40.5	50.0	0.0	4.8
Work Status						
Full time (n= 168)	6.0	5.4	28.6	42.9	11.9	5.4
Full time and 2nd job (n= 46)	0.0	17.4	26.1	50.0	2.2	4.3
Part-time (n= 60)	13.3	0.0	18.3	45.0	18.3	5.0
Un-employed/seeking work (n= 41)	24.4	19.5	29.3	22.0	2.4	2.4
Retired (n= 112)	1.8	0.9	31.3	46.4	3.6	16.1
Race or Ethnicity						
African American or Black (n= 61)	6.6	8.2	32.8	29.5	9.8	13.1
Asian American (n= 14)	21.4	14.3	21.4	21.4	14.3	7.1
Hispanic American (n= 61)	18.0	19.7	19.7	23.0	19.7	0.0
Caucasian (n= 277)	4.0	1.8	28.2	52.7	5.4	7.9
Native American (n= 9)	11.1	11.1	22.2	38.3	11.1	11.1
Other (n= 7)	0.0	0.0	42.9	42.9	14.3	0.0

increased likelihood of Past-Positive and Future time biases. Conversely, respondents with lower incomes may be members of Past-Positive and Future clusters but are increasingly classified in both Present time perspectives.

Respondents' race/ethnicity appears to have some relationship with time perspective classification. On the one hand, for 61 African-American respondents, the Future time perspective was most common, followed by classification as Past-Positive, Undifferentiated, and Past-negative. On the other hand, for an equal number of Hispanic respondents, the most frequent classification was Past-Positive, followed by equal numbers of Past-negative, Future, and Present-fatalistic respondents. The majority of respondents reported Caucasian race. More than half of these 277 respondents were deemed Past-Positive. Interestingly, Caucasian respondents were only half as likely as respondents of all other race/ethnicities to have a Past-negative bias.

Finally, the relationship of work roles and time biases are described. Approximately one in four un-employed respondents were labeled Present-hedonistic while one in twenty or fewer full time or multiple job holders were Present-hedonistic. Present-fatalistic respondents were comprised by disproportionate numbers of unemployed workers and respondents working more than one job. Retired respondents were most likely to be Undifferentiated for any one time perspective.

Next, benefit preferences were compared across the six clusters. Earlier examination of demographic characteristics by clusters identified potentially significant differences in cluster composition with regard to age, educational attainment, household income, and race/ethnicity. Given that different population groups may well exhibit

different time perspectives, it is logical to include these variables as covariates. Thus, the relationship between time perspectives and leisure benefits is tested using multiple analyses of covariance (MANCOVA). Thus, a (MANCOVA) was undertaken to test the primary hypothesis, "Different recreation benefits will be sought by individuals with different time perspectives." As presented in Table 3.7, results provide support for this hypothesis. For each of six benefit preferences, significant differences ($p < .01$) were observed among clusters. Notably, time perspective had the strongest relationship to recreation benefit preferences with only three covariates (work status, educational attainment, and race/ethnicity) exhibiting significant relationships with desired benefits.

Since respondents with different time perspectives expressed a desire for different recreation benefits, a Bonferroni post-hoc analysis describes where these differences lie. Post-hoc results allow us to determine the validity of hypotheses 1a-1g.

Post-Hoc Analyses

One hypothesis anticipated the relationship between time perspective clusters and the desire for physical fitness benefits. Hypothesis 1a described the expected relationship between Past-negative respondents desire for physical fitness benefits and was partially supported. Results presented in Table 3.8 indicate that Past-negative respondents were significantly less likely than Future or Past-positive respondents to seek physical fitness benefits. Respondents assigned to the Future cluster were the most likely to desire physical fitness benefits from recreation ($M = 3.52$). Past-negative ($M = 1.46$) and Present-fatalistic ($M = 1.19$) respondents were equally unlikely to desire physical fitness benefits during recreation.

TABLE 3.7
Multivariate Analysis of Covariance of Benefit Preference

	Work Status		Gender		Age		Education		Income		Race/Ethnicity		Time Perspective	
	Main Effect	Sig.	Main Effect	Sig.	Main Effect	Sig.	Main Effect	Sig.	Main Effect	Sig.	Main Effect	Sig.	Main Effect	Sig.
Physical Fitness	F = 6.78	< .01	F = 0.39	N.S.	F = 1.60	N.S.	F = 20.13	< .01	F = 1.07	N.S.	F = 0.05	N.S.	F = 19.02	< .001
Risk Taking	F = 5.97	< .01	F = 3.03	N.S.	F = 1.89	N.S.	F = 5.21	< .05	F = 3.75	N.S.	F = 4.14	< .05	F = 47.32	< .001
Family Togetherness	F = 2.94	NS	F = 0.03	N.S.	F = 0.01	N.S.	F = 4.40	< .05	F = 3.33	N.S.	F = 3.80	N.S.	F = 39.61	< .001
Learning	F = 6.60	< .05	F = 0.97	N.S.	F = 2.19	N.S.	F = 8.26	< .01	F = 0.19	N.S.	F = 1.83	N.S.	F = 22.29	< .001
Spirituality	F = 5.57	< .01	F = 0.01	N.S.	F = 0.07	N.S.	F = 10.83	< .01	F = 0.84	N.S.	F = 16.34	< .01	F = 33.78	< .001
Competence Testing	F = 4.54	< .05	F = 1.55	N.S.	F = 0.22	N.S.	F = 0.56	N.S.	F = 0.01	N.S.	F = 2.57	N.S.	F = 13.19	< .001

Two hypotheses, H1b and H1f, examined relationships between respondents' time perspective and their desire for spirituality benefits. Hypothesis H1b anticipated that Present-hedonistic respondents would be significantly less likely than other respondents to seek spiritual benefits from recreation. This hypothesis was partially supported. Present-hedonistic respondents ($M = 2.02$) were significantly less likely than Future ($M = 2.59$), Undifferentiated ($M = 2.45$) or Past-positive ($M = 3.01$) individuals to seek spiritual benefits during recreation. However, Past-negative ($M = 1.40$) and Present-fatalistic ($M = 1.22$) respondents were even less likely than Present-hedonistic individuals to desire spiritual benefits from recreation. Past-positive respondents indicated the strongest desire for spiritual benefits during recreation ($M = 3.01$) indicating that spiritual benefits were "Moderately Important" to these respondents. This finding supports hypothesis H1f which posited that Past-positive respondents would be significantly more likely than other respondents to seek spirituality benefits from recreation.

The relationship between Past-positive respondents and the desire for family togetherness was partially supported. It was correctly hypothesized (H1e) that Past-positive respondents ($M = 3.18$) would be significantly more likely than Present-hedonistic ($M = 2.14$, Present-fatalistic ($M = 1.23$) and Past-negative than did all other respondents. In fact, individuals assigned to the Present-hedonistic cluster indicated risk taking was "Moderately to Very Important" to them ($M = 3.71$). In contrast, respondents assigned to the other five time perspective clusters indicated that an opportunity for risk-taking was "Not at all" to "Somewhat Important to their selection of free time activities.

Undifferentiated (*M* = 1.71) and Past-positive (*M* = 1.61) respondents gave slightly more importance to risk taking benefits than Future (*M* = 1.36), Present-fatalistic (*M* = 1.21), and Past-Negative respondents (*M* = 1.12).

Finally, as shown in Table 3.8, the one hypothesis which addressed the desire for learning benefits (H1c) was supported outright. Respondents assigned to the Future time perspective cluster were significantly more likely than all other respondents to seek learning benefits and competence testing benefits from recreation (*M* = 3.47). Learning benefits were also of significantly greater importance to Undifferentiated (*M* = 3.00), and Past Positive respondents (*M* = 2.93) in all clusters, save those with a Future time perspective. Past-negative (*M* = 1.70), Present-hedonistic (*M* = 1.66), and Present-fatalistic (*M* = 1.23) respondents indicated little interest in learning as a free time outcome.

TABLE 3.8
Mean Comparisons of Benefits by Time Perspective

		Physical Fitness	Spirituality	Family Togetherness	Competence Testing	Risk Taking	Learning
Present-hedonistic	*M*	2.48_{c}	2.02_{c}	2.14_{b}	2.17_{d}	3.71_{a}	1.66_{c}
Present-fatalistic	*M*	1.19_{d}	1.22_{d}	1.23_{c}	1.19_{f}	1.21_{c}	1.23_{c}
Future	*M*	3.52_{a}	2.59_{b}	3.32_{a}	3.16_{a}	1.36_{c}	3.47_{a}
Past-positive	*M*	3.14_{b}	3.01_{a}	3.18_{a}	2.49_{c}	1.61_{b}	2.93_{b}
Past-negative	*M*	1.46_{d}	1.40_{d}	1.38_{c}	1.74_{e}	1.12_{c}	1.70_{c}
Undifferentiated	*M*	3.14_{b}	2.45_{b}	2.94_{a}	2.79_{b}	1.71_{b}	3.00_{b}

Note. Judgments were made on 4-point scale (1=Not at all Important, 2=Somewhat Important, 3=Moderately Important, and 4=Very important). Means are adjusted to account for covariates in the model including work status, gender age, education, income, and race/ethnicity. Means in the same column that do not share subscripts differ at $p < .05$ in the Bonferroni significant difference comparison.

Discussion and Conclusions

Cluster Analysis

One key finding is that all five theoretical categories of time perspective were observed within our general population sample. The simple presence of each group bolsters previous results which have identified these five time perspectives in more controlled settings such as undergraduate student classes (DeVolder & Lens, 1982; Shell & Husman, 2001); rehabilitation programs (Keough, Zimbardo, & Boyd, 2001), and hospital treatment centers (Hamilton, Kives, Micevski, & Grace, 2003).

Next, the emergence of distinct time clusters also adds to the body of knowledge which links time perspective to individual attitudes and behavior. This study is one of very few in leisure studies and the first study to explicitly link time perspective to recreation benefit preferences. As such, these findings enlarge the range of attitudes and behavioral intentions linked to time perspective.

Another important finding is the emergence of an Undifferentiated category of respondents. Classification of 8.7% of respondents as Undifferentiated calls into question the definition of "time bias" prompts examination of what is considered a bias for a time perspective. To research to date, bias has been dealt with in two ways. In some research, a percentile of all respondents has been used as a cut-point for determining bias. For example, in a study of future time perspective and romantic relationships, individuals above the 60^{th} percentile were deemed biased whereas scale scores below this mark were classified as "Undifferentiated" and not included in analysis (Oner, 2002). This approach has been the accepted method of identifying candidates for

study in investigations of individuals with one to two specific time biases. Similar to this study, other research has relied on cluster analysis to identify time biased respondents (e.g. Murrell & Mingrove, 1994; Rakowski, 1997). However, in previous studies, no category has accounted for those respondents who resist classification into any one time bias. This study extends time perspective theory by allowing respondents to remain outside the five identified time biases in a new category--undifferentiated.

