DEVELOPMENT OF A VOCABULARY-FREE LEISURE INTEREST ASSESSMENT INSTRUMENT FOR INDIVIDUALS WITH SEVERE DEVELOPMENTAL DISABILITIES AND COMMUNICATION DIFFICULTIES

A dissertation submitted to the Kent State University Graduate School of Education in partial fulfillment of the requirements for the degree of Doctor of Philosophy

by

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CHAPTER I: INTRODUCTION

The ultimate goal of special education is to enable the student to have a preferred lifestyle and participation in community life once he or she leaves school (the Individuals with Disabilities Education Act [IDEA] Amendments of 1997). The failure of graduates of special education programs to achieve life goals and satisfaction led to the creation of transitional programs that are aimed at enhancing adult outcomes by providing links between high school programs and adult services (Rusch & Chadsey, 1998; Wehman, 1996; Wehman, Moon, Everson, Wood, & Barcus, 1988). Personnel who provide transition services in schools are charged with helping their students to develop skills in the areas of postsecondary education, employment, independent living, and community life. The purpose of this study is to develop a tool to assist individuals with developmental disabilities increase their opportunities for making choices about their participation in community life.

Recreation programs and leisure activities, which are part of participation in community life, are effective means to provide students with opportunities to learn appropriate communication and social skills (Russell, 1996) as well as other important transition outcomes such as developing self-determination, meaningful relationships, and satisfaction in life (Cordes & Ibrahim, 1996; Schleien, Ray, & Green, 1997). However, individuals with developmental disabilities often have few friends other than family, paid support staff, or other people with developmental disabilities (Condeluci, 1995).
Unfortunately, the lack of more recent research in this area is indicative of the status quo; however, providing leisure opportunities and choices can open the door to opportunities that could lead to relationship building. Further, an abundance of unstructured free time could be problematic for several reasons.

One reason is that unstructured time often results in boredom, which could turn into maladaptive behaviors (Alberto & Troutman, 2003). Another reason is that time during which no activity is planned can be considered wasted learning time for individuals with developmental disabilities, time that could be used to develop opportunities to learn and practice appropriate communication and social skills (Russell, 1996) as well as developing self-determination, meaningful relationships, and satisfaction in life. Students with developmental disabilities can learn these skills but often require more opportunities to practice, consequently taking longer to learn. Therefore, it is essential that these students learn leisure skills to occupy their free time, to enable relationship development, and to express themselves, especially in the transition years of adolescence (e.g., Condeluci, 1995; Russell, 1996).

Leisure is an important aspect of anyone’s life. Engagement in leisure activities allows us to express our talents, capacities, and potentials in a way that facilitates meaning and satisfaction. As a state of being at peace with oneself, leisure allows us to rejuvenate, to refresh, to re-collect, and to re-create ourselves in order to become self-actualized (Condeluci, 1995). Further, the concept of choice-making is inherent in leisure. According to Cordes and Ibrahim (1996), being at leisure permits people to
participate in activities of their own choice, withdrawing from activities at their own desire. Dattilo (2002) defines leisure as “experience that transcends time, environments, and situations; integrates elements of activity, time, and the perception of freedom to choose to participate in meaningful, enjoyable, and satisfying experiences” (p. 415). People with developmental disabilities need to be afforded the same opportunities for leisure, and its consequent outcomes, as people without disabilities.

The needs of people with developmental disabilities are more alike than different from the needs of their peers without developmental disabilities (e.g., Bannerman, Sheldon, Sherman, & Harchik, 1990; Condeluci, 1995; Heyne, 1997). People with developmental disabilities need the same balance of work, relationships, and recreation in their lives as people without developmental disabilities. Halpern (1985) recognized this need for balance when he introduced the three pillars of transition: employment/post-secondary education, independent living, and community participation. Furthermore, the IDEA Amendments (1997) mandate that educators address the three areas of work, relationships, and recreation by requiring transition plans to consider outcomes in the areas of employment or post-secondary education, independent living, and community participation, and that those outcomes are established from the students’ choices.

Historically, special education laws focused on providing equal access to education for individuals with developmental disabilities (Education of All Handicapped Children Act [PL 94-142], 1975). However, the IDEA Amendments of 1997 took mere access to education to a higher level, mandating that service providers determine the
interests, needs, and preferences of students with developmental disabilities. Models of special education service provision have progressed as well. For example, in the 1960s services were provided to individuals with developmental disabilities in a medical model, or in a manner to protect them. In the 1970s, service provision progressed to a developmental model whereby services were provided to close the gap between the skill levels of individuals with developmental disabilities and the skill levels of individuals of the same age without developmental disabilities. In the 1980s service provision began to assume an ecological approach, taking into consideration the effect of an individual’s surroundings as well as a person’s skills, interests, and desires (Howie, 1999; Sobsey, 1987). Person-centered planning has evolved out of this ecological model of service provision. Person-centered planning is an approach used by service providers to empower people with developmental disabilities to make their own choices and decisions based on their own personal goals and desires (Miner & Bates, 1997).

