ADVANCING MEASUREMENT OF FAMILY LEISURE

A Dissertation

by

KAREN KIMBERLY MELTON

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Chair of Committee,	Gary Ellis
Committee Members,	Peter A. Witt
	Mat Duerden
	Chris Boleman
Head of Department,	Gary Ellis

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ABSTRACT

This study advanced knowledge of the measurement properties of the Family Leisure Activity Profile (FLAP). The FLAP is a sixteen-item index based on the Core and Balance Model of Family Functioning. This study assessed three distinct scaling techniques using data collected with the FLAP index: Technique 1 consisted of current practice; Technique 2 consisted of an approach based on reinterpretation of the theory underlying the FLAP; and Technique 3 consisted of a reformulated empirical approach that involved converting ordinal data to ratio-level approximations. Analyses were conducted using data from an online sample of 884 United Kingdom (U.K.) households. Two members of each responding household, a child and a parent, completed the FLAP index along with measures of family functioning. Analytic techniques included intra-class correlation, mean absolute deviation, Pearson *r*, generalizability theory (i.e., G-study and D-study); multitrait-multimethod matrix; and confirmatory factor analysis. Results of analysis using Technique 1 provided support for inter-rater agreement of the FLAP index. Results also suggested acceptable levels of reliability for research purposes and criterion-related evidence of validity. Technique 2 analyses revealed acceptable estimates of reliability and criterion-related validity; additionally, Technique 2 had better empirical fit indices than Technique 1. Results of analyses using Technique 3 provided insight into use of ratio-level data in comparison to ordinal-level data. Technique 3 reliability and validity coefficients decreased appreciably, yet Technique 3 produced the strongest fit indices among the three models.

DEDICATION

To Kyle, my partner in this life—

We did it when they said it couldn't be done!
Let us continue to break expectations, even our own.

To my family—

Thank you for being my teacher and social experiment everyday on the topic I love.

To my Lord—

Trust in the Lord with all thine heart and lean not unto thy own understanding; in all thy ways acknowledge Him and He shall direct they paths.
Proverbs 3:5-6

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In the process of completing a doctorate degree, I experienced the reality of Dietrich Bonhoeffer (1967) words:

> In ordinary life we hardly realize that we receive a great deal more than we give, and that it is only with gratitude that life becomes rich. It is very easy to overestimate the importance of our own achievements in comparison to what we owe to others.

The completion of a doctorate degree has only been possible because of the individuals who have so greatly enriched my life. In the following comments, I will attempt to articulate my sincerest gratitude for those who participated in this chapter in my life or helped prepare me for this chapter. God blessed my life by surrounding me with incredibly generous individuals who gave of their time, energy, money, and other resources. These individuals sacrificed and provided me not only an education in academics, but also in life–especially in displaying for me the type of character I hope to attain. These people expected no payment in return; rather, they expected me one day to pay-it-forward to the individuals I will mentor and support in my lifetime.

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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

The work of Zabriskie and colleagues over that past two decades significantly advanced knowledge about family leisure (e.g., Poff, Zabriskie, & Townsend, 2010a, 2010b; Zabriskie & McCormick 2001; 2003). Researchers using the Core and Balance Model of Family Functioning, which has become a pervasive model for quantitative family leisure research, published their findings in reputable and distinguished journals. Major contributions include the development of a family leisure model tested with diverse families. Results of these studies consistently support the position that different forms of family recreation involvement (i.e., participation in "core" activities and "balance" activities) promote the cohesion and the adaptability of families. The current study builds on this work by advancing knowledge about measurement properties of the primary rating scale used in core and balance family leisure studies: Family Leisure Activity Profile (FLAP) (Zabriskie, 2000).

Based on the tenet that human needs for familiarity and incongruity can be addressed through family leisure activities (Iso-Ahola, 1984), the FLAP measures "core" (familiar) and "balance" (infrequent or novel) leisure patterns (Zabriskie & McCormick, 2001). The Core and Balance Model describes the theoretical pathway linking family leisure patterns to family functioning dimensions. Research using the FLAP to evaluate leisure patterns within the Core and Balance Model consistently demonstrated that families who do more leisure activities together tend to have higher levels of family

functioning (Buswell, Zabriskie, Lundberg, & Hawkins, 2012; Dodd, Zabriskie, Widmer, & Eggett, 2009; Freeman & Zabriskie, 2003; Hornberger, Zabriskie, & Freeman, 2010; Poff, Zabriskie, & Townsend, 2010a, 2010b; Townsend & Zabriskie, 2010; Zabriskie & Freeman, 2004). These studies did not demonstrate consistent findings, however, when examining the specific relationship between leisure patterns and family functioning dimensions (Agate, Zabriskie, & Eggett, 2007; Buswell, Zabriskie, Lundberg, & Hawkins, 2012; Dodd, Zabriskie, Widmer, & Eggett, 2009; Hornberger, Zabriskie, & Freeman, 2010; Smith, Zabriskie, & Freeman, 2009; Townsend & Zabriskie, 2010; Zabriskie, 2000). In some studies, for example, "core" participation yielded a stronger prediction of family adaptability than "balance" participation (Buswell et al., 2012; Dodd et al., 2009; Townsend & Zabriskie, 2010; Zabriskie, 2000; Zabriskie & McCormick, 2001). The Core and Balance Model of Family Functioning predicts the opposite; that is, core family leisure patterns enhance family cohesion and balance leisure patterns enhance family adaptability (Zabriskie & McCormick, 2001). These inconsistencies may result from limitations of the FLAP index.

Three primary limitations need to be addressed, each of which open the way to further advancement of family leisure measurement. First, a limited number of studies addressed the measurement quality—the internal structure (Pedhazur, 1991)—of the FLAP (Aslan, 2009; Zabriskie, 2000). Zabriskie (2000) examined the stability of scores over time (test-retest correlation) and Aslan (2009) examined internal consistency (Aslan, 2009). Internal consistency via coefficient alpha is an inappropriate approach

because, as an index, no assumption exists that FLAP items for core or balance family leisure measures are highly inter-correlated. Coefficient alpha is a function of the strength of the inter-item covariance (or correlations for standardized item alpha) and the number of items on the scale. Suen (1990) recommends use of generalizability theory to estimate reliability (i.e., reproducibility) of measures of complex behaviors such as family leisure. Consistent with Suen's recommendation, this study addressed reliability from the perspectives of generalizability theory (Cronbach, Gleser, Nanda, & Rajaratnam, 1972). This study also involved examination of inter-rater agreement (e.g., Shrout & Fleiss, 1979). Perhaps the measurement of family leisure using the FLAP can be advanced by improving its reliability.

A second potential advancement has to do with operationalization of core and balance patterns of family leisure participation. Zabriskie and McCormick (2001) crafted "core" and "balance" constructs from Iso-Ahola's (1980; 1984) application of arousal theory to leisure. Iso-Ahola argued that optimal exposure to incongruity vs. familiarity significantly enhances human development. Building on that foundation, Zabriskie and McCormick established the FLAP as a measure of participation in activities that vary in familiarity. Lesser familiarity, of course, reflects greater incongruity.

The source of the incongruity, however, provides a subtle but important matter in considering this conceptual foundation. Zabriskie and McCormick (2001) pointed to the source of incongruity as inherent in patterns of family leisure activities. They described core leisure patterns as "common, every day, low-cost, relatively accessible, and often

home-based *activities* that many families do *frequently*" (p. 283, *emphasis added*). Conversely, Zabriskie and McCormick assert that balance leisure patterns "are depicted through *activities* that are generally less common and *less frequent* than core activities…. require greater resources (e.g., time, effort, and money) and are usually not home-based (p. 283, *emphasis added*). Thus, Zabriskie and McCormick focused on incongruity of the recreation activity; however, Iso-Ahola's emphasized not the incongruity of activities, but the incongruity affordances of recreation environments. He states, "an individual is in a continuous process of seeking and avoiding interactions with the environment, trying to sustain his optimal level of arousal" (p. 82). Environmental affordances for incongruity include novelty, complexity, and dissonance (Ellis, 1973; Iso-Ahola, 1980). The original FLAP scaling technique presented by Zabriskie and McCormick (2001) measures one dimension of incongruity of the recreation environment, specifically incongruity affordances of recreation activity. It is notable that the FLAP can be scaled to measure another key dimension of recreation environment, recreation locations. Researchers can scale the FLAP based on the assumption that different locations—indoor-home locations, outdoor-home locations, community locations, and beyond-the–community locations—tend to have different affordances for recreation environment incongruity. For example, one family leisure category of the FLAP is "community-based sporting activities." Researchers can categorize this item as a "Community Location" in the rescaling of the FLAP. Thus, for the current study, scaling of the FLAP was revised to produce measures of the following family recreation behaviors.

- Indoor-Home Location: prevalence of recreation activities that occur in the physical dwelling that protects the family from the elements of the location; FLAP items 1-4.
- Outdoor-Home Location: prevalence of recreation activities that occur in the physical space adjacent to the family dwelling not protected from the elements of the location; FLAP items 5-6.
- Community Location: prevalence of recreation activities that occur in intensive-use areas, including suburban residential areas, town centers, commercial areas, or even heavy industrial developments; FLAP items 7-12.
- Beyond-Community Location: prevalence of recreation activities that occur in natural and man-made attractions outside of a family's personal community such as meadows, woods, forested hills, open waters *OR* tourist attractions (for instance, visiting other relatives, cruises, or amusement parks); FLAP items 13-16.

The third potential advancement associated with the FLAP index involved converting ordinal-level item scores into ratio-level approximations. The ordinal data generated by the FLAP items do not yield a natural unit of measurement of the quantity or proportion of time spent in different family leisure activities. Thus, this study examined FLAP index data transformed to a level of data interpreted in terms of naturally occurring units, i.e., hours of participation.

In summary, this study was designed to assess psychometric properties of current and reformulated scaling techniques of the Family Leisure Activity Profile (FLAP). A review of related literature follows. The literature review is organized into the following sections: a) the evolution of family functioning as a research construct, b) the evolution of the Core and Balance Model of Family Functioning, and c) three potential advancements of the FLAP index.

Family Functioning

Defrain and Asay (2007) define family as "two or more persons who share resources, share responsibility for decisions, share values and goals, and have a commitment to one another over time… regardless of blood, legal ties, adoption, or marriage" (p.284). The primary functions of this social institution include the socialization of children and meeting adults' sexual and emotional needs (Schwab, Bell, & Stevenson, 1987). Thus, a family can be considered successful to the extent that it provides an environment appropriate for the development of parents and children alike.

Historically, researchers evaluated the family functioning based on their efficacy of family functions; however, functions of the family can change over time. While families in contemporary society often focus on developmental and emotional needs of family members, past family functions also included economics, education, recreation, and protection. Table 1 presents different functions of the family in publications from 1933 to 1987. Ogburn and Tibbits (1933), in a report to the President of the United States, entitled *Recent Social Trends in the United States,* as well as Burgess and Locke (1945), in their book *From Institution to Companionship,* argued that family functions

Table 1.

Views of Family Functions by Publication Year

Publication	Major Family Functions
Ogburn & Tibbits (1933)	Economics Protection Religious Instruction Recreation Education / Vocational Guidance Family Status Social/ Personality Affectional
Burgess & Locke (1945)	Intimate Associations Affectional Interdependence Emotional Security
Smith & Preston (1977)	Economic Reproductive Regulation of Sexual Activity Socialization (i.e., transmission of culture) Conferral of Status Provision of Affection and Companionship Child-rearing
Lidz (1980)	Rear Children to become Autonomous Members of Society Meet Adults Sexual and Emotional Needs Enculturing Family Members so they carry out Society's Vital Activities
Schwab, Bell, & Stevenson (1987)	Maintenance of Family Members Perpetuation of Family Members Regulation of Adult Sexuality Provision of Emotional Support for Family Members Learning and Enculturation (i.e., transmission of values, beliefs, and skills)

such as economics, education, religion, recreation, and protection slowly began to be seized by other industries and institutions as a result of the rapid changes in society and government assuming more control of daily activities. For example, today police primarily oversee the function of protection; schools primarily oversee the function of education; churches oversee the function of religion; and city parks and recreation or the

tourist industry oversee the function of recreation by way of admission tickets for theaters, ballparks, and amusement parks. Thus, the family institution is reduced to primarily meeting the affectional needs of family members.

The relative importance of functions fluctuated according to sociocultural and historical developments, as well as variations in cultures. For example, in the colonial period economics served as the most important function of the family. The family provided the "factory" where clothes, food, and items for daily life were made. Families also tended to make decisions from a business mind-set; thus, men and women sought a business partner in marriage, choosing a spouse who would complement his or her skills in the domestic system of production. During the 18th and 19th centuries in England and the United States, the inventions and proliferation of machines altered the conditions of life for workers and their families. Industrialization and urbanization also caused social issues such as poverty and overcrowding. As social conditions changed the family's societal function changed. The new conditions of society contributed to drastic socioeconomic changes. These changes had a profound impact on the prominence of the economic function of the family. The members of the family unit no longer required domestic development of their own clothes or items for daily living. Thus, the prevalence of machines in society lessened domestic work and therefore the need for domestic partners. Soon societal conditions necessitated families purchase their daily needs (i.e., clothing, food, water, shelter); thus requiring all family members to financially contribute by working for employers (instead of the home). In 1846, Fredrich Engles (1972) wrote about the effects of social conditions on the family:

> Family life for the workers was almost impossible under the existing social system. All he has is a dirty and comfortless hovel, which is barely adequate as sleeping quarters. The various members of the family only see each other in the mornings and the evenings. In this circumstance how can family life exist? There are endless domestic troubles and family quarrels which are highly demoralizing for the children and parents (p.12).

Reformers took action to improve the quality of family life. Functions of the family continue to evolve based on social conditions. However, even within the same country family's social conditions can be drastically different based on social class. However in contemporary society, families in industrialized countries primarily are concerned with meeting family member's needs for affections as government and other industries have acquired the other functions originally addressed by the family.

Evolution of Research on Family Functioning and Stability. The roots of social research on family functioning trace back to the 1890's in the United Kingdom (e.g., Booth, 1892; London, 1904; Rowntree, 1903) and the early decades of the 20th century in the United States (e.g., Bruere, 1913; Byington, 1910; More, 1913). Fredric LePlay, a French social scientist, is the first known social research to examine family functioning in 1850 (Silver, 1982). Using family finances as an indicator of efficacy of family functioning, LePlay examined the family budgets of 300 families. His findings "linked the stability of both the family and society to a firm family structure, parental authority, the families' ability to save money to buy necessities and to acquire additional

property, definite religious beliefs, and good worker-employer relationships" (Schwab, Gray-Ice, and Prentice, 2000, p. 21).

In the 1920's, family functioning became an explicit concern due to changes in family structures (i.e., smaller families, mothers working outside the home, divorce) and shifts in the specific functions of the family. Ogburn, in 1922, coined the term "culture lag" to refer to the slow adaptability of humans to rapid changes in society. Later, Ogburn along with colleague Tibbits (1933) determined that family members became more individualistic as a result, and concluded that the three emerging familial problems of the future would be: (a) housing and income, (b) child-rearing, and (c) marital difficulties. These familial problems would result in family instability. Specifically, Ogburn and Tibbets predicted the following:

> "The relationship of husband and wife is clearly at the center of the problem of the modern family, since most families have children with them for only a part of married life or not at all and since so many other functions of the family have declined. The stability of the future family is not clearly seen. It rests a good deal on what research will discover, and the wide dissemination of the results…The future stability of the family will depend much more on the strengths of the affectional bonds" (pp. 707-708).

Ogburn and Tibbets note stability of families as an outcome of affectional bonds. As to be discussed later in this paper, family recreation is one platform for increasing the affectional bonds among family members.

When the Great Depression hit, the prominent family function changed once again, making economics the determinate factor in the family's dependency upon one another. During this time, many urban and industrialized families left the city for rural areas and slowly adapted to a new way of life (Zimmerman & Frampton, 1935). Adversities arising from the Great Depression lead Angell (1941) to conceptualize family adaptability and family cohesion as mechanisms to cope with the unfavorable situations. Hill (1949) utilized Angell's concepts of adaptability and cohesion to study families adjusting to separations caused by World War II. Likewise, Elder (1974) and Elder and Rockwell (1979) utilized Angell's concepts for studying the effects of the Great Depression on the lives of children and adults. Subsequently, Olson (1983) and colleagues (e.g., 1989) developed the Circumplex Model of Family Functioning based on Angell's concepts of family adaptability and family cohesion. Olson's model serves as one of the three theoretical foundations of the Core and Balance Model of Family Functioning.

Research from the 1940's-1960's provided additional insight on the changes of family functioning. In 1945, Burgess and Lock noted the deterioration of the family as an institution due to decreased dependency of family members on one another for survival and thriving. Burgess and Locke, however, hypothesized a new family function of companionship in which families develop "the personalities of its members through intimate association, affectional interdependence, and emotional security" (p. 718). In 1955, Parson and Bales also noted the family as "a different subsystem of society" (p. 356), becoming more specialized in their institutional function in society. In a later

publication, Parson (1970) proposed that family functions had been reduced to two primary institutional functions of society: (a) the socialization of children and (b) the stabilization of adult personalities.

In light of the changing societal functions of the family, researchers in the modern era directed much of their work toward improving family functioning for the purpose of enhancing family stability and well-being (Schwab, Gray-Ice, Prentice, 2000). Rather than societal or economic functions, these studies found that psychological functions, such as the ability to operate in a cohesive and flexible manner, determine the ability of families to work effectively. Subsequent research displayed many positive associations of healthy family functioning, such as decreased family stress, enhanced child development, improved family interactions, and increased family resiliency (Table 2) (Eagle & Dowd-Eagle, 2009).

Table 2.

Predictors of Family Functioning and Supporting Research

Predictors of Family Functioning	Supporting Body of Research
Low income (-)	Clark, Barrett, & Kolvin (2000)
Welfare status (-)	Daniels & Moos (1988)
Low maternal education (-)	Dickstein et al. (1998)
Maternal depression (-)	Freistadt & Strohschein (2013)
Maternal age (-)	Georgiades, Boyle, Jenkins, Sanford, & Lipman,
Culture	(2008)
Family Structure	Hayden et al. (1998)
Age of firstborn child(+)	McGoldrick & Hardy (2008)
Siblings(+)	Yeung & Chan (2010)
Maternal time with child(+)	Zabriskie & McCormick (2001)
Family leisure(+)	
Social involvement(+)	
Neighborhood cohesion(+)	

Theories and Models of Family Functioning. At present, researchers run into a number of difficulties in examining the functions of the family. This is due to the increasingly diverse structures, values, income, and locale of families. Each of these factors influences the function of the family along with the societal context. Even functions such as childrearing continue to become less of a function of the family, as families increasingly utilize programs intentionally designed for children and adolescent development.

After more than a century of literature on family functions, researchers began to develop theories and models to explain the processes of family functioning. Studies of in this area no longer focused on how well a family fulfills its social or economic functions; rather, most contemporary studies address psychological functions, including the attitudes and behaviors exhibited in relationships between family members. Current research focuses attention on understanding how family functioning affects different aspects of family members' lives. Table 3 presents studies on family outcomes related to family functioning. These studies indicate that family functioning impacts adolescents' ability to be successful in the school environment, the physical and emotional health of parents and children, personal functioning, and satisfaction with life.

At the same time, no universally accepted definition for family functioning emerged from this inquiry. Family functioning thus remains an elusive and multidimensional construct. Most contemporary models and theories define family functioning based upon the family systems theory. The interrelatedness of all family members in a family unit serves as the underlying premise of this theory; therefore,

anything that happens to one family member will impact all family members. The three prominent and empirically based models of family functioning are: (a) the Beaver's Family System Model, (b) the Circumplex Model, and (c) the McMaster Model. The remainder of this section elucidates the conceptualized dimensions of family functioning for each of these models, with Table 4 presenting key attributes of each model.

Table 3.

Family Functioning Outcomes and Supporting Research

Family Functioning Outcomes	Supporting Body of Research
Academic Problems Ex: Lower grades, Problem School Behaviors	Boyle, Georgiades, Racine, & Mustard (2007) Johnson (2010)
Physical & Emotional Health Problems Ex: Obesity, Substance Abuse, Social Phobias, Aggression, Depression, Suicidal Ideation, Antisocial Behaviors, Homesickness	Amerikaner, Monks, Wolfe, & Thomas (1994) Carris, Sheeber. & Howe (1998) Kazantzis & Flett (1998) Knappe et al. (2009) Pagani, Pagani, Japel, Vaillancourt, & Tremblay (2010) Rhee (2008) Strohschein (2005) Wagner et al. (2010) Wen, Baur, Simpson, & Rissel (2010) Zhang & Jin (1996)
Personal Functioning Ex: Self-concept, Creativity, Relationships, Optimism	Gardner & Moran (1990) Robinson, Garthoeffner, & Henry (1995) Wilson & Constantine (1999)
Family Life Ex: Satisfaction	Poff, Zabriskie, & Townsend (2010a) Poff, Zabriskie, & Townsend (2010b) Zabriskie & McCormick (2003)

Table 4.

Popular Family Functioning Models Comparison

	Beaver's Model of Family Functioning	McMaster's Model of Family Functioning	Circumplex Model of Marital and Family Systems
Authors	Beavers & Hampson	Epstein and colleagues	Olson & colleagues
Year Developed	1977	1978	1989
Dimensions of Family Functioning	(1) family competence (2) family style	(1) problem-solving (2) communication, (3) roles affective (4) responsiveness, (5) affective involvement (6) behavior control	(1) cohesion (2) flexibility (3) communication
Family Functioning	Healthier family functioning comes from families placing an importance on their familial relationships inside and outside the family. As families become more competent they will adapt to meet individual family members' needs.	Family functioning is evaluated separately in regards to each of the six dimensions and in regards to the family's structure, organization, and transactional patterns.	Families considered "balanced" in cohesion and adaptability determines healthier family functioning. Balanced families have more positive communication skills.
Theory	Family Systems Theory Developmental Theory	Family Systems Theory Communication Theory Learning Theory Transactional Approach	Family Systems Theory Communication Theory
Instruments	SFI	FAD	FACES

Beaver's Model of Family Functioning. Beavers and Hampson (e.g., Beavers, 1977; Beavers & Hampson, 1990, 1993; Beavers, Hampson, & Hulgus, 1985) developed the Beaver's Model of Family Functioning, which hypothesizes two dimensions of

family functioning: family competence and family style. The former refers to the knowledge of the family structure, available information, and adaptive flexibility of the family system. The latter refers to the quality of interactions within the family unit. Families can fall into one of nine groups based on these dimensions, ranging from optimal to severely dysfunctional. The model proposes that healthier family functioning comes from families placing an importance on their familial relationships inside and outside the family unit. As families become more competent, they will adapt to meet individual family members' needs.

McMaster's Model of Family Functioning. Epstein and colleagues (1978) developed the McMaster Model of Family Functioning, which suggests six dimensions of the family in order to determine family functioning: problem-solving, communication, roles, affective responsiveness, affective involvement, and behavior control. Problem-solving refers to a family's ability to solve issues that threaten the integrity or capacity of the family. Communication refers to the exchange of information among family members, while roles refer to the recurrent patterns of behavior. Affective response points to the ability of the family to respond to stimuli, and affective involvement to the degree to which the family shows interest in family members or family activities. Finally, behavior control refers to how the family handles various behaviors in physically dangerous situations and with respect to psychological needs and socializing. The McMaster Model evaluates these six constructs to determine the effectiveness of a family's functioning with respect to each of these dimensions.

Circumplex Model of Marital and Family Systems. Olson and colleagues (1989) developed the Family Circumplex Model. This model presents three broad dimensions of family functioning: cohesion, flexibility, and communication. Cohesion refers to "the emotional bonding that families have towards one another" (p. 145), which can also be referred to as togetherness. Adaptability (or flexibility) points to "the amount of change it its (the family's) leadership, role relationships and relationship rules" (p. 149). The authors of this model suggest that families considered to be "balanced" tend to function better than "unbalanced" families. In this case, "balanced" refers to families that fall in the middle of the scale for cohesion and flexibility; whereas "unbalanced" refers to families at either end of the scale. The third dimension, communication, refers to listening skills, speaking skills, self-disclosure, clarity, and respect. Communication facilitates family functioning as the model hypothesizes that balanced families will have more positive communication skills than unbalanced ones.

Each of the foregoing family functioning models possesses their own strengths and weaknesses in examining the concept of family functioning. Some of the strengths and weaknesses are in the measurement of the dimensions. In general, each model can be described as too parsimonious or offering over-simplification dependent upon the researcher's perspective. Each model, however, focuses on the competencies of the family rather than deficits or problems; although the absence of these strength-based dimensions results in family dysfunction. Additionally, clinical family therapy examinations and research primarily use these models, but many past non-clinical research studies also used these models to inform research.