We would be remiss if we did not address the relative frequency at which each time bias was observed. Examination of time perspective clusters reveals a propensity for Past-positive and Future time perspectives. This may indicate one of two things. On the one hand, it is possible that respondents provided socially desirable responses. By definition, the Past-positive and Future time perspectives include statements that are positive and forward-looking. On the other hand, there may be a greater number of individuals in Greenville, North Carolina with these time perspectives. Either way, it demonstrates the pervasiveness (and social acceptability) of optimistic attitudes, positive nostalgia, and the value of achievement and work in this social culture.

To understand the importance of these results, it will be important to understand to what degree these results represent a cultural time bias. Cross-cultural time perspective research has begun, but has only worked to validate scales cross-culturally, and has not yet addressed the prevalence of different time biases (D'Alessio, Guarino, de Pascalis, & Zimbardo, 2003). Although the current study makes a contribution by expanding the study of time perspectives to a general population sample and leisure behaviors, we will want to examine to what degree these results represent a regional

culture, national culture or simply reflect personal characteristics of our sample. Thus, a research agenda for the study of time perspective will need to address cross-cultural differences in time perspective.

In addition to investigating the relevance of each time perspective within diverse cultures, the relationship between time perspective and social position must be explicated. Findings presented in Table 3.6 describe the frequency of time perspective classification according to respondent gender, age, educational attainment, annual household income, work status, and race/ethnicity. Although formal testing of social characteristics and time perspective membership is outside the purview of the current study, cross tab results indicate that time perspective may reflect social position. For example, respondents with the lowest levels of education and income are disproportionately represented in the Past-negative and Present-fatalistic time perspectives. Conversely, Caucasian individuals and respondents with the highest incomes seem to identify with Future and Past-positive time perspectives more than other individuals. Future research that explicitly investigates demographic and social role characteristics imbedded in each time perspective is warranted.

Hypothesis Testing

Perhaps the most significant finding from this study is that personal time perspective has a significant relationship with the benefits people pursue during their free time. This confirms time perspective as an individual differences variable that is relevant to leisure studies. Linking time perspective to recreation benefit preferences also supports and expands observations by Phillips (1992) who linked time perspective

to participation in 19 recreation activities. Further, this provides some confirmation for Zimbardo and Boyd's (1999) suppositions about leisure behavior according to time perspective gleaned through exploratory interviews.

TABLE 3.9
Summary of Benefits Hypothesis Testing Results

H1: Individuals with different time perspectives will exhibit different recreation benefit preferences.	**Supported**
H1a: Past-negative respondents will be significantly less likely than other respondents to seek physical fitness benefits from recreation.	**Partially Supported**
H1b: Present-hedonistic respondents will be significantly less likely than other respondents to seek spiritual benefits from recreation.	**Supported & Unsupported**
H1c: Future TP respondents will be significantly more likely than other respondents to seek learning benefits from recreation.	**Supported**
H1d: Future TP respondents will be significantly more likely than other respondents to seek competence testing benefits from recreation.	**Supported**
H1e: Past-positive respondents will be significantly more likely than other respondents to seek family togetherness benefits from recreation.	**Partially Supported**
H1f: Past-positive respondents will be significantly more likely than other respondents to seek spirituality benefits from recreation.	**Supported**
H1g: Present-fatalistic respondents will be significantly more likely than other respondents to seek risk taking benefits from recreation.	**Unsupported**

The overall relationship between time perspectives and recreation benefit preferences shown in Table 3.9 is provocative. When socio-demographic characteristics were controlled, significant relationships were observed between all six benefit domains

and time perspectives. These findings suggest that an individuals' time perspective is more significantly linked to what people want from recreation than age, educational attainment, level of income, or race and ethnicity. This has important implications for leisure behavior and attitudes research. A primary concern of leisure researchers is to understand and explain why people do what they do with respect to leisure (Mannell & Kleiber, 1997). Results indicate that how individuals interpret time is related to how they want to spend their time. The inclusion of time perspective into leisure behavior research may open new doors for understanding and leisure provision.

Another key finding is that for all six benefit domains under investigation, Past-negative and Present-fatalistic respondents were least likely to describe any benefit as important. Conversely, respondents classified as Future oriented or Past-positive attributed the highest level of importance to all of the benefit domains except risk-taking benefits. These results beg the question, are there essential "good" and "bad" of "healthy and "unhealthy" time perspectives?

According to Dustin, McAvoy, and Schultz (1991) in their essay "Recreation Rightly Understood", an important role of leisure professionals is to encourage good, ethical, and positive recreation among out constituents. If recreation practitioners accept that family togetherness, competence testing, learning, physical fitness, and spirituality are "good recreation" a desire to attain these benefits during free time suggests that Past-positive and Future time perspectives are good and healthy time perspectives for shaping our free time. Conversely, Past-negative and Present-fatalistic respondents are not showing interest in these "good" recreation pursuits. The relationship between these two

time perspectives is potentially problematic. As such, researchers must provide recreation practitioners with more information about how time perspective is related to recreation behavior, the amount of free time given to recreation, as well as the health and wellness of individuals of different time perspectives. Down the line, findings may help to identify candidates for leisure education or leisure counseling.

In addition to anticipating implications for health and happiness of recreation customers study results provide insight for the research and practice of recreation management. Keeping in mind that these findings are the first in this area of study, results deepen our understanding of the Benefits Approach to Leisure. First, findings support previous research that indicates benefits are an important tool for understanding market segments in recreation. This study takes findings by McIntyre, Cuskelly, and Auld (1991) one step further to suggest that time perspective may be a useful segmentation variable, as it allowed separation of six clusters and related benefit preferences. Second, referencing Figure 1, the process of producing benefits through recreation is better understood by describing how inputs (i.e. people and what they bring with them) impact the benefits desired by individuals in the output phase. Replication of these results and inclusion of the 13 other benefit domains further improve our grasp of the BAL. Additionally, we will work toward an understanding of how individual inputs such as time perspective aggregate to impact benefits dyads, social groups, and communities.

Concluding Thoughts

At this point, we may reassess our original statement that, "Neither researchers

nor practitioners know how customers' framing of time is related to their desire for recreation during residual time." Results from this study suggest that how individuals frame time may indeed be related to their desire for particular recreation experiences. The observed relationship this personal characteristic and recreation benefit preferences provides valuable information for identifying and meeting customer demand and expanding our theoretical understanding of leisure benefits and time perspective.

TIME PERSPECTIVE, HEALTH, AND LIFE SATISFACTION

Introduction

As part of an attempt to bridge the literature on time perspective and leisure behavior, the first study examined the relationship between time perspective and residual time allocation. In that study the role of time perspective in individual's recreation quantity was described. In the second study, the relationship between time perspective and individuals' recreation benefit preferences was outlined. That study highlighted the importance of time perspective to individuals' recreation choices. In this third study, attention is given to individuals' recreation outcomes. Specifically, this study examines implications of each time perspective for adults' health and life satisfaction. Given that improved health and increased life satisfaction are important benefits that can be gained through recreation participation, this study works to understand how adults' time perspective is related to their overall wellness.

Research has identified links between time perspective, health, and life satisfaction. For example, physical health risks such as frequent smoking, alcohol consumption, and drug use (Keough, Zimbardo, & Boyd, 1999) have been significantly correlated with present time perspectives. Conversely, positive physical health behaviors have been linked to Future time perspectives (Hall, 2002). Psychological health has been negatively correlated with Past time perspectives (Lyubomirsky & Nolen-Hoeksema, 1995; Nolen-Hoeksema & Morrow, 1993). Research has not examined the relationship of positive psychological health states and time biases.

Finally, a balanced time perspective has been advocated for overall life satisfaction (Boyd & Zimbardo, 1997; Carstensen, Turk, & Charles, 1998).

To date, research linking time perspective to health and life satisfaction has focused on limited populations. In this study, I seek to deepen our understanding of time perspective and health by investigating all five time perspectives within the general population. Then, with this knowledge I work to understand whether a particular temporal bias is related to improved health and happiness, or if a balanced time perspective is most desirable. Results will inform researchers and practitioners about health consequences associated with each time perspective. These findings have implications for leisure researchers and practitioners seeking to improve adults' mental and physical health. Results may help service providers identify candidates for leisure education to enhance adults' health and life satisfaction. Moreover, identification of time perspectives which are detrimental to health may help leisure providers intervene in recreation settings with health promotion and disease prevention programs. Given the amount of human and fiscal resources dedicated to care for mental and physical illnesses (Ho, Payne, Orsega-Smith, & Godbey, 2004; Payne, Orsega-Smith, Godbey, & Roy, 1998) identifying adults for this intervention during recreation may represent a substantial contribution.

Review of Related Literature

After describing the relevance of health research to leisure studies, the observed relationships between time perspective and physical health, psychological health, and life satisfaction are addressed. Then, the importance of health and life satisfaction

outcomes in leisure research are portrayed.

The Role of Recreation in Health

Improved health and increased life satisfaction are important benefits that can that can be gained through recreation participation. As described by Dustin, McAvoy, and Goodale (1999), a key tenet of the benefits approach to leisure is that leisure services provide a more vast range and number of aggregate benefits to society than any other social services. Among the over 100 benefits identified in recreation research are physical and psychological health benefits. These benefits represent two kinds of goods: an improved condition and prevention of a worse condition. For the last two decades, researchers and major recreation organizations have been committed to identifying and promoting all benefits of leisure. In the last decade, the health benefits of leisure have received increased attention.

Starting in 1995, the U.S. National Recreation and Park Association (NRPA) introduced their Active Living Healthy Lifestyles Campaign to vocalize the benefits of physical fitness through enjoyable recreation activities and park use. The continued importance of this health and life satisfaction to leisure research is evidenced by the dedication of a special issue of the *Journal of Park and Recreation Administration* (2002) to leisure and health. In addition, NRPA commissioned a think tank in 2004 to identify potential recreation partnerships to improve community and individual health through recreation.