Assisting individuals with developmental disabilities to choose their own future is a key to effective transition planning (IDEA Amendments, 1997; Individuals with Disabilities Education Improvement Act [IDEIA], 2004). The ability to provide choices to individuals with severe developmental disabilities and the ability to determine their preferences and interests are confounded when the individual has limited communication and/or cognitive skills. A second confounding variable, when providing choices to individuals with developmental disabilities, is the ability to make choices when their experiences and opportunities have been limited. Third, when choices have been
provided to these individuals, the choices have often had no significant impact or control over their daily routine (Bambara, Koger, Katzer, & Davenport, 1995; Brown, Belz, Corsi, & Wenig, 1993). For example, a service provider might offer the choice of what color pants to wear or whether to color with crayons or markers, but important decisions that truly impact the person's daily routine are left to the service providers. Further, most individuals without developmental disabilities learn to make choices and decisions as part of their daily routine, by trial and error. Individuals with severe developmental disabilities do have preferences and can learn how to make choices; however, they require intense structured programming to learn how to make and communicate their choices (Bambara et al., 1995; Kennedy & Haring, 1993).

Transition services can be the vehicle for individuals with developmental disabilities to make personal choices through structured programming. The ambition of transition services, as mandated by IDEIA (2004), is to use a person-centered approach to address needs in each of the three pillars of transition: employment/post-secondary education, independent living, and community participation. Prerequisite needs of the person-centered approach are (a) to teach individuals with developmental disabilities how to determine their preferences as well as how to communicate their choices, and (b) to develop a way to assess their interests when communication barriers exist (Mount & O’Brien, 1989). Special education teachers have often been delegated the difficult task of helping students determine their interests and preferences, when all too often the experiential opportunities from which to base these choices as well as the communication
skills necessary to convey their interests are lacking (Smull, 1996). Determining the leisure interests and preferences of people with developmental disabilities is quite difficult because they often lack leisure experience and because there are virtually no leisure assessments appropriate for them.

There is ample literature and research on the employment aspect of transition services (e.g., Baer, Martonyi, Simmons, Flexer, & Goebel, 1996; Hughes & Kim, 1998; Mank, Cioffi, & Yovonoff, 1997; Rimmerman, Levy, & Botuck, 1995; Wehman et al., 1988; Wehman, 1990) as well as the post-secondary education aspect of transition services (e.g., Blackorby & Wagner, 1996; Cowen, 1993; Flexer, 1996; Henderson, 1995; Pitman & Slate, 1994; Rumrill, 1994; Stageberg, Fischer, & Barbut, 1996; Turner & Simmons, 1996; Webster, 1999). Additionally, studies have been conducted on the independent living component of transition (e.g., Biklen & Knoll, 1987; Hall & Walker, 1998; Hulgin, Shoultz, Walker, & Drake, 1996; Klein, 1992; Kregel, Wehman, Seyfarth, & Marshall, 1986; Lakin, Hill, White, & Write, 1988; O’Brien & O’Brein, 1991; Racino, Walker, O’Conner, & Taylor, 1992). However, thus far there is relatively little in the literature on the leisure component of transition services. Leisure enhances an individual’s life physically, emotionally, psychologically, and socially (Cordes & Ibrahim, 1996). When these domains are developed, quality of life is improved.

Through leisure education, individuals can learn to make choices that represent their leisure preferences. Leisure education can help individuals increase their knowledge of leisure opportunities and develop their leisure interests and skills, as a means of
facilitating enjoyment in one’s life (Dattilo, 1999). According to Dattilo, “leisure education is a process through which individuals can develop and enhance their knowledge, interests, skills, abilities, and behaviors to a level where leisure can make a significant contribution to the quality of their lives” (p. 75). Leisure education enables individuals to establish and make plans for reaching leisure goals, as well as to choose and participate in activities in order to determine the importance of leisure in their lives.

Although leisure education can be useful with many groups, it is particularly important to teach people with developmental disabilities about the values, attitudes, and skills associated with leisure for several reasons. First, although some free time is essential in everybody's life, over-abundance of free time can be unproductive and can lead to poor quality of life. Historically, people with developmental disabilities have a good portion of their workday spent in unstructured free time (Fain, 1986), consequently missing out on opportunities to make choices or use choice-making skills. Furthermore, it could be argued that the high rates of unemployment and underemployment for individuals with developmental disabilities contribute to the abundance of unstructured free time; therefore, having significant activities to make free time meaningful is essential.

Secondly, leisure education is indicated because people with developmental disabilities often lack a variety of appropriate social skills (Mastropieri & Scruggs, 1994). Leisure education can provide opportunities to learn and practice social skills in real situations (Russell, 1996). An inherent aspect of leisure involves interacting with
other people. A variety of social interactions provide opportunities in which social skills can be learned, practiced, and honed for individuals with severe developmental disabilities.

Leisure education is important for people with developmental disabilities in that social relationships that are fostered during leisure activities can lead to social connections for further opportunities (Condeluci, 1995; Halpern, 1985; Williams & Dattilo, 1997). For example, while socializing during leisure education, information can be shared about needs and prospects regarding housing, employment, accommodations, and so on. Furthermore, natural support opportunities can be developed through informal socialization.