Core and Balance Model of Family Functioning

The Core and Balance Model of Family Functioning builds upon the Family Circumplex Model by describing the relationship between family leisure and family functioning. Knowledge about change agents that may enhance family functioning is important to providers of family services. As suggested by Zabriskie and McCormick, family leisure represents one of those key change agents (Zabriskie & McCormick, 2001). Present society regards family leisure as a very important aspect in holding families together (Kelly, 1983; Horna, 1989), as exemplified by the idiom: "the family that plays together, stays together." When examining human leisure patterns, a discernible pattern arises in which humans rarely recreate alone. In fact, individuals recreate more often with family members than by themselves (Kelly, 1983; 1993; Kinsley & Graves, 1983; Shaw, 1997). As previous research demonstrates, family members tend to participate in leisure activities 65% to 75% of the time with other family members (Kelly, 1987; Roberts, Cook, Clark, & Semeonoff, 1976). Moreover, this finding remains consistent across different types of families and communities (Kelly, 1978).

Shared interests and activities establish and maintain boundaries of families in modern society (Mark, 1989), and family leisure provides members opportunities for interaction and increases family stability. A five year longitudinal study found that time spent in shared recreational activities by couples served as the strongest contributor to marital stability (Hill, 1988). At the same time, family leisure alone is not a panacea for family problems, as both positive and negative outcomes result from family leisure.

Table 5 presents the positive outcomes from family leisure, such as family stability and family communication, as well as negative outcomes, such as tension between family members and constraints on individual leisure time. Studies interested in increasing family well-being must seek to understand the specific mechanisms within family leisure used to promote family functioning. Based on these findings, practitioners will be able to intentionally design programs for families aimed at increasing family well-being.

Table 5.

Family Leisure Outcomes (i.e., Hawks, 1991; Orthner & Mancini, 1991; Shaw 1997)

Positive Family Outcomes	Negative Family Outcomes
Stability	Work
Familial & Marital Satisfaction	Stress
Communication	Tension
Interaction	Conflict
Cohesion	Constrain on individual leisure time
Adaptability	Violence
Functioning	

One possible explanation of family leisure mechanisms used to promote family functioning lies in consideration for the Core and Balance Model of Family Functioning (Zabriskie & McCormick, 2001). According to the Core and Balance Model of Family Functioning, families use core and balance leisure patterns as a pathway to meet the need for stability and change. This model hypothesizes that core family leisure patterns meet the family's need for stability and thus enhance cohesion within the family. Simultaneously, balance family leisure patterns meet the need for incongruity in the

family and result in enhanced adaptability within the family. The model also proposes that both types of leisure patterns foster feelings of cohesion and adaptability. The remainder of the present section provides an overview of the Core and Balance Model, research surrounding the Core and Balance Model, and the limitations of the FLAP index.

Core and Balance Model. In 2000, Zabriskie developed the Core and Balance Model of Family Functioning in research for his doctoral dissertation (Figure 1). The model is grounded in family systems theory and based on the previous work of Iso-Ahola (1984) on the concept of human's need for stability and change, Kelly's (1999) concept of core and balance activities, and Olson's (1989) Circumplex Model. Since the model's inception, researchers using the Core and Balance Model of Family Functioning published numerous empirical articles, research abstracts, theses, and dissertations. Figure 2 presents a timeline of previous research from 1999 to 2013, which utilize the Core and Balance Model. This section describes the constructs of the Core and Balance Model, as well as the empirical studies that add to the model's development to date.

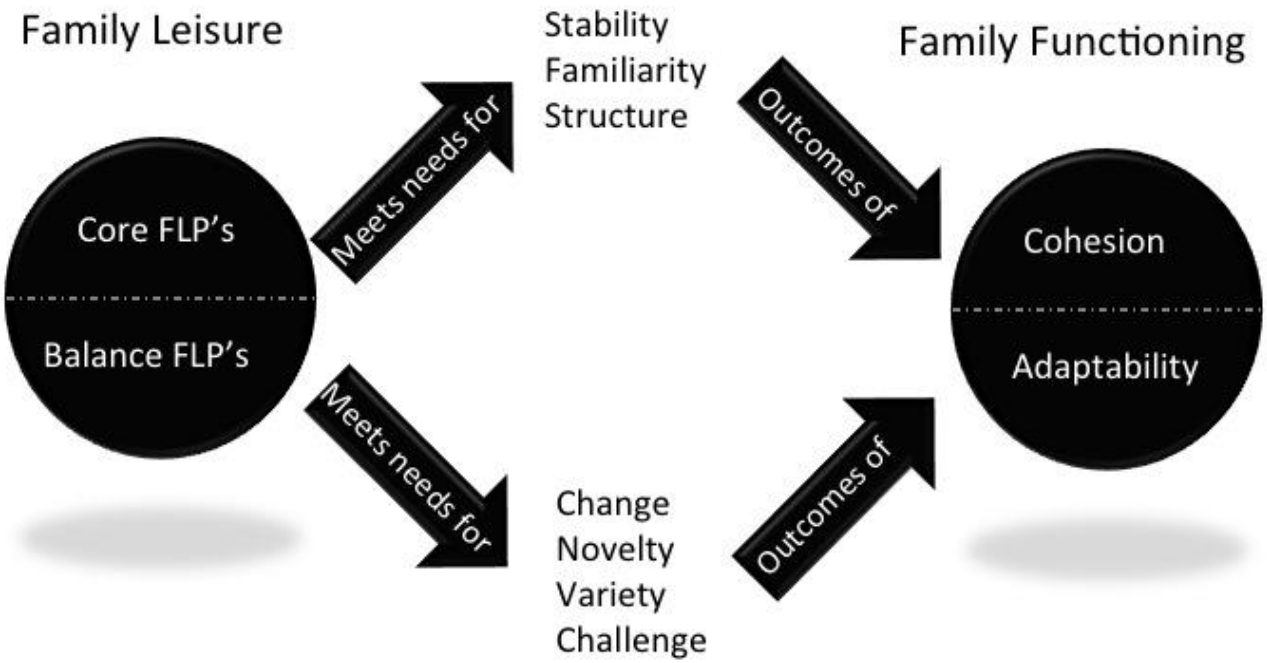


Figure 1. Core and Balance Model of Family Functioning (Freeman & Zabriskie, 2003, p. 76)

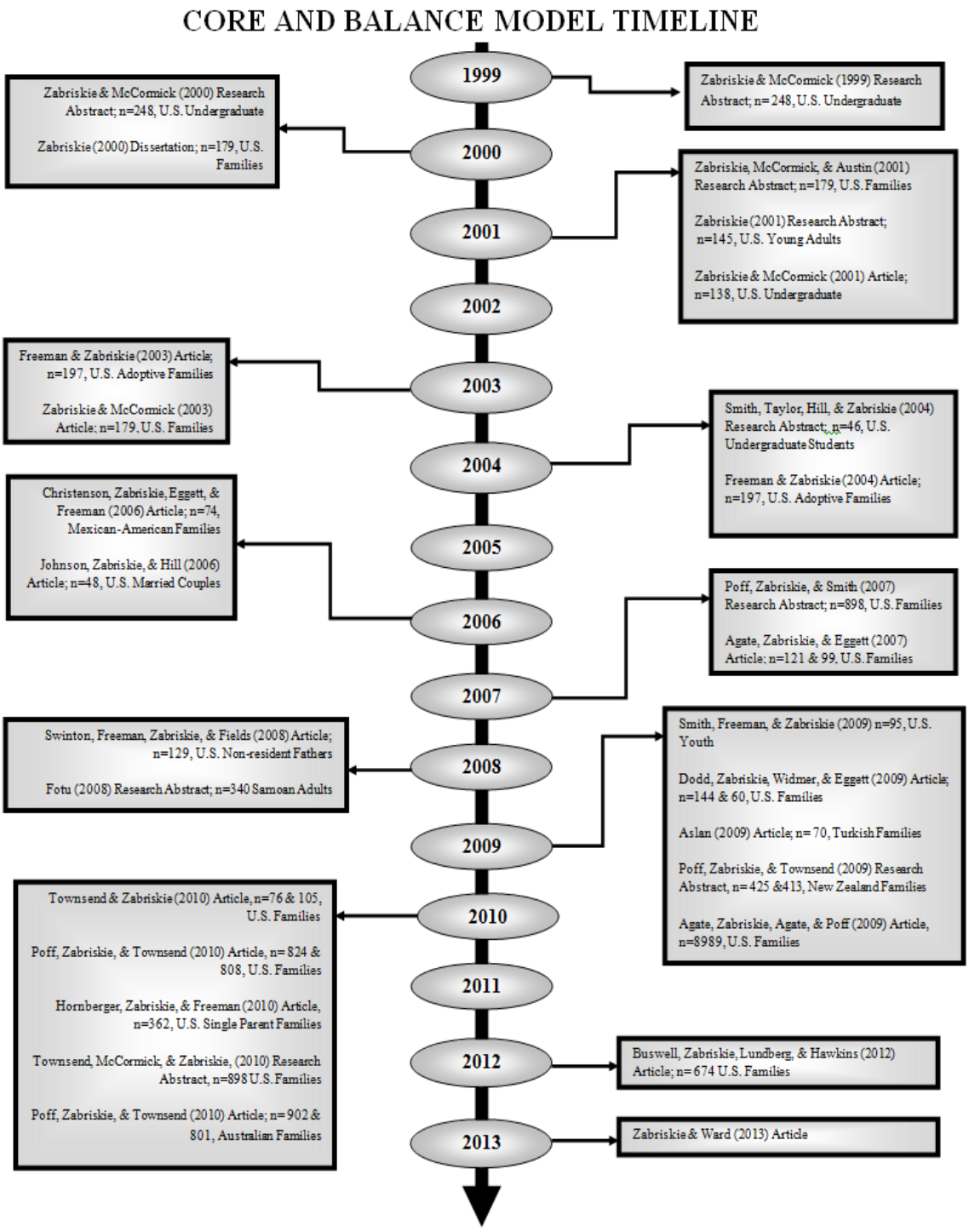


Figure 2. Timeline of Journal Articles and Research Abstracts using the Core and Balance Model of Family Functioning

Family Systems Theory. Family systems theory uses the concept of systems in order to understand the family as a whole, rather than focusing on individuals (Burr, Day, & Bahr, 1993). This theory holds to four basic assumptions that aid in understanding how a family functions (White & Klein, 2008): (1) All parts of the family are interconnected and (2) thus in order to understand an individual one must understand the whole family. (3) The actions and decisions of individuals within the family impact the family's environment, and in turn the environment impacts the entire family. (4) Finally, the term "systems" is a heuristic tool or metaphor for understanding and organizing information about the family.

These assumptions combined with concepts of wholeness, interdependence, sub-systems, inputs, outputs, and boundaries, along with several others, inform how families function. *Equilibrium* offers one important concept enlightening the Core and Balance Model. When an individual changes (like the ongoing development of a child), the whole family can enter into a period of dis-equilibrium; however, families co-regulate relationships with one another in order to reach a new state of equilibrium (Cowan, 1991; Kreppner, 2002, 2005). In the context of the family systems theory, equilibrium refers to family's needs to seek a dynamic state of homeostasis (White & Klein, 2008). Members seek out homeostasis in all areas of the systems, such as through a balance of inputs and outputs. For example, in an automobile system an individual may provide inputs of gas, tires, tune-up, washing, etc. Depending on the specific inputs, individuals often maintain certain expectations for outputs: the car starting, transportation, convenience, and pride in the car's appearance (Burr, Day, & Bahr, 1993). In the

context of leisure, families recreating together require individuals to provide inputs of time, affection, and resources; thus, in return, expectant outputs include a sense of belonging, acceptance, and security.

Stability and Change. But families can also seek homeostasis through stability and change. Iso-Ahola (1984) described the psychosocial foundations of humanity's leisure patterns as an age-appropriate balance between stability and change, familiarity and novelty, and structure and variety. That is, humans meet their needs for stability and incongruity through their leisure behaviors. Iso-Ahola argued that the stability and novelty of leisure experiences could be regulated within and between leisure experiences. This means that in addition to participation in different activities for novel leisure experiences, activities themselves could be made novel through the intensity of participation, the place of activity, and/or the changing of participants. The Core and Balance Model applies Iso-Ahola's concept for individuals to families in that families meet the underlying need for a dynamic state of homeostasis through the use of different family leisure behaviors.

Core and Balance Leisure Patterns. In describing the continuity and incongruity of leisure patterns throughout the course of a person's life, Kelly (1983, 1996, 1999) developed a core plus balance model. He claimed that adults tend to participate in a persistent *core* of activities throughout their lives and also in activities outside their norm for variety or *balance* (Table 6). Based on Kelly's typology of individual leisure activities, Zabriskie constructed two family leisure patterns—core and balance. Core family leisure patterns provide stability, familiarity, and structure. Zabriskie and

McCormick (2001) defined core family leisure as "common, everyday, low-cost, relatively accessible, and often home-based activities that families may do frequently" (p. 283). Example of core activities could include playing board games, playing video games, watching television, gardening, cooking, or playing a game of tag. These activities are often spontaneous and informal and require little to no resources or planning. In each family, core family leisure patterns will differ from other families.

Table 6.

Descriptions of Core and Balance Described by John Kelly (1999)

Core	Balance
Accessible	Variety
Low Cost	Engagement or separation
Occupies greatest amount of time between scheduled event	Changes with life conditions
Express and develop the relationships most highly valued	Integration of differing elements
Express values as woven into household roles, investments, activity patterns	

In contrast to the core family leisure activities, balance family leisure patterns provide change, novelty, incongruity, and challenge for families. Zabriskie and McCormick (2003) described balance family leisure as patterns of "activities that are generally less common, less frequent, more out of the ordinary, and usually not home-based thus providing novel experiences" (p.168). Families participating in balance leisure activities typically require more resources such as time, money, and/or effort.

Examples of balance leisure activities include family vacations, camping, special events, sporting events, and trips to theme parks. As with core leisure patterns, these activities will differ between families depending on the availability of resources.

Circumplex Model and the Core and Balance Model. Zabriskie connects the two family leisure patterns to family functioning using Olson's (1989) Circumplex Model. Family functioning refers to the ability of a family to adjust in the face of crisis or change (Olson, 1986). Olson (2000) advances two dimensions of family functioning in his research: family cohesion and family adaptability. These dimensions include vital concepts to define the relationship of a family system and evaluate the ability of a family to function effectively (Table 7). Olson defines family cohesion as "the emotional bonding that family members have towards one another" (p.145). The concepts included within the family cohesion dimension include emotional bonding, boundaries, coalitions, time, space, friends, decision-making, interests, and recreation. Taken together, these concepts focus on the degree of the family system's separateness and togetherness. On the other hand, Olson defines family adaptability as "the amount of change in its leadership, role relationships, and relationships rules" (Olson, 2000, p. 149). Elements included within the family adaptability dimension include leadership, control, discipline, negotiation styles, role relationships, and relationship rules. The focus of these concepts concentrates on the degree of the family system's stability and incongruity. The equilibrium of family cohesion and family adaptability determines family functioning. Thus, a family can be considered dysfunctional if it rates too low or too high on either of these dimensions.

Table 7.

Family Functioning Dimensions Described by Olson (2000)

	Family Functioning	
Dimensions	Cohesion	Adaptability
Measures	degree of the family system's separateness and togetherness	degree of the family system's stability and incongruity
Definition	the emotional bonding that family members have towards one another	the amount of change in its leadership, role relationships, and relationship rules
Included Concepts	emotional bonding boundaries coalitions time space friends decision-making interests recreation	leadership control discipline negotiation styles role relationships relationship rules

Olson describes communication as a facilitating dimension of family functioning. Effective communication facilitates healthy development of family cohesion and family adaptability. Therefore, the Circumplex Model suggests that families with more positive communication attain higher levels of family functioning.

Within the context of the Core and Balance Model, core leisure patterns theoretically address a family's need for stability by providing participants with predictable shared experiences which foster personal relatedness and feelings of closeness. Olsen refers to this family attribute of closeness as cohesion. On the other

hand, balance leisure patterns theoretically attend to a family's need for novelty by offering participants unpredictable and novel experiences which require family members to negotiate and adapt to new inputs, experiences, or challenges. Olsen refers to this family attribute of flexibility as adaptability. Additionally, Zabriskie and McCormick (2001) proposed an interaction between core and balance family leisure patterns; or that is to say families that participate in both types of family leisure patterns typically have higher levels of family functioning and that families who participate primarily in one type of family leisure typically have higher levels of dysfunction.

Further Development of the Model. In addition to examining the direct relationship of family leisure patterns and family functioning dimensions, researchers utilizing the Core and Balance Model as a theoretical framework also enhanced and extended the scope of the model to other family leisure constructs, such as satisfaction with family leisure, communication, and satisfaction with family life. Previous family leisure research demonstrated that these family-related criterions should be associated with participation in family leisure (e.g., Hawks, 1991; Orthner & Mancini, 1991), but the interconnectedness of these family leisure outcome variables was not implicit.

Family Communication. The first of these constructs – family communication – refers to the act of making information, ideas, thoughts, and feelings known among members of the family unit (Gorall, Tiesel, & Olson, 2004). Within the Circumplex Model, communication serves as the facilitating dimension of family functioning. Thus, the more families communicate the healthier their level of family functioning (Anderson, 1986; Barnes, 1985; Masselam, Marcus, & Stunkard, 1990; Schrodt, 2005). Family

leisure provides a context and opportunity for communication between members of the family unit (Orthner & Mancini, 1991) and opens the way to improve family communication (Bandoroff & Scherer, 1994; Huff, Widmer, McCoy, & Hill, 2003; Kugath, 1997). As Zabriskie and McCormick claim, "Besides family crisis, shared family leisure may be one of the few experiences that bring family members together for any significant amount of time today" (Zabriskie & McCormick, 2001, p. 287). Additionally, parents "consciously and deliberately" plan family leisure provide a way to enhance communication (Shaw & Dawson, 2001).

As noted above, communication is not traditionally considered a primary factor considered in the Core and Balance Model like other dimensions of family functioning. In 2009, Smith, et al. examined the communication of adolescents using the Core and Balance framework. Findings of this study indicated that communication mediates the relationship between core leisure to cohesion and balance leisure to adaptability. Poff, et al. (2010a, 2010b) supported these findings when they demonstrated that communication serves as a facilitator between family leisure and family functioning.

Family Leisure Satisfaction. Related to leisure involvement is satisfaction with leisure. In 1987, Russell found that satisfaction with leisure involvement among family members superseded the frequency of involvement as the best predictor of life satisfaction for individuals. Other research further demonstrated that couples who participate in leisure activities together are more likely to be satisfied with their marriage (Holman, 1981, 1988; Holman & Jaquart, 1988; Miller, 1976; Orthner 1975; Smith, Snyder, Trull & Monsma, 1988); specifically, enjoyment with joint core leisure affords a

better predictor for marital satisfaction (Johnson, Zabriskie, & Hill, 2006). Lacking from this history of research, however, is an examination of a family's leisure satisfaction and how this may impact the other members of the family. In 2009, Agate, et al. filled this lacuna in the research when they examined family leisure satisfaction using the Core and Balance framework. They found family leisure satisfaction to be the stronger predictor for family life satisfaction for children and parents. Specifically, core leisure satisfaction accounted for twice as much family life satisfaction as balance leisure satisfaction. This research continues to strengthen the findings on the importance of core leisure activities in families.

Satisfaction with Family Life. Another concept broadening the Core and Balance framework is satisfaction with family life. The term family life satisfaction refers to a conscious cognitive judgment of one's family life in which the individual determines the criteria for judgment (Pavot & Diener, 1993). As the family leisure literature continues to grow, researchers have noted the importance of family leisure in determining family life satisfaction (Agate, et al., 2009; Shaw & Dawson, 2001; Zabriskie & McCormick, 2003). In 2003, Zabriskie and McCormick examined family leisure involvement as a primary predictor of family life satisfaction. They found only balance activities for parents to be a predictor of family life satisfaction. Then in 2009, Agate, et al. discovered leisure satisfaction as the primary predictor for family life satisfaction. Further, this study claimed that family leisure satisfaction served as a strong predictor for family life satisfaction for both parents *and* children. Yet, in 2010 (a, b), Poff, et al. found family functioning to have a direct positive relationship with family

life satisfaction for both parents and youth. Additionally, parent's satisfaction with family leisure also was found to have a direct positive relationship with family life satisfaction.

Family Leisure Model. The examination of these additional constructs—family communication, satisfaction with family leisure, and satisfaction with family life—enhanced the understanding of the Core and Balance framework, as well as the field of family leisure. In the 2010 studies from Poff, et al., noted above, they developed a broader model in order to examine the relationships of family leisure involvement, family functioning, family communication, family leisure satisfaction, and satisfaction with family life. One study used a national dataset from the U.S. and the other used a national dataset from Australia, and both studies examined the relationships using structural equation modeling. This research yielded several major findings: (a) family communication as a mediator for family leisure and family functioning; (b) family functioning as a mediator for family leisure and family life satisfaction; and (c) family leisure satisfaction as a mediator for parents (and not children) from family leisure to family life satisfaction. These additional findings expanded the Core and Balance Model of Family Functioning to a more comprehensive model of family leisure and other criterion-related outcomes (Figure 3).

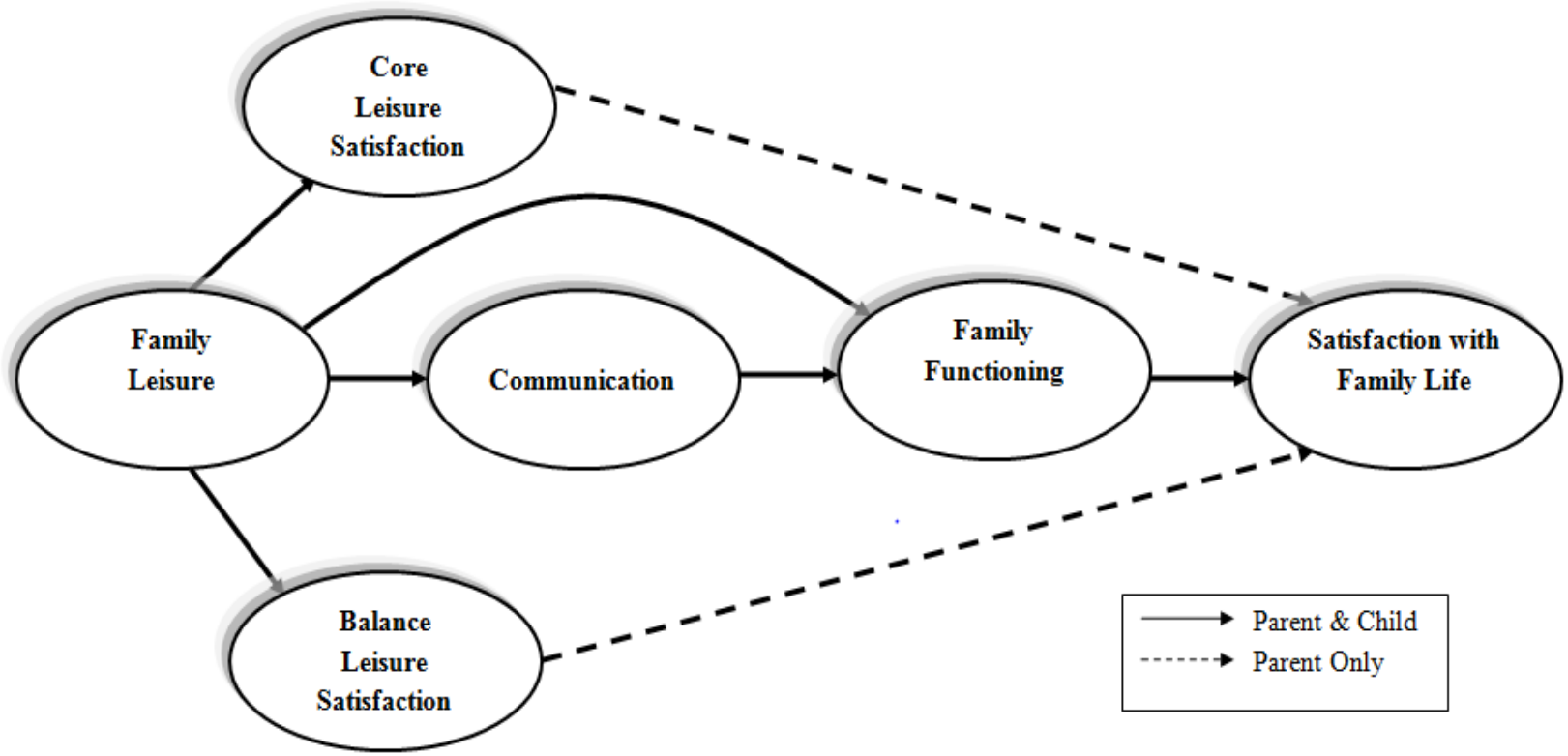


Figure 3. Family Leisure Causal Model Adapted from Poff, Zabriskie, & Townsend (2010a, 2010b)

Addressing Criticisms of Family Research. Researchers examining the Core and Balance Model in previous studies addressed many criticisms leveled against family leisure literature, including the lack of theoretical models, diversity in sample data, and consistent operational definitions of leisure, and the small sample sizes. A précis of these criticisms and the ways in which the field adjusted in light of them is in order. To begin, Holman and Epperson (1984) criticized scholars in the field of family leisure for adding little value to the discipline due to the underutilization of theory. Hawkes (1991) and Orthner and Mancini (1991) followed by reiterating the need for a theoretical framework in order that family research may advance. In response, Zabriskie and McCormick (2001) developed one of the first models for family leisure research, explaining the impact of family leisure on family functioning. Other researchers then adapted their model in order to explore other family-related criteria with family leisure. At present, the family leisure model presented in Figure 3 remains as the primary guiding framework for family leisure scholars.