This shift to make the health and wellness benefits of recreation explicit followed a broad North American movement to reframe the benefits of recreation as essential

services (Crompton, 1999; Ho, Payne, Orsega-Smith, & Godbey, 2003). As part of a movement to reposition recreation as essential services, Higgins (1995) argued that the profession of leisure and recreation significantly contributes to the primary goal of health promotion--achieving health for all. Nine propositions were presented to frame recreation as fulfilling the components of health promotion as put forth by Canada's national health promotion agenda. Like Higgins, other authors have detailed the physical health benefits of park and recreation services (e.g. Ho, Payne, Orsega-Smith, Godbey, 2003). Research has included physically active recreation (Ho et al., 2003), trail usage (Moore & Ross, 1998) and older adults park and recreation participation (Payne, Orsega-Smith, Godbey, & Roy, 1998). Greenways and trails have been applauded for their contributions to physical health through the provision of space for walking, backpacking, cycling, riding snowmobiles, horse riding and canoeing (Moore & Ross, 1998). Payne, Orsega-Smith, Godbey and Roy (1998) described results from studies that examined how local park use is related to the health of older adults. The authors concluded that while it is likely that adults in better health are more likely to use parks, parks provide reciprocal benefits by helping visitors maintain or enhance their personal health.

The health benefits of recreation extend to psychological wellbeing also. According to Karlis and Dawson (1994), “The promotion of all aspects of wellness through healthy lifestyles is emerging as a major focus in recreation and leisure services” (p. 267). While physical fitness is a traditional objective of recreation programs, stress reduction and overall mental health have been documented leisure participation benefits.

For example, Thomson, Kearns and Petticrew (2003) assessed the health impact of local recreation amenities. The authors concluded that while few UK residents reported regular use of swimming pools for physical activity, pool use for social contact was frequent. Users reported relief from stress and isolation, and improved psychological mental health.

With the attention of leisure researchers and services providers tuned to the health benefits of recreation, this paper investigates how time perspective may be related to health outcomes associated with recreation.

Time Perspective and Physical Health

As noted in this section's introduction, research relating health to time perspective has been scattered and incomplete. For example, Hall (2002) described the relationship between time perspective and health. However, this study assessed only adolescents time perspectives and focused exclusively on the Future time perspective. The author hypothesized that a Future time perspective would be linked to adolescents' long term thinking about health and physical activity. Study participants were randomly assigned to one of three groups—time perspective intervention, goal setting intervention, and control groups. Results provide the first empirical evidence that expanding a long-term Future time perspective may enhance health behavior. Significant effects in behavioral intentions emerged for subjects receiving time perception intervention more than for subjects in other treatment groups.

Another study linking health and time perspective is described by Flournoy (2003). The author administered Zimbardo's Time Perspective Inventory (ZTPI), a

religious coping scale, and several demographic and health related measures to a sample of African American and Caucasian older men diagnosed with prostate cancer. Findings indicated that ZTPI and religious coping scores significantly enhanced predictability of the health-related outcomes beyond other demographic predictors. Overall, time perception was less influential for African American men's health outcomes than it was for Caucasian men.

Finally in two large-scale (N > 2,700) studies of risk behaviors among undergraduate students, risky driving (Zimbardo, Keough, & Boyd, 1997), frequent smoking, alcohol drinking, and drug use (Keough, Zimbardo, & Boyd, 2001) were significantly correlated with present TP. Given these tentative findings linking health behavior and time perspective it is hypothesized:

H1: People with Present-fatalistic and Past-negative time perspectives will report significantly worse physical health than people with other time perspectives.

H2: We hypothesize that people with Present-fatalistic and Past-negative will report significantly higher body mass index scores than people with other time perspectives.

Time Perspective and Psychological Health

Similar to the incomplete findings linking physical health and time perspective, some previous research has described a relationship between psychological health and TP. According to Lyubomirsky and Nolen-Hoeksema (1995) and Nolen-Hoeksema and

Morrow (1993), a Past-negative time perspective is associated with depression, anxiety, unhappiness, and low self-esteem and high levels of aggression. Based on a study of 400 German adults, Lang and Carstensen (2002) concluded that individuals who perceived their future time as being limited prioritized emotionally meaningful goals (e.g. generativity, emotion regulation) whereas individuals who perceived their futures as open-ended prioritized instrumental or knowledge-related goals. These findings support the relationship between Future time perspective and the pursuit of personally meaningful goals. Finally, Kazakina (1999) observed that among older adults in community settings, individuals reporting high levels of distress and depression tended to attribute the preponderance of positive experiences to only one of the time zones—particularly the past. With these findings it is hypothesized:

H3: Individuals with Present-fatalistic and Past-negative time perspectives will score significantly lower on the psychological health index than people with other time orientations.

Time Perspective and Life Satisfaction

Lastly, what does time perspective mean for life satisfaction? Kazakina (1999) described her study of older, community-dwelling adults' views of their past, present and future. A balanced time perception was linked to higher levels of life satisfaction. These findings support Zimbardo and Boyd's (1999) theoretical contention that a balanced time perception is psychologically desirable:

> The future focus gives people wings to soar to new heights of achievement, the past (positive) focus establishes their sense of personal identity and the present (hedonistic) focus nourishes their daily lives with the playfulness of youth and the joys of sensuality. (p. 1285).

Following this assertion and a similar statement by Carstensen, Turk and Charles (2003), I contend that people need all time persepctives to realize their potential and achieve life satisfaction during retirement. As such, it is hypothesized:

> **H4:** Individuals with an Undifferentiated time perspective will report significantly greater life satisfaction than individuals who possess a biased time perspective.

Summary

This study will link adults' time perspectives to their physical health, psychological health, and life satisfaction. These findings have important implications for leisure service providers seeking to enhance the health and life satisfaction of adults. Most important for direct application, the ZTPI may play a useful role in focusing attention on various stress reactions and coping strategies of constituents with varied time perspectives. This paper has the potential to help recreation providers understand which adults may be targeted for leisure education. According to Rosenkoetter, Garris, and Engdahl (2001) analyzing the existing time use problems among adults could provide useful insights for pre-retirement planning programs in business, industry, health

care, and recreation" (p. 3). Conversely, if study findings support the "balanced time" proposition (Zimbardo, 1994), recreation providers may consider integrating time perspective coaching into leisure offering to help adults achieve improved health as they age. An understanding of how today's adults interpret time gives leisure service providers information to help them develop programs and leisure education for satisfying use of residual time and healthy aging.

Methodology

Data Collection and Instrumentation

Data were collected in spring 2005 using the self-administered mail questionnaire described in Section 3. Using the same sample of Greenville, North Carolina residents (N= 450), data for hypothesis testing for this study were drawn from sections of the four-page mail questionnaire. Of relevance for this study are questionnaire segments related to respondents' time perspective, physical health, psychological health, and life satisfaction.

Time perspective was measured using the Zimbardo Time Perspective Inventory (ZTPI). Items describe a bias for each of the five time orientations and are rated from 1 to 5. A response of 1 is given when a statement "Is not characteristic of me" whereas an item is scored 5 if "this is very characteristic of me" (Zimbardo & Boyd, 1999, p.1271). Over-reliance on a temporal frame elicits a time bias, which results in one of the five time perspectives (Gonzalez & Zimbardo, 1985). After a decade compiling research using exploratory and confirmatory factor analyses, measures of internal and test-retest reliability, and results indicating convergent, discriminant, and predictive validity in

correlational, experimental and case study research, the ZTPI was established (Boyd & Zimbardo, 1997).

Physical health was assessed using two measures: self-reported physical health and body mass index (BMI). According to the American College of Sports Medicine, self-assessment of physical health and body mass index (BMI) scores are non-invasive pre-screening guides for physical health problems and disease risk factors. Answers to height and weight questions allowed researchers to calculate the body mass index, an indicator of risk for heart disease. For measurements taken in pounds and inches, the formula for body mass index is,

$$BMI = [weight / height^2] \times 703.$$

Scores between 19 and 25 are considered healthy. Scores above 25 put individuals at risk for heart disease and other obesity-related conditions. Lastly, a score of 30 or greater indicates clinical obesity (Johnson & Krueger, 2005).

After completing the time perspective and physical health sections, respondents were asked about their psychological health and life satisfaction. Psychological health items were drawn from the SF-36 which assesses depressed mood, feelings of guilt, and feelings of hopelessness (Ware & Sherbourne, 1992). Along a 6-point continuum, respondents indicated whether each of ten statements was true for them "all of the time" (1) "none of the time" (6).

Life satisfaction was measured by summing scores for each of the three life satisfaction questions. Items included "In most ways, my life is close to my ideal," "I am satisfied with my life," and "The conditions of my life are excellent." Response

categories ranged from one to seven, with one indicating a “strongly disagree” and the response seven indicating “strongly agree.” Thus, the range for scores was 3-21 with higher scores representing higher satisfaction with life.

Finally, respondents were asked for additional demographic information. These questions asked respondents to pinpoint their level of educational attainment, and annual household income, age, gender, and race/ethnicity. In addition, respondents were asked to indicate which social roles could be used to describe them including parent, grandparent, caretaker, homemaker, primary earner, and head of household.

Data Analysis

Data analysis was conducted in five parts to test the four hypotheses. Study hypotheses are summarized in Table 4.1. To begin, respondents were described according to their demographic and social role responses. Second, respondents were classified according to their time bias. For this, and all other statistical analyses in this study, missing data were dealt with using pairwise exclusion. To place respondents in time perspective groupings, a K-means cluster analysis was used. Cluster analysis is an exploratory data analysis tool to classify cases (people) into groups such that the degree of association is strong between members of the same cluster and weak between members of different clusters. Specifically, K-Means analysis asks researchers to "tell" the computer to form an exact number of clusters which are as distinct as possible. In K-means clustering, the program algorithm moves cases from group to group to get the most significant distance between groups. Thus, for this data set, each resultant cluster describes the time perspective category to which its members are biased.

Next, the first hypothesis was tested. An analysis of covariance (ANCOVA) was undertaken to test for differences in physical health among respondents by time perspective. Time perspective served as the independent variable. The dependent variable, physical health, was measured by self-reported health and BMI. Researchers have identified correlations between many demographic characteristics (e.g. Kosteniuk & Dickinson, 2003; Luo & Waite, 2005; Wood, Hondzinski, & Lee 2003), as well as between physical and psychological health (e.g. Johnson & Krueger, 2005; Snowden, 2005). Thus, to test this hypothesis, race/ethnicity, age, SES, and psychological health were included as covariates.

In the fourth stage of data analysis, we repeated the ANCOVA testing for psychological health instead of physical health. Psychological health was measured as the sum score from the SF-36 and will served as the independent variable. Covariates included race/ethnicity, age, SES, as well as self-reported physical health measures.