In education, the assessment of educational and transitional needs is used in making decisions (Ysseldyke, 2004) about the needs, interests, and preferences of transition-age youth with disabilities, as well as programming and educational strategies. Likewise, leisure assessment is critical to the determination of leisure interests, needs, preferences for individuals with disabilities. Additionally, assessment of skills is important for structuring leisure programming (Schleien et al., 1997). Unfortunately, most leisure assessments are not formatted in a way that affords access for transition-age students with severe developmental disabilities and communication difficulties. When the presentation design of the leisure assessment is not taken into consideration, these students can display various response factors (Sigelman, Budd, Winer, Schoenrock, & Martin, 1982; Strand, 1995; Topf, 1986) that may inhibit the communication of their
choices or the facilitator’s interpretation of their choices. These response factors and the preferred methods of presentation will be explored in the Review of the Literature.

Meaningful leisure activities are a vital component in the balance of anyone’s life (Mannell & Kleiber, 1997). The IDEA Amendments (1997) mandated that leisure be considered when developing transitional programs for students with developmental disabilities. Because people with developmental disabilities typically have more unstructured free time, it becomes even more important to consider their leisure development. Assessing leisure interests and preferences is essential, yet current assessment instruments are not intended for individuals with developmental disabilities, particularly those with communication difficulties.

Rationale for Study

As stated earlier, the ultimate goal of special education is to assist individuals with developmental disabilities to attain a level of interdependence and participation in community life as an adult, including participation in community leisure activities (IDEA Amendments, 1997). For individuals with developmental disabilities, meaningful leisure activities are a vital component in the balance of their lives and are essential for enhancing their competence and acceptance. Leisure engagement can be an effective way to provide students with opportunities for health and fitness, as well as for learning appropriate communication and social skills (Schleien et al., 1997). Leisure involvement can also assist the individual with the disability by supporting successes in residential and employment outcomes (Heyne, 1997; Stein & Sessons, 1983). For example, while
socializing during leisure opportunities, a student can make connections with others in
the community regarding residential and employment opportunities and desires.
Although IDEIA mandates the implementation of leisure programming for individuals
with developmental disabilities, it generally has been neglected (Schleien et al.;
Sitlington, 1996). Furthermore, IDEIA mandates planning around an individual’s
personal needs, interests, and desires. However, current leisure assessment tools do not
meet the communication needs of individuals with severe developmental disabilities.
Being afforded the opportunity to choose preferred activities can have lasting benefits for
individuals with developmental disabilities.

Purpose of Study

The purpose of this project was to develop and assess an interactive software
program that uses a forced-choice presentation of photographs to assist transition-age
youth and adults (16 to 22 years old) with developmental disabilities and communication
difficulties in making and communicating choices regarding leisure interests and
preferences. The Preferences for Leisure Attributes (PLA) Assessment was developed
and tested for reliability and validity.

Research Questions

The following questions were addressed in this study: (a) Does the PLA
Assessment (a computerized, forced-choice presentation of leisure activity photographs)
have content validity? (b) Is the PLA Assessment reliable? (c) Does the PLA Assessment
have construct validity? (d) Is the PLA Assessment an effective tool to assist transition-
age youth with severe developmental disabilities and communication difficulties in indicating their leisure preferences?

Definitions

The following terms are defined for the purposes of this study:

1. “Communication difficulties” refers to any difficulty in receptive or expressive communication, including being non-verbal, having limited verbal ability, and/or exhibiting any response bias.

2. “Leisure” refers to a process of self-actualization that begins with a degree of perceived freedom, adds a level of intrinsic motivation, and ends with a satisfying experience.

3. “Recreation” refers to an enjoyable experience.

4. “Severe developmental disabilities” refer to cognitive disabilities that were manifested during the developmental years and that adversely affect a student’s educational progress to a severe degree, requiring special educational services through an Individualized Independence Curriculum.

5. “Transition-age” refers to those students who are 16 to 22 years old and who have an Individualized Education Program and a Transition Program.
CHAPTER II: REVIEW OF THE LITERATURE

The following literature review discusses the importance of leisure and recreation particularly as they relate to quality of life issues. Also reviewed are several studies related to choices and choosing, including methods of presenting choices to individuals with developmental disabilities. Available leisure assessments and their usefulness for assessment with individuals with developmental disabilities is reviewed, and the need for a more appropriate and useful means of leisure preferences assessment instrument for individuals with developmental disabilities is discussed.

The Importance of Leisure and Recreation

Historically, leisure has been conceptualized by some (Gist & Fava, 1964; Meyershon, 1972) as time left over after performing the necessary activities that are required to exist and to acquire the necessities of life. This definition implies that leisure is the opposite of work, or non-obligated and non-productive time. The problem with this definition of leisure is that it assigns leisure a low priority in life. It implies that time used for leisure is a waste of time, because this time does not have obligations or productivity. Cordes and Ibrahim (1996) noted overlapping of time used for existence, subsistence, and free time, meaning that leisure is not a separate entity from survival. Rather, “state of being” and leisure should be thought of as co-existing. In addition, they defined leisure as permission to participate in any activity of one’s own choice, at one’s own pace, and to abandon the activity at will.
From a research perspective, Mannell and Kleiber (1997) classify the definition of leisure by either definitional vantage point or type of phenomenon (Table 2.1).