Another common criticism of leisure literature is the lack of diversity in samples. Past family leisure research primarily used samples comprised of married couples, which lacked the child's perspective (Jeanes, 2010; Shaw, 1997). The Core and Balance Model provides a useful theoretical framework for examining family leisure among diverse family samples, which accounts for all members of the family. What is more, this model accounts for various family types, including traditional families (Zabriskie & McCormick, 2001), adoptive families (Freeman & Zabriskie, 2003), single-parent families (Hornberger, 2007; Smith et al., 2004), families with a child with a disability

(Dodd et al., 2009), families with a child with symptoms of an eating disorder (Baker, 2004), non-residential father families (Swinton et al., 2009), Samoan families (Fotu, 2007), Australian families (Poff et al., 2010a), Turkish families (Aslan, 2009), and Mexican-American families (Christenson et al., 2006). The samples of these studies often incorporated the perspective of one parent and one child from each family.

A third criticism of the family leisure construct is the lack of consistent operational definition of the term leisure. Past studies defined leisure simply as a list of activities. The Core and Balance Model, on the other hand, provides a useful definition of two types of leisure patterns, thus offering more precision. Many studies, as noted previously, utilized this model as a guiding framework to assess the relationship between family leisure and other related criteria. These studies consistently used the same or slightly modified instruments, providing comparable results of diverse and international families. Reported findings provided opportunities for family leisure researchers to compare and contrast different populations as well as make global assumptions about the impacts of family leisure.

The relatively small sample sizes used to examine relationships represents the fourth and final criticism. In order to address this issue, a number of studies began to widen their sample sizes. For instance, Poff, et al. (2010a) utilized a sample of 808 U.S. families consisting of parent-child dyads. In a subsequent study, Poff et al. (2010b) used a sample of 902 Australian families consisting of parent-child dyads. Buswell et al. (2012) employed a sample of 647 U.S. families consisting of father-child dyads. The present study uses a sample of 884 U.K. families consisting of parent-child dyads. With

the use of technology and online sampling, researchers increasingly expand their research to examine these relationships using large family samples.

Researchers in the field of family leisure studies continue to publish their findings in reputable and distinguished journals. Particularly of note is the work of Zabriskie and colleagues, who elevated the family leisure discussion. Among the major contributions is the development of a family leisure model that has been consistently tested with diverse families for both sub-population and generalizable findings. These advancements extend the ability of family leisure researchers through the advancement of the Family Leisure Activity Profile (FLAP). Improvement of measurements provides extended opportunities in understanding family leisure nuances and family-related criterion outcomes.

Advancing the Family Leisure Activity Profile

The Family Leisure Activity Profile (FLAP) index provides a measurement of family leisure in the majority of studies utilizing the Core and Balance framework. Previous studies related to the FLAP index provided evidence of family leisure as an integral variable related to family functioning. Research utilizing the FLAP, however, have not provided consistent findings related to the primary hypotheses of the Core and Balance Model. The lack of clarity poses the question: Do empirical measures of the FLAP provide optimal pattern-matching for core and balance leisure concepts? It is this question that the present section will address.

Zabriskie (2000) developed the FLAP over the course of four pilot studies. The first study examined the family patterns of two families through (a) observation over a

three month period inside and outside the home, (b) semi-structured interviews with each family member, and (c) family document analysis via scrapbooks, calendars, and photo albums. The second pilot study examined 145 undergraduate students using a fourteen category version of the FLAP. Pilot study three assessed the content validity of the FLAP through the assessments of eight international experts. The final pilot study provided test-retest evidence of reliability for the FLAP with 123 undergraduates and five weeks between testing.

As a result of these pilot studies, Zabriskie devised a sixteen-item index known as the Family Leisure Activity Profile of the FLAP. The original technique using the FLAP to assess for core and balance family leisure patterns designates the first eight items to measure core family leisure patterns, and the last eight to measure balance leisure patterns (Zabriskie & McCormick, 2001). Table 8 presents the items of core and balance measures of the original technique. An example of a FLAP item used to measure core family leisure patterns is, "Do you participate in home-based activities (for example, watching TV/videos, listening to music, reading books, singing, etc.) with family members?" Items measuring core family leisure patterns are assumed to be activities familiar to families. The last eight items, which measure balance family leisure patterns, are assumed to be less familiar activities to families. An example of a FLAP item used to measure balance family leisure patterns is, "Do you participate in community-based social activities (for example, going to restaurants, parties, shopping, visiting friends/neighbors, picnics, etc.) with family members?"

If a respondent answered, "yes" to any item, he/she then completed an ordinal scale of frequency and an ordinal scale of duration. The frequency scale provides the following options: At least daily, At least weekly, At least monthly, and At least annually. The duration scale provides respondents the opportunity to indicate from less than one hour to more than one day for all core and some balance leisure activity categories, while other balance categories allow respondents to indicate from less than one hour to more than three weeks. Each FLAP item receives a score; item scores are then calculated by multiplying the duration and frequency for each item. Next, each measure (i.e., core and balance) receives a score; core and balance index scores are calculated by summing the item scores of each measure (i.e., core and balance).

Table 9 provides an overview of mean scores from previous studies using the original FLAP technique. Parents' core index scores ranged from 34.44 to 53.81, whereas children's core index scores ranged from 28.30 to 46.78. Likewise, parents' balance index scores ranged from 41.65 to 70.13, and children's balance index scores from 45.80 to 71.72.

Table 8.

FLAP Indicators

Concept	Sub-Concept	Variable	Indicators
Family Leisure	Core Family Leisure Patterns	(a) Participation in type of activities	(1) Dinners
		(b) Frequency of activities	(2) Home-based indoor activities (watching TV/videos, listening to music, reading books, singing, etc)
		(c) Duration of activities	(3) Games (playing cards, board games, video games, darts, billiards, etc.)
			(4) Crafts, cooking, or hobbies (drawing, scrapbooking, baking cookies, sewing, painting, ceramics, etc.)
			(5) Home-based outdoor activities (star gazing, gardening, yard work, playing with pets, walks, etc.)
			(6) Home-based sport/games activities (playing catch, shooting baskets, frisbee, bike rides, fitness activities, etc.)
			(7) Attend other family members activities (watching or leading their sporting events, musical performance, scouts, etc.)
			(8) Religious/spiritual activities (church activities, worshipping, scripture reading, Sunday school, etc.)
	Balance Family Leisure Patterns	(a) Participation in type of activities	(1)Community-based social activities (restaurants, parties, shopping, visiting friends/neighbors, picnics, etc.)
		(b) Frequency of activities	(2) Spectator activities (going to movies, sporting events, concerts, plays or theatrical performances, etc.)
		(c) Duration of activities	(3) Community-based sporting activities (bowling, golf, swimming, skating)
			(4) Community-based special events (visiting museums, zoos, theme parks, fairs, etc.)
			(5) Outdoor activities (camping, hiking, hunting, fishing, etc.)
			(6) Water-based activities (water-skiing, jet skiing, boating, sailing, canoeing, etc.)
			(7) Adventure activities (rock climbing, river rafting, off-road vehicles, scuba diving, etc.)
			(8) Tourism activities (family vacations, traveling, visiting historic sites, visiting state/national parks, etc.)

Table 9.

Previously Reported Mean Scores for Core and Balance from FLAP

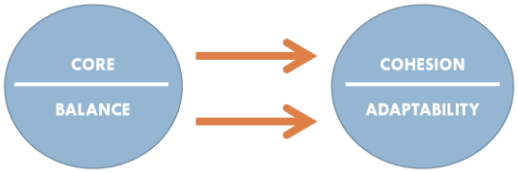
			Parent				Child			
Year	Authors	Sample	Core	SD	Balance	SD	Core	SD	Balance	SD
2000	Zabriskie	n=179 U.S. families, 1 parent, 1 child aged 12-15	42.95	**13.22**	60.15	24.80	41.01	**16.08**	65.08	29.17
2003	Freeman & Zabriskie	n=197 U.S. adoptive families, 1 parent, 1 child aged 11-14	**53.81**	19.24	**70.13**	**28.40**	**46.78**	17.45	71.35	29.79
2006	Johnson et al.	n=48 U.S. married couples	50.79	18.84	53.21	24.06				
2007	Agate et al.	U.S. families, 1 parent (n=121), 1 child aged 11-19 (n=99)	45.30	13.89	64.67	26.10	44.47	**23.95**	**71.72**	**52.76**
2008	Swinton et al.	n=129 U.S. non-resident fathers aged 23-64	41.80	**26.77**	**41.65**	28.39				
2009	Smith et al.	n=95 U.S. youth aged 11-17					40.19	17.31	64.46	33.86
2009	Dodd et al.	U.S. families, 1 parent (n=144), 1 child aged 10-17 (n=60)	41.74	16.21	50.69	25.18	43.61	21.37	54.31	27.06
			45.62	17.02	50.47	27.13	42.58	16.94	52.76	27.43
2009	Agate et al.	n=898 U.S. families, 1 parent, 1 child aged 11-15	44.21	15.90	51.30	25.68	42.37	17.66	52.50	25.91
2010	Townsend & Zabriskie	U.S. families, 1 parent (n=76), 1 child aged 13-17 (n=105)	**34.44**	16.23	52.78	28.26	**28.30**	17.62	56.84	36.71
2010	Hornberger et al.	n=362 U.S. single-parent families, 1 parent, 1 child aged 10-17	39.07	16.96	42.19	**22.94**	38.35	16.75	**45.80**	26.93
			43.26	16.28	49.30	24.00	40.38	16.45	49.85	**25.68**
		AVERAGE	43.91	17.32	53.32	25.90	40.80	18.16	58.47	31.53

*Bolded scores represent highest and lowest scores for each column

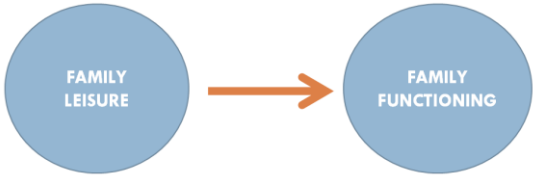
Research utilizing this FLAP technique to assess the hypotheses of the Core and Balance model repeatedly demonstrated the positive association between family leisure and family functioning (e.g., Poff et al., 2010a, 2010b); however, inconsistent findings from previous studies caused confusion about the direct relations specified between family leisure patterns and family functioning dimensions (i.e., core affects cohesion; balance affects adaptability) (see Figure 4). For example, Dodd, et al. (2009) found only core leisure patterns associated with cohesion, while Townsend and Zabriskie (2010) discovered balance leisure patterns associated with cohesion. Other research studies noted core and balance leisure patterns association with cohesion (e.g., Hornberger et al., 2010). These inconsistent patterns can also be found with associations between leisure patterns and adaptability for both parents (Table 10) and children (Table 11). Tables 10 and 11 present the strength of the relationship between family leisure patterns and family functioning dimensions. These tables present evidence of inconsistent findings that do not support the hypotheses of the Core and Balance Model of Family Functioning. Due to these inconsistent conclusions, the present study seeks to advance the measurement and analyses of the Family Leisure Activity Profile (FLAP).

Family Leisure= Core + Balance
Family Functioning= Cohesion + Adaptability

Core and Balance Hypothesis: *The Core and Balance Model indicates core family leisure patterns enhance family cohesion, and balance family leisure patterns enhance adaptability.*



Core and Balance Research (Consistent): *Research using the Core and Balance Model consistently demonstrates higher involvement in family leisure (i.e., core + balance) is positively associated with higher levels of family functioning (i.e., cohesion + adaptability).*



Core and Balance Research (Inconsistent): *Research using the Core and Balance Model report inconsistent main effects between family leisure patterns, core and balance, and their respective hypothesized dimension of family functioning, cohesion and adaptability (see Table 8 and Table 9).*

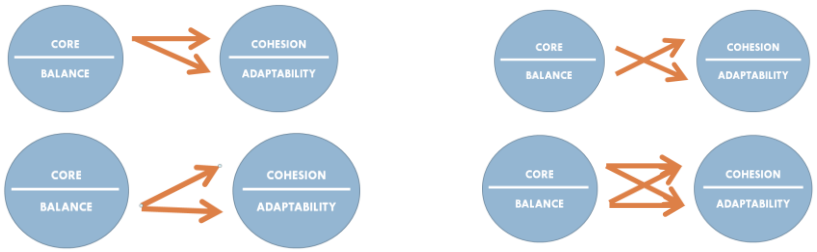


Figure 4. Graphic Representation and Explanation of Inconsistencies between Family Leisure Patterns and Family Functioning Dimensions

Table 10.

Previously Reported Values on Parents' Cohesion and Adaptability Predicted by Core and Balance Leisure Patterns

Year	Authors	Cohesion			Adaptability		
		β Core	β Balance	R^2	β Core	β Balance	R^2
2000	Zabriskie	0.25*	0.06	0.19*	0.15	0.01	0.13*
2009	Dodd et al.	0.37*	0.06	0.16*	0.37*	0.00	0.13*
2010	Townsend & Zabriskie	0.22	0.46*	0.36*	0.36*	0.14	0.19*
2010	Hornberger et al.	0.27*	0.19*	0.15*	0.29*	0.17*	0.15*
2010	Buswell et al.	0.33	0.14*	0.12*	0.04	0.09*	0.20*

* $p \leq .05$

Table 11.

Previously Reported Values on Children's Cohesion and Adaptability Predicted by Core and Balance Leisure Patterns

Year	Authors	Cohesion			Adaptability		
		β Core	β Balance	R^2	β Core	β Balance	R^2
2000	Zabriskie	0.22*	0.02	0.12*	0.24*	-0.10	0.12*
2009	Dodd et al.	0.37*	-0.13	0.06	0.47*	-0.12	0.17*
2010	Townsend & Zabriskie	0.46*	0.12	0.28*	0.23*	0.27*	0.18*
2010	Hornberger et al.	0.26*	0.17*	0.13*	0.25*	0.11	0.09*
2010	Buswell et al.	0.08	0.08	0.13*	0.09	-0.01	0.16*

* $p \leq .05$

Of course, there are other plausible explanations for inconsistent findings between family leisure patterns and family functioning dimensions. These explanations may include conceptual, measurement, or analyses explanations, such as diverse population sampling, model/theory specification, or measurement of variables. In regards to diverse population sampling, the Core and Balance Model does not hypothesize different populations with different outcomes. Instead, the model refers to family leisure patterns to enhance respective family functioning dimensions for *all* families. Furthermore, findings of different sub-populations demonstrate the combination of core and balance family leisure patterns (for both parents and children) in order to explain a significant portion of the separate variance of cohesion and adaptability. The difference in sub-population findings is specific to pattern of leisure (i.e., core or balance), which is related to cohesion and adaptability. Inconsistencies in the data may result from a sub-population's cultural distinctions of what constitutes core or balance activities for the family. The original FLAP technique provided a pre-determined list of categorized activities that may not provide accurate "core" (i.e., familiar/common) and "balance" (novel/ uncommon) activities for all families. Thus, at this time, it appears that inconsistent findings between family leisure patterns and family functioning dimensions result from limitations of the FLAP. Three potential opportunities for advancement include a) an investigation of measurement properties of the FLAP, b) an extension of the FLAP to focus on incongruity affordances of the recreation activity location, and c) an examination of higher levels of data collection. A brief discussion of each of these elements follows.

Measurement Properties. The first target for advancement of the FLAP is to establish inter-rater agreement and add to knowledge about the FLAP's psychometric properties. Unreliable measures and measures that do not result in valid quantification of the target concept of interest (core and balance, in this case) can result in unexpected or disparate results across studies. Only two studies reported reliability estimates for the FLAP index. Zabriskie (2000) reported test-retest reliability for core (r= .74), balance (r= .78) and total family involvement (r= .78). Aslan (2009), using a modified version of the FLAP index, reported internal consistency alpha coefficients for core leisure patterns for mothers (α= .89), fathers (α= .86), and youth (α= .86), as well as for balance leisure patterns for mothers (α=.78), fathers (α=.86), and youth (α= .59).

Although these studies suggest acceptable estimates of test-retest reliability and internal reliability, researchers have not yet examined the inter-rater reliability of the FLAP. Notably, Aslan's (2009) study involved Cronbach's alpha of a modified FLAP, but no other previous study reported the internal consistency of the FLAP in its original form. The conventional estimation of reliability through internal consistency (ordinarily through Cronbach's alpha) is not appropriate because, as an index, the FLAP carries no assumption of common latent variables affecting responses to a set of items. As an index, the FLAP is considered to be a "cause indicator" rather than an "effect indicator" (Babbie, 2011; Bernard, 2000). Thus, researchers would expect a low internal consistency of items of the FLAP as a result of the lack of interconnectedness among items.

Yet, the question as to the degree of agreement among ratings of multiple members of the same family (e.g., youth vs. parent ratings) remains an area that needs to be addressed. At least 18 studies to date utilized the FLAP as a measurement of family leisure with both parents and children. Each of these studies maintained the family as the intended unit of analysis; however, most research using the FLAP also separated child and parent scores for analysis. In each study, two raters—the parent and the child—are given the opportunity to rate the same family unit. The FLAP index operationalizes leisure as an observable behavior; thus, researchers would expect parent and child ratings of family leisure to be similar. Although previous literature (Larson, Gillman & Richards, 1997) demonstrated deviation between the perceptions of children and parents on leisure outcomes, no studies using the Core and Balance Model explicitly examined the extent to which this divergence may affect interpretation of measures of core family leisure and balance family leisure. Therefore, internal structure analysis of the FLAP index would involve estimation of reliability based on consistency of ratings of core and balance patterns by parents and their children (i.e., inter-rater agreement).

Recreation Location. A second target for advancement of the FLAP is to operationalize core and balance constructs based on the theoretical incongruity affordances of recreation location. As mentioned earlier, Zabriskie and McCormick (2001) developed the Core and Balance Model using three sets of literature. They combined Kelly's (1999) notion of two different leisure patterns with Iso-Ahola's (1984) concept of an individual's needs for stability and change in order to create the concepts of "core family leisure" and "balance family leisure." Zabriskie and McCormick then

combined the core and balance model of family leisure with Olson's (1986) Circumplex Model of Marital and Family Systems to explain the connection between family leisure and family functioning.

Previous descriptions of core and balance family leisure patterns always distinguished these concepts based on familiarity of recreation activities—more familiar activities comprise core family leisure patterns, and less familiar activities comprise balance family leisure patterns. A closer look at the contributing work of Iso-Ahola (1980, 1984), however, provides an opportunity to advance the concepts of core and balance based on the impact of arousal affordances of different recreation environments on human development. Specifically, Iso-Ahola (1980) noted that stability and change are specific to individuals and are not specific to leisure activities. For example, two individuals can participate in the same activity in the same recreation environment, but for one individual the recreation environment is "novel" and therefore meeting the individual's needs for change. For the other individual, the recreation environment is "familiar" and therefore meeting the individual's needs for stability. Thus, the difference between core and balance family leisure patterns is the incongruity afforded to the family by the recreation environment.

Iso-Ahola expounded on how individuals meet their needs for stability and change by altering the incongruity within and between recreation activity environments. Novelty, complexity, and dissonance within the environment affords incongruity (Ellis, 1973). Specifically, Iso-Ahola suggested five dimensions of incongruity with regards to recreation activity environment: the intensity of participation, the locus of participation,

the social company of participation, the psychological reasons for participation, and the time of day. A sixth dimension not listed by Iso-Ahola but inherent to the recreation environment is the recreation activity. Any combination of these dimensions can be altered to manipulate the level of incongruity in the family recreation environments for the purpose of producing optimal arousal for the family as a unit. Researchers should note that Iso-Ahola's concepts were specific to individual behaviors however, within the Core and Balance Model of Family Functioning the unit of analysis is the family. Thus, instead of looking for patterns for individual family members, the researcher is interested in the patterns of the family unit.

Based on Iso-Ahola's concepts of incongruity, core family leisure patterns would be defined as "the family unit's participation over time in family recreation environments characterized as having low incongruity," whereas balance family leisure patterns would be defined as "the family unit's participation over time in family recreation environments characterized as having high incongruity." Therefore, based on these definitions of core and balance leisure patterns, the Core and Balance Model of Family Functioning cannot be fully assessed without a measurement of all dimensions of incongruity of the recreation environment for a family unit. Research in this area will be extremely difficult as family units have "an infinite number of combinations and possibilities for seeking variety" (Iso-Ahola, 1980, p.172) with the result of producing optimal arousal within their recreation environment.

Although researching incongruity of recreation environments will be a difficult task, attempts can be made to examine the dimensions of incongruity using the FLAP. The original FLAP scaling technique (i.e., Zabriskie & McCormick, 2001) assessed one dimension of environment incongruity—specifically incongruity affordances of recreation activities. Variations within and between activities afford varying levels of novelty, complexity, and dissonance. The original FLAP scaling technique assumed that activities participated in less frequently by family units have the potential to provide more novelty, complexity, and dissonance. But this technique assessed only one dimension of the recreation environment; thus, the distinction between core and balance cannot rest fully on this one dimension. Rather, additional aspects of recreation environments must be assessed in order to classify a family's pattern of recreation behaviors as core or balance adequately.

Another possible way to assess incongruity of the recreation environment is by examining the locus of participation. This category refers to the physical environment or location in which a person performs the activity. Variations of recreation locations have the potential to afford varying levels of novelty, complexity, and dissonance (Iso-Ahola, 1980). Based on this notion, the FLAP can be scaled to assess four locations of recreation environments: Indoor-Home Location, Outdoor-Home Location, Community Location, and Beyond-Community Location. In this case, the term "Indoor-Home Location" refers to the physical dwelling that protects the family from the elements of the environment. This location can include a detached single-unit housing, semi-detached dwellings, attached single-unit housing, multi-unit housing, or even movable

dwellings. The term "Outdoor-Home Location" indicates the physical space adjacent to the family dwelling, which is not protected from the elements of the environment. This includes a small yard, many acres, a pool, a multi-unit housing courtyard, or possibly even a neighbor's yard. The term "Community Location" specifies the intensive-use areas, including suburban residential areas, town centers, commercial areas, or even heavy industrial developments. Finally, the term "Beyond-Community Location" refers to natural and human-designed attractions outside of a family's personal community, such as meadows, woods, forested hills, open waters *or* tourist attractions, such as visiting other relatives, cruises, or amusement parks.

Zabriskie and McCormick (2001) described core family leisure activities as more likely to occur at home (i.e., location), whereas balance leisure activities as more likely to occur away from the home (i.e., location). The location of recreation environment can be placed along a continuum of low to high incongruity, as illustrated in Figure 5. Family recreation occurring inside the home is the most familiar location for families; on the other hand, family recreation occurring outside the home may be familiar, but adds a degree of incongruity. As familiarity of location decreases, the degree of incongruity increases. Of the four identified locations mentioned above, a "Beyond-Community Location" provides the least familiar location that also possesses the largest degree of incongruity to the recreation environment.

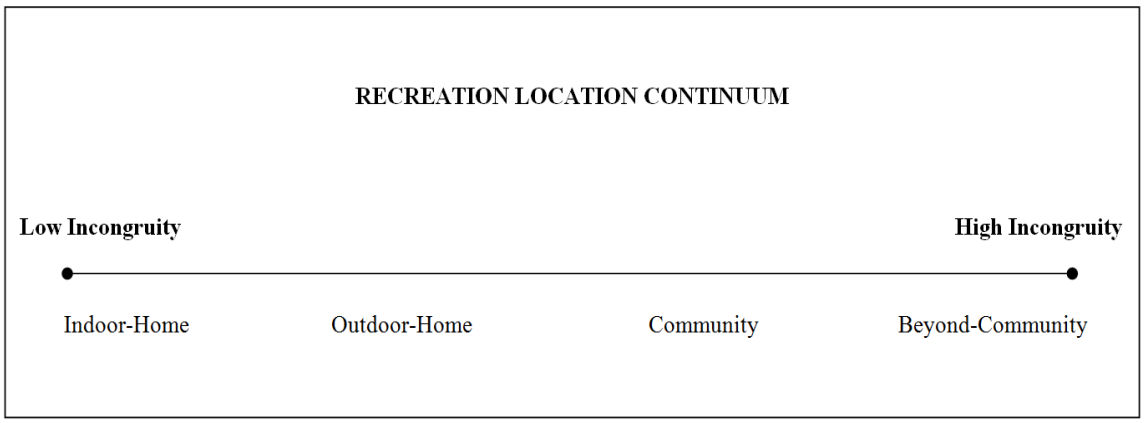


Figure 5. Recreation Location Continuum

Thus, based on the formal definitions of locations in combination with the Core and Balance Model of Family Functioning, it can be hypothesized that families recreating in more familiar locations (i.e., Indoor-Home Location and Outdoor-Home Location) are afforded the opportunity to

> "safely explore boundaries, clarify family roles and rules, and practice ways to enforce them… it is hypothesized that such regular interpersonal interactions based on shared leisure experiences enhances the knowledge of coparticipants and thus fosters increased personal relatedness and feelings of family closeness and cohesion" (Zabriskie & McCormick, 2001, p. 283).