In the fifth and final stage of data analysis, the fourth hypothesis was tested. A final analysis of covariance was used to determine whether Undifferentiated respondents were significantly more satisfied than individuals with a bias for each of the five time perspectives. Life satisfaction was measured by the sum of scores for each of the three life satisfaction questions. The theoretical range for scores was 3-21 with higher scores representing higher life satisfaction. Respondents comprising the Undifferentiated cluster were considered to have balanced time perspectives since they resisted classification into any particular time perspective bias. Covariates again included race/ethnicity, age, SES. In addition, physical and psychological health measures were

included as covariates following significant findings during testing of hypotheses one and three.

TABLE 4.1
Summary of Hypotheses for Investigation

Time Perspective Investigated	**Outcome Investigated**	**Hypothesis**
Present-fatalistic	Physical Health	**H1:** People with Present-fatalistic and Past-negative time perspectives will report significantly worse physical health than people with other time perspectives.
Past-negative		**H2:** We hypothesize that people with Present-fatalistic and Past-negative will report significantly higher body mass index scores than people other time perspectives.
Present-fatalistic Past-negative	Psychological Health	**H3:** Individuals with Present-fatalistic and Past-negative time perspectives will score significantly lower on the psychological health index than people with other time orientations.
Undifferentiated	Life Satisfaction	**H4:** Individuals with an Undifferentiated time perspective will report significantly greater life satisfaction than individuals who possess a biased time perspective.

Results

In the first phase of data analysis, respondents' demographic characteristics were described. Next, each respondent was assigned to one of six time perspective clusters. A complete presentation of these results is provided in Section 3, pages 90-105.

Physical Health

With cluster analysis complete, we turn our attention to hypothesis testing. An analysis of covariance (ANCOVA) was undertaken to test for differences in respondents' self-reported physical health by time perspective. As shown in Table 4.2, significant differences in physical health were observed for members of different time perspective clusters. The ANCOVA also shows that respondents' educational attainment, household income, and psychological health were significantly related to reported physical health. Higher levels of education, higher incomes, and better psychological health were related to higher physical health. Age and race/ethnicity were not related to reported physical health.

The first hypothesis predicted that people with Present-fatalistic and Past-negative time perspectives would report significantly worse physical health than individuals with other time types. This hypothesis was supported. As detailed in Table 4.3, Future time perspective respondents considered themselves in significantly better physical health than all other respondents ($M = 3.24$). Overall, Present-hedonistic, Undifferentiated, and Past-Positive respondents were less likely to rate their health as highly as Future respondents but on average still reported their physical health was "good." Past-negative and Present fatalistic respondents determined that their health was "fair."

TABLE 4.2
Results of Analysis of Covariance Testing Hypothesis One (N=433)

Source of Variation	Sum of Square	d.f.	Mean Square	F-Value	P-Value
Covariate (age)	0.05	1	0.05	0.09	.80
Covariate (educational attainment)	1.88	1	1.88	3.94	.05
Covariate (race/ethnicity)	0.59	1	0.59	1.24	.27
Covariate (work status)	0.01	1	0.01	.015	.90
Covariate (household income)	2.34	1	2.34	4.93	.03
Covariate (psychological health)	24.17	1	24.17	50.64	.00
Time perspective	15.32	6	3.06	6.42	.00
Residual	185.63	421	0.48		
Total	281.70	432			

TABLE 4.3
Mean Comparisons of Physical Health by Time Perspective

		Present-hedonistic	Present-fatalistic	Future	Past-positive	Past-negative	Undifferentiated
Self-reported physical health	*M*	2.98_{b}	1.96_{c}	3.25_{a}	2.87_{b}	2.06_{c}	2.90_{b}

Note: Means are adjusted to account for covariates in the model including age, educational attainment, race/ethnicity, work status, household income, and psychological health.

Respondents' own assessment of their physical health resulted in significant differences by time perspective. Interestingly, when physical health was assessed using objective measures, body mass index scores, the differences between respondents' physical health disappeared. As shown in Table 4.4, among sample respondents there was no significant difference in body mass index scores between time perspective clusters. What is more, BMI scores were not significantly related to any covariates.

Thus, the second hypothesis was not supported. While no statistical differences were observed, BMI scores did range from "healthy" to "clinically obese" categories. It is therefore useful to order means to observe trends in the data. Thus, in rank order from smallest to largest mean BMI are the following: Future (M = 23.61), Undifferentiated (M = 25.77), Present-hedonistic (M = 27.36), Past-positive (M = 29.41), Present-fatalistic (M = 30.34.21.), and Past-negative (M = 34.98).

TABLE 4.4
Results of Analysis of Covariance Testing Hypothesis Two (N=382)

Source of Variation	**Sum of Square**	**d.f.**	**Mean Square**	**F-Value**	**P-Value**
Covariate (age)	690.71	1	690.71	0.01	.95
Covariate (ed. attainment)	249044.43	1	249044.43	1.64	.20
Covariate (race/ethnicity)	508477.98	1	508477.98	3.34	.17
Covariate (work status)	822.40	1	822.40	0.80	.72
Covariate (household income)	182719.91	1	182719.91	1.20	.27
Covariate (psychological health)	13078.82	1	13078.82	0.09	.77
Time perspective	1313092.95	7	262618.59	1.73	.10
Residual	39729103.71	409	152218.78		
Total	72224998.90	421			

Psychological Health

The next phase of data analysis repeated ANCOVA and post-hoc tests to examine the third hypothesis. The third hypothesis described the relationship between time perspective and psychological health. This was supported. We correctly anticipated significant differences in psychological health scores according to time perspective. Specifically, Present-fatalistic and Past-negative respondents scored

significantly lower on the psychological health index than other time types. What is more, as shown in Table 4.5, physical health was the only covariate to demonstrate a significant relationship with psychological health. Bonferroni post-hoc tests split the six time perspective clusters into three groups. These results, shown in Table 4.6 show that Future, Past-positive, and Undifferentiated respondents had the highest sum scores on psychological health scale. Higher scores indicate better psychological adjustment and mental health. Present-hedonistic respondents comprised the middle group ($M = 35.87$) and Present-fatalistic and Past-negative cluster members registered significantly lower psychological health scores than all others. With mean scores of 29.85 and 26.72 respectively, these respondents reported feeling happy and energetic "a little of the time" to "some of the time."

TABLE 4.5
Results of Analysis of Covariance Testing Hypothesis Three (N=435)

Source of Variation	**Sum of Square**	**d.f.**	**Mean Square**	**F-Value**	**P-Value**
Covariate (age)	79.55	1	79.55	1.65	.20
Covariate (ed. attainment)	107.76	1	107.76	2.24	.14
Covariate (race/ethnicity)	31.27	1	31.27	0.65	.42
Covariate (work status)	68.32	1	68.315	4.72	.03
Covariate (household income)	38.87	1	38.87	0.81	.37
Covariate (physical health)	2437.87	1	2437.87	50.64	.00
Time perspective	6488.99	6	1297.80	26.96	.00
Residual	18725.43	422	48.14		
Total	38196.02	434			

TABLE 4.6
Mean Comparisons of Psychological Health by Time Perspective

		Present-hedonistic	Present-fatalistic	Future	Past-positive	Past-negative	Undifferentiated
Psychological health	M	35.90_{b}	29.86_{c}	45.87_{a}	44.46_{a}	26.72_{c}	43.95_{a}

Note: Means are adjusted to account for covariates in the model including age, educational attainment, race/ethnicity, work status, household income, and physical health.

Life Satisfaction

Thus far, this study has examined the relationship between time perspective and individuals perception of their physical and mental health. Next, the relationship between time perspective and life satisfaction is considered. Initially, it was hypothesized that individuals with balanced time perspectives would report significantly greater life satisfaction than respondents with biased time perspectives. This hypothesis was to be tested with a series of five independent, paired t-tests after splitting each cluster variable into two groups: biased ($\geq 60^{th}$ percentile) and Undifferentiated ($< 60^{th}$ percentile). However, two considerations make an analysis of variance a preferred comparison method. First, a category of Undifferentiated respondents emerged during cluster analysis. In other time perspective studies using cluster analysis, no category has accounted for those respondents who resist classification into any one time perspective (e.g. Murrell & Mingrove, 1994; Rakowski, 1997). Because health is associated with time perspective, it is logical to include these health indictors as covariates when examining the relationship between time perspective and life satisfaction.

TABLE 4.7
Results of Analysis of Covariance Testing Hypothesis Four (n=426)

Source of Variation	Sum of Square	d.f.	Mean Square	F-Value	P-Value
Covariate (age)	15.92	1	15.92	1.42	.23
Covariate (ed. attainment)	19.22	1	19.22	1.72	.19
Covariate (race/ethnicity)	0.07	1	0.07	0.01	.94
Covariate (work status)	59.67	1	59.67	4.12	.06
Covariate (household income)	35.93	1	35.93	3.21	.07
Covariate (physical health)	217.77	1	217.77	19.45	.00
Covariate (psychological health)	580.90	1	580.90	51.88	.00
Time Perspective	1778.21	7	355.64	31.76	.00
Residual	4288.34	413	11.20		
Total	11029.15	425			

Results of the ANCOVA are presented in Table 4.7. Significant differences in life satisfaction exist between respondents of different time perspectives. Additionally, physical health, psychological health, and household income were significantly related to life satisfaction. However, to test Hypothesis 4, post-hoc results are interpreted.

Mean comparisons unveil significant differences in life satisfaction by time perspective. These results are presented in Table 4.8. Present-hedonistic respondents reported the greatest life satisfaction (M = 17.6) whereas the other present time perspective, Present-fatalistic, was linked to the lowest life satisfaction score (M = 5.04). Overall, Present-hedonistic, Future, Past-Positive, and Undifferentiated respondents were similarly satisfied with their lives (M = 17.60; 15.89; 15.64; 15.18 respectively) while Past-negative and Present-fatalistic respondents were dissatisfied with their lives (M = 6.37; 5.04). Thus, Hypothesis 4 is rejected. An Undifferentiated time perspective may be linked to greater life satisfaction, however, a bias for Future, Past-positive and

Present-hedonistic time perspectives were also linked to high levels of life satisfaction.

TABLE 4.8
Mean Comparisons of Life Satisfaction by Time Perspective

		Present-hedonistic	Present-fatalistic	Future	Past-positive	Past-negative	Undifferentiated
Life Satisfaction	M	17.60_{a}	5.04_{b}	15.89_{a}	15.18_{a}	6.37_{b}	15.64_{a}

Note: Means are adjusted to account for covariates in the model including age, educational attainment, race/ethnicity, work status, household income, physical health, and psychological health.