Distinguishing leisure definitions according to definitional vantage point, leisure can be determined from an external view (the researcher defines what is or is not leisure) or an internal view (the participant defines what is or is not leisure). Leisure definitions distinguished according to type of phenomenon are classified as either objective (leisure is equated with certain activities or time), or as subjective (leisure is equated with certain states of mind, experiences, perceptions, satisfaction of needs, etc.).

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<th>Type of Phenomenon</th>
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<th>Internal</th>
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<td>Objective</td>
<td>Activity, setting, or time period is defined by the researcher as leisure or nonleisure.</td>
<td>Activity, setting, or time period is defined by the participant as leisure or nonleisure.</td>
</tr>
<tr>
<td>Subjective</td>
<td>Experience, satisfaction, or meaning associated with involvement is defined by the researcher as leisure or nonleisure.</td>
<td>Experience, satisfaction, or meaning associated with involvement is defined by the participant as leisure or nonleisure.</td>
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Mannell and Kleiber (1997) suggest that these various ways of defining leisure are not exclusive; instead, a variety of approaches should be used. For example, if leisure is defined solely objectively, individual needs or perceptions may not be taken into account. This view does not take into account, for instance, that although golfing may be enjoyable to some, it can be very stressful to others (Crabtree, 1991). Similarly, when place is stressed as the definition of leisure, for example going to the beach, one assumes...
that an actual location serves the function of being at leisure. Again, individual needs or perceptions are not taken into account in this perspective. Some individuals may prefer going to a cabin in the mountains over going to the beach; and going to the beach, for these people, may actually be stressful as opposed to leisurely.

Considering leisure as a state of mind assumes that leisure and work are not opposites. Leisure is not the absence of work or obligations, but it is a perspective that allows us to find enjoyment in everyday occurrences, a way of being at peace with oneself and what one is doing (Neulinger, 1981). Leisure is a state of being one's self, a state of self-expression and freedom; expressing one’s talents, capacities, and potential; or doing something from which one can derive meaning and satisfaction. Therefore, leisure ought to exist in one’s life in a deeper sense than just activity, in order to bring meaning to one’s life. In fact, a state of leisure is prerequisite to a productive occupation, in that leisure is a state of mind that produces effectiveness and efficiency (Dahl, 1972) and that allows people to cope with stressful events in their lives (Mannell & Kleiber, 1997). We are expected to find meaning in life from our work; if we are lucky, we will have work that will allow us to be in a state of leisure. At the very least, we need to find some time during the day to be at leisure (Cordes & Ibrahim, 1996).

Leisure is a process of self-actualization that begins with a degree of perceived freedom, adds a level of intrinsic motivation, and ends with an enjoyable experience (Crabtree, 1991; Neulinger, 1981). Recreation then may be considered the final stage of the process of leisure. In other words, “professionals do not develop a program which is
recreation, but the individuals participate in activities anticipating the result to be recreation” (Crabtree, p.9). Recreation is the result of an experience that contributes to the wholesome development of a person. Kalahar (1975) described leisure activity as self-actualizing, rewarding, fulfilling, and both the means and an end. Inherent in the process of leisure is the ability to freely choose to participate, or not, as well as the ability to choose in which activity to participate, and when to abandon the activity. For people with developmental disabilities to lead fulfilled, self-actualized lives, they need to be afforded opportunities to experience leisure activities that they choose and find meaningful.

**Beneficial Aspects of Leisure**

There are four aspects of leisure that are commonly considered beneficial to most individuals (Cordes & Ibrahim, 1996). The first aspect is the physical benefit including cardiovascular fitness, flexibility, endurance, strength, and body composition. Second is the emotional benefit, which includes satisfaction (fulfillment of wants and needs, contentment, source of enjoyment), attitude (tendency to feel toward or react to an object or subject in a given way), and value (quality of being worthwhile, important, desirable). The third aspect is the psychological benefit, which includes self-actualization (full use and exploration of talents, capacities, and potentialities), flow (optimum condition between anxiety and boredom), learning (gaining knowledge), and spiritual growth (when one gains greater insight into his/her place in the universe). Finally, the fourth aspect of leisure that Cordes and Ibrahim identify as being beneficial is the social aspect,
which includes gaining an understanding of society’s customs, values, and expectations. It is especially the psychological and social functions of leisure that make leisure important to the quality of life for all people (Roberts, 1999).

Physical Benefits

Aspects of physical fitness include muscle strength and endurance, flexibility, body composition, and cardiovascular endurance. Several studies have shown that individuals with developmental disabilities have significantly lower levels of physical fitness than the general population (Croce, 1998; Rimmer, 1998; Seaman, Corbin, & Pangrazi, 1999; Sheppard, 1990). The lower levels of muscle strength and endurance can make it difficult for individuals with disabilities to perform activities of daily living, work duties, and recreational activities. Additionally, researchers have shown that good upper body strength increases vocational opportunities, and that there is a positive relationship between muscle strength and the performance of people with mental retardation in industrial work settings (Rimmer, 1996).