Accordingly, Indoor-Home and Outdoor-Home Locations add to the dimensions of core family leisure patterns. Whereas, families recreating in less familiar locations (i.e., Community Location and Beyond-Community Location) are afforded the opportunity

> "to be exposed to new and unexpected stimuli from the outside environment, which provides the input and challenge necessary for families to learn and

> progress as an evolving system. The adaptive skills developed and practiced in this context of family leisure may be transferred to other areas of family life" (Zabriskie & McCormick, 2001, p. 284).

Accordingly, Community and Beyond-Community Locations expand the dimensions of balance family leisure patterns.

Higher Levels of Data Collection. A third area for advancement for the FLAP index can be discerned in the collection of data. The FLAP index collects data at the ordinal level. The features of ordinal-level data are the following: a) scores have mutually exclusive score categories, b) scores within a particular category are identical with respect to the variable being measured, and c) score categories have a meaningful order (Nunally, 1978). At the ordinal level, researchers obtain information from the measure but lose the finer details when collecting data. The collection of ordinal-level data within the FLAP index does not allow for researchers to understand fully the amount of time spent in family recreation activities or family leisure patterns. When researchers multiply the FLAP ordinal variables (i.e., duration and frequency) together, they cannot quantify the distance between scores. Thus, researchers remain limited in their interpretation, data manipulation, and data analysis when using ordinal-level data. The use of ratio-level data, however, provides a possible way forward by supplementing the previously mentioned attributes of ordinal-level data (i.e., the above mentioned "a," "b," and "c" descriptions of ordinal-level data) with two additional ones: d) there is a quantifiable distance between scores, and e) scores have a meaningful zero (Nunally, 1978). Additionally, researchers can transform higher levels of scales (e.g.., ratio-level

data) to lower levels of scales (e.g. ordinal-level data). Therefore, in order to advance the measurement of family leisure, the FLAP index should collect ratio-level data.

This chapter has detailed important topics related to this study—family functioning, the Core and Balance Model of Family Functioning, and the Family Leisure Activity Profile. The crux of this chapter is the final portion which highlighted three limitations of the FLAP index—psychometric properties, source of incongruity, and level of measurement. These limitations serve as the basis for FLAP techniques to be examined in this project.

CHAPTER II

METHOD

Three FLAP scaling techniques were assessed in this study. Technique 1 consisted of the "current practice;" the original scaling of core and balance family leisure patterns. That approach resulted in an assessment of incongruity that is assumed to be afforded by activities (e.g., Zabriskie & McCormick, 2001). Technique 2 consisted of an alternative scaling approach based on incongruity affordances of different recreation locations (Iso-Ahola, 1980). Technique 3 built on Technique 2 but transformed ordinal-level data into ratio-level approximations. The reliability of each FLAP scaling technique was evaluated using intraclass correlation, absolute deviation, Pearson r, G-study, and D-study. Evidence of validity was assessed for each technique using confirmatory factor analysis and a multi-method, multi-trait matrix. Data were from self-administered online questionnaires completed by families in the United Kingdom (U.K.). This chapter details the methods used in this study, and is organized into five sections: research question, participants, measures, techniques, and data analysis.

Research Questions

This study addressed the following research questions (RQ):

RQ1. Does the original FLAP scaling technique based on incongruity of recreation activities, produce scores (a) that are reliable and (b) from which valid inferences about core and balance leisure activity patterns can be made?

RQ2. Does the reformulated FLAP scaling technique based on incongruity of recreation locations produce scores (a) that are reliable and (b) from which valid inferences about core and balance leisure activity patterns can be made?

RQ3. Does the reformulated FLAP scaling technique based on incongruity of recreation locations using ratio-level approximations produce scores (a) that are reliable and (b) from which valid inferences about core and balance leisure activity patterns can be made?

Participants

A commercial online sampling company collected data. That company drew subjects from a representative multi-source internet panel of United Kingdom (U.K.) households willing to participate in online research based on the criterion of having at least one child between the ages of 11 and 15 years old. Each responding family submitted two questionnaires: one questionnaire from a parent and one from a child. Of the households questioned, 884 families submitted responses; however, inconsistencies such as implausible responses, reported children's ages outside of the specified range of 11-15, and other inconsistencies in family structure reduced the sample of usable responses to 751 families. Families were the unit of analysis.

Parental respondents were primarily female (77.2%) and ranged from 26 to 73 years old with a mean age of 42.80 (SD= 6.89). Youth respondents were 53.8% male and ranged from ages 11 to 15 with the mean age of 13.17 (SD=1.40). Sixty-two percent of respondents lived in suburban/urban areas (population > 50,000), and the average family size was 4.22 (SD= 1.37) individuals. Approximately 65.5% of respondents were

married, 6.5% were single/never married, 8.7% separated, 19.4% divorced, 2.1% widowed, and 14.5% had a domestic partner. A history of divorce was reported by 37% of respondents. The majority of parents were white (96%), with an annual income ranging from less than £10,000 to over £100,000 with a median income of £20,000-29,999 per year.

Measures

The online survey included six sections: a) the Family Leisure Activity Profile (FLAP), used to measure family leisure involvement (Zabrikie 2000; Zabriskie & McCormick, 2001); b) the Family Leisure Satisfaction Scale (FLSS), which is embedded in the FLAP; c) the Family Adaptability and Cohesion Scales (FACES II) (Olson, McCubbin, Barnes, Larsen, Muxen, & Wilson, 1982; Olson & Tiesel, 1991); d) the Family Communication Scale (FCS) (Gorall, Tiesel, & Olson, 2004); e) the Satisfaction with Family Life Scale (SWFL) (Zabriskie & McCormick, 2003); and f) relevant sociodemographic questions. Only data collected from the FLAP index, FACES II, and the sociodemographic information were used for analyses in this study.

Family Leisure Activity Profile. The FLAP is a sixteen item index used to measure core and balance leisure involvement based on the Core and Balance Model of Family Functioning (description provided in previous chapter). Zabriskie (2000) reported test-retest reliability for core (r= .74), balance (r= .78) and total family involvement (r= .78). Criterion-related evidence of validity includes relationships with family functioning measures among data from both parents (r= .33) and youths (r= .42) (Freeman & Zabriskie, 2003).

Family Adaptability and Cohesion Scale. The Family Adaptability and Cohesion Scale II (FACES II) is a 30 item scale used to measure family adaptability and family cohesion. These two dimensions combined provide the measurement for family functioning. Fourteen of the scale items measure the essence of family adaptability, e.g. "when problems arise we compromise" and "family members say what they want." The other sixteen items measure the essence of family cohesion, e.g., "family members know each other's close friends" and "our family does things together." Respondents answer these questions using a 5-point scale, ranging from "almost never" (1) to "almost always" (5). A scoring formula allowed the calculation of scores for family cohesion and adaptability (Olson et al., 1992). This formula takes into account the reverse coded questions, and the calculated scores receive a corresponding value from 1 to 8 based on linear score interpretations. Combining and averaging scores allow for an overall indicator of family functioning. Olson, et al. (1992) reported acceptable psychometric properties for the FACES II: internal consistency for adaptability (α= .78 and α= .79) and for cohesion (α= .86 and α= .88). Validity evidence includes a significant relationship with family leisure for parents (r= .33) and youth (r= .42) (Freeman & Zabriskie, 2003).

Techniques

Technique 1. As noted above, this study assessed three distinct FLAP scaling techniques. In the current approach to scaling, "core family leisure patterns" referred to scaling of items 1-8 of the FLAP, and "balance family leisure patterns" to scaling of items 9-16 of the FLAP. Technique 1, "Incongruity Affordances of Recreation

Activities," stands in continuity with this current approach (Zabriskie and McCormick, 2001). In Technique 1, the researcher derived core and balance index scores by summing the products of ratings of frequency and duration for core and balance activities. Following current practice, the researcher then averaged sums across the two raters (parent and child) (e.g., Zabriskie & McCormick, 2003; Freeman & Zabriskie, 2003). In previous studies, researchers conducted separate analyses for parent versus child ratings; however, Zabriskie and McCormick (2001) defined core and balance as leisure behaviors (i.e., "activities") characteristic of families, rather than separate perceptions of parents and children. Thus, this study appropriately scaled FLAP scores in a manner that result in core and balance scores per family rather than per rater. The present project also used Technique 1 as the baseline for comparison of techniques explored.

Technique 2. Technique 2, "Incongruity Affordances of Recreation Location," utilized an alternative scaling approach. New scaling of FLAP index scores allowed the measurement of the incongruity afforded to recreation environments by location (Iso-Ahola, 1980). Following Iso-Ahola's observations about the impact of arousal affordances of different locations on recreation environments, the researcher scaled FLAP items to produce two measures of core (Indoor-Home Location and Outdoor-Home Location) and balance (Community Location and Beyond-Community Location). In the reformulated approach to scaling, "Indoor-Home Location" referred to the scaling of items 1-4 of the FLAP, "Outdoor-Home Location" to the scaling of items 5-6, "Community Location" to the scaling of items 7-12, and "Beyond-Community Location" to the scaling of items 13-16. Table 12 presents a comparison of measures

and coordinating FLAP items for Technique 1 and Technique 2. As in Technique 1, the researcher constructed index scores for each location by summing the products of frequency and duration scores, averaged across raters.

Table 12.

Comparison of FLAP Scaling Techniques

Technique	Measures	FLAP Item
Incongruity Affordances of Recreation Activities	Core	1, 2, 3, 4, 5, 6, 7, 8
	Balance	9, 10, 11, 12, 13, 14, 15, 16
Incongruity Affordances of Recreation Location	Inside Home	1, 2, 3, 4
	Outside Home	5, 6
	Community	7, 8, 9, 10, 11, 12
	Outside Community	13, 14, 15, 16

Technique 3. Technique 3, "Incongruity Affordances of Recreation Location using Ratio-Level Approximation," consisted of a third scaling approach. This technique built on the theoretical developments of Technique 2 (i.e., recreation locations as source of incongruity) and also addressed the empirical limitation of ordinal data. Following the advice of Agresti (2010), this technique transformed ordinal-level data of the FLAP frequency and duration variables into ratio-level approximations. To this end, the researcher scaled a) FLAP item frequency scores to a common metric of days, and b) FLAP item duration scores to a common metric of hours. Tables 13 and14 present the values of transformed responses for frequency and duration. Ratio-level approximations provided hours of participation in activities.

As an example of the difference in scaling techniques: a respondent to the FLAP might indicate that her or his family participates at least daily in a certain core activity, e.g., dinner. That respondent might also report the duration of that participation. In this imaginary case, assume that the duration response is less than one hour. In the ordinal-level scaling technique, that person would receive an item score of 4 (at least daily) x 1 (less than one hour) = 4. Over the course of a year, however, the family would eat dinner together daily for each of 365 days; thus, the ratio-level approximation scaling technique results in an item score of 365 (at least daily) x 1 (less than one hour) = 365. Table 15 provides further examples of conversions of the FLAP and transformed scores. Similar to Techniques 1 and 2, the researcher formulated index scores for each location by summing the products of frequency (days) and duration (hours) scores, averaged across raters. This result in a ratio-level measure of hours of participation in each of the four locations: Indoor-Home, Outdoor-Home, Community, and Beyond-Community.

Table 13.

Conversion of Ordinal Data to Ratio Data for Scaling Frequency Variable of the FLAP

Responses for Frequency	Ordinal Value	Ratio Value*
At least daily	4	365
At least weekly	3	52
At least monthly	2	12
At least annually	1	1
No participation	0	0

*Ratio-level approximation value represents the number of days for 1 year with corresponding frequency response

Table 14.

Conversion of Ordinal Data to Ratio Data for Scaling Duration Variable of the FLAP

Responses for Duration	Ordinal Value	Ratio Value*
No participation	0	0
< 1 hrs	1	1
1-2 hrs	2	2
2-3 hrs	3	3
3-4 hrs	4	4
4-5 hrs	5	5
5-6 hrs	6	6
6-7 hrs	7	7
7-8 hrs	8	8
8-9 hrs	9	9
9-10 hrs	10	10
> 10 hrs	11	10
> 1 day	12	18
1 day	12	24
2 day	13	48
3 day	14	72
4 day	15	96
5 day	16	120
6 day	17	144
7 day	18	168
8 day	19	192
9 day	20	216
10 day	21	240
11 day	22	264
12 day	23	288
13 day	24	312
14 day	25	336
15 day	26	360
16 day	27	384
17 day	28	408
18 day	29	432
19 day	30	456
20 day	31	480
One week	18	168
Two week	25	336
Three or more weeks	32	504

*Ratio-level approximation value represents the number of hours with corresponding frequency response.

Table 15.

Sample Conversions of Ordinal FLAP Score vs. Ratio Approximation FLAP Score

Response to FLAP		Ordinal Value			Ratio-Approximation Value		
Frequency	Duration	Frequency	Duration	Score	Frequency	Duration	Score
At least daily	>1 hr	4	1	4	365	1	365
At least daily	2-3hrs	4	3	12	365	3	1095
At least weekly	>1 hr	3	1	3	52	1	52
At least weekly	2-3hrs	3	3	9	52	3	156
At least monthly	2-3 hrs	2	3	6	12	3	36
At least monthly	1 day	2	12	24	12	24	288
At least annually	1 day	1	12	12	1	24	24
At least annually	7 days	1	18	18	1	168	168

* "Score" is the multiplicative result of frequency and duration values

Data Analyses

Reliability under each of the three scaling techniques was examined through intraclass correlation, inter-rater (i.e., parent and child) agreement, and generalizability theory analyses (i.e., G-study, and D-study) (Shavelson & Webb, 1991). Validity of inferences that can be made from FLAP scores under the three scaling techniques was examined through multitrait-multimethod matrix (MTMM) (Campbell and Fiske, 1959) and confirmatory factor analysis (CFA) (Kline, 2005).

Descriptive Statistics. Means, standard deviations, skewness, and kurtosis were calculated to evaluate the family leisure measures per the FLAP scaling technique. Descriptive statistics were based on averaged scores per family. Normality of the distributions was evaluated in terms of skewness and kurtosis. Lewis-Beck (1995) suggested that skewness values less than an absolute value of .80 remain consistent with

a normal distribution. Acock's (2010) suggested that kurtosis values of 3 are consistent with a normal distribution.

Reliability. Internal structure analysis (Pedhazur, 1991) of the FLAP index involved estimation of reliability based on the consistency of ratings of core and balance family leisure by parents and their children. The conventional estimation of reliability through internal consistency (ordinarily through Cronbach's alpha) does not offer an appropriate approach (discussed in Chapter 1). Three techniques were used: intraclass correlation coefficients (ICC), absolute value of differences between parent and child scores (i.e., $|Parent - Child|$), and Pearson correlations. Generalizability theory (i.e., G-study and D-study) was used to estimate reliability (reproducibility) coefficients under various measurement scenarios (i.e., different numbers of items and raters) (Cronbach, Gleser, Nanda, & Rajaratnam, 1972; Shavelson & Webb, 1991).

ICC is a measure of the degree to which raters (in the case of this study, parents and their children) give similar ratings to each item. As with the Pearson correlation, an ICC 1.0 indicates perfect agreement and an ICC of 0 indicates no relation between parent and child ratings within families. Objects of measurement with intraclass correlations between .00 and <.10 represent no agreement; .10 and <.39 represent slight agreement; .40 and <.60 represent fair agreement; .60 and <.80 represent moderate agreement; and above .80 represent substantial agreement (Shrout, 1998).

Generalizability theory analysis involves two phases. First, a "G" study is conducted to estimate the relative contributions to variance of the facets of measurement. In the case of the current study, the facets of measurement are raters and items. Two

raters (i.e., a parent and a child) rated the behavior of the family on each item. Raters were nested within families and both a parent and her or his child completed ratings of each item on the FLAP components. Consequently, sources of variance evaluated were "items" and "raters within families;" the design was a nested, two-facet *(r:f) x i* design.

Variance components estimated through the G study were used in a "D" study to estimate reliability under various measurement scenarios. In addition to the scenario used for this study (i.e., two raters and a number of items equal to those on each FLAP subscale), reliability for hypothetical scenarios using other numbers of items and raters was estimated, up to a reliability estimate (E(ρ)) of .90 or greater. G and D studies were conducted for each of the three scaling techniques.

Validity. The internal-structure and cross-structure of FLAP measures based on the three scaling techniques (Pedhazur, 1991), was evaluted through a multitrait-multimethod matrix (MTMM) (Campbell & Fiske, 1959) and confirmatory factor analysis (Kline, 2005). A MTMM is a matrix of Pearson correlations that follow from administration of different measurement techniques of the same sets of variables. Construct validity is reflected in patterns of correlations ("validity coefficients") in the matrix. Specifically, correlations between concepts that are theoretically related (i.e., convergent validity) should be higher than the correlations between concepts that are not related (i.e., discriminant validity). Researchers sometimes place reliability coefficients (i.e., estimates of correlation between measured variables and hypothetical true scores) in the principal diagonal of the matrix. By the Campbell and Fiske (1959) standards, substantial evidence of validity exists when (a) all validity coefficients in the validity

diagonals relating the same concept measured through different techniques significantly differ from zero, (b) all coefficients in the validity diagonals are higher than other values in the same hetero-method block, and (c) validity coefficients are higher than all coefficients in the heterotrait-monomethod triangles.

The MTMM also facilitates examination of relations between scores on measures of interest (e.g., core and balance) and measures either theoretically or conceptually related (e.g., family cohesion and family adaptability) (Pedhazur, 1991). Correlations (i.e., effect sizes) should be large enough to warrant further research. Cohen (1988, 1992) suggests the following benchmarks of effect size: small (r = .10), medium (r = .30), and large (r = .50). Yet, effect sizes should also be considered in the context of the research (Baguley, 2004; Lenth, 2001). Thus, overall, MTMM produces validity coefficients (i.e., evidence of validity) from which inferences can be made from scores on the measures of interest.

Confirmatory factor analysis (CFA) was used to evaluate the extent to which *a priori* FLAP scaling techniques per item offered an acceptable fit for the data (Kline, 2005). Four fit indices were calculated (Mueller & Hancock,2008): the normed χ^2 test, the standardized root mean square residual (SRMR; absolute index), the root mean square error of approximation (RMSEA), and the comparative fit index (CFI). Small χ^2 values indicate a good fit, reflecting the small discrepancy between the structure of the observed data and the hypothesized model. Research does not provide clear guidelines on normed chi-squared (χ^2 / df) (Kline, 2005), but Bollen (1989) presented supporting evidence of normed chi-squares as high as 5.0, resulting in a reasonable fit. Therefore,

additional fit indices are considered in the present analysis. The SRMR is similar to the χ^2 in that fit improves as more parameters are added to the model and degrees of freedom decrease, with SRMR values < .10 considered to be favorable. The RMSEA reflects how close the model fit approximates a reasonably fitted model, and indicates good model fit with values < .05. The CFI indices compare the hypothesized model to a "null" or worst fitting model. Taking into account model complexity, CFI values of >.90 indicate increasing good fit as they approach an upper bound of 1. Finally, the magnitude and significance of the standardized regression coefficients representing the association between the items and their respective factors were evaluated. Evidence of validity is present if these coefficients are statistically significant and of at least modest strength..

CHAPTER III

RESULTS

Having surveyed the significant contributions of past research and outlined the methodological approach of the present study, a thorough discussion of the results is now in order. Assessing the reliability and validity of three distinct FLAP scaling techniques served as the primary objective for this study. To this end, this project proceeded to analyze each of these techniques using the same procedures: calculating for each technique the descriptive statistics, reliability estimates, and validity coefficients. This chapter summarizes the results of these analyses and is organized into four sections. The first section presents the results of Technique 1: Incongruity Affordances of Recreation Activities. The second offers the results of Technique 2: Incongruity Affordances of Recreation Locations. The third section presents the results of Technique 3: Incongruity Affordances of Recreation Location using Ratio-Level Approximations. The final section provides a comparison of techniques. A discussion of these results will be provided in the next chapter.

Research Question 1: Incongruity Affordances of Recreation Activities

Descriptive Statistics. Table 16 presents the means, standard deviations, skewness, and kurtosis of family leisure and family functioning variables. The skewness of all twelve variables registered less than .80, ranging from -.29 (Parent Adaptability) to .55 (Child Core). Six of the twelve variables had kurtosis values much lower than Acock's (2010) suggested criterion of 3. The Parent Core (3.11) and Parent Balance

(3.11) resulted in the largest kurtosis and the measure of Child Adaptability (1.83) the smallest. As a result, many distributions thus appear slightly platykurtic.

Reliability. This section presents the results of the reliability of Technique 1. Reliability was assessed using inter-rater agreement, G-study, and D-study.

Inter-rater Agreement. Table 17 displays the mean absolute deviation, intraclass correlation coefficients (ICC), and Pearson correlation coefficients for individual items of the FLAP index, as well as the core family leisure index score and balance leisure index scores. The ICC for parent and child was .89 for the overall FLAP index (i.e., total family leisure, FLAP items 1-16). The Pearson correlation between parent and child ratings was .80 and the average absolute deviation was 14.36 (SD = 12.88). These values indicate acceptable levels of reliability of the index for research purposes.

Table 16.

Descriptive Statistics for Technique 1

	X	SD	Skewness	Kurtosis
Core				
Parent	34.85	13.62	0.48	3.11
Child	32.75	14.45	0.55	3.00
Family	33.80	12.87	0.50	3.03
Balance				
Parent	43.49	21.57	0.40	3.11
Child	43.25	22.25	0.24	2.81
Family	43.37	20.79	0.29	2.96
Cohesion				
Parent	4.55	1.67	0.03	2.36
Child	3.98	1.78	0.51	2.36
Family	4.27	1.61	0.31	2.37
Adaptability				
Parent	4.56	1.62	-0.29	2.05
Child	4.13	1.79	0.16	1.83
Family	4.34	1.51	-0.01	2.08

For the core dimension of the FLAP, the ICC was to .81. Home-based activities resulted in the highest deviation between parent and child scores (mean absolute deviation= 3.18, ICC = .68). Religious/spiritual activities resulted in the lowest deviation between parent and child (mean absolute deviation= .42; ICC=.90). The Pearson correlation between parent and child ratings was .68, with correlations ranging from .49 to .83 among the individual items on the core index. For the balance dimension of the FLAP, the ICC was .89. Tourism activities represented the individual item with the highest deviation between parent and child scores (mean absolute deviation= 3.28, ICC = .82). Outdoor adventure activities had the lowest mean deviation between parent and child (mean absolute deviation= .39; ICC=.75). The Pearson correlation between parent and child ratings was .68, and the correlations ranged from .49 to .82 among the individual items on the core index.

G-study. Table 18 presents the results of the G-study. Raters introduced the least amount of variance to core and balance leisure scores. Specifically, only (a) 2% of the variance of core leisure index scores and (b) 1% of the variance of balance leisure index scores can be attributed to raters (i.e., parent-child agreement). The 8 FLAP items for core (36%) and the 8 FLAP items for balance (41%) provided the major sources of variance. The family-by-FLAP item interaction was the next major source of variance (core- 27%; balance-37%).

Table 17.

Parent-Child Inter-Rater Agreement for Technique 1

	Mean Absolute Deviation	Abs. Dev. Std. Dev.	Actual Dev. Max.	Possible Dev. Max.	% of Deviation	Intraclass Correlation Absolute Agreement Parent & Child	Pearson Correlation Parent & Child
Core	*8.48*	*7.67*	*47*	*360*	*2%*	*0.81*	*0.68*
Item 1: Dinner	0.69	1.49	11	24	3%	0.72	0.55
Item 2: Home-Based Activities	3.18	3.87	40	48	7%	0.68	0.51
Item 3: Games	2.17	2.79	24	48	5%	0.76	0.56
Item 4: Crafts, Cooking, or Hobbies	1.82	2.68	24	48	4%	0.79	0.61
Item 5: Home-based Outdoor Activities	2.35	2.89	30	48	5%	0.74	0.53
Item 6: Home-based Sport/Games Activities	1.84	2.71	20	48	4%	0.65	0.54
Item 7: Attend Family Member Activities	2.37	3.04	24	48	5%	0.61	0.49
Item 8: Religious/Spiritual Activities	0.42	1.39	9	48	1%	0.90	0.82
Balance	*9.57*	*9.95*	*56*	*784*	*1%*	*0.89*	*0.80*
Item 9: Community Social Activities	2.63	3.02	30	48	5%	0.61	0.47
Item 10: Spectator Activities	1.77	2.46	22	48	4%	0.77	0.62
Item 11: Community Sporting Activities	1.68	2.65	20	48	4%	0.70	0.57
Item 12: Community Special Events	2.75	4.14	26	128	2%	0.78	0.68
Item 13: Outdoor Activities	2.32	5.15	33	128	2%	0.86	0.80
Item 14: Water-based Activities	0.41	2.08	24	128	< 1%	0.88	0.83
Item 15: Outdoor Adventure Activities	0.39	2.19	26	128	< 1%	0.75	0.65
Item 16: Tourism Activities	3.28	6.45	39	128	3%	0.82	0.76

Table 18.