Discussion and Conclusions

Prior to this study, researchers had identified tenuous relationships between time perspective, health, and life satisfaction. This study expands previous findings by using a general population sample to investigate all five time perspectives. A summary of hypothesis findings are described in Table 4.9

Physical Health

Previous research had linked Present-hedonistic and Present-fatalistic time perspectives with lower levels of physical health for undergraduate students (Keough, Zimbardo, & Boyd, 2001). Higher levels of physical health had been linked to Future time perspectives among adolescents (Hall, 2002) and men diagnosed with prostate cancer (Flournoy, 2003). Current study results confirm that Present-fatalistic time perspectives may be detrimental to people's physical health. Results also confirm that Future time perspectives are related to good physical health. These findings represent a

contribution to the literature by verifying these relationships within the general population. In addition, findings related to physical health extend our knowledge by describing Past-negative time biases as detrimental to individuals' perceptions of their own physical health. Physical health implications of a Past-negative time perspective had not previously been investigated.

TABLE 4.9
Summary of Hypothesis Testing Results

Hypothesis	Outcome
H1: People with Present-fatalistic and Past-negative time perspectives will report significantly worse physical health than people with other time perspectives.	**Supported**
H2: We hypothesize that people with Present-fatalistic and Past-negative will report significantly higher body mass index scores than people with other time perspectives.	**Unsupported**
H3: Individuals with Present-fatalistic and Past-negative time perspectives will score significantly lower on the psychological health index than people with other time orientations.	**Supported**
H4: Individuals with an Undifferentiated time perspective will report significantly greater life satisfaction than individuals who possess a biased time perspective.	**Unsupported**

Interestingly, when physical health was assessed using objective measures, differences between respondents' physical health disappeared. This lack of agreement may be attributable to one of two factors. First, it is possible that little difference in

physical health exists between respondents of different time biases. Because pessimism seems characteristic of respondents classified as Past-negative and Present-fatalistic, these respondents may have provided an overly critical appraisal of their own physical health. On the other hand, optimism seems characteristic of Past-positive and Future bias respondents. These individuals may have described their physical health in generously positive terms. This would mean that BMI scores which only trended toward significance may reflect a more accurate portrayal of physical health differences between different time perspective groups. Conversely, it is possible too that BMI scores are misleading. As part of the survey packet, an information sheet was included which instructed respondents to skip any question that made them uncomfortable. Given that only 382 of 450 respondents completed both the height and weight questions, which are necessary to calculate BMI, it is possible that overweight individuals were significantly less likely to complete these questions. Thus, significant results may be masked by non-respondent bias on this question. Alternatively, significant differences in BMI could be masked by respondents selecting socially desirable answers to the height and weight questions. To piece out the relationship of physical health and time perspective, future studies may choose to rely on clinical measurements such as body fat, waist-to-hip ratio measurements, alternatively, or a more comprehensive health status questionnaire.

Psychological Health

As described in the review of related literature, previous research investigating psychological health and time perspective had linked a general "Past" time perspective with lower mental health (Lyubomirsky & Nolen-Hoeksema, 1995; Nolen-Hoeksema &

Morrow, 1993). However, these studies only included respondents with Past time perspectives. Thus, understanding of time perspective's relationship to psychological health was incomplete. With all five time biases considered in this study, Present-fatalistic and Past-negative respondents scored significantly lower on the psychological health index than other time types. In contrast to previous findings, a Past-Positive time perspective was related to high scores on the psychological health index. Moreover, these results are the first to describe the relationship of Future and Undifferentiated time perspectives to psychological health. Respondents with these time biases reported strong, positive psychological health scores. Since recreation has the ability to provide psychological benefits to participants, it will be useful to link results about the quantity and character of recreation undertaken by Present-fatalistic and Past-negative respondents to health outcomes. This will provide information to leisure service providers who are advising respondents to adopt more or different free time pursuits.

Life Satisfaction

With regard to life satisfaction, the time perspective literature from psychology has advocated a balanced time perspective for overall happiness and satisfaction (Boyd & Zimbardo, 1997; Carstensen, Turk, & Charles, 1998). That an Undifferentiated time perspective is necessary for life satisfaction was not borne out by study findings. Although significant differences in life satisfaction were observed between respondents of different time perspectives, respondents with Future, Past-positive and Undifferentiated time perspectives all reported equally high levels of life satisfaction.

It is also notable that although Present-hedonistic respondents have only

moderate relationships with physical and psychological health, their life satisfaction scores are among the highest. Although this relationship has not previously been observed in empirical studies and was not hypothesized, these results are in line with the fundamental nature of this time perspective. Items that are characteristic of the Present-hedonistic time perspective embody optimism and immediate gratification. For example, Present-hedonistic respondents were more likely that all other groups to agree that "It is more important for me to enjoy life's journey than focus on outcomes" and "I try to live my life as fully as possible one day at a time." Thus, it seems clear that the Present-hedonistic time perspective cluster is accurately labeled and immediate gratification sought by cluster members is achieved. This is of particular interest given recent media attention to the importance of living in the present. For example, in the Spring of 2005, the Today Show on NBC launched a new series called, "Live for Today" and The Discovery Channel launched a 16-week series called "N.O.W.—No Opportunity Wasted." This happened at the same time that "My Best Life Now" rose to the top of the New York Times Best –Sellers book list. These persuasive media messages advocate a present-hedonistic, live for the moment (because you never know what is next) attitude. Results from this study suggest that while a Present-hedonistic lifestyle may not be linked to the best physical and psychological health, devotees to this trend and time bias are able to achieve a high level of life satisfaction—the fundamental goal of members of this cluster.

Additional Implications for Leisure Service Provision

Mass media messages are part of our daily life and reflect regional and national

cultures, as well as current events and value part of daily life. In this respect, these messages play an important role in how we evaluate and judge time perspectives as positive and negative. Current study results take on additional importance following findings in the previous study which suggested some time perspectives may be "good" and others "bad" when it comes to recreation experience preferences. Current findings add the weight of health implications to the argument that some time perspectives are "good" and others are "bad."

In all measures of physical health, psychological health and life satisfaction, Future, Past-positive, and Undifferentiated time perspective respondents had the most desirable scores. Conversely, Past-negative and Present-fatalistic respondents reported the worst physical health, psychological health, and life satisfaction. These findings mirror results presented in Section 3. In the previous study, Future and Past-positive cluster members were more likely than others to indicate a desire for positive recreation benefits including family togetherness, spirituality, learning, competence testing, and physical fitness. In opposition were Past-negative and Present-fatalistic respondents who had little desire for any of these beneficial outcomes. Given earlier findings and current study results, it may behoove leisure practitioners to consider Future, Past-positive, and Undifferentiated time perspectives as desirable and Past-negative and Present-fatalistic time perspectives as undesirable. A Present-hedonistic time perspective may be interpreted as neutral. At the very least, we can state that Past-positive, Future, and Undifferentiated time perspectives appear to be healthier for respondents and respondents' communities than as Past-negative and Present-fatalistic

time perspectives.

With this in mind, recreation service providers face an ethical dilemma for the provision of leisure experiences for all constituents. As our general population results found, members of a mid-sized community in the Southeastern United States exhibit the range of all five time perspectives. Thus, leisure service providers may find themselves programming recreation centers to meet all manner of requests—from healthy activities like lap swimming to unhealthy poker games in smoke-filled community rooms. Dustin, McAvoy and Schultz (1991) described this dilemma in depth, contrasting the immediate desires of the individual with the rights and demands of all citizens and communities. These authors and many others have recommended the adoption of leisure education to help constituents make choices that are informed and healthy for themselves and others.

Tackling the relationship of time perspectives and recreation behavior with leisure education offers important implications for researchers and practitioners seeking to improve adults' mental and physical health. As described in the review of related literature, recreation's contribution to health and well-being has received increasing attention, particularly in North America. The goal of this attention is two-fold. Researchers hope to improve individuals' and communities' quality of life through recreation. Also, researchers hope to make a case for the allocation of healthcare funds to recreation service providers. According to Ho and colleagues (2004) more money is spent on healthcare in one day than is allocated to parks and recreation departments annually. In fact, healthcare costs comprise approximately 14% of the gross domestic product (Payne et al., 1998). With recreation service providers struggling to make ends

meet, identifying new funding sources is always a priority (Crompton, 1999). Already researchers have identified the preventative health benefits of active recreation (Ho et al., 2004) and social recreation (Karlis & Dawson, 1994). As research continues to identify ways in which recreation providers can contribute to the battle against rising health care costs, leisure education for problematic time perspectives may be another viable avenue. Since strong relationships were observed between respondents' time perspective and their health, intervention in leisure settings may be a non-traditional approach to improving adults' quality of life and recreation's financial constancy.

Finally, identification of best practices for time perspective intervention will help leisure service providers develop effective leisure education programs. Much has been written about the best practices and efficacy of leisure education in general (e.g. Caldwell, Baldwin, Walls, & Smith, 2004; Robertson, 1994; Searle & Mahon, 1995; Searle & Mahon, 1998). However, the literature to date offers only two recommendations specifically for altering respondents' interpretations of time. First, Rosenkoetter, Garris and Engdahl (2001) advocate for partnerships between industry and recreation to advise new employees and retiring workers about the healthy and valuable use of their time. Next, findings by Hall (2002) indicate that among adolescents, providing teens with time coaching was most influential on behavioral outcomes. Unfortunately, a detailed description of coaching methods was not included in the study report. Identifying the efficacy of leisure education for altering problematic time perspectives is an important next step in time perspective research.

CONCLUSIONS

The primary contribution of the current research program was to introduce the construct of time perspective to the leisure literature. Using previous research which links time perspective to a broad array of behaviors, hypotheses were developed and tested to understand the relationship of time perspective and recreation. Using an on-site questionnaire and time diary data, the relationship between how individuals frame time in the present, past, or future and how they allocate their discretionary time was described in the first section. This study linked ideas from leisure and psychology by investigating the relationship of time perspective and time allocation. Findings suggest that this hypothesized link may exist. No differences were observed in the quantity of residual time according to each time perspective, however, different amounts of residual time were allocated to recreation according to respondent time perspective. Further, respondents with different time perspectives participated in different types of free time activities. These findings tell researchers that despite identifiable differences in interpretation of time in terms of the past, present, and future, the amount of residual time available to individuals is similar. These findings provide a foundation for the study of two dimensions of time: time perspective and time allocation.