Most researchers who have studied the cardiovascular fitness of individuals with mental retardation reported decreased level of aerobic capacity compared to peers in the general population (Fernhall, 1986; Fernhall, Pitetti, Stubbs, & Stadler, 1996). Furthermore, according to the Center for Disease Control and Prevention (1997), 33% of males and 36% of females within the general population are considered overweight. This statistic seems to be even larger for individuals who have developmental disabilities. Rubin, Rimmer, Chicoine, Braddock, and McGuire (1998) measured the body mass index
(BMI) of 283 individuals with Down syndrome, ages 15 to 69 years. They found that, in this population, 45% of males and 56% of females were overweight, a higher prevalence than the general population. This indicates that individuals with Down syndrome are at greater risk for diseases related to overweight than the general population. The results of each of these studies (i.e., that people with disabilities have lower levels of physical fitness) indicate a need for the physical benefits of leisure activity. Adherence to leisure activities for the purpose of gaining physical benefits might be improved with the provision of choices. Individuals with developmental disabilities have been shown to attend to a task longer when provided with a choice (Parsons, Reid, Reynolds, & Bumgarner, 1990; Bambara, Ager, & Koger, 1994).

Emotional Benefits

The emotional benefit of providing opportunities for engagement in leisure activities includes self-satisfaction, healthier attitude, sense of belonging, and improved sense of self-value. Competence in free-time activities leads to a positive change of self-concept (Dattilo, 1999), which in turn leads to increased productivity and efficiency during work time. This positive change of self-concept also would indicate a positive cycle of self-actualization, which could improve an individual’s quality of life. Although the literature on emotional well being of students with developmental disabilities is virtually nonexistent, they may gain the same emotional benefit (such as enjoyment, satisfaction, and a sense of well being) from leisure as the non-disabled population. Therefore, when individuals with developmental disabilities are encouraged to participate
in their preferred activities, these leisure activities are a practical vehicle for them to
develop positive emotional outcomes.

**Psychological Benefits**

There are four areas of psychological well-being that are typically considered to
benefit from leisure activity. The first area is self-actualization, which is defined as full
use and exploration of talents, capacities, and potentialities (Maslow, 1970). This is an
area that has long been a goal of special education: assisting students to reach their fullest
potential (PL 94-142, 1975; IDEA Amendments, 1997; IDEIA, 2004). Affording students
the opportunity to make leisure choices can facilitate the development of their self-
actualization.

Another area of psychological benefit is flow, or the optimum experience between
anxiety and boredom (Csikszentmihalyi & Csikszentmihalyi, 1988; Csikszentmihalyi,
1990). In other words, the activity in which an individual is involved must be challenging
enough to not cause boredom, yet not so challenging as to cause anxiety. Historically, if a
person with a developmental disability attended sheltered work, a good portion of the
workday could have been spent in unstructured “down-time,” or free-time (Bellamy,
1980). Unfortunately the literature does not indicate any major change in this practice.
This free-time needs to be met with the appropriate level of challenging activity, for each
individual, in order to meet that optimal experience between boredom and anxiety.
Therefore, the importance of choosing leisure activities and developing skills in these
areas, particularly how to occupy one’s free time to maintain flow, should be a focus, especially in the transitional years of adolescence.

A third area of psychological benefit is learning, or gaining knowledge (Cordes & Ibrahim, 1996). Being given multiple opportunities to choose to participate in real life experiences allows individuals, with or without developmental disabilities, to learn about the activity and to develop physical and social skills. In addition, students with developmental disabilities learn best in the environment in which they are expected to perform (e.g., McCord, 1983; McDonnell, Wilcox, & Hardman, 1991), which is indicative of community-based programming. Thus, real life leisure activities are an avenue for students with developmental disabilities to learn not only about the dimensions of the activity itself, but also about their environment as well as their culture.

Finally, the fourth psychological benefit from leisure activity for the general population is spiritual growth. The spiritual function, according to VanAndel (1998), is the ability to find meaning and purpose in life. This involves gaining a greater insight into one’s place in the universe, thus resulting in a better quality of life and a sense of well-being. The nonexistence of literature in this area in regard to individuals with developmental disabilities is indicative of the neglect of its consideration with this population.

Social Benefits

Leisure and recreational activities can provide opportunities for skill development, social interaction, cultural ritual, personal autonomy, and language
development, as well as opportunities for developing social networks and personal identity in society (Russell, 1996). Individuals with developmental disabilities can experience the same social benefits of leisure. Recreational activities are excellent ways to provide students with opportunities to learn appropriate behavior and communication and social skills (Haring, Breen, Pitts, Lee, & Gaylord-Ross, 1987; Lord, 1997; Stein & Sessons, 1983), all important transition outcomes. In fact, the support most crucial to community adjustment is that which is provided by the social and interpersonal networks (Halpern, 1985; Landesman-Dwyer & Berkson, 1984; O’Conner, 1983), including friendships (Pogrebin, 1987), which are frequently acquired and maintained in leisure settings of choice. However, individuals with developmental disabilities have few, if any, social relationships other than family, paid support staff, or other people with developmental disabilities (Condeluci, 1995). An overwhelming majority of individuals with developmental disabilities are found in the community, not in highly segregated institutions. Yet, “unfortunately, despite research showing benefits of inclusion, implementation has been slow and has sometimes been met with resistance” (Dattilo, 2002, p. 226). Recreation and leisure programming can serve as a vehicle for community integration, self-determination, and self-actualization if we accept the postulate that one of the more beneficial aspects of a recreation program is the social development that results from the interaction with others in a play setting. In fact, leisure can provide important opportunities for individuals with developmental disabilities to develop valued meaningful reciprocal relationships (Dattilo & Jekubovich-Fenton, 1995), especially
when they are participating in opportunities of choice. Therefore, in the pursuit of self-actualization for students with developmental disabilities, leisure plays a very important role.