G-study for Technique 1

Source of Variation	Core Family Leisure		Balance Family Leisure	
	Estimated Variance Component	Percentage of Total Variance	Estimated Variance Component	Percentage of Total Variance
Families (*f*)	1.43	7%	3.19	5%
Raters (*r*): Families *(f)*	0.34	2%	0.33	1%
Items *(i)*	6.91	36%	24.81	41%
fi	5.21	27%	22.55	37%
r:fi,e	5.42	28%	9.25	15%

D-study. D-study applies the information from G-study in order to estimate reliability under different measurement scenarios for future studies (Shavelson & Webb, 1991). Table 19 (core) and Table 20 (balance) present the results of the D-study. These tables compare possible study designs of 1 rater, 2 raters, and 3 raters with different numbers of FLAP index items. The results of the present core and balance study offer perhaps the greatest importance for the present study—1 parent and 1 child with 8 items for core family leisure and 8 items for balance family leisure. The D-study analysis showed for 8 core leisure index items and 2 raters a generalizability coefficient (analogous to reliability coefficient in classical test theory) of .88. Additionally, results indicated for 8 balance leisure index items and 2 raters a generalizability coefficient of .87. Of particular interest were the results for scenarios using one rater instead of two. The 1 rater and 8 items scenario yielded an E(ρ) of.74 for core and E(ρ) =.79 for balance. These results suggest that reliable measures will likely result from the use of only one rater in future studies.

Table 19.

D-study Results for Core Family Leisure

		G study	*Alternative D Studies: Core Family Leisure*							
	Raters:	1	1	1	1	**2**	2	2	2	3
Source of Variation	Items:	1	8	16	24	**8**	10	12	16	8
Families (*f*)		1.43	1.43	1.43	1.43	**1.43**	1.43	1.43	1.43	1.43
Raters (*r*): Families *(f)*		0.34	0.34	0.34	0.34	**0.17**	0.17	0.17	0.17	0.11
Items *(i)*		6.91	0.86	0.43	0.29	**0.86**	0.69	0.58	0.43	0.86
fi		5.21	0.65	0.33	0.22	**0.65**	0.52	0.43	0.33	0.65
r:fi,e		5.42	0.68	0.34	0.23	**0.34**	0.27	0.23	0.17	0.23
Generalizability		0.11	0.74	0.79	0.80	**0.88**	0.90	0.92	0.93	0.92

*Bolded highlights the current study design.

Table 20.

D-study for Balance Family Leisure

		G study	*Alternative D Studies: Balance Family Leisure*							
	Raters:	1	1	1	1	**2**	2	2	2	3
Source of Variation	Items:	1	8	16	24	**8**	10	12	16	8
Families (*f*)		3.19	3.19	3.19	3.19	**3.19**	3.19	3.19	3.19	3.19
Raters (*r*): Families *(f)*		0.33	0.33	0.33	0.33	**0.17**	0.17	0.17	0.17	0.11
Items *(i)*		24.81	3.10	1.55	1.03	**3.10**	2.48	2.07	1.55	3.10
fi		22.55	2.82	1.41	0.94	**2.82**	2.25	1.88	1.41	2.82
r:fi,e		9.25	1.16	0.58	0.39	**0.58**	0.46	0.39	0.29	0.39
Generalizability		0.09	0.79	0.88	0.89	**0.87**	0.91	0.93	0.95	0.89

*Bolded highlights the current study design.

Validity. This section presents the results of validity for Technique 1. Validity was assessed using multitrait-multimethod matrix and confirmatory factor analysis.

Multitrait-Multimethod Matrix. Table 21 presents a MMTM involving multiple methods (i.e., raters) of assessing multiple traits (i.e., core, balance, cohesion, and adaptability). The reliability diagonal is not presented here. According to standards set by the Campbell and Fiske (1959), substantial evidence of validity of the core and balance measures exists when: (a) all validity coefficients in the validity diagonals significantly differed from zero, (b) all coefficients in the validity diagonals were higher than other values in the same hetero-method block, and (c) validity coefficients were higher than all coefficients in the heterotrait-monomethod triangles. For example, the correlation between parent core and child core (r = .68) and the correlation between parent balance and child balance (r = .80) were larger than correlations between parent core and child balance (r = .36) and the correlation between parent balance and child core (r = .34). These relationships indicated that the concept of core differs from the concept of balance. These results provided evidence of construct validity; specifically, that core family leisure and balance family leisure represent separate but correlated concepts.

The MMTM also provided information about criterion-related evidence of validity. The Core and Balance Model of Family Functioning hypothesizes that (a) core family leisure serves as a significant predictor of family cohesion and (b) balance family leisure as a significant predictor of family adaptability. Core family leisure correlated with family cohesion (r = .34, p< .001), and balance family leisure correlated with

Table 21.

Modified Multitrait-Multimethod Matrix for Technique 1

		Parent				Child				Family			
		1	2	3	4	5	6	7	8	9	10	11	12
Parent													
1	Core	1.00											
2	Balance	0.41	1.00										
3	Cohesion	**0.33**	**0.29**	1.00									
4	Adaptability	**0.27**	**0.21**	0.63	1.00								
Child													
5	Core	***0.68***	0.34	0.29	0.25	1.00							
6	Balance	0.36	***0.80***	0.34	0.27	0.37	1.00						
7	Cohesion	0.26	0.25	***0.74***	0.54	**0.29**	**0.30**	1.00					
8	Adaptability	0.21	0.12	0.46	***0.58***	**0.29**	**0.16**	0.57	1.00				
Family													
9	Core	***0.91***	0.41	0.34	0.29	***0.92***	0.40	0.30	0.27	1.00			
10	Balance	0.41	***0.95***	0.33	0.26	0.37	***0.95***	0.29	0.15	0.43	1.00		
11	Cohesion	0.32	0.29	***0.93***	0.62	0.31	0.34	***0.94***	0.55	**0.34**	**0.33**	1.00	
12	Adaptability	0.27	0.18	0.61	***0.88***	0.31	0.24	0.62	***0.90***	**0.31**	**0.22**	0.66	1.00

Bolded Italicized items highlight construct validity. **Bolded** items highlight cross-structure validity.

**All coefficients significant at the $p = .05$ level.

family adaptability (r = .22, p< .001). However, the core family leisure also correlated with family adaptability (r = .33, p< .001), and balance family leisure with family cohesion (r = .34, p< .001). Additionally, core family leisure was more strongly related to family adaptability (r = .31, p< .001) than balance family leisure's relation with family adaptability (r = .22, p< .001). These results suggested criterion-related evidence of validity of core and balance family leisure, in that higher core and balance scores correspond to higher levels of family functioning. Results are not, however, consistent with the specific hypotheses that link core and balance family leisure patterns with family cohesion and family adaptability.

Confirmatory Factory Analysis. A two factor-model was tested. Eight items were expected to load on Core, and eight items were expected to load on Balance. Technique 1 in Table 22 presents fit statistics related to this analysis. Evidence of fit was mixed. The chi-square to degrees of freedom was very slightly beyond Bollen's (1989) standard of acceptable fit (i.e., 5.0), at 5.08 (χ^2 = 523.30, df = 103). The CFI of .74 indicates poor fit. SRMR (.06) remained in a range indicative of acceptable fit, as did RMSEA (.07). Collectively, these findings provide a degree of support for the two-factor model, but they do not firmly establish the two factor model as a compelling fit to the data.

Table 22.

Confirmatory Factor Analysis Technique 1

	χ^2 ratio	χ^2	DF	SRMR	RMSEA	CFI
Technique 1	5.08	523.30	103	0.06	0.07	0.74

Factor loadings are also important in evaluating fit of a model. Indicators (i.e., FLAP items) should, of course, load on the respective latent variable they are intended to measure (i.e., core family leisure and balance family leisure). Figure 6 presents standardized factor loadings. The strongest factor loadings for core family leisure included the following: home-based outdoor activities (β= .57), home-based sport/games activities (β= .57), and games (β= .56). Religious/spiritual activities were the weakest factor loadings for core family leisure (β= .11). Spectator activities produced the strongest factor loading for balance family leisure (β= .62). Water-based activities had the weakest factor loading (β= .15).

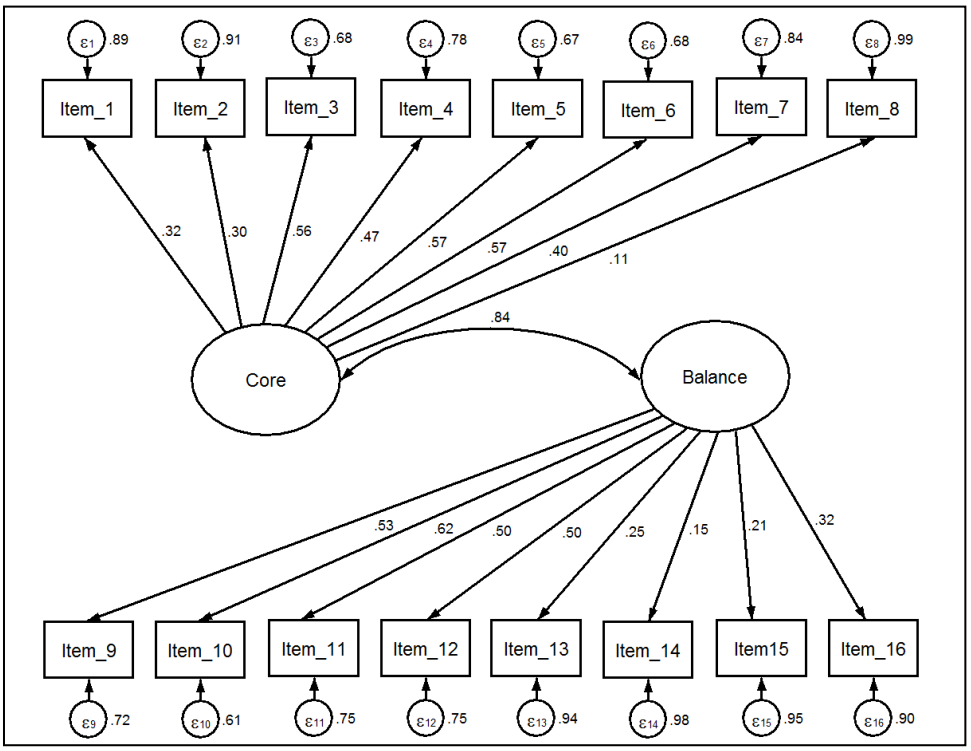


Figure 6. Confirmatory Factor Analysis of Technique 1

Research Question 2: Incongruity Affordances of Recreation Location

Descriptive Statistics. Technique 2 resulted in measures of four variables (Indoor- Home Location, Outdoor-Home Location, Community Location, and Beyond-Community Location) rather than only two variables (Core and Balance). Table 23 presents the means, standard deviations, skewness, and kurtosis for each family leisure dimension for parent, child, and family. The skewness of eleven of the twelve family leisure variables came to less than .80, ranging from .42 (Family Community) to .99 (Child Outdoor-Home). Seven of the twelve variables had kurtosis values much higher than Acock's (2010) suggested criterion of 3. Child Outdoor-Home (4.65) served as the largest kurtosis with the smallest being the measure of Family Community (2.87). Many distributions were slightly leptokurtic.

Reliability. This section turns to a discussion of the results on reliability for Technique 2. Reliability was assessed using inter-rater agreement, G-study, and D-study.

Inter-rater Agreement. Table 24 presents the mean absolute deviation, intraclass correlation coefficients (ICC), and Pearson correlation coefficients for the individual items of the FLAP index, as well as the core family leisure index score and balance leisure index scores. For the Indoor-Home Location dimension, the ICC was.78. The item with the highest mean deviation between parent and child score was home-based activities (absolute deviation= 3.18, ICC = .68), and the item with the lowest mean deviation between parent and child was dinner (mean absolute deviation= .69; ICC=.72). The Pearson correlation between parent and child ratings was .64,

Table 23.

Descriptive Statistics of Technique 2

	X	SD	Skewness	Kurtosis
Indoor-Home				
Parent	23.14	9.16	0.71	3.61
Child	22.79	9.64	0.75	3.93
Family	22.96	8.50	0.68	3.63
Outdoor-Home				
Parent	7.04	5.46	0.68	3.34
Child	6.75	5.90	0.99	4.65
Family	6.89	5.11	0.64	3.02
Community				
Parent	25.04	12.99	0.68	3.74
Child	23.60	12.97	0.47	3.13
Family	24.32	12.05	0.42	2.87
Beyond-Community				
Parent	23.13	15.71	0.66	3.82
Child	22.86	15.87	0.52	3.35
Family	22.99	14.99	0.57	3.56

Table 24.

Parent-Child Inter-Rater Agreement for Technique 2

	Mean Absolute Deviation	Abs. Dev. Std. Dev.	Actual Dev. Max.	Possible Dev. Max.	% of Deviation	Intraclass Correlation Absolute Agreement Parent & Child	Pearson Correlation Parent & Child
Indoor-Home	*5.73*	*5.60*	*37*	*168*	*3%*	*0.78*	*0.64*
Item 1: Dinner	0.69	1.49	11	24	3%	0.72	0.55
Item 2: Home-Based Activities	3.18	3.87	40	48	7%	0.68	0.51
Item 3: Games	2.17	2.79	24	48	5%	0.76	0.56
Item 4: Crafts, Cooking, or Hobbies	1.82	2.68	24	48	4%	0.79	0.61
Outdoor-Home	*3.43*	*3.64*	*33*	*96*	*4%*	*0.76*	*0.62*
Item 5: Home-based Outdoor Activities	2.35	2.89	30	48	5%	0.74	0.53
Item 6: Home-based Sport/Games Activities	1.84	2.71	20	48	4%	0.65	0.54
Community	*6.97*	*6.78*	*66*	368	*2%*	*0.83*	*0.73*
Item 7: Attend Family Member Activities	2.37	3.04	24	48	5%	0.61	0.49
Item 8: Religious/Spiritual Activities	0.42	1.39	9	48	1%	0.90	0.82
Item 9: Community-based Social Activities	2.63	3.02	30	48	5%	0.61	0.47
Item 10: Spectator Activities	1.77	2.46	22	48	4%	0.77	0.62
Item 11: Community-based Sporting Activities	1.68	2.65	20	48	4%	0.70	0.57
Item 12: Community-based Special Events	2.75	4.14	26	128	2%	0.78	0.68
Beyond-Community	*5.55*	*8.23*	*50*	*512*	*1%*	*0.89*	*0.80*
Item 13: Outdoor Activities	2.32	5.15	33	128	2%	0.86	0.80
Item 14: Water-based Activities	0.41	2.08	24	128	< 1%	0.88	0.83
Item 15: Outdoor Adventure Activities	0.39	2.19	26	128	< 1%	0.75	0.65
Item 16: Tourism Activities	3.28	6.45	39	128	3%	0.82	0.76

Correlations ranged from .51 to .61 among the individual items on the home, indoors index. For the Outdoor-Home Location dimension, the ICC was .76. Home-based outdoor activities had the highest mean deviation between parent and child scores (mean absolute deviation= 2.35, ICC = .74). Home-based sports/games activities had the lowest mean deviation between parent and child (mean absolute deviation= 1.84; ICC=.65). The Pearson correlation between parent and child ratings was .62. Pearson correlations ranged from .53 to .54 among the individual items on the outside of the home index.

For the Community Location dimension of the FLAP, the ICC was .83. Community-based social events was the individual item with the highest mean deviation between parent and child scores (mean absolute deviation= 2.75, ICC = .78). Religious/ spiritual activities had the lowest mean deviation between parent and child (mean absolute deviation= .42; ICC=.61). The Pearson correlation between parent and child ratings was .73. Pearson correlations ranged from .47 to .82 among the individual items on the Community index. For the Beyond-Community Location dimension, the ICC was .89. Tourism activities was the individual item with the highest mean deviation between parent and child scores (mean absolute deviation= 3.28, ICC = .82), while outdoor adventure activities was the individual item with the lowest mean deviation between parent and child (mean absolute deviation= .39; ICC=.75). The Pearson correlation between parent and child ratings was .80, with correlations ranging from .65 to .83 among the individual items on the core index.

G-study. Table 25 presents the results of the G-study for Technique 2. Raters introduced the least amount of variance to family recreation location dimensions scores.

Specifically, only (a) 3% of the variance of Indoor-Home index scores, (b) 1% of the variance of Outdoor-Home index scores, (c) 0% of the variance of Community index scores, and (d) 0% of the variance of Beyond-Community were attributed to raters (i.e., parent-child agreement). The major sources of the variance differed by dimension. For the Indoor-Home Location dimension, FLAP items served as the major source of variance (37%). For Outdoor-Home Location dimension, error variance was the major source of variance (43%), followed by families (24%). For Community Location dimension, the family by FLAP item interaction (60%) resulted in the major source of variance, and all facets of the technique accounted for the variance with no variance being attributed to error (0%) or rater (0%). For Beyond-Community Location dimension, items (52%) served as the major source of variance, and all facets of the technique accounted for the variance with no variance being attributed to error (0%) or rater (0%).

D-study. Table 26 (Indoor-Home Location), Table 27 (Outdoor-Home Location), Table 28 (Community Location), and Table 29 (Beyond-Community Location) display the results of D-studies. For Indoor-Home Location measure, the present study used 1 parent and 1 child with 4 items. The results of the D-study analysis showed that 4 Indoor-Home Location index items and 2 raters produced a generalizability coefficient of .80. For Outdoor-Home Location measure, the present study used 1 parent and 1 child with 2 items. In this case, the results of the D-study

Table 25.

G-study for Technique 2

	Indoor-Home		Outdoor-Home		Community		Beyond-Community	
Source of Variation	Estimated Variance Component	Percentage of Total Variance	Estimated Variance Component	Percentage of Total Variance	Estimated Variance Component	Percentage of Total Variance	Estimated Variance Component	Percentage of Total Variance
Families (*f*)	2.20	10%	3.39	24%	2.48	11%	3.44	3%
Raters (*r*): Families *(f)*	0.56	3%	0.09	1%	0.00	0%	0.00	0%
Items *(i)*	8.10	37%	1.39	10%	6.15	28%	56.01	52%
fi	5.28	24%	3.16	22%	13.19	60%	47.98	45%
r:fi,e	5.78	26%	6.07	43%	0.00	0%	0.00	0%

Table 26.

D-study for Indoor-Home Location

		G study	*Alternative D Studies: Indoor-Home Location*							
	Raters:	1	1	1	1	**2**	2	2	3	3
Source of Variation	Items:	1	4	16	24	**4**	8	16	3	4
Families (*f*)		2.2	2.2	2.2	2.2	**2.2**	2.2	2.2	2.2	2.2
Raters (*r*): Families *(f)*		0.56	0.56	0.56	0.56	**0.28**	0.28	0.28	0.19	0.19
Items *(i)*		8.10	2.03	0.51	0.34	**2.03**	1.01	0.51	2.70	2.03
fi		5.28	1.32	0.33	0.22	**1.32**	0.66	0.33	1.76	1.32
r:fi,e		5.78	1.44	0.36	0.24	**0.72**	0.36	0.18	0.64	0.48
Generalizability		0.16	0.64	0.78	0.79	**0.80**	0.90	0.93	0.75	0.84

*Bolded highlights the current study design.

Table 27.

D-study for Outdoor-Home Location

		G study	*Alternative D Studies: Outdoor-Home Location*							
	Raters:	1	1	1	1	**2**	2	2	3	3
Source of Variation	Items:	1	2	4	6	**2**	3	4	2	3
Families (*f*)		3.39	3.39	3.39	3.39	**3.39**	3.39	3.39	3.39	3.39
Raters (*r*): Families *(f)*		0.09	0.09	0.09	0.09	**0.04**	0.04	0.04	0.03	0.03
Items *(i)*		1.39	0.7	0.35	0.23	**0.7**	0.46	0.35	0.7	0.46
fi		3.16	1.58	0.79	0.53	**1.58**	1.05	0.79	1.58	1.05
r:fi,e		6.07	3.03	1.52	1.01	**1.52**	1.01	0.76	1.01	0.67
Generalizability		0.27	0.59	0.84	0.91	**0.74**	0.86	0.92	0.78	0.89

*Bolded highlights the current study design.

Table 28.

D-study for Community Location

		G study	*Alternative D Studies: Community Location*							
	Raters:	1	1	1	1	2	**2**	2	3	3
Source of Variation	Items:	1	4	6	8	4	**6**	8	6	8
Families (*f*)		2.48	2.48	2.48	2.48	2.48	**2.48**	2.48	2.48	2.48
Raters (*r*): Families *(f)*		0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00
Items *(i)*		6.15	1.54	1.02	0.77	1.54	**1.02**	0.77	1.02	0.77
fi		13.19	3.30	2.20	1.65	3.30	**2.20**	1.65	2.20	1.65
r:fi,e		0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00
Generalizability		0.16	0.75	0.87	0.92	0.75	**0.87**	0.92	0.87	0.92

*Bolded highlights the current study design.

Table 29.

D-study for Beyond-Community Location

		G study	*Alternative D Studies: Beyond-Community Location*							
	Raters:	1	1	1	1	**2**	2	2	3	3
Source of Variation	Items:	1	4	8	12	**4**	8	12	8	12
Families (*f*)		3.44	3.44	3.44	3.44	**3.44**	3.44	3.44	3.44	3.44
Raters (*r*): Families *(f)*		0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00
Items *(i)*		56.01	14.00	7.00	4.67	**14.00**	7.00	4.67	7.00	4.67
fi		47.98	11.99	6.00	4.00	**11.99**	6.00	4.00	6.00	4.00
r:fi,e		0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00
Generalizability		0.07	0.53	0.82	0.91	**0.53**	0.82	0.91	0.82	0.91

*Bolded highlights the current study design.

analysis showed that 2 Outdoor-Home Location items and 2 raters produced a generalizability coefficient of .74. For Community Location measure, the present study used 1 parent and 1 child with 6 items. The results of the D-study analysis displayed that 6 Community Location items and 2 raters produced a generalizability coefficient of .87. Finally, for Beyond-Community Location measure, the present study used 1 parent and 1 child with 4 items. The results of the D-study analysis showed the 4 Beyond-Community Location items and 2 raters resulted in a generalizability coefficient of .53.

Validity. Next, the results of validity for Technique 2 must be addressed. This study assessed validity using multitrait-multimethod matrix and confirmatory factor analysis for Technique 2.

Multitrait-Multimethod Matrix. Table 30 presents a MMTM involving multiple methods (i.e., raters) of assessing multiple traits (i.e., Indoor-Home, Outdoor-Home, etc.). The reliability diagonal is not presented. Using the Campbell and Fiske (1959) standards, substantial evidence of validity of the family recreation location measures exists when: (a) all validity coefficients in the validity diagonals significantly differed from zero, (b) all coefficients in the validity diagonals were higher than other values in the same hetero-method block, and (c) validity coefficients were higher than all coefficients in the heterotrait-monomethod triangles. For example, the correlation between parent Indoor-Home and child Indoor-Home (r = .64) produced a number substantially larger than other non-related item correlations, such as the correlation between parent Indoor-Home and child Outdoor-Home (r = .26) or the correlation between parent Indoor-Home and child Beyond-Community (r = .05). These

relationships throughout the matrix indicated that the family recreation location constructs differed. All together, these results provided evidence of factorial validity; specifically, the four factors of family recreation location were separate but correlated concepts.

In relation to criterion-related evidence of validity, Technique 2 places emphasis on incongruity in the recreation location in conjunction with the Core and Balance Model of Family Functioning. This technique thus hypothesizes that (a) core family leisure (Indoor-Home and Outdoor-Home) serves as a significant predictor of family cohesion and (b) balance family leisure (Community and Beyond-Community) as a significant predictor of family adaptability. In this study, family cohesion was correlated with Indoor-Home (r = .28), Outdoor-Home (r = .25), Community (r = .29), and Beyond-Community (r = .27). Likewise, family adaptability was correlated with Indoor-Home (r = .27), Outdoor-Home (r = .23), Community (r = .22), and Beyond-Community (r = .18). The results of Technique 2 suggested criterion-related evidence of validity and provided new results about the relationship between family recreation locations and family functioning dimensions. Although the results yielded criterion-related evidence of validity, these findings did not fully support the Core and Balance Model of Family Functioning.

Table 30.