Next, the relationship between an individual's time perspective and the benefits they seek from recreation was identified. Using a self-administered mail questionnaire, the benefits sought by adults with different time perspectives were compared. One key finding is that all five theoretical categories of time perspective were observed within the

general population sample. This study is one of very few in leisure studies and the first study to explicitly link time perspective to recreation benefit preferences. As such, these findings enlarge the range of attitudes and behavioral intentions linked to time perspective. The simple presence of each group bolsters previous results which have identified these five time perspectives in more controlled settings. Further, the emergence of distinct time clusters also adds to the body of knowledge which links time perspective to individual attitudes and behavior. Perhaps the most significant finding from this section of research was that personal time perspective had a significant relationship with the benefits people pursue during their free time. This confirms time perspective as an individual difference variable that is relevant to leisure studies. Another key finding is that for all six benefit domains under investigation, Past-negative and Present-fatalistic respondents were least likely to describe any benefit as important. Conversely, respondents classified as Future oriented or Past-positive attributed the highest level of importance to all of the benefit domains except risk-taking benefits. These results beg the question, are there essential "good" and "bad" of "healthy and "unhealthy" time perspectives?

In the final section, results from the mail questionnaire provide information about associations between time perspective, health, and life satisfaction outcomes. Using the self-administered questionnaire the relationship between time perspective, physical health, psychological health and life satisfaction was examined. This study expands previous findings by using a general population sample to investigate all five time perspectives. In all measures of physical health, psychological health and life

satisfaction, Future, Past-positive, and Undifferentiated time perspective respondents had the most desirable scores. Conversely, Past-negative and Present-fatalistic respondents reported the worst physical health, psychological health, and life satisfaction. Findings provide information about the desirability of time perspectives for individual wellness and happiness. Past-negative and Present-fatalistic time perspectives are identified as problematic. Leisure service providers may consider targeting constituents with these time perspectives for leisure education and intervention.

Broadly, this study used the construct of time perspective to inform researchers and recreation providers about adults' recreation behaviors and outcomes. As a whole, findings suggest that leisure research can benefit from the inclusion of a time perspective variable. What is more, research into leisure behavior should incorporate a combination of statuses in order to better understand why people do what they do with their free time. Similar to multiple hierarchical studies which examine the combination age, gender, race/ethnicity, and socio-economic status to understand recreation attitudes and behaviors (e.g. Lee, Scott, & Floyd, 2001; Arnold & Shinew, 1998) studies of recreation behavior should examine the combined effects of gender, work status, and time perspective. It is likely that the effects of each individual variable will be multiplied when they are combined in one individual. Finally, results have identified problematic time perspectives which may be used to identify individuals for leisure education.

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APPENDIX A

Morning/Early Afternoon Sample Time Diary Form

Time	**What were you doing?**			**Who was involved with you in the main activity?**				**How would you classify the main activity? (W, R, O)**	**Where were you during the main activity?**	**Time**
	Main activity	Other	Other	Name1	Name2	Name3	Other			
5am										5am
:15										:15
:30										:30
:45										:45
6 am										6 am
:15										:15
:30										:30
:45										:45
7 am										7 am
:15										:15
:30										:30
:45										:45
8 am										8 am
:15										:15
:30										:30
:45										:45
9 am										9 am
:15										:15
:30										:30
:45										:45
10am										10am
:15										:15
:30										:30
:45										:45
11am										11am
:15										:15
:30										:30
:45										:45
12noon										12noon
:15										:15
:30										:30
:45										:45
1 pm										1 pm
:15										:15
:30										:30
:45										:45
2 pm										2 pm

Afternoon/Early Evening Sample Time Diary Form

Time	**What were you doing?**			**Who was involved with you in the main activity?**				**How would you classify the main activity? (W, R, O)**	**Where were you during the main activity?**	**Time**
	Main activity	Other	Other	Name1	Name2	Name3	Other			
2:15 pm										2:15 pm
:30										:30
:45										:45
3 pm										3 pm
:15										:15
:30										:30
:45										:45
4 pm										4 pm
:15										:15
:30										:30
:45										:45
5 pm										5 pm
:15										:15
:30										:30
:45										:45
6 pm										6 pm
:15										:15
:30										:30
:45										:45
7 pm										7 pm
:15										:15
:30										:30
:45										:45
8 pm										8 pm
:15										:15
:30										:30
:45										:45
9 pm										9 pm
:15										:15
:30										:30
:45										:45
10 pm										10 pm
:15										:15
:30										:30
:45										:45
11 pm										11 pm

Late Evening/Night Sample Time Diary Form

Time	**What were you doing?**			**Who was involved with you in the main activity?**				**How would you classify the main activity? (W, R, O)**	**Where were you during the main activity?**	**Time**
	Main activity	Other	Other	Name1	Name2	Name3	Other			
11:15 pm										11:15 pm
:30										:30
:45										:45
12 midnite										12 midnite
:15										:15
:30										:30
:45										:45
1 am										1 am
:15										:15
:30										:30
:45										:45
2 am										2 am
:15										:15
:30										:30
:45										:45
3 am										3 am
:15										:15
:30										:30
:45										:45
4 am										4 am
:15										:15
:30										:30
:45										:45
5 am										5 am

Sample Classroom Questionnaire

This section asks about your beliefs and life and how you spend your time. Please read each item and as honestly as you can, answer the following question: "How characteristic or true is this of you?"

	Very UNchar.	UNchar.	Neutral	Char.	Very Char.
It's more important for me to enjoy life's journey than to focus on the destination	1	2	3	4	5
I believe that getting together with one's friends to party is one of life's important pleasures	1	2	3	4	5
Familiar childhood sights, sounds, smell often bring back a flood of wonderful memories	1	2	3	4	5
Fate determines much in my life	1	2	3	4	5
I often think of what I should have done differently in my life	1	2	3	4	5
My decisions are mostly influenced by people and things around me	1	2	3	4	5
I do things impulsively	1	2	3	4	5
If things don't get done on time, I don't worry about it	1	2	3	4	5
It gives me pleasure to think about my past	1	2	3	4	5
When I want to achieve something, I set goals and consider specific means for reaching those goals	1	2	3	4	5
On balance, there is much more good to recall than bad in my past	1	2	3	4	5
Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play	1	2	3	4	5
Since whatever will be will be, it doesn't really matter what I do	1	2	3	4	5
When listening to my favorite music, I often lose all track of time	1	2	3	4	5
I enjoy stories about the "good old times"	1	2	3	4	5
Painful past experiences keep being replayed in my mind	1	2	3	4	5
I try to live my life as fully as possible one day at a time	1	2	3	4	5
It upsets me to be late for appointments	1	2	3	4	5
Ideally, I would live each day as if it were my last	1	2	3	4	5
Happy memories of good times spring readily to mind	1	2	3	4	5
I meet obligations to friends and authorities on time	1	2	3	4	5
I've taken my share of abuse and rejection in the past	1	2	3	4	5
I make decisions on the spur of the moment	1	2	3	4	5
I take each day as it is rather than try to plan it out	1	2	3	4	5
The past has too many unpleasant memories that I prefer not to think about	1	2	3	4	5
It is important to put excitement in my life	1	2	3	4	5
I've made mistakes in the past that I wish I could undo	1	2	3	4	5
I feel it's more important to enjoy what you're doing than to get work done on time	1	2	3	4	5
I get nostalgic about my childhood	1	2	3	4	5
Before making a decision, I weight the costs against the benefits	1	2	3	4	5
Taking risks keeps my life from becoming boring	1	2	3	4	5
Things rarely work out as I expected	1	2	3	4	5
It's hard for me to forget unpleasant images of my youth	1	2	3	4	5
It takes joy out of the process and flow of my activities, if I have to think about goals, outcomes, and products	1	2	3	4	5

"How characteristic or true is this of you?"

	Very UNchar.	UNchar.	Neutral	Char.	Very Char.
Even when I am enjoying the present, I am drawn back to comparisons	1	2	3	4	5
with similar past experiences	1	2	3	4	5
You can't really plan for the future because things change so much	1	2	3	4	5
My life path is controlled by forces I cannot influence	1	2	3	4	5
It doesn't make sense to worry about the future since there is nothing to do about it anyway	1	2	3	4	5
I complete projects on time by making steady progress	1	2	3	4	5
I find myself tuning out when family members talk about the way it used to be.	1	2	3	4	5
I take risks to put excitement in my life.	1	2	3	4	5
I make lists of things to do	1	2	3	4	5
I often follow my heart more than my head	1	2	3	4	5
I am able to resist temptations when I know that there is work to be done	1	2	3	4	5
I find myself getting swept up in the excitement of the moment	1	2	3	4	5
Life today is too complicated: I would prefer the simpler past	1	2	3	4	5
I prefer friends who are spontaneous rather than predictable	1	2	3	4	5
I like family rituals and traditions that are regularly repeated	1	2	3	4	5
I think about the bad things that have happened to me in the past	1	2	3	4	5
I keep working at difficult, uninteresting tasks if they will help me get ahead	1	2	3	4	5
Spending what I earn on pleasures today is better than saving for tomorrow's security	1	2	3	4	5
Often luck pays off better than hard work	1	2	3	4	5
I often think about the good things that I have missed out on in my life.	1	2	3	4	5
I like my close relationships to be passionate.	1	2	3	4	5
There will always be time to catch up on my work.	1	2	3	4	5

Additional Questions. Thank you for answering the best you can.

What is your age? _____ years

What is your gender? □ Male □ Female

Which category best describes your category of paid employment?

□ Full-time □ Part-time □ Not working

Other _____

Which of the following roles could be used to describe you? *Check all that apply.*

□ Parent □ Grandparent □ Caretaker

□ Homemaker □ Primary earner □ Head of household

APPENDIX B

Cover Letter Printed on Letterhead and Included with Mail Questionnaires

February 10, 2005

Dear Resident of Greenville:

Together with East Carolina University the Greenville Recreation and Parks Department is assessing citizens' desires for recreation services and facilities. We also are working to identify the benefits of parks and recreation that are important to residents. In order to do this, we need your help. Your input will help us understand what is important to community members. This will help us develop our short and long-range plans for park and recreation services for the community.

We have sent this survey to selected family households in Greenville. A person in your family who is 18 years of age or older should fill out this questionnaire. Please take a few minutes to answer the questions in the survey. It is important that you complete and return the questionnaire by March 1, 2005. Please return the survey in the postage-paid envelope provided with your survey questionnaire.

Thank you for taking the time to complete this survey. We assure you that your input will be completely confidential. The information you provide will be very helpful to us as we work to understand what you want from your free time. This way, we can effectively plan park and recreation services for Greenville residents in the years ahead. Your opinions count!

Sincerely,

Mr. Boyd Lee
Director, Greenville Recreation and Parks Department

Information Sheet

This study is being administered to 1,500 households in Greenville, North Carolina with the goal of understanding what you do during your free time. This information about how you spend your time can then help us improve the recreation opportunities in your community. Results will be used to inform decision-makers in the Greenville Recreation and Parks Department and for research in a student dissertation.