In summary, when an individual chooses and participates in an activity with the intention of recreation, the many benefits can include these physical, emotional, psychological, and social domains. The benefits of leisure described here are beneficial to people with developmental disabilities as well. Moreover, development in these domains is indicative of positive post-school outcomes that are mandated by IDEIA. Achieving positive post-school outcomes is important for a full and satisfying life--a life of engagement, a life of quality.

**Issues in Recreation and Leisure Related to Choice-Making**

Several concepts are prevalent in the literature involving leisure: the concepts of quality of life, free choice, and perceived freedom. Tangentially, these concepts are topics that are frequently addressed in the special education literature as well (Felce & Perry, 1995; Halpern, 1993; Schalack & Siperstein, 1997). In fact, as ideals they are frequently goals of special education programs, often sought in order to achieve optimum transition outcomes. Therefore, it is important for special educators to seek the same leisure outcomes for individuals with developmental disabilities as for the typical population.

In addition, the four aspects of leisure (physical, emotional, psychological, and social) that are beneficial to all individuals (Cordes & Ibrahim, 1996) are equally
beneficial to individuals with developmental disabilities. The beneficial physical, emotional, psychological, and social aspects of leisure, as well as quality of life, free choice, and perceived freedom are all issues that need to be addressed by special educators, as special education programs are often the only place where students with severe developmental disabilities will receive instruction. The following section addresses literature regarding the importance of leisure and recreation for individuals with developmental disabilities as it pertains to the topics of quality of life, free choice, and perceived freedom.

Quality of Life

Quality of life (QOL) research has expanded greatly, parallel to the transition movement during the 1980s. Early comprehensive definitions of QOL focused on life satisfaction, personal happiness, and the individual/environment match (Marinoble & Hegenauer, 1988). Several psychological and interpersonal factors were associated with QOL. For example, Campbell (1981) reported a high positive correlation between levels of self-esteem and life satisfaction; perceived control over one’s life, or an internal locus of control, and QOL were found to have a positive relationship (Abbey & Andrews, 1985; Margalit & Cassel-Seidenman, 1987). Moreover, QOL was closely associated with the number of interpersonal relationships (Schuessler & Fisher, 1985) as well as with the quality of one’s interpersonal relationships (Baird, 1985). And social interaction and social support were reported to be essential for QOL (Abbey & Andrews, 1985; Gecas, 1982; Taft, 1985). Still, it is important to note that although QOL is always rooted in
social structure and practice, it is simultaneously an individual experience (Halpern, 1993; Felce & Perry, 1995; Marinoble & Hegenauer, 1988). In other words, what one person considers to be a quality life, may not be for another.

Employment has been a long-standing meter for evaluating success of transition programs and interpreting QOL for individuals with developmental disabilities. Transition services for students in special education began with the focus entirely on employment (Will, 1984), implying that successful employment meant a high QOL for individuals with developmental disabilities. Yet, although successful employment might be necessary for QOL, it may not be sufficient. Brief and Hollenbeck (1985) found that job satisfaction had little to do with overall QOL, and Murrell, Schulte, Hutchins and Brockway (1983) found that merely being employed does not necessarily improve QOL. Although employment might be an important attribute in the normalization process, it may not be the most important criteria for achieving high QOL. These studies looked at “successful employment,” yet did not mention the opportunity for choice in employment.

There is more to quality of life than merely being employed; so far the majority of the transition literature deals with employment issues (Halpern, 1990). Several researchers have demonstrated that other domains are at least equally important in determining quality of life (e.g., Condeluci, 1995; Marinoble & Hegenauer, 1988). A summary of two such studies follows.

Marinoble and Hegenauer (1988) conducted a field study with 45 individuals, ranging in age from 20 to 50 years. Subjects in this study had a variety of disabilities
including cerebral palsy, head trauma, deafness and hearing impairments, blindness and visual impairments, learning disabilities, developmental disabilities, and emotional disabilities. Through the study, Marinoble and Hegenauer explored eight domains of QOL during face-to-face interviews. The eight domains included environment, employment/occupation, education/training, health, community utilization, personal management, leisure/recreation, and interpersonal relationships. Of the eight domains, three emerged as areas needing improvement, or contributing to negative experiences/feelings. These were interpersonal relationships (e.g., getting along with others, friendships, opportunities to share activities/feelings), environment (e.g., living situation, neighborhood, privacy, opportunities for independence within the home setting), and community utilization (e.g., transportation, agency services), with interpersonal relationships being mentioned most frequently. Interviewees who had occupations clearly had an increased sense of self-worth; but employment was not reported to be as big of a determinant of QOL as interpersonal relationships, environment, or community utilization. Although control over one’s life (Margalit & Cassel-Seidenman, 1987) was mentioned in determining high a level QOL, this aspect of internal locus of control was not prevalent in the discussion of the eight domains.