Modified Multitrait-Multimethod Matrix for Technique 2

		Parent						Child						Family					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Parent																			
1	Indoor-Home	1.00																	
2	Outdoor-Home	0.30	1.00																
3	Community	0.29	0.45	1.00															
4	Beyond-Comm	0.09	0.29	0.31	1.00														
5	Cohesion	**0.29**	**0.22**	**0.26**	**0.23**	1.00													
6	Adaptability	**0.24**	**0.16**	**0.17**	**0.18**	0.63	1.00												
Child																			
7	Indoor-Home	***0.64***	0.29	0.26	0.07	0.22	0.18	1.00											
8	Outdoor-Home	0.26	***0.62***	0.38	0.22	0.23	0.21	0.35	1.00										
9	Community	0.28	0.40	***0.73***	0.32	0.28	0.23	0.33	0.46	1.00									
10	Beyond-Comm	0.05	0.26	0.27	***0.80***	0.29	0.24	0.08	0.22	0.33	1.00								
11	Cohesion	0.23	0.18	0.20	0.20	***0.74***	0.54	**0.22**	**0.22**	**0.26**	**0.25**	1.00							
12	Adaptability	0.20	0.13	0.12	0.09	0.46	***0.58***	**0.23**	**0.22**	**0.20**	**0.10**	0.57	1.00						
Family																			
13	Indoor-Home	***0.90***	0.32	0.31	0.09	0.28	0.23	***0.91***	0.34	0.34	0.08	0.25	0.24	1.00					
14	Outdoor-Home	0.31	***0.89***	0.46	0.28	0.25	0.21	0.36	***0.91***	0.48	0.27	0.22	0.20	0.37	1.00				
15	Community	0.31	0.46	***0.93***	0.34	0.29	0.22	0.32	0.45	***0.93***	0.32	0.25	0.17	0.35	0.51	1.00			
16	Beyond-Comm	0.07	0.29	0.30	***0.95***	0.27	0.22	0.08	0.23	0.34	***0.95***	0.24	0.10	0.09	0.29	0.35	1.00		
17	Cohesion	0.28	0.22	0.25	0.23	***0.93***	0.62	0.24	0.24	0.29	0.29	***0.94***	0.55	**0.28**	**0.25**	**0.29**	**0.27**	1.00	
18	Adaptability	0.25	0.16	0.16	0.15	0.61	***0.88***	0.23	0.24	0.24	0.19	0.62	***0.90***	**0.27**	**0.23**	**0.22**	**0.18**	0.66	1.00

Bolded Italicized items highlight construct validity. **Bolded** items highlight cross-structure validity.

Confirmatory Factory Analysis. In the confirmatory factory analysis, this study tested a four factor model: four items were expected to load on Indoor-Home; two items on Outdoor-Home, six items on Community, and four factors on Beyond-Community. The fit statistics related to Technique 2 are presented in Table 31. These statistics show that evidence of fit was mixed. Typically, a chi-square to degrees of freedom ratio of 5.0 or less suggested a good fit (Bollen, 1989). In this study, however, that ratio resulted in a score lower than this criterion, 3.92 ($\chi^2 = 384.54$, $df = 98$). Additionally, the CFI of .82 is considered too low to indicate an acceptable fit, but the SRMR of .05 is in a range indicative of acceptable fit, as is the RMSEA of .06. These findings present evidence that the four-factor model (Technique 2) offers a better fit than a two–factor model (Technique 1) of the FLAP data; however, the indices of fit of a four-factor model (Technique 2) are not uniformly supportive.

Table 31.

Confirmatory Factor Analysis for Technique 2

	χ^2 ratio	χ^2	DF	SRMR	RMSEA	CFI
Technique 2	3.92	384.54	98	0.05	0.06	0.82

Figure 7 presents standardized factor loadings. In this study, games resulted in the strongest factor loadings for family recreation Indoor-Home ($\beta = .71$), and home-based activities as the weakest factor loadings for family recreation Indoor-Home ($\beta = .41$). On the other hand, factor loadings for family recreation Outdoor-Home remained the same: outdoor activities ($\beta = .60$) and sport/games activities ($\beta = .60$). For family

recreation Community, spectator activities scored as the strongest factor loading (β= .65), and religious/spiritual activities as the weakest (β= .11). As for family recreation Beyond-Community, the strongest factor loadings were outdoor activities (β= .39), water-based activities (β= .39), and outdoor adventure activities (β= .38), with the weakest factor loadings being tourism activities (β= .31).

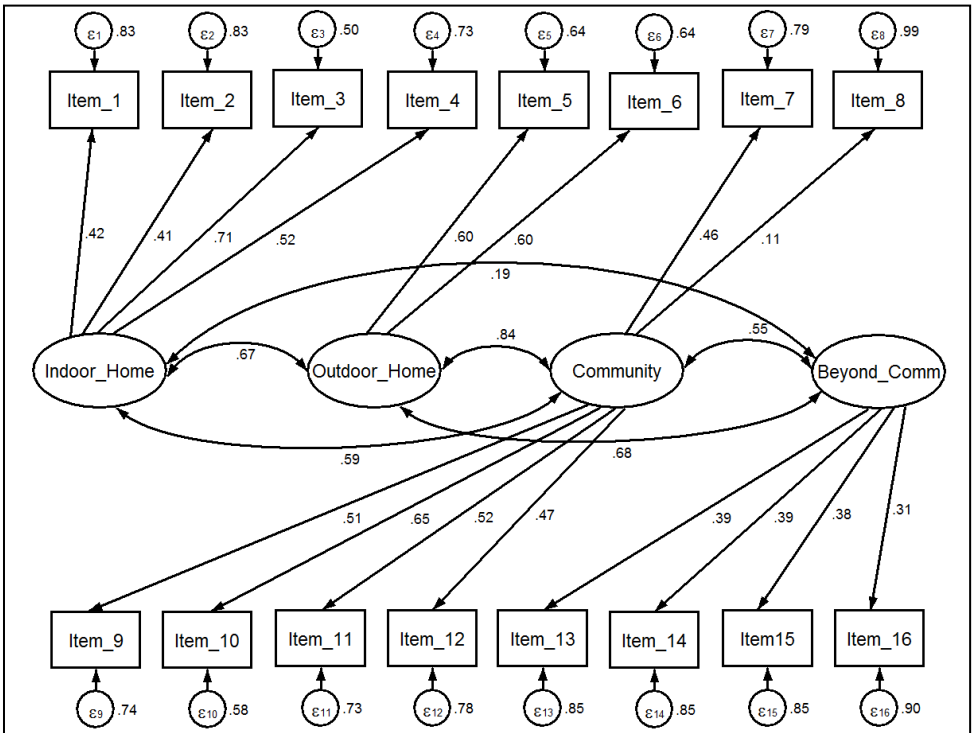


Figure 7. Confirmatory Factor Analysis of Technique 2

Research Question 3: Incongruity Affordances of Recreation Location using Ratio-Level Approximations

Descriptive Statistics. Turning now to the use of Technique 3 in the present study, this particular technique differed from Technique 2 in that the data were transformed to represent hours of participation in recreation activities versus a value of time with no interpretable units of measurement (i.e., ordinal frequency times ordinal duration). Table 32 presents the means, standard deviations, skewness, and kurtosis for each family leisure dimension for parent, child, and family. The skewness of all twelve family leisure variables exceeded the .80 value, and ranged from .97 (Parent-Indoor-Home) to 7.04 (Parent-Beyond-Community). All twelve variables evinced kurtosis values much higher than Acock's (2010) suggested criterion of 3. Kurtosis in this case ranged from 4.48 (Parent-Indoor-Home) to 61.64 (Parent-Beyond-Community). As a result, many distributions appeared positively skewed and leptokurtic.

Reliability. This section presents the reliability results of Technique 3. Reliability was assessed using inter-rater agreement, G-study, and D-study.

Inter-rater Agreement. The first means of assessing reliability is the inter-rater agreement. Table 33 presents the mean absolute deviation, intraclass correlation coefficients (ICC), and Pearson correlation coefficients for individual items of the FLAP index, as well as the core family leisure index score and balance leisure index scores. For the Indoor-Home Location dimension of the FLAP, the ICC resulted in a score of .76. Home-based activities represented the item with the highest mean deviation between parent and child scores (absolute deviation= 344.21, ICC = .69), and crafts, cooking, and

Table 32.

Descriptive Statistics of Technique 3

	X	SD	Skewness	Kurtosis
Indoor-Home				
Parent	1355.13	769.28	0.97	4.48
Child	1418.63	857.81	1.33	7.02
Family	1386.88	730.62	0.99	4.57
Outdoor-Home				
Parent	172.52	274.44	2.86	15.30
Child	190.74	312.79	2.75	11.71
Family	181.63	252.98	2.38	9.70
Community				
Parent	251.82	253.61	2.86	15.53
Child	233.06	265.14	3.21	19.11
Family	242.44	225.12	2.60	14.44
Beyond-Community				
Parent	334.05	649.33	7.04	61.64
Child	303.86	457.70	6.16	58.37
Family	318.96	493.47	5.53	41.50

Table 33.

Parent-Child Inter-Rater Agreement of Technique 3

	Mean Absolute Deviation	Abs. Dev. Std. Dev.	Actual Dev. Max.	Possible Dev. Max.	Percent of Deviation	Intraclass Correlation Absolute Agreement	Pearson Correlation
Indoor-Home	*492.94*	*529.90*	*5,058*	*21,900*	*2%*	*0.76*	*0.61*
Item 1: Dinner	79.53	156.90	730	2,190	4%	0.75	0.61
Item 2: Home-Based Activities	344.21	442.70	5,840	6,570	5%	0.69	0.53
Item 3: Games	122.88	275.18	2,142	6,570	2%	0.57	0.42
Item 4: Crafts, Cooking, or Hobbies	72.59	209.40	1,982	6,570	1%	0.62	0.39
Outdoor-Home	*146.74*	*262.85*	*2,062*	*13,140*	*1%*	*0.64*	*0.48*
Item 5: Home-based Outdoor Activities	106.66	212.08	2,166	6,570	2%	0.65	0.52
Item 6: Home-based Sport/Games Activities	57.68	172.84	1,825	6,570	1%	0.32	0.22
Community	*144.61*	*214.31*	*2,280*	*216,810*	*< 1%*	*0.67*	*0.51*
Item 7: Attend Family Member Activities	39.58	83.86	1,095	6,570	1%	0.50	0.36
Item 8: Religious/Spiritual Activities	12.95	77.38	1,252	6,570	< 1%	0.76	0.61
Item 9: Community-based Social Activities	67.31	128.89	1,424	6,570	1%	0.63	0.46
Item 10: Spectator Activities	20.38	50.91	706	6,570	< 1%	0.55	0.44
Item 11: Community-based Sporting Activities	22.30	70.46	1,035	6,570	< 1%	0.53	0.40
Item 12: Community-based Special Events	32.29	113.46	2,232	183,960	< 1%	0.53	0.39
Beyond-Community	*142.84*	*518.34*	*5,715*	*735,840*	*< 1%*	*0.73*	*0.58*
Item 13: Outdoor Activities	48.34	277.36	5,544	183,960	< 1%	0.86	0.67
Item 14: Water-based Activities	14.00	166.92	4,032	183,960	< 1%	0.69	0.88
Item 15: Outdoor Adventure Activities	6.10	36.89	365	183,960	< 1%	0.74	0.60
Item 16: Tourism Activities	90.21	416.02	5,712	183,960	< 1%	0.57	0.41

hobbies as the item with the lowest mean deviation between parent and child (mean absolute deviation= 72.59; ICC=.62). The Pearson correlation between parent and child ratings resulted in a score of .61, with the correlations ranging from .39 to .61 among the individual items on the Indoor-Home Location index. For the Outdoor-Home Location the ICC resulted in a score of .64. Outdoor-Home Location activities represented the item with the highest mean deviation between parent and child scores (mean absolute deviation=106.66, ICC = .65), and home-based sports/games activities as the item with the lowest mean deviation between parent and child (absolute deviation= 57.68; ICC=.65). The Pearson correlation between parent and child ratings produced a score of .48, with the correlations ranging from .22 to .52 among the individual items on the outside of the home index.

For the Community Location dimension, the ICC was .67. The individual item with the highest mean deviation between parent and child score was community-based social events (mean absolute deviation= 67.31, ICC = .63), and religious/ spiritual activities as the individual item with the lowest mean deviation between parent and child (mean absolute deviation= 12.95; ICC=.76). The Pearson correlation between parent and child ratings resulted in a score of .51. Pearson correlations ranged from .36 to .61 among the individual items on the Community Location index. The Beyond-Community Location dimension of the FLAP produced an ICC of .73. Tourism activities resulted in the individual item with the highest deviation between parent and child scores (absolute deviation= 90.21, ICC = .57), and outdoor adventure activities as the individual item with the lowest mean deviation between parent and child (absolute deviation= 6.10;

ICC=.74). The Pearson correlation between parent and child ratings was .58, with correlations ranging from .41 to .88 among the individual items on the Beyond-Community Location index.

G-study. Table 34 presents the results of the G-study for Technique 3. The results of this analysis revealed that raters introduced the least amount of variance to family recreation location dimensions item scores. Specifically, only (a) 1% of the variance of Indoor-Home Location index scores, (b) 1% of the variance of Outdoor-Home Location index scores, (c) 1% of the variance of Community Location index scores, and (d) 0% of the variance of Beyond-Community Location could be attributed to raters (i.e., parent-child agreement). The major sources of variance differed by dimension. Thus, for Indoor-Home Location dimension, items (47%) served as the major source of variance. For Outdoor-Home Location dimension, error (54%) served as the major source of variance, followed by the family by FLAP item interaction (27%). For Community Location dimension, error (52%) was the major source of variance followed by the family by FLAP item interaction (36%). For Beyond-Community Location dimension, the family by FLAP item interaction (42%) accounted for the major source of variance, and no variance was attributed to rater (0%).

Table 34.

G-study for Technique 3

	Indoor-Home		Outdoor-Home		Community		Beyond-Community	
Source of Variation	Estimated Variance Component	Percentage of Total Variance	Estimated Variance Component	Percentage of Total Variance	Estimated Variance Component	Percentage of Total Variance	Estimated Variance Component	Percentage of Total Variance
Families (*f*)	12159.15	6%	4189.71	11%	338.69	4%	1751.47	3%
Raters (*r*): Families *(f)*	1255.49	1%	218.23	1%	100.27	1%	0.00	0%
Items *(i)*	101047.91	47%	3133.96	8%	617.09	7%	9443.93	14%
fi	45532.53	21%	10352.52	27%	3225.70	36%	29083.19	42%
r:fi,e	54216.77	25%	20738.57	54%	4608.95	52%	28461.09	41%

D-study. Results of the D-studies are presented in Table 35 (Indoor-Home Location), Table 36 (Outdoor-Home Location), Table 37 (Community Location), and Table 38 (Beyond-Community Location). For Indoor-Home Location measure, the present study used 1 parent and 1 child with 4 items. The results of the D-study analysis indicated for 4 Indoor-Home items and 2 raters a generalizability coefficient (analogous to reliability coefficient in classical theory) of .75. For Outdoor-Home Location measure, the present study used 1 parent and 1 child with 2 items. The results of the D-study showed for 2 Outdoor-Home Location items and 2 raters a generalizability coefficient of .52. For Community Location measure, the present study used 1 parent and 1 child with 6 items. The results of the D-study analysis showed for 6 Community Location items and 2 raters a generalizability coefficient of .70. For Beyond-Community Location measure, the present study used 1 parent and 1 child with 4 items. The results of the analysis showed for 4 Beyond-Community Location items and 2 raters a generalizability coefficient of .44.

Table 35.

D-study for Indoor-Home Location using Ratio Approximations

		G study	*Alternative D Studies: Indoor-Home Location*							
Source of	Raters:	1	1	1	1	**2**	2	2	3	3
Variation	Items:	1	4	8	16	**4**	6	8	4	6
Families (*f*)		12,159.15	12,159.15	12,159.15	12,159.15	**12,159.15**	12,159.15	12,159.15	12,159.15	12,159.15
Raters (*r*): Families *(f)*		1,255.49	1,255.49	1,255.49	1,255.49	**627.75**	627.75	627.75	418.5	418.5
Items *(i)*		101,047.91	25,261.98	12,630.99	6,315.49	**25,261.98**	16,841.32	12,630.99	25,261.98	16,841.32
fi		45,532.53	11,383.13	5,691.57	2,845.78	**11,383.13**	7,588.75	5,691.57	11,383.13	7,588.75
r:fi,e		54,216.77	13,554.19	6,777.10	3,388.55	**6,777.10**	4,518.06	3,388.55	4,518.06	3,012.04
Generalizability		0.11	0.62	0.81	0.88	**0.75**	0.86	0.91	0.78	0.89

*Bolded highlights the current study design.

Table 36.

D-study for Outdoor-Home Location using Ratio Approximations

	G study	*Alternative D Studies: Outdoor-Home Location*							
Source of Raters:	1	1	1	1	**2**	2	2	3	3
Variation Items:	1	2	6	8	**2**	4	6	2	4
Families (*f*)	4,189.71	4,189.71	4,189.71	4,189.71	**4,189.71**	4,189.71	4,189.71	4,189.71	4,189.71
Raters (*r*): Families *(f)*	218.23	218.23	218.23	218.23	**109.11**	109.11	109.11	72.74	72.74
Items *(i)*	3,133.96	1,566.98	522.33	391.75	**1,566.98**	783.49	522.33	1,566.98	783.49
fi	10,352.52	5,176.26	1,725.42	1,294.06	**5,176.26**	2,588.13	1,725.42	5,176.26	2,588.13
r:fi,e	20,738.57	10,369.28	3,456.43	2,592.32	**5,184.64**	2,592.32	1,728.21	3,456.43	1,728.21
Generalizability	0.12	0.34	0.79	0.86	**0.52**	0.8	0.9	0.57	0.84

*Bolded highlights the current study design.

Table 37.

D-study for Community Location using Ratio Approximations

Source of Variation		G study	*Alternative D Studies: Community Location*							
	Raters:	1	1	1	1	**2**	2	2	3	3
	Items:	1	6	16	24	**6**	8	16	6	8
Families (*f*)		338.69	338.69	338.69	338.69	**338.69**	338.69	338.69	338.69	338.69
Raters (*r*): Families *(f)*		100.27	100.27	100.27	100.27	**50.13**	50.13	50.13	33.42	33.42
Items *(i)*		617.09	102.85	38.57	25.71	**102.85**	77.14	38.57	102.85	77.14
fi		3,225.70	537.62	201.61	134.4	**537.62**	403.21	201.61	537.62	403.21
r:fi,e		4,608.95	768.16	288.06	192.04	**384.08**	288.06	144.03	256.05	192.04
Generalizability		0.04	0.52	0.72	0.75	**0.70**	0.78	0.89	0.75	0.83

*Bolded highlights the current study design.

Table 38.

D-study for Beyond-Community Location using Ratio Approximations

		G study	*Alternative D Studies: Beyond-Community Location*							
Source of	Raters:	1	1	1	1	**2**	2	2	3	3
Variation	Items:	1	4	12	16	**4**	10	14	4	10
Families (*f*)		1,751.47	1,751.47	1,751.47	1,751.47	**1,751.47**	1,751.47	1,751.47	1,751.47	1,751.47
Raters (*r*): Families *(f)*		0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00
Items *(i)*		9,443.93	2,360.98	786.99	590.25	**2,360.98**	944.39	674.57	2,360.98	944.39
fi		29,083.19	7,270.80	2,423.60	1,817.70	**7,270.80**	2,908.32	2,077.37	7,270.80	2,908.32
r:fi,e		28,461.09	7,115.27	2,371.76	1,778.82	**3,557.64**	1,423.05	1,016.47	2,371.76	948.70
Generalizability		0.03	0.33	0.81	0.89	**0.44**	0.83	0.90	0.46	0.84

*Bolded highlights the current study design.

Validity. This section presents the validity results of Technique 3. Validity was assessed using multitrait-multimethod matrix and confirmatory factor analysis for Technique 3.

Multitrait-Multimethod Matrix. Table 39 presents the results of the MTMM for Technique 3. Again using the Campbell and Fiske (1959) standards, substantial evidence of validity of the family recreation location measures exists for all four measures of family recreation locations: (a) all validity coefficients in the validity diagonals significantly differed from zero, (b) all coefficients in the validity diagonals measured higher than other values in the same hetero-method block, and (c) validity coefficients measured higher than all coefficients in the heterotrait-monomethod triangles. For example, the correlation between parent Indoor-Home Location and child Indoor-Home Location (r = .61) registered substantially larger than other non-related item correlations, such as the correlation between parent Indoor-Home Location and child Outdoor-Home Location (r = .22) or the correlation between parent Indoor-Home Location and child Beyond-Community Location (r = -.02). These relationships throughout the matrix indicated that the family recreation location constructs differed. Collectively, these results provided evidence of construct validity for the 4 factors of family recreation location as separate concepts. In reference to criterion-related validity, the family level of family cohesion correlated with Indoor-Home (r = .22), Outdoor-Home (r = .15), Community (r = .20), and Beyond-Community (r = .16). Likewise, the family level of family adaptability correlated with Indoor-Home (r = .23), Outdoor-Home (r = .16), Community (r = .20), and Beyond-Community (r = .07).

Table 39.

Modified Multitrait-Multimethod Matrix for Technique 3

		Parent						Child						Family					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Parent																			
1	Indoor-Home	1.00																	
2	Outdoor-Home	0.20	1.00																
3	Community	0.20	0.25	1.00															
4	Beyond-Comm	-0.02	0.08	0.11	1.00														
5	Cohesion	**0.20**	**0.12**	**0.17**	**0.09**	1.00													
6	Adaptability	**0.18**	**0.09**	**0.14**	**0.01**	0.64	1.00												
Child																			
7	Indoor-Home	***0.61***	0.13	0.14	-0.04	0.18	0.15	1.00											
8	Outdoor-Home	0.22	***0.48***	0.21	-0.01	0.12	0.11	0.31	1.00										
9	Community	0.18	0.28	***0.51***	0.02	0.15	0.18	0.22	0.32	1.00									
10	Beyond-Comm	-0.02	0.08	0.08	***0.58***	0.21	0.17	-0.02	0.01	0.08	1.00								
11	Cohesion	0.18	0.13	0.16	0.10	***0.73***	0.54	**0.17**	**0.13**	**0.16**	**0.18**	1.00							
12	Adaptability	0.20	0.14	0.15	0.01	0.45	***0.58***	**0.21**	**0.15**	**0.16**	**0.06**	0.58	1.00						
Family											-								
13	Indoor-Home	***0.89***	0.18	0.19	-0.03	0.21	0.18	***0.91***	0.30	0.23	0.02	0.19	0.23	1.00					
14	Outdoor-Home	0.24	***0.84***	0.27	0.04	0.14	0.12	0.26	***0.88***	0.35	0.05	0.15	0.17	0.28	1.00				
15	Community	0.22	0.31	***0.86***	0.07	0.18	0.18	0.21	0.31	***0.87***	0.09	0.18	0.18	0.24	0.36	1.00			
16	Beyond-Comm	-0.02	0.09	0.11	***0.93***	0.15	0.09	-0.03	0.00	0.05	***0.84***	0.15	0.03	-0.03	0.05	0.09	1.00		
17	Cohesion	0.20	0.13	0.18	0.10	***0.93***	0.63	0.19	0.13	0.16	0.21	***0.94***	0.56	**0.22**	**0.15**	**0.20**	**0.16**	1.00	
18	Adaptability	0.21	0.13	0.16	0.01	0.61	***0.88***	0.20	0.15	0.19	0.12	0.63	***0.90***	**0.23**	**0.16**	**0.20**	**0.07**	0.66	1.00

****Bolded Italicized*** items highlight construct validity. **Bolded** items highlight cross-structure validity.

Results suggested criterion-related evidence of validity and provided further information about the results presented in Technique 2 related to the relationship between family recreation locations and family functioning dimensions. Although the technique had criterion-related validity, results did not fully support the Core and Balance Model of Family Functioning hypotheses.

Confirmatory Factory Analysis. In the confirmatory factory analysis, this study tested a four factor model: four items were expected to load on Indoor-Home; two items on Outdoor-Home, six items on Community, and four factors on Beyond-Community. Table 40 presents fit statistics for Technique 3 and provides evidence of a good fit. A chi-square to degrees of freedom ratio of 5.0 or less suggests a reasonable fit (Bollen, 1989). In this case, the chi-square ratio registered at 1.91 ($\chi^2 = 187.66$, $df = 98$) – a score lower than the suggested criterion. The SRMR of .04 and RMSEA of .04 also suggested a close approximate fit. The CFI of .88 represents a score slightly lower than acceptable fit (.90); however, collectively these results provide support for the 4-factor model using naturally occurring units of time as the best fit model compared to other models presented in this study. Additionally, Technique 3 is a good-fit of FLAP index data based on fit indices.

Table 40.