Recommendations will be made to park and recreation department representatives within one month of receiving your responses.

Participation is voluntary and no compensation is provided for returning completed questionnaires. Completing the questionnaire will require approximately 14 minutes of your time. While there is no compensation for completing the questionnaire, completion allows you to have say about your recreation and what you want in Greenville. All responses will remain confidential. You can skip any question that makes you uncomfortable and you may withdraw from the study at any time.

If you have further questions about this study or the questionnaire you have received, please feel free to contact the principal investigator,

Kindal Shores
174 Minges Coliseum
Department of Recreation and Leisure Studies
East Carolina University
Greenville, NC 27845
(252) 917-0434
shoresk@mail.ecu.edu

This study has been reviewed and approved by the Institutional Review Board – Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, the Institutional Review Board may be contacted through Dr. Michael W. Buckley, Director of Research Compliance at (979) 845-8585 (mwbuckley@tamu.edu).

This information sheet is for your records. By completing the questionnaire, you are

giving voluntary consent to participate in this study.

Mail Questionnaire

Thank you for participating in this study! All of your answers are important. Please be assured that all of the information you give is completely confidential. Your name does not appear anywhere on the questionnaire. Please complete the next few pages to the best of your ability. After completing the survey, mail back the packet as soon as possible in the enclosed postage-paid envelope. Thanks again!

This section asks about what types of benefits you desire from your non-work time. How important is this benefit to you when you select your free time activities?

	Not At All	Somewhat Important	Moderately Important	Very Important
To get exercise	1	2	3	4
To experience the risks involved	1	2	3	4
To bring your family closer together	1	2	3	4
To develop personal spiritual values	1	2	3	4
To keep physically fit	1	2	3	4
To do something with your family	1	2	3	4
To feel good after being physically active	1	2	3	4
To develop my knowledge about things	1	2	3	4
To reflect on your religious or spiritual values	1	2	3	4
To chance dangerous situations	1	2	3	4
To learn about things	1	2	3	4
To learn what you are capable of	1	2	3	4
To test your abilities	1	2	3	4
To grow and develop spiritually	1	2	3	4

Think about how you spend your days, and provide the number of hours you spend doing the following activities during a typical weekday. TOTAL HOURS should add up to 24 hours.

On a typical WEEKDAY how do you spend your 24-hour day?

I sleep for	_____ hours
I work at my paid employment for	_____ hours
I am parenting and doing childcare duties for	_____ hours
I do household chores (not including childcare or personal care for	_____ hours
My daily personal care (not including sleeping) takes	_____ hours
I have free time for what I want to do for	_____ hours
Total Hours:	**__24__ hours**

On a typical WEEKEND DAY how do you spend your 24-hour day?

I sleep for	_____ hours
I work at my paid employment for	_____ hours
I am parenting and doing childcare duties for	_____ hours
I do household chores (not including childcare or personal care for	_____ hours
My daily personal care (not including sleeping) takes	_____ hours
I have free time for what I want to do for	_____ hours
Total Hours:	**__24__ hours**

This section asks about your health. Please answer as best as you can.

What is your gender? □ Male □ Female

What is your age? _____ years

How tall are you without shoes? _____ (feet) _____ (inches)

What is your present weight without clothes on? _____ (lbs)

How would you describe your own physical health? Poor Fair Good Excellent

How many times in the last month you have attended a park? _____

Have you participated in a recreation program or class within the last year? _____

Please indicate the degree to which you agree with each of these statements.

	Strongly Disagree	Slightly Disagree	Disagree	Neither	Agree	Moderately Agree	Strongly Agree
In most ways my life is close to ideal.....	1	2	3	4	5	6	7
I am satisfied with my life	1	2	3	4	5	6	7
The conditions of my life are excellent	1	2	3	4	5	6	7

For each of the following question, mark the one answer that comes closest to the way you have been feeling DURING THE PAST MONTH.

	All of the time	**Most of the time**	**Good bit of the time**	**Some of the time**	**A little of the time**	**None of the time**
How much of the time has your health limited your social activities?.....	6	5	4	3	2	1
How much of the time have you felt full of pep?	6	5	4	3	2	1
How much of the time have you been a very nervous person?	6	5	4	3	2	1
How much of the time have you been so down in the dumps that nothing could cheer you up?	6	5	4	3	2	1
How much of the time have you felt calm and peaceful?	6	5	4	3	2	1
How much of the time did you have a lot of energy?	6	5	4	3	2	1
How much of the time have you felt downhearted or blue?	6	5	4	3	2	1
How much of the time did you feel worn out?	6	5	4	3	2	1
How much of the time have you been a happy person?	6	5	4	3	2	1
How much of the time did you feel tired?	6	5	4	3	2	1

This section asks about your beliefs and life and how you spend your time. Please read each item and as honestly as you can, answer the following question: "How characteristic or true is this of you?"

	Very UNchar.	UNchar.	Neutral	Char.	Very Char.
It's more important for me to enjoy life's journey than to focus on the destination	1	2	3	4	5
I believe that getting together with one's friends to party is one of life's important pleasures	1	2	3	4	5
Familiar childhood sights, sounds, smell often bring back a flood of wonderful memories	1	2	3	4	5
Fate determines much in my life	1	2	3	4	5
I often think of what I should have done differently in my life	1	2	3	4	5
My decisions are mostly influenced by people and things around me	1	2	3	4	5
I do things impulsively	1	2	3	4	5
If things don't get done on time, I don't worry about it	1	2	3	4	5
It gives me pleasure to think about my past	1	2	3	4	5
When I want to achieve something, I set goals and consider specific means for reaching those goals	1	2	3	4	5
On balance, there is much more good to recall than bad in my past	1	2	3	4	5
Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play	1	2	3	4	5
Since whatever will be will be, it doesn't really matter what I do	1	2	3	4	5
When listening to my favorite music, I often lose all track of time	1	2	3	4	5
I enjoy stories about the "good old times"	1	2	3	4	5
Painful past experiences keep being replayed in my mind	1	2	3	4	5
I try to live my life as fully as possible one day at a time	1	2	3	4	5
It upsets me to be late for appointments	1	2	3	4	5
Ideally, I would live each day as if it were my last	1	2	3	4	5
Happy memories of good times spring readily to mind	1	2	3	4	5
I meet obligations to friends and authorities on time	1	2	3	4	5
I've taken my share of abuse and rejection in the past	1	2	3	4	5
I make decisions on the spur of the moment	1	2	3	4	5
I take each day as it is rather than try to plan it out	1	2	3	4	5
The past has too many unpleasant memories that I prefer not to think about	1	2	3	4	5
It is important to put excitement in my life	1	2	3	4	5
I've made mistakes in the past that I wish I could undo	1	2	3	4	5
I feel it's more important to enjoy what you're doing than to get work done on time	1	2	3	4	5
I get nostalgic about my childhood	1	2	3	4	5
Before making a decision, I weight the costs against the benefits	1	2	3	4	5
Taking risks keeps my life from becoming boring	1	2	3	4	5
Things rarely work out as I expected	1	2	3	4	5
It's hard for me to forget unpleasant images of my youth	1	2	3	4	5
It takes joy out of the process and flow of my activities, if I have to think about goals, outcomes, and products	1	2	3	4	5

"How characteristic or true is this of you?"

	Very UNchar.	UNchar.	Neutral	Char.	Very Char.
Even when I am enjoying the present, I am drawn back to comparisons	1	2	3	4	5
with similar past experiences	1	2	3	4	5
You can't really plan for the future because things change so much	1	2	3	4	5
My life path is controlled by forces I cannot influence	1	2	3	4	5
It doesn't make sense to worry about the future since there is nothing to do about it anyway	1	2	3	4	5
I complete projects on time by making steady progress	1	2	3	4	5
I find myself tuning out when family members talk about the way it used to be.	1	2	3	4	5
I take risks to put excitement in my life.	1	2	3	4	5
I make lists of things to do	1	2	3	4	5
I often follow my heart more than my head	1	2	3	4	5
I am able to resist temptations when I know that there is work to be done	1	2	3	4	5
I find myself getting swept up in the excitement of the moment	1	2	3	4	5
Life today is too complicated: I would prefer the simpler past	1	2	3	4	5
I prefer friends who are spontaneous rather than predictable	1	2	3	4	5
I like family rituals and traditions that are regularly repeated	1	2	3	4	5
I think about the bad things that have happened to me in the past	1	2	3	4	5
I keep working at difficult, uninteresting tasks if they will help me get ahead	1	2	3	4	5
Spending what I earn on pleasures today is better than saving for tomorrow's security	1	2	3	4	5
Often luck pays off better than hard work	1	2	3	4	5
I often think about the good things that I have missed out on in my life.	1	2	3	4	5
I like my close relationships to be passionate.	1	2	3	4	5
There will always be time to catch up on my work.	1	2	3	4	5

Additional Questions. Thank you for answering the best you can.

What is the highest level of formal education you have completed?

□ No formal education □ < 6th grade
□ Grades 6-12 □ High school graduate
□ Some college □ College degree □ Graduate or professional degree

Which category best describes your category of paid employment?

□ Full-time □ Full-time and a secondary job
□ Part-time □ Unemployed (seeking work)
□ Retired

Which category best describes your household income?

□ < $20,000 □ $21,000-$40,000 □ $41,000-$60,000
□ $61,000-$80,000 □ $81,000-$100,000 □ > $100,000

Which singe race group best describes you?