In *Interdependence: The Route to Community*, Condeluci (1995) refers to four basic goals that, in his experience, are the main thrust of rehabilitation and are vital to every person: (a) a safe place to live, (b) meaningful things to do, (c) intimacy, and (d) rejuvenation. Condeluci defines the goal of rejuvenation as the time and opportunity to
“refresh and recollect ourselves,” something that is necessary for all individuals. Although the goal of transition services is to focus on each of these areas, many special education programs focus on employment only, neglecting the goal of rejuvenation, which is inherent in a leisure experience. As Condeluci established in his research, the area of recreation and leisure is important in the lives of individuals with developmental disabilities.

Condeluci (1995) administered a survey to individuals with developmental disabilities in Pittsburgh regarding the areas of service or programs that were essential to them. Results of the survey indicated that although other services were important, recreation “far outpolled its closest competitor, housing.” Without question, recreation is a vital need of all people. This 1980 survey demonstrated two important facts: (a) recreation was most important to the individuals with disabilities and (b) there were few recreational opportunities available for people with disabilities. Today, we may be seeing more recreational opportunities, but these are often “segregated, isolated, or terribly childlike” (Condeluci, 1995). The problem is: How do people with disabilities make choices regarding leisure when their opportunities are limited and the opportunities that do exist may not be preferred by the individual?

Condeluci’s 1980 survey demonstrated the importance of recreation and leisure in the lives of people with developmental disabilities, yet special educators continue to neglect this area in research as well as in special education curricula. Indeed, the number of textbooks and articles that address the employment aspect of transition, and the lack of
those that address nonwork outcomes such as leisure, is indicative of the neglect of leisure programming (Ludlow, Turnbull, & Luckasson, 1988). For example, Halpern (1990) reviewed 41 follow-along and follow-up studies related to transition. Of these studies, 100% addressed career or employment aspects; 44% addressed social networks and relationships; 32% addressed personal satisfaction; 24% addressed food, clothing, and lodging; and 24% addressed leisure and recreation.

Recognizing that employment is not the only indicator of QOL, Halpern (1985) expanded the transition model to include residential and personal/social domains as contributing to a higher QOL. The 1997 reauthorization of IDEA (the IDEA Amendments, 1997) expands the ideal of QOL even further to include personal choice. Moreover, the notion of freedom of choice is inherent in the definition of leisure.

**Choices, Perceived Freedom, and Person-Centered Planning**

Individuals with developmental disabilities have typically had little input into decisions affecting their lives, yet personal choice is considered to be an underlying principle when addressing quality of life (Halpern, 1993). Behavior under free-choice conditions is more diagnostic than behavior under constraint (Jones, 1979). The language of IDEIA (2004) states:

The term ‘transition services’ means a coordinated set of activities for a child with a disability that – (A) is designed to be within a results-oriented process, that is focused on improving the academic and functional achievement of the child with a disability to facilitate the child’s movement from school to post-school activities, including post-secondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation; (B) is based on the individual child’s needs, taking into account the child’s strengths, preferences,
and interests; and (C) includes instruction, related services, community experiences, the development of employment and other post-school adult living objectives, and, when appropriate, acquisition of daily living skills and functional vocational evaluation.

The intent of this section of IDEIA (2004) is that students and their families are afforded the right (and responsibility) to become actively involved in the planning, objective development, decision-making process, and service coordination for their future (Martin, Huber-Marshall, & Maxcon, 1993; Wehmeyer & Ward, 1995). Prior to the enactment of this provision of the law, teachers and other professionals commonly made prescriptive choices for the student, often out of their own convenience, or available options within their own schools. Dell and Arthur (1984), however, have suggested that the role of special educators and other service providers is to elevate an individual’s experience to a level of choice rather than default. Consequently, the concept of person-centered planning has evolved with the intention of providing opportunities for choice to people with developmental disabilities.

Person-centered planning began in the mid 1980s in order to obtain an understanding of the needs and desires of individuals with developmental disabilities (O’Brien, O’Brien, & Mount, 1997) and using that information to develop a plan to obtain those desires (Smull, 1996). It is an ongoing process, a means to an end (O’Brien et al., 1997; Smull, 1996). Person-centered planning empowers people with developmental disabilities to make their own decisions based on their own personal goals and desires, instead of someone else’s (Miner & Bates, 1997). Current service delivery models, federal and state legislation, and individual programming have dramatically
impacted the lives of individuals with developmental disabilities by initiating a person-centered approach to program planning and service delivery.

The simplest way to determine an individual’s preferences is to ask. However, some students with developmental disabilities do not have the communication skills needed to state their preferences, nor the life experiences necessary to make an informed decision (Smull, 1996). In these cases service providers often turn to family members or other significant caregivers for information. Unfortunately, individuals with developmental disabilities can be inadvertently maintained in ongoing passive roles when service providers rely on family members or significant others for pertinent information. It takes many hours of observation along with a deep level of understanding in order to “hear” the choices and preferences of individuals with severely limited communication skills (Smull, 1996).