Confirmatory Factor Analysis of Technique 3

	χ^2 ratio	χ^2	DF	SRMR	RMSEA	CFI
Technique 3	1.91	187.66	98	0.04	0.04	0.88

Figure 8 displays standardized factor loadings of Technique 3. With respect to this technique, the factor loadings are not as optimal as those in Technique 2. Games represent the strongest factor loadings for family recreation Indoor-Home Location (β= .53), while crafts, cooking, and hobbies represent the weakest factor loadings for family recreation Indoor-Home Location (β= .421). For family recreation in the Outdoor-Home Location, the strongest factor loading was home-based sport/game activities (β= .49), and the weakest factor loadings home-based outdoor activities (β= .39). For family recreation in the Community Location, community-based sporting activities offered the strongest factor loading (β= .53), and religious/spiritual activities the weakest factor

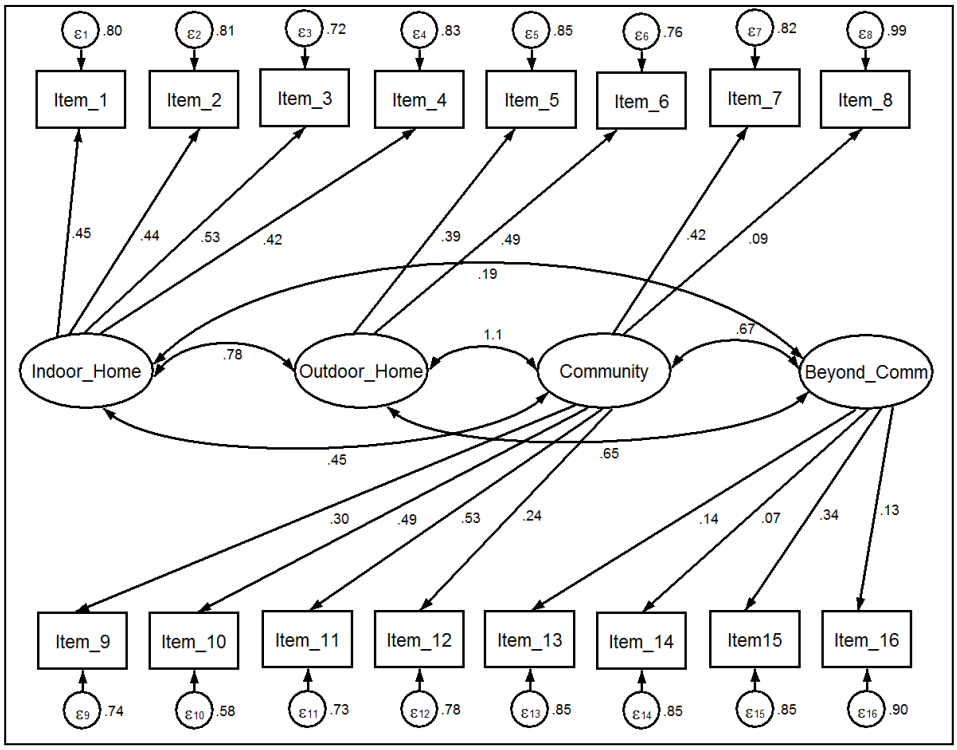


Figure 8. Confirmatory Factor Analysis of Technique 3

loadings (β= .09). Also, for family recreation in the Beyond-Community Location, the strongest factor loadings were outdoor activities (β= .34), water-based activities (β= .39), and outdoor adventure activities (β= .38), and the weakest factor loadings was water-based activities (β= .07).

Comparison of Techniques

Thus far, this chapter analyzed Techniques 1 through 3 in a consistent manner to examine reliability and validity of measures using FLAP index data. The present section provides a comparison of the Techniques assessed up to this point. Table 41 presents collective results of reliability and validity for Techniques 1, 2, and 3; Table 42 displays structure coefficients of CFA per FLAP index item – each of which contain statistics, already presented throughout this chapter. The goal of the tables offered here is to highlight key statistics in order that the reader may easily compare the Techniques.

Overall, no one technique offers an exceedingly better technique than any of the others, as all have different strengths and weaknesses. For example, Technique 1 has normal distribution of data, acceptable inter-rater agreement and reliability coefficient, and the strongest criterion-related validity coefficients. But fit indices of CFA are not optimal in this case. Likewise, Technique 2 has normal distribution of data, acceptable inter-rater agreement and reliability coefficient, and good criterion-related validity coefficients. In this case, the fit indices of CFA are still not optimal, although they are better than Technique 1. The structure coefficients in CFA in Technique 2, however, were the best among the three techniques. Lastly, Technique 3 shows asymmetrical distribution of data, inter-rater agreement and reliability coefficients that are not optimal,

and the least favorable criterion-related coefficients; however, Technique 3 remains within the range of acceptable fit indices from CFA.

Table 41.

Comparison of Techniques 1-3

	Normality of Data		Reliability				Validity					
			Inter-Rater Agreement			D-study	Criterion-related		Confirmatory Factor Analysis			
	Skew.	Kurt.	Abs Dev	ICC	*r*	E(ρ)	Cohesion *r*	Adaptability *r*	χ^2 ratio	SRMR	RMSEA	CFI
Technique 1: Incongruity Affordances of Recreation Activity									5.08	0.06	0.07	0.74
Core	0.50	3.03	8.48	0.81	0.68	0.88	0.34	0.31				
Balance	0.29	2.96	9.57	0.89	0.80	0.87	0.33	0.22				
Technique 2: Incongruity Affordances of Recreation Location									3.92	0.05	0.06	0.82
Indoor-Home	0.68	3.63	5.73	0.78	0.64	0.80	0.28	0.27				
Outdoor-Home	0.64	3.02	3.43	0.76	0.62	0.74	0.25	0.23				
Community	0.42	2.87	6.97	0.83	0.73	0.87	0.29	0.22				
Beyond-Comm.	0.57	3.56	5.55	0.89	0.80	0.53	0.27	0.18				
Technique 3: Incongruity Affordances of Recreation Location using Ratio-Level Approximations									1.91	0.04	0.04	0.88
Indoor-Home	0.99	4.57	492.94	0.76	0.61	0.75	0.22	0.23				
Outdoor-Home	2.38	9.70	146.74	0.64	0.48	0.52	0.15	0.16				
Community	2.60	14.44	144.61	0.67	0.51	0.70	0.20	0.20				
Beyond-Comm.	5.53	41.50	142.84	0.73	0.58	0.44	0.16	0.07				
Assessment Criteria	*< .80*	*3.00*		*> .60*		*> .60*			*< 5.00*	*< .10*	*< .08*	*> .90*

* Table compares the results of family-level data.

Table 42.

Comparison of CFA Factor Loadings

	Technique 1	Technique 2	Technique 3
	Core	*Indoor-Home*	
Item 1: Dinner	0.32	0.42	0.45
Item 2: Home-Based Activities	0.30	0.41	0.44
Item 3: Games	0.56	0.71	0.53
Item 4: Crafts, Cooking, or Hobbies	0.47	0.52	0.42
		Outdoor-Home	
Item 5: Home-based Outdoor Activities	0.57	0.60	0.39
Item 6: Home-based Sport/Games Activities	0.57	0.60	0.49
		Community	
Item 7: Attend Family Member Activities	0.40	0.46	0.42
Item 8: Religious/Spiritual Activities	0.11	0.11	0.09
	Balance		
Item 9: Community-based Social Activities	0.53	0.51	0.30
Item 10: Spectator Activities	0.62	0.65	0.49
Item 11: Community-based Sporting Activities	0.50	0.52	0.53
Item 12: Community-based Special Events	0.50	0.47	0.24
		Beyond-Comm.	
Item 13: Outdoor Activities	0.25	0.39	0.14
Item 14: Water-based Activities	0.15	0.39	0.07
Item 15: Outdoor Adventure Activities	0.21	0.38	0.34
Item 16: Tourism Activities	0.32	0.31	0.13

CHAPTER IV

SUMMARY AND DISCUSSION

This study examined three techniques for scaling the Family Leisure Activity Profile (FLAP) index. Technique 1 consisted of the current approach (i.e., Zabriskie and McCormick, 2001). For Technique 2, FLAP index scores were scaled according to a reinterpretation of the theoretical foundation of the FLAP in arousal theory (Iso-Ahola, 1984). Technique 3 was a transformation of ordinal-level data to ratio-level approximations. This chapter presents a discussion and interpretation of these findings. The chapter is organized into the following sections: summary of results related to research questions, interpretation of results, research limitations, significance of results, recommendations for research and practice, and conclusions.

Summary of Findings

Validity is a composite judgment of the appropriateness of inferences derived from multiple sources of evidence. Conceptual evidence is of equal importance to empirical evidence. In terms of empirical evidence, no technique was found to be clearly superior to the others. Reliability analyses indicated that parents and their children rated their family leisure consistently. Measurement scenarios were identified that would be expected to yield acceptable estimates of rho (reliability/ reproducibility) for each scaling technique. Evidence of fit and strength of correlations with criterion variables did not differ markedly across the analyses. Fit indices were generally

suggestive of an acceptable fit, and, with a few exceptions, indicators (FLAP items) were found to be significant predictors of their respective latent variables.

Conceptually, however, this research points to the need for more precise definition and operationalization of the phenomena that the FLAP is intended to measure. Scores from an instrument should be calculated in a manner that is fully consistent with the intended definition of the construct or behavior. Zabriskie and McCormick (2001) maintain that "core" and "balance" are behavior "patterns." A pattern is a change in the frequency or prevalence of a behavior over time (Suen, 1990). Prevalence and frequency are the two additional fundamental dimensions of behavior. Prevalence is the portion of time during an observation period that is occupied by the behavior of interest, and frequency is the number of occasions during the observation period that the behavior is initiated. The FLAP scaling approach that is currently in use (i.e., frequency by duration), does not yield a measure of pattern, but rather a measure that more closely resembles the "prevalence" dimension of behavior. Yet, the score that results from multiplication of ordinal-level frequency by ordinal-level duration is an arbitrary metric. The score is not a unit of time, which one would expect of a measure of prevalence. This conceptual critique of the FLAP thus yields significant concerns. It does not seem justifiable to make an inference about patterns of family leisure based on FLAP scores, although the measure may arguably yield scores that approximate prevalence of behavior.

As illustrated through Technique 3, the FLAP can be scaled in a way in which the resulting scores are, in fact, naturally occurring units of time. If scaling Technique 3

is used, a family that reports eating dinner together for approximately one hour each day receives a score of 365 hours for the year. Three hundred sixty-five is a measure of prevalence; the portion of time during the year during which that leisure activity is practiced. This re-scaling may be a significant step toward a measure that is conceptually sounder.

The other conceptual issue underscored by this investigation is the less-than-optimal fit of arousal theory. Zabriskie and McCormick (2001) designed the FLAP based on the assumption that incongruity is inherent in different activities in which families participate. Scaling Techniques 2 and 3, however, demonstrated that incongruity affordances of the environment may be of equal or greater importance. That approach is much more consistent with Iso-Ahola's (1980) analysis of the developmental significance of arousal affordances of environments. Iso-Ahola also identified other sources of arousal and incongruity, including intensity of participation, locus of participation, social company of participation, psychological reasons for participation, and time of involvement. An important direction for the future of development of FLAP is investigation of opportunities to incorporate these dimensions into the measurement of family leisure. A more detailed summary of results per research question follows.

Research Question 1. The first research question asked "Does the original FLAP scaling technique based on incongruity of recreation activities (Technique 1) produce scores (a) that are reliable and (b) from which valid inferences about core and balance leisure activity patterns may be made?" Inter-rater agreement was found to be within an acceptable range, as were generalizability theory-based estimates of true score

variance under select measurement scenarios (D-coefficients). The results of empirical analysis of validity are consistent with findings of previous research (e.g., Agate et al., 2007; Swell et al., 2012; Dodd et al., 2009; Hornberger et al., 2010; Smith et al., 2009; Townsend & Zabriskie, 2010; Zabriskie, 2000). Families with higher core and balance scores also tend to be more cohesive and adaptable than families with lower core and balance scores. Nonetheless, the conclusions did not fully support the hypotheses of the Core and Balance Model of Family Functioning: core activity participation is hypothesized to predict cohesion and balance activity is hypothesized to predict adaptability. Core and balance family leisure were found to have similar correlations with family cohesion. Core family leisure had a larger correlation than balance family leisure on family adaptability. These results remain consistent with previous studies that did not substantiate the Core and Balance Model of Family Functioning (e.g., Agate et al., 2007; Buswell et al., 2012; Dodd et al., 2009; Hornberger et al., 2010; Smith et al., 2009; Townsend & Zabriskie, 2010; Zabriskie, 2000). Fit indices from confirmatory factor analysis (CFA) provided evidence of only a marginal fit of a two-factor model (i.e., core and balance) with FLAP index data.

Thus, empirically, scaling Technique 1 yielded a reliable measure and significant correlations with measures of family functioning. But, as Suen (1990, p. 134) points out, "validity cannot be adequately summarized by a numerical index." Instead, validity must be supported through the accumulation of both empirical evidence and conceptual evidence. The following conceptual issues limit the validity of Technique 1 as a measure

of core and balance leisure patterns for the Core and Balance Model of Family Functioning:

1) The FLAP does not measure *patterns* as claimed by the creators of the FLAP (Zabriskie & McCormick, 2001). Instead, the FLAP provides a measure of *prevalence.* It estimates the portion of time over the course of a year that families devote to core and balance activities. Quantitative dimensions of behavior can be distinguished as frequency, prevalence, and pattern (Suen, 1990). Frequency is the number of times a behavior occurs, prevalence is the proportion of time a behavior occupies, and pattern is a change in prevalence or frequency of behavior over time (Suen, 1990). Thus, if FLAP is indeed intended to be a measure of behavior patterns, it is axiomatically invalid.
2) The multiplication of ordinal variables (i.e., ordinal frequency x ordinal duration) results in loss of rank-order (Nunnally & Bernstein, 1994). This loss of rank-order is a significant source of measurement error, despite the results of reliability tests. Concerns about validity arise; reliability is a necessary but not sufficient criterion for validity. Inferences about core or balance activity patterns based on FLAP scores are unjustifiable.
3) The source of incongruity for this technique—familiarity of activity—is assumed to be constant across families. It should be recognized, however, that an activity that is a core (highly familiar) for one family may be a balance activity (high incongruity) for another. Thus, a predetermined list of

activities categorized as core and balance does not distinguish familiarity of activity for each family.

4) The assumption that family members can accurately quantify their participation in loosely defined activities for a period of one year is tenuous at its very best. Previous studies (e.g., Chase & Godbey, 1983; Chase & Harda, 1984) indicated that participants typically over-estimate their participant in recreation activities due to recall bias. Also, recall of recreation participation decreases as time increases (Hiett & Worrall, 1977). Therefore, it is likely that the estimations of participation in recreation behaviors are highly inaccurate.

Research Question 2. Another research question posed in this study asked, "Does the reformulated FLAP scaling technique based on incongruity of recreation locations (Technique 2) produce scores (a) that are reliable and (b) from which valid inference about core and balance leisure activity patterns may be made?" To this end, this study calculated scores for four locations: Indoor-Home Location, Outdoor-Home Location, Community Location, and Beyond-Community Location. Formal definitions of these outcomes were written, establishing each as a measure of the "prevalence" dimension of behavior (the portion of time during a given period in which the activity is present).

Inter-rater agreement, generalizability theory analyses, MMTM, and CFA provided the means for assessing reliability and validity. Technique 2 yielded evidence of acceptable levels of inter-rater agreement, as well as acceptable levels of reliability

(generalizability) for select measurement scenarios. The reliability coefficient for Beyond-Community Location resulted in low scores for the two rater, four item procedures used in this study ($E(\rho) = .53$). Validity coefficients showed significant positive correlations with the criterion variables, family cohesion and adaptability. Yet, the results did not fully support the hypothesis implied by the Core and Balance Models of Family Functioning. In these models, researchers normally hypothesize that the Indoor-Home Location and the Outdoor-Home Location would yield higher correlations with family cohesion than Community and Beyond Community dimensions. The latter two of these prevalence measures would be predicted to have higher correlations with family adaptability. Significantly, the data do not support these hypotheses. Additionally, fit indices in Technique 2 evinced a slightly better fit than in Technique 1, and provided evidence of marginal fit. Technique 2 also produced the strongest structure coefficients across all items, in comparison to other techniques.

Thus, from an empirical perspective, Technique 2 offered a reliable instrument for select measurement scenarios and it yielded significant correlations with the measure of family functioning. At the same time, Technique 2 shares three conceptual limitations with Technique 1:

1) The technique rests on the assumption that locations more proximal to indoor-home tend to have fewer incongruity affordances than locations distal to indoor-home. Thus, indoor-home and outdoor-home locations would be more characteristic of "core" family leisure, while "community" and "beyond the

community" locations would be more characteristic of "balance" family leisure. This assumption was not testable with the data set available.

2) The multiplication of ordinal variables (i.e., ordinal frequency x ordinal duration) results in loss of rank-order (Nunnally & Bernstein, 1994).
3) The assumption that family members can accurately quantify their participation in loosely defined activities for a period of one year is very tenuous.

Research Question 3. The third research question asked, "Does the reformulated FLAP scaling technique based on incongruity of recreation locations prevalence (Technique 2) and using ratio-level approximations produce scores (a) that are reliable and (b) from which valid inferences about core and balance leisure activity pattern may be made? The same analytical procedures were used to evaluate reliability and validity.

The results suggested acceptable levels of inter-rater agreement for all four measures. From the perspective of estimation of universe score variance, Technique 3 provided reliable measures for family leisure Indoor-Home Location and Community Location, but not for Outdoor-Home Location and Beyond-Community Location. Validity coefficients from MTMM were moderate, but the coefficient between Beyond-Community Location and adaptability was weak (r = .07). In addition, like Techniques 1 and 2, the findings did not support the hypothesis of the Core and Balance Model of Family Functioning. Fit indices from the CFA provided evidence of a good-fit of FLAP index data. Technique 3 CFA fit indices appeared to be better than both Technique 1 and Technique 2.

Thus, empirically, this research determined Technique 3 to yield the least reliable scores among the three scaling techniques. Empirical evidence of validity is moderate, and Technique 3 addressed a key conceptual limitation by transforming ordinal variables into ratio-level approximations. Technique 3 also evinced conceptual limitations. Because the actual rating scales on which scores are based are ordinal, the scores resulted in only approximations of ratio scales. Like Technique 2, the assumption that locations more proximal to indoor-home have fewer incongruity affordances was not tested. Also, the assumption that parents and children can accurately recall behavior patterns for a full year remains a significant concern.

Research Limitations

Several conceptual and methodological limitations can be named with respect to this study. In most cases these limitations appeared similar to those found in other studies. First, there were limitations based on the sample. Data for this study were collected via an online survey, which was a U.K. nationally representative sample. The sample was not, however, a random sample of families in the UK. Second, one inherent bias with online surveying is that the sample is limited to individuals who have access to the Internet and are experienced with electronic surveys. People without access to the Internet include older generations, minority households, or those with modest levels of incomes and education (Madden & Rainie, 2003). Additionally, individuals with access to the Internet may be leery of online surveys due to security or confidential issues. But these fears are also evident in other forms of survey. Despite the inherent limitations of online surveying, past research (Taylor, Ward, Zabriskie, Hill, & Hanson, 2012, p. 337)

demonstrated the use of online panels as a "nationally reflective" sample to have many of the same properties and limitations as other methods of collecting self-report data (Basil, Basil, & Deshpande, 2009; Taylor et al., 2012; Ward & Buswell, 2009).

The exploratory nature of analyses with reformulated scales from the FLAP index represents a third limitation of this study. Model specification, measures of models, and research design were limited based on the parameters of the FLAP index. For example, Zabriskie and McCormick (2001) did not design the FLAP index to measure Indoor-Home, Outdoor-Home, Community, and Beyond-Community; thus, the number of items fluctuated for each measure. As a result, not all items specified the locus of participation. Items 1, 2, 5, 6, 9, 11, and 12 did specify the locus of participation (e.g., home-based or community-based), while items 3, 4, 7, 8, 10, 13, 14, 15, and 16 did not. Therefore, the researcher placed items into measures assumed to be the best location-fit and had one measurement expert validate the content of measures. For example, item 16 (i.e., tourism) did not specify the location of participation, but the researcher placed this item in the "beyond the community" measure category. A research study specifically designed to include questions for each family recreation location measure would reduce potential error bias in studies interested in the effect of family recreation locations.

Likewise, Zabriskie and McCormick (2001) did not design the FLAP index to measure ratio-level data. The current study based conversion values for the FLAP index on a literal description of the ordinal-level data categories. For example, the researcher assigned the value of 365 to "at least daily" because there are 365 day in a year, and the

FLAP index measures activities completed in the past 12 months. In some cases, a literal conversion of ordinal-level data did not accurately describe family participation in activities since it is highly unlikely that any family participated in the same recreation activity every day for the past year. In turn, the conversion of ordinal data to naturally occurring units of time may exaggerate the time spent in family leisure activities.

In other cases, a literal conversion of ordinal-level understated the time spent in family leisure activities. For example, there is no category between participants' options of "at least monthly" and "at least annually." A participant performing an activity only a few times per year (but not monthly) may choose the category "at least annually," which was converted to a one in ratio-level data in Model 3. This means that the research designed to collect ratio-level data would reduce potential error bias in studies interested in knowing the amount of time families spent in family recreation activities. Additionally, this study asked participants to recall their leisure behaviors over the past 12 months. But, as previous studies (e.g., Chase & Godbey, 1983; Chase & Harda, 1984) indicated, participants typically over-estimate their participant in recreation activities due to recall bias.

Lastly, this study used correlational techniques in order to determine relationships with the measures of family functioning. Thus, researchers should not assume causal inferences without further research. In general, researchers should not generalize findings beyond the scope of this study, and future research should design studies to measure specific outcomes noted from the findings in this study. The results of Model 2 and Model 3 should serve as a guide to future studies, and researchers should

use caution when drawing inferences from this material. As a rule, generalizing from results of any single study must be done with caution. In spite of these limitations, the conclusions of this study add to the body of knowledge about family leisure and how to measure participation properly.

Interpretation of Findings

Findings from this study support previous research indicating a positive relationship between family leisure involvement and aspects of family functioning (e.g., Buswell et al., 2012; Dodd et al., 2009; Freeman & Zabriskie, 2003). Additionally, the conclusions offered here corroborated previously reported results that challenge the theoretical relationships hypothesized in the Core and Balance Model of Family Functioning (e.g., Dodd et al., 2009; Hornberger et al., 2010; Smith et al., 2009; Townsend & Zabriskie, 2010). While reformulated techniques did not fully support the Core and Balance Model of Family Functioning, each technique provided new information about the FLAP index and thus new knowledge about family leisure measurement. The following section provides an interpretation of these new findings and discusses these interpretations in light of previous research. Additionally, emphasis will be placed on the three major contributions of this study: inter-rater agreement in measures of family leisure, new measures of family recreation locations using the FLAP index, and the level of scales for family leisure.

Inter-rater Agreement. This research proffered evidence of inter-rater reliability for research studies using FLAP index. In general, researchers commonly assess four types of reliability including internal consistency, parallel-forms, test-retest,

and inter-rater. Of these four types, prior core and balance framework studies used two of these types of reliability to assess the FLAP index. Each type estimated a different facet of the "repeatability" or "consistency" of a measure. As an example, Zabriskie (2000) reported a pilot testing of the FLAP index using test-retest methodology with five weeks between testing; reliability coefficients were acceptable (i.e., core (r= .74), balance (r= .78) and total family involvement (r= .78). Researchers used test-retest reliability to assess the repeatability of a measure under the same conditions, whereas researchers used internal consistency to assess the consistency of results across items within a test. Aslan (2009) reported internal consistency methodology with a modified FLAP index. As discussed earlier, however, FLAP index items are not inter-related, and, therefore, internal consistency is not an appropriate measure for the FLAP index. The present study assessed inter-rater reliability, an aspect that researchers utilized in past studies to assess the degree to which different raters give consistent estimates of the same phenomenon. This study provided evidence of inter-rater agreement of measures in Technique 1, Technique 2, and Technique 3. Two implications can be made from this result: a) the FLAP index is a reliable instrument for collecting information about behavior and b) adolescents can accurately assesses a family's leisure behaviors.

Hawks (1991), after reviewing family recreation research from 1930 to 1990, encouraged future research studies to collect data from more than one family member. Findings of Technique 1 D-studies provided unanticipated results, supporting future research studies to collect data from only one family member when using FLAP index to collect data for core family leisure and balance family leisure measures (i.e., Technique

1 research design). The use of only one family member can drastically reduce time involvement of respondents, as the FLAP index consists of 48 questions. This finding is only relevant to the use of the FLAP index collecting ordinal data for measures of core family leisure and balance family leisure (i.e., Technique 1 research design). Future studies can use results related to the number of items and number of raters needed for reliable estimates, as reported in Technique 2 D-study tables (see Tables 27-30) and Technique 3 D-study tables (see Tables 35-39).

This finding also highlighted the need for only one family member to quantify accurately the amount of time spent in recreation activities (i.e., a behavior). Nevertheless, researchers need to remember the difference between quantifying a behavior and quantifying an attitude. As noted in the work of Larson and Richards (1994), the time use of mothers, fathers, and children suggested that each family member lives in a "divergent reality"; that is to say, each family member experiences different emotions during the same activities. Thus, researchers should continue to strive for the perspectives of multiple family members for measures of attitudes in order to provide a more holistic and detailed understanding of how family leisure contributes to family life.