□ African American □ Asian American □ Native American Indian
□White non-Hispanic □ Hispanic □ Other _____

Which of the following roles could be used to describe you? *Check all that apply.*

□ Parent □ Grandparent □ Caretaker
□ Homemaker □ Primary earner □ Head of household

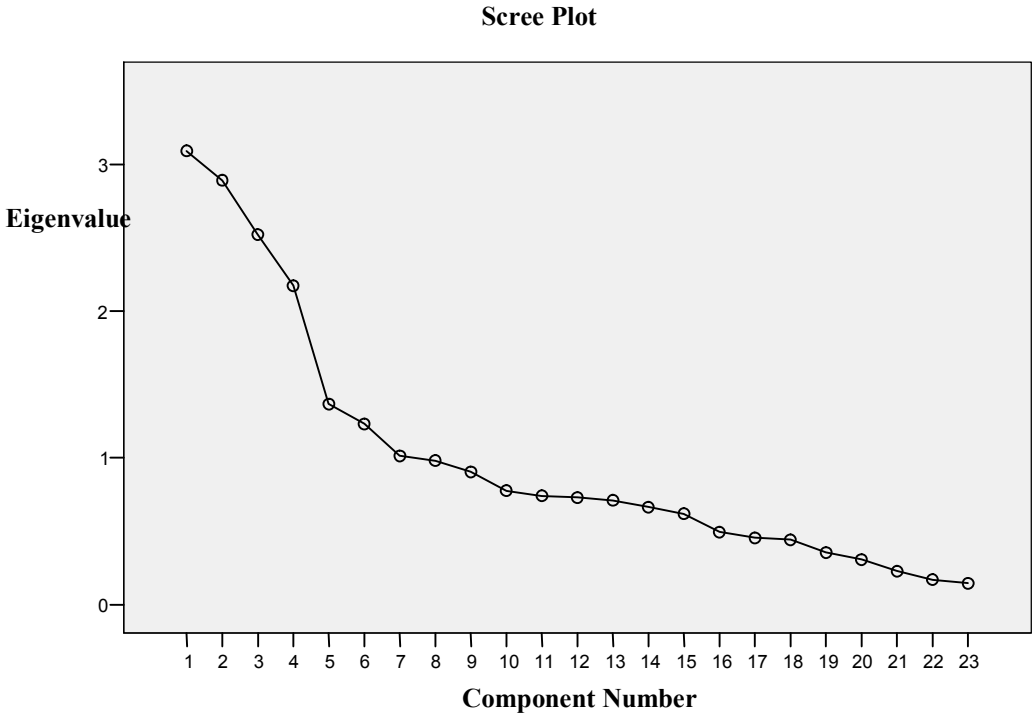
APPENDIX C

TABLE C.1
Cross Tab Variation in Cluster Membership: Row Percents

	Present-hedonistic	**Present-fatalistic**	**Future**	**Past-positive**	**Past-negative**	**Unbiased**
	N	N	N	N	N	N
Gender (N=434)						
Male	3.20%	3.00%	8.06%	13.13%	3.92%	2.76%
Female	3.70%	3.00%	19.35%	29.49%	4.84%	5.53%
Age of Respondent (N = 434)						
18-24 years	0.46%	0.23%	0.69%	5.30%	0.46%	0.46%
25-34 years	0.92%	0.92%	4.61%	5.76%	2.30%	0.46%
35-44 years	1.15%	1.84%	2.76%	7.60%	1.38%	1.15%
45-54 years	0.92%	0.92%	5.30%	5.30%	0.92%	0.46%
55-64 years	1.84%	2.07%	7.83%	9.91%	2.30%	1.38%
65 -74 years	0.92%	0.00%	4.84%	5.99%	1.15%	1.84%
75 years or older	0.69%	0.00%	1.15%	3.00%	0.23%	2.07%
Highest Level of Formal Education Completed (N=433)						
No formal education	0.00%	0.00%	0.46%	0.00%	0.23%	0.00%
< 6^{th} grade	0.00%	0.00%	0.00%	0.00%	0.00%	0.23%
Grade 6-12	1.85%	3.70%	0.23%	0.23%	1.85%	0.69%
High school graduate	2.54%	1.85%	1.62%	5.54%	2.54%	1.62%
Some college	0.46%	0.46%	6.00%	11.09%	2.54%	1.39%
College graduate	1.85%	0.00%	8.31%	14.55%	1.15%	1.85%
Professional or grad degree	0.23%	0.00%	10.85%	12.01%	0.23%	1.85%
Annual Household Income (N=429)						
< $20,000	0.69%	2.08%	1.15%	5.77%	0.69%	1.15%
$20,000-39,999	5.08%	1.85%	3.70%	6.24%	4.62%	2.08%
$40,000-59,999	0.46%	1.85%	4.85%	10.39%	2.31%	0.92%
$60,000-$79,000	0.00%	0.00%	4.62%	7.85%	0.46%	1.85%
$80,000-99,999	0.92%	0.00%	7.39%	5.54%	0.23%	0.46%
≥ $100,000	0.23%	0.23%	3.93%	4.85%	0.00%	0.46%
Work Status (N=437)						
Full time	2.31%	2.08%	11.09%	16.63%	4.62%	2.08%
Full time and second job	0.00%	1.85%	2.77%	5.31%	0.23%	0.46%
Part-time	1.85%	0.00%	2.54%	6.24%	2.54%	0.69%
Un-employed/seeking work	2.31%	1.85%	2.77%	2.08%	0.23%	0.23%
Retired	0.46%	0.23%	8.08%	12.01%	0.92%	4.16%
Race or Ethnicity (N=427)						
African American or Black	0.94%	1.17%	4.68%	4.22%	1.41%	1.81%
Asian American	0.70%	0.70%	0.47%	0.70%	0.47%	0.23%
Hispanic American	2.58%	2.75%	2.81%	3.28%	2.81%	0.00%
Caucasian	2.58%	1.17%	18.27%	34.19%	3.51%	5.15%
Native American	0.23%	0.23%	0.47%	0.70%	0.23%	0.23%
Other	0.00%	0.00%	0.70%	0.70%	0.23%	0.00%
Social Roles (N=431) [a]						
Parent	5.31%	3.46%	18.71%	24.25%	4.85%	4.62%
Grandparent	3.00%	2.08%	11.09%	17.55%	3.70%	2.77%
Caretaker	0.46%	1.15%	3.93%	8.08%	1.62%	0.69%
Homemaker	2.54%	3.46%	16.86%	19.86%	4.16%	3.23%
Primary Earner	1.15%	1.15%	11.55%	15.94%	1.39%	1.39%
Head of Household	2.08%	1.39%	11.32%	15.94%	2.08%	3.93%

[a] The percentages do not add up to 100% as individuals were allowed to choose multiple categories.

C.2 Additional Tables for Recreation Time Allocation Factors



Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.140	13.651	13.651
2	2.858	12.426	26.077
3	2.804	12.190	38.268
4	1.930	8.391	46.659

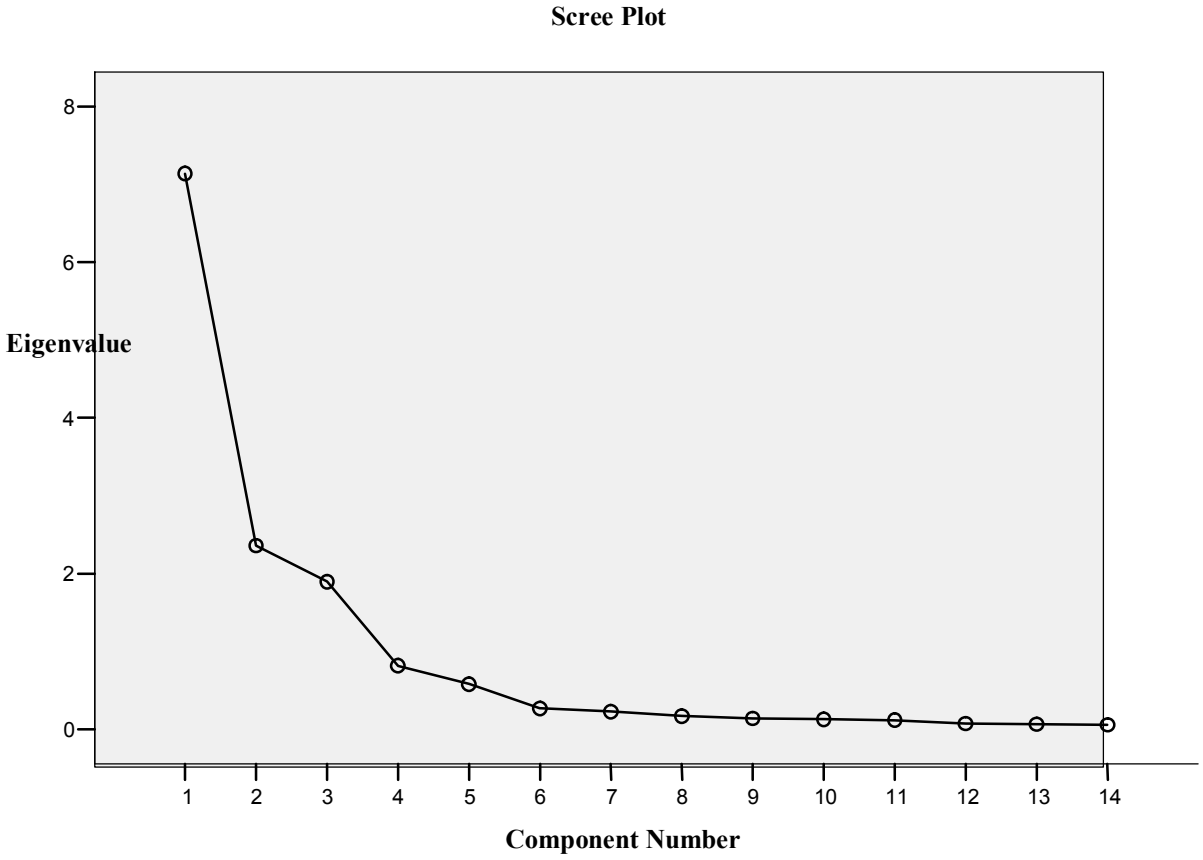
Extraction Method: Principal Component Analysis.

Component Transformation Matrix

Component	1	2	3	4
1	.672	-.630	.307	.241
2	.693	.413	-.580	-.114
3	.258	.581	.755	-.161
4	-.043	.308	-.019	.950

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

C.3 Additional Tables for Recreation Experience Preference (REP)



Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.669	26.206	26.206
2	2.838	20.273	46.478
3	2.395	17.109	63.587
4	1.973	14.090	77.677
5	1.847	13.193	90.870
6	.323	2.307	93.178

Extraction Method: Principal Component Analysis.

Component Transformation Matrix

Component	1	2	3	4	5	6
1	.649	.407	.498	.156	.371	.063
2	-.417	.796	-.328	.049	.283	-.044
3	-.084	-.034	-.025	.968	-.207	.109
4	-.262	-.437	.017	.137	.847	.058
5	.563	-.078	-.799	.039	.134	.139
6	.115	-.051	-.068	.129	.057	-.980

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

VITA

Kindal Alayne Shores received her Bachelor of Science degree from Ball State University in exercise science in December 2000. She entered the Recreation, Park, and Tourism Sciences Department at Texas A&M University in January of 2002 and completed her Master of Science degree in the spring of 2003. This dissertation is in partial fulfillment of her dissertation requirements. Kindal completed her doctoral degree with the Department of Recreation and Tourism Sciences Department at Texas A&M University in August, 2005. Her research interests include the study of leisure and time, leisure and diversity, and the relationship of leisure to community development.

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