Furthermore, this study based reliability estimates on research conducted with both parent and child. Studies (e.g., Larson & Richard, 1994) in which different members of the same family do not agree casts doubt as to whether children could evaluate behavior measures accurately. In the present study, a parent and child from the same family assessed the amount of time spent in family leisure activities. The FLAP index measures a behavior (not attitude) by asking family members to rate the amount of

time spent in family leisure activities; therefore, researchers would expect more consistent results from parent and children.

Results from this study provided evidence of parent-child agreement for family leisure behavior. In the past, parental perspectives dominated research on family leisure (Harrington, 2006; Hilbrecht, Shaw, Delamere, & Havitz, 2008; Jeanes, 2010), most likely as a result of ageism or a false belief that children's responses would not be accurate. Thus, this study's finding of parent-child agreement provided evidence regarding the ability of adolescents between the ages of 11 and 15 to assess family leisure behaviors accurately.

Family Recreation Location. This study offered new insight on the measurements of core and balance leisure patterns. The conceptual advancement of core and balance family leisure patterns to reflect arousal affordances of recreation environments offered a new contribution to the FLAP index. One of the underlying theories used in the Core and Balance Model of Family Functioning came from Iso-Ahola's (1980, 1984) concept that human development requires both stability and incongruity (Iso-Ahola, 1980). He concluded that too much stability and an individual grew bored; too much incongruity and the individual became over-stimulated. Thus, in order to maintain a daily life "flow," individuals tended to seek optimal arousal (Csikszentmihalyi, 1993, Iso-Ahola, 1980). These principles are specific to individuals, but can be transferred to family systems. As previous research also suggested, most recreation happens within the context of families (Kelly, 1983; 1993; Kinsley & Graves, 1983; Shaw, 1997). Simultaneously during a family recreation activity an individual

family member's need for optimal arousal competes with other family members' need for the same. Thus, for researchers in this field the following question arises: how do family members negotiate competing needs for optimal arousal? And how does negotiation affect the well-being of the individual and the family?

One way in which families may actively negotiate competing needs for optimal arousal is by manipulating the incongruity in the family recreation environment. To date, researchers using the core and balance framework only considered the incongruity affordances of participation in different types of recreation activities. This study offered a new FLAP scaling technique to assess the incongruity affordances of recreation locations. Changes in recreation location remain consistent across families. For example, when families participate in family leisure inside the home, they recreate together in the most familiar location. In these spaces, researchers concluded that families are theoretically more likely to foster relationships and enhance family cohesion (Zabriskie & McCormick, 2001). With each additional degree of separation away from the Indoor-Home Location, the locus of participation becomes less familiar and more incongruent. In these spaces, family members theoretically would "be exposed to new and unexpected stimuli from the outside location, which provides input and challenge necessary for families to learn and progress as evolving systems" (Zabriskie & McCormick, 2001, p. 284), thus enhancing the family's flexibility (Ellis, 1973, Zabriskie & McCormick, 2001).

Less familiar locations theoretically provide higher levels of incongruity (Iso-Ahola, 1980). Prior studies on individual behavior noted that both babies and adults have

a preference for 50%-50% divergence of *familiarity* and *change* (Kelly, 1977; McCall, 1974). In other words, individuals (and thus families) prefer to participate in stable activities 50% of the time and also participate in an activity providing a higher degree of incongruity 50% of the time. If this study considered inside the home as the *"familiar"* family recreation setting and all other family recreation locations as *"change"* family recreation setting, then results would indicate a 65%-35% divergence of familiarity and change locus of participation (this finding used estimated hours of participation from Technique 3). Because recreation location represents only one of several options families have for altering incongruity within family recreation activities, it is not surprising that change in locations accounts for only 35% of time spent in leisure. The 65%-35% divergent locus of participation finding supported one proposition of the Core and Balance Model: "theoretically, core family leisure activities would make up the majority of family leisure interaction" (Zabriskie & McCormick, 2001, p. 283).

Additionally, although other studies investigated family recreation in a specific location (e.g., Indoor-Home Location or Beyond-Community Location), this is the first study to examine the influence of multiple family recreation locations on dimensions of family functioning. For example, past researchers examined family recreation in the home location (i.e., Indoor-Home) (Beck and Arnold, 2009) and adjacent to the home (Outdoor-Home) (Arnold & Lang, 2007). Lehto, Choi, Lin, and MacDermid (2009) also assessed the interplay of family vacation travel (i.e., Beyond-Community) and family functioning. Family camps are yet another specific location that received attention (i.e., Beyond-Community Location) (e.g., Agate & Covey, 2007; Rosenberg, 2006). Other

research also noted family recreation done beyond the community often allowed family members to escape the everyday distractions in their homes, providing family members with opportunities to improve communication and interaction with each other (Garst, Roggenbuck, & Williams, 2010; Toretta, 2004). In the current study, results of correlations indicated that family recreation done in the home and family recreation done in the community had the strongest relationship with family functioning dimensions. Future research should consider using more advanced analyses (such as multiple regression) to understand fully the combined effect of family recreation locations on family functioning.

Use of Ratio Level Data. Previous research using the FLAP index established the positive relationship between "family leisure involvement" and aspects of family functioning. Family leisure involvement measured by the FLAP index provided a measurement of time involvement in leisure activities by families. The FLAP index measurement, however, is not interpretable as units of time (e.g., hours, days, etc.). In turn, previous literature using the FLAP index did not provide any estimate of time spent in family leisure activities. Past core and balance literature also did not offer estimates of time spent in family leisure by families who ranged from low family functioning to high family functioning. Ideally, researchers should be able to estimate the amount of time involvement in different dimensions of family leisure to achieve high family functioning. If so, like doctors are able to prescribe pharmaceutical prescriptions for different ailments, family leisure specialists could prescribe amounts and dimensions of leisure for families to increase family functioning.

Based on estimates of "naturally occurring units of time," Technique 3 in this study indicated that families spend on average 65% of family recreation time doing activities inside the home, 8.5% doing activities adjacent to the home, 11% doing activities in the community, and 23% doing activities beyond the community. Further, families spend only a small portion of time in family leisure adjacent to the home. Arnold and Lang (2007) noted similar findings; specifically, they found parents' participation in leisure activities done adjacent to the home to be "negligible" (p. 35). In their words:

> "Despite having invested in special facilities in their back yards and carefully maintaining outdoor spaces that enable leisure activities, neither the parents nor the families as a unit are enjoying very much time of any sort, much less leisure, in these spaces" (p.35).

Additionally, Technique 3 in the current study estimated families spend an average of 2,130 hours per year doing family recreation activities together; this is the equivalent of a family recreating together for roughly 3.4 hours every workday and 16 hours every weekend, plus a total of 3 weeks of vacation over one year. These results are based on ratio-level approximation conversions, such as "at least daily" being equivalent to 365 days. Of course, it is reasonable to suspect that no family does any recreational activity all 365 days of the years; therefore, these estimates about U.K. families may be overstated. Additionally, previous studies (e.g., Chase & Godbey, 1983; Chase & Harda, 1984) noted that survey participants often over-estimate their recreation participation

resulting in inflated estimates of time. Despite these limitations, FLAP ratio-level approximations serve as a representation of families' leisure behaviors.

Descriptive information, such as estimated hours of family leisure, would benefit researchers interested in comparing different populations. Although transformations of time participation used in this study run the risk of producing an inflated score of family leisure, researchers could use the same or similar transformations with other FLAP index data to compare populations. Current FLAP index scores based on Zabriskie & McCormick (2001) would not provide optimal comparisons since approaches using original scaling procedures do not provide a comparable amount of time spent in different family leisure activities. For example, Table 43 compares the amount of time estimated by ordinal indices (no unit of time; Technique 2) and the amount of time estimated by ratio indices (i.e., hours; Technique 3). Percentages in Table 44 indicate how much time families spent in activities in each family recreation location. Importantly, the time spent in the different locations using an ordinal versus ratio measure did not match. Note that the ordinal measure indicates that families spent 30% of their family leisure time inside the home, whereas the ratio-level data indicates that families spent 65% of the family leisure time inside the home. Indicating that FLAP index scores based on the multiplication of ordinal variables does not preserve the rank-order in this dataset. Nunnally and Bernstein insist, "transformations must preserve the rank-order properties of the data" (p.14).

Table 43.

Comparison of Time using Ordinal Data and Ratio Data

	Technique 2 Ordinal Data		Technique 3 Ratio Data	
	Mean*	%	Mean**	%
Indoor-Home	22.96	30%	1386.88	65%
Outdoor-Home	6.89	9%	181.63	9%
Community	24.32	32%	242.44	11%
Beyond-Community	22.99	30%	318.96	23%

* No interpretable units of time

** Hours

Researchers currently use multiplication of duration and frequency variables to calculate FLAP index scores (Zabriskie & McCormick, 2001). But index scores using ordinal and ratio-level approximations result in dissimilar findings. This result is caused by the multiplication of ordinal variables. Technique 2 used ordinal scales for duration and frequency. When researchers use ordinal measures, the difference between two units may not be equal to the difference between two other units (Nunnally and Bernstein, 1994). For example, the difference between the response "at least monthly" and "at least annually" is not equal to the difference between the response "at least daily" and "at least weekly." The data, however, represent these differences as only one unit apart in both cases; thus, statistical analysis does not distinguish the different deviations in scores.

On the other hand, Technique 3 used FLAP index data transformed to ratio-level data. Researchers using ratio-level data can measure the deviation between units in intervals, and these intervals have a meaningful interpretation. Nunnally and Bernstein

(1994) noted that researchers should *not* use any of the fundamental algebraic operations (i.e., addition, subtraction, multiplication, and division) with ordinal-level scales. This is because the use of multiplication with two ordinal scales can result in changes in the rank order of points. Thus, in this study, multiplication of ordinal-level frequency variable and ordinal-level duration variable resulted in changes in the rank order of time involvement of family recreation activities. Table 44 presents an illustration of this point. This is the same table used in Chapter 2 to illustrate conversions of ordinal-level data to ratio-level data, but here the columns labeled "Rank" are added for both ordinal-level and rank-level data. This category indicates the largest to smallest amount of time indicated by scores. Comparison of the two rank columns provides evidence that multiplication of ordinal-level variables can result in changes in the rank order of scores. For example, the first line of Table 44 demonstrates that the time spent in a family leisure activity at least daily for less than one hour (e.g., family dinner) would result in the 7^{th} rank of ordinal-level score and 3^{rd} for ratio-level scores.

The use of ordinal index scores versus ratio index scores affected statistical analyses. Table 45 presents the comparison of Pearson *r* of ordinal-level and ratio-level data. A comparison of correlations indicated ratio correlations to be smaller than ordinal

Table 44.

Comparison of Ranks for Ordinal and Ratio Level Data

Response to FLAP		Ordinal-Level Date				Ratio-Level Data			
Frequency	Duration	Frequency	Duration	Score	Rank	Frequency	Duration	Score	Rank
At least daily	>1 hr	4	1	4	**7**	365	1	365	**3**
At least daily	2-3hrs	4	3	12	**3**	365	3	1095	**1**
At least weekly	>1 hr	3	1	3	**8**	52	1	52	**6**
At least weekly	2-3hrs	3	3	9	**5**	52	3	156	**5**
At least monthly	2-3 hrs	2	3	6	**6**	12	3	36	**7**
At least monthly	1 day	2	12	24	**1**	12	24	288	**2**
At least annually	1 day	1	12	12	**3**	1	24	24	**8**
At least annually	7 days	1	18	18	**2**	1	168	168	**4**

Table 45.

Comparison of Pearson r using Ordinal Data and Ratio Data

	Cohesion		Adaptability	
	Ordinal	Ratio	Ordinal	Ratio
Indoor-Home	0.28	0.22	0.27	0.23
Outdoor-Home	0.25	0.15	0.23	0.16
Community	0.29	0.20	0.22	0.20
Beyond-Community	0.27	0.16	0.18	0.07

correlations. For example, Indoor-Home and Cohesion have an ordinal-level *r* of .28 and ratio-level *r* of .22. Differences in correlations ranged from .02 to .10, and this finding could indicate that the use of ordinal data resulted in slightly spurious effects. These conclusions, however, are based on exploratory examination with conversion data. As a result, researchers should not draw full conclusions from these findings without further research. Comparisons between ordinal-level FLAP data and ratio-level FLAP data illustrated discrepancies in results between the two methods of scaling. Based on these findings, future research should consider collecting ratio-level data when using the FLAP index. Since ratio-level data provided asymmetrical distribution (as in Technique 3), researchers should consider converting ratio-level data to ordinal-level data for analyses.

Significance of Research

Turning now to elucidate the significance of this research, this study made a significant contribution and advanced measurements of family leisure. First, this study provided a new conceptualization of core and balance leisure patterns based on incongruity affordances of recreation environments. Second, this study suggested inter-rater agreement data and new types of reliability estimates not previously available through published literature related to the FLAP index. Researchers using the FLAP index often surveyed two members of each participating family (i.e., parent-child or spouse-spouse). This study added to the literature by using the FLAP index to evaluate inter-rater agreement, as well. The results delineated here lend support to the FLAP index as a reliable measure of core and balance family leisure, as well as family

recreation location measures. Additionally, this study introduced estimates of reliability (i.e. reproducibility) of the FLAP measures under specific conditions through findings based on analyses using generalizability theory. Third, this study offered a new technique to evaluate the incongruity affordances of recreation location. Previous studies of core and balance family leisure examined simple two-factor models of core and balance; however, the proposals offered here expanded on the core and balance concepts. This study partitioned core and balance concepts based on the affordances of incongruity in the location – a new technique that provided insight regarding how stability and change in family recreation locations may influence family functioning. Fourth, this research highlighted the need for collecting ratio-level data in future studies using the FLAP index, which provided a correction for the current approach of collecting ordinal data that limits analyses and information. Additionally, this study provided limited evidence of spurious results based on the use of ordinal data. Researchers should thus confirm this evidence before drawing any final conclusions. Finally, the present project provided five specific recommendations for advancing the FLAP index, which will be elucidated below.

Recommendations

Based on the empirical and conceptual findings discussed above, the following five recommendations are made for the FLAP:

1. *Revise response the format of the FLAP in such a way that the target behaviors are measured at ratio-level.* Ratio-level measurement provides researchers more information about family's participation in recreation activity. But collecting

ratio-level data requires participants to enter a number between 0 and 365 to represent how often their family participated in a specific activity for the past year. Therefore, researchers should consider using a "key" to assist participants in making optimal decisions about frequency. The key could provide a conversion table of equivalents from common qualitative (i.e., ordinal-level) responses to quantitative equivalents. Table 46 presents an example of a possible key to provide participants within the FLAP index.

Table 46.

Key for Frequency of Participation: How Often?

Ordinal Response	**Ratio Response**
At least daily	365
Five times a week (e.g., Weekdays)	260
Four times a week	208
Every other day	182
Three times a week	156
Two times a week	104
One time a week	52
Four times a month	48
Three times a month	36
Two times a month	24
One time a month	12
Few times a year	3-7
Couple times a year	2
One time a year	1

2. *Write formal operational definitions of each behavior measured using the FLAP.* The Core and Balance Model of Family Functioning suggests that family leisure *patterns* influence family functioning dimensions. The FLAP, however, currently does not measure behavior *patterns*; rather, the FLAP measures behavior

frequency and *prevalence*. Suen (1990) suggested three dimensions of behavior measurement: frequency, prevalence, and patterns. Based on these three dimensions of behavior, Table 47 presents suggested operational definitions for concepts of family recreation environments.

Table 47.

Operational Definitions for Family Behaviors in Family Recreation Location

	Frequency	Prevalence	Pattern-Frequency	Pattern-Prevalence
Indoor-Home Location	The number of times per year in which the family participates in activities within the dwelling that protects the family from the elements of the environment.	The number of hours per year in which the family participates in activities within the dwelling that protects the family from the elements of the environment.	The variation in frequency per year in which the family participates in activities within the dwelling that protects the family from the elements of the environment.	The variation in prevalence per year in which the family participates in activities within the dwelling that protects the family from the elements of the environment.
Outdoor-Home Location	The number of times per year in which the family participates in activities in the physical space adjacent to the family dwelling not protected from the environment.	The number of hours per year in which the family participates in activities in the physical space adjacent to the family dwelling not protected from the environment.	The variation in frequency per year in which the family participates in activities in the physical space adjacent to the family dwelling not protected from the environment.	The variation in prevalence per year in which the family participates in activities in the physical space adjacent to the family dwelling not protected from the environment.
Community Location	The number of times per year in which the family participates in activities in intensive use areas, including suburban residential areas, town centers, commercial areas, or heavy industrial areas.	The number of hours per year in which the family participates in activities in intensive use areas, including suburban residential areas, town centers, commercial areas, or heavy industrial areas.	The variation in frequency per year in which the family participates in activities in intensive use areas, including suburban residential areas, town centers, commercial areas, or heavy industrial areas.	The variation in prevalence per year in which the family participates in activities in intensive use areas, including suburban residential areas, town centers, commercial areas, or heavy industrial areas.
Beyond-Community Location	The number of times per year in which the family participates in activities in natural and human-made attractions outside of a family's personal community, such as meadows, woods, forested hills, rivers, lakes, oceans, deserts, or tourist attractions.	The number of hours per year in which the family participates in activities in natural and human-made attractions outside of a family's personal community, such as meadows, woods, forested hills, rivers, lakes, oceans, deserts, or tourist attractions.	The variation in frequency per year in which the family participates in activities in natural and human-made attractions outside of a family's personal community, such as meadows, woods, forested hills, rivers, lakes, oceans, deserts, or tourist attractions.	The variation in prevalence per year in which the family participates in activities in natural and human-made attractions outside of a family's personal community, such as meadows, woods, forested hills, rivers, lakes, oceans, deserts, or tourist attractions.

* "Per year" can be changed to another period of time.

3. *Measure family leisure patterns.* Currently, the FLAP is not designed to measure patterns. Yet, family leisure *patterns* are integral to the Core and Balance Model of Family Functioning. Pattern data requires the ability to distinguish variations in behaviors over time. These variations can be distinguished through longitudinal studies, but researchers rarely conduct longitudinal studies due to financial and temporal constraints. Nonetheless, it is possible for researchers to assess patterns without the use of longitudinal studies. In the current version of the FLAP, families assess their leisure participation over the last 12 months using questions that result in frequency and prevalence dimensions of family leisure behaviors.

    To measure patterns, the FLAP can be revised to assess a family's participation over different seasons in the past 12 months. Often seasons are considered spring, summer, fall, and winter. Alternatively, seasons for families with school age children may consist of school semesters: fall, spring, and summer. By accounting for these seasons shifts, researchers can effectively calibrate core and balance family leisure patterns based on incongruity in recreation participation throughout the year. Activities occurring regularly over all seasons have less incongruity for families and are likely to be categorized as a core family leisure pattern. On the other hand, activities occurring during one season may afford families more incongruity and are likely to be categorized as a balance family leisure pattern. To assess these patterns, researchers need to analyze standard deviations of a family's participation in activities across

different seasons. Low standard deviations would imply core family leisure, and high standard deviations would imply balance family leisure.

4. *Revise select items of the FLAP.* If the FLAP is used to measure incongruity of recreation location, items must be modified to more directly communicate the specific location in which the specified activities occurred (i.e., inside the home, community, etc.). Items 1, 2, 5, 6, 9, 11, and 12 specify the locus of participation (e.g., home-based or community-based), while Items 3, 4, 7, 8, 10, 13, 14, 15, and 16 do not specify the locus of participation. As one example, Item 3 could be changed to read: Do you participate in *indoor* games, *at home*, with family members? (Examples: playing cards, board games, video games, darts, billiards, etc.).

   Additionally, if the FLAP is used to measure incongruity of recreation locations, items 8, 13, 14, and 16 require special attention and possibly revisions as structure coefficients from confirmatory factor analysis (Figure 8) returned extremely low scores (i.e., less than .30). Item 8 refers to religious and spiritual activities and theoretically fits best in the category of "Community Environment." It is possible that Item 8 may not serve as a good-fit in this sample's model, as many individuals from our sample do not participate in religious/spiritual activities with their families. This is reflective of the U.K. culture in which only one in ten attends church weekly (Ashworth & Farthing, 2007). Researchers should continue to monitor item 8 for other cultures.

However, items 13 (outdoor activities), 14 (water-based activities), and 16 (tourism activities) comprise three of the four items of the Beyond-Community construct. Theoretically, these items fit best in the Beyond-Community Environment construct; but in an effort to improve structural coefficients, future research studies using the FLAP should consider revising these items. One suggestion is not to focus on the activity or reasons for why families go outside their community. This is because when families do go beyond the community, they often participate in several different activities to meet the needs of all family members. Imagine, for example, a family headed to a child's softball tournament located five hours away from the home. While the purpose of the trip is to attend the softball tournament, other destinations or purposes may be added to the trip. For instance, other family members living in the area may visit, the family may stop at the outlet mall on the way home to shop, or they may visit some other area attraction such as an amusement park or natural area. Researchers using the FLAP to measure time involvement in family recreation beyond the community are not interested in the specific activity but rather the amount of time spent beyond the community. Thus, activities like outdoor activities or water-based activities are not of interest; rather, researchers may be interested in the types of trips families take beyond the community. These may include day trips (i.e., less than 24 hours), short-term trips (i.e., 2-4 days such as weekend getaways), and vacations (i.e., longer trips typically lasting at least 4 days). Thus, the following three questions are suggested for the construct Beyond-Community Location:

- Do you participate in day trips outside your community with your family?
- Do you participate in short-term trips outside your community with your family?
- Do you participate in vacations outside your community with your family?

5. *Assess additional sources of incongruity in family recreation environments.* The Core and Balance Model pivots on Iso-Ahola's theoretical pinning of incongruity of recreation environments. Optimal distinctions between core family leisure patterns and balance family leisure patterns can be made if more information is collected on incongruity of the recreation environment—activity, intensity of participation, locus of participation, social company of participation, psychological reasons for participation, and time of involvement (Iso-Ahola, 1980). These dimensions can be altered across activities or within a specific activity to meet a family's optimal arousal. The FLAP will have difficulty measuring changes within a specific activity as it does not collect information in real time, but the FLAP can collect more information about incongruity across activities. Currently, the FLAP can be used to assess incongruity of recreation activity and incongruity of recreation location. Future versions of the FLAP should also consider adding questions to assess other dimensions of incongruity in leisure behaviors. Two possible sources of incongruity to be considered in revision of the FLAP are a) the participants and b) the intensity of interactions.

a. *Assess Participants.* The FLAP asks about participation in leisure activities with "family members," but this term is never specified. As Holman and Epperson (1984) stated: "We know very little about the effect of the whole family activity patterns have on family/marital outcomes, and even less about how different family subsystems activity patterns affect marital/family outcomes" (p. 290). This statement remains still true today on both accounts. By assessing participants in activities, researchers will be able to examine the patterns of subsystems of a family and use this information to understand how affordances from incongruity within and across family subsystems in family leisure impacts family outcomes.

b. *Assess Intensity of Interactions.* Iso-Ahola (1980) referenced the intensity of participation as a dimension of incongruity. One element of "intensity of participation" is "intensity of interactions" among participants. Orthner (1975) described two types of activities having different levels of interaction between family members—joint and parallel activities. Parallel activities are those in which family members perform an activity together, but there is little interaction between them. In joint activities, on the other hand, family members participate in an activity together and interact with one another. Examples of parallel activities are spectator activities—television watching, theater performances, worship services, etc. In these activities families have very little interaction with one

another. Conversely, playing catch, dinner conversations, and playing checkers are all examples of joint activities that typically require a higher level of interaction (i.e., engagement, communication) with other individuals participating. Different levels of interaction provide a dimension of incongruity in the recreation environment.

Conclusion

The Core and Balance Model of Family Functioning (Zabriskie & McCormick, 2001) described the theoretical relationship between leisure patterns and family functioning dimensions. The typology of family leisure patterns can be distinguished by the level of incongruity afforded to families by the environment of the family leisure activity. Dimensions of incongruity include intensity of participation, locus of participation, social company of participation, psychological reasons for participation, and time of involvement. Core leisure patterns have low levels of incongruity, meeting the family's need for stability. The environment surrounding this leisure activity provides the family opportunities to foster relationships and enhance cohesion. On the other hand, balance leisure patterns consist of high levels of incongruity, meeting the family's need for change. The environment surrounding this leisure activity provides a family with opportunities to be exposed to new stimuli and thus also provides the family opportunities to adapt and enhance flexibility.

The FLAP provides a means of measuring core and balance family leisure patterns. This study assessed the reliability and validity of three techniques using the FLAP. The original technique in the FLAP offered a way of assessing one dimension of

incongruity—familiarity of activities. The second technique offered a means to assess one dimension of incongruity—familiarity of location. This study found both techniques to have limited validity in measuring core and balance leisure patterns. The third technique, which was also interested in assessing familiarity of location, was considered a valid measure from which inferences could be made about prevalence of leisure behaviors, but not patterns. Based on the findings present in the foregoing analysis, this study suggested five recommendations for advancing the Family Leisure Activity Profile. These recommendations include the collection of ratio-level data, writing formal definitions, measuring patterns, revising troublesome items, and assessing more dimensions of incongruity – each of which will advance the measurement of family leisure.

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