**Capacity to Make Choices**

A probable reason that individuals with developmental disabilities historically have not been afforded the opportunity to make life choices is that their service providers believed that they had diminished abilities to reason and think and did not have the capacity to make choices (Brown, 1991; Bannerman et al., 1990; Dattilo & Rusch, 1985). Consequently, services were provided in a protective model in order to shelter individuals with developmental disabilities from themselves as well as from society. Several researchers have demonstrated that individuals with severe developmental
disabilities indeed have preferences for certain tasks (e.g., Bambara et al., 1994; Bambara et al., 1995; Dattilo & Mirenda, 1987; Parsons et al., 1990).

Perhaps their capacity to choose a task lies with the ability of the service provider to provide adequate means of communication. In an attempt to identify preferences, Dattilo and Mirenda (1987) provided three children who were severely disabled, non-speaking, and 10 to 12 years old with a switch-activated microcomputer in order to systematically access leisure preferences. The students were provided with a choice between two of five leisure activities such as watching a slide show, watching action videos, listening to music, using a blender and drinking a milkshake, or feeling vibrations. Each of the three students was able to use the switch-activated microcomputer in order to make his or her choices known consistently.

Parsons, Harper, Jensen, and Reid (1997) investigated choice-making skill in seven adults who were 49 to 67 years old, who had severe developmental disabilities, and who lacked verbal communication skills. They found that five of the adults were able to express their preferences by choosing between two objects that represented the activities, while the other two were able to choose between two pictures of the activities. Through conducting their research, Parsons et al. (1997) identified various aspects to take into account when presenting choices to individuals with developmental disabilities. An individual’s lateral preference, in terms of always choosing the picture or object on the left or right side, must be taken into consideration so that the results are not confounded. And if an individual’s choice-making skill level is overestimated or underestimated, then
functional choice opportunities can be limited. To illustrate, if an individual requires visual presentation of representative objects in order to respond with a valid choice, then that individual is not likely to benefit from a choice opportunity presented vocally. Likewise, when an individual can make choices from pictures of activities, using actual objects to present choices unnecessarily limits that individual’s choices to only those activities for which materials are readily available in the immediate environment (Parsons et al.). Individuals with developmental disabilities can choose preferred activities, and they can experience enjoyment and control through participation in preferred leisure activities (Dattilo & Mirenda, 1987).

**Self Determination**

Self-determination is the ability to make choices and decisions regarding one’s own quality of life free from unnecessary external influence or interference (Martin, Marshall, & DePry, 2001; Wehmeyer & Schwartz, 1997). Individuals with developmental disabilities indeed have a preference for certain tasks (Bambara et al., 1994; Bambara et al., 1995; Parsons et al., 1990), and are able to make choices when provided with the appropriate method of choice opportunities for their individual skill level (Dattilo & Mirenda, 1987; Parsons et al., 1997). When students with developmental disabilities are offered choices in a manner that is mindful of their skill level (Parsons et al., 1990), then they can exhibit a higher degree of self-determination in taking control of how their leisure time is spent, thus enhancing their quality of life (Newton, Ard, & Horner, 1993).
Besides allowing for self-determination, providing individuals with choices increases performance in activities and prevents or reduces problem behaviors (Bambara et al., 1994; Bambara et al., 1995; Dyer, Dunlap, & Winterling, 1990; Parsons et al., 1990). According to Kauffman, Hallahan, Mostert, Trent, and Nuttycombe (1993, pp. 44–45),

One of the simplest but frequently overlooked techniques of managing problem behavior is giving people choices … individuals in all kinds of social situations are likely to behave more constructively when they perceive that they have the power to make choices that are important to them. Conversely, people often behave badly when they feel "boxed in," perceiving they have no choices.

Providing choices has been shown to be effective in modifying disruptive or aggressive behaviors across different populations of individuals with developmental disabilities. Choice-making has been studied with a variety of subjects, settings, and research designs. Several examples follow. Researchers have studied adults with moderate mental retardation and severe behavior problems (Parsons et al., 1990), adults with severe and profound mental retardation (Bambara et al., 1994; Bambara et al., 1995), children (ages 5 to 11 years) with severe autism and/or mental retardation (Dyer et al., 1990), and children (ages 5 to 11 years) with severe emotional and behavioral disorders (Dunlap et al., 1994).

Studies regarding choice-making were also conducted in different environmental settings. Several studies were conducted within work environments (Bambara et al., 1994; Parsons et al., 1990). For example, Bambara et al. (1994) conducted observations in a mailroom enclave and in a segregated training center during typical work routines.
Parsons et al. observed work performance at a sheltered workshop. Other settings observed by the researchers included a group home (Bambara et al., 1995), a classroom on the campus of a residential center (Dyer et al., 1990), and in self-contained classrooms for students with emotional disorders (Dunlap et al., 1994).

Several of the studies involved pretraining on how to make choices (Dyer et al., 1990) or to assess task preferences (Bambara et al., 1995; Parsons et al., 1990) prior to implementation of the intervention. Each of the studies implemented a variation of a reversal design. Some studies were as simple as a choice vs. no choice design (Bambara et al., 1995; Dunlap et al., 1994; Dyer et al.). Parsons et al. used the following treatment phases: assigning an individual to work on a high-preference task, assigning an individual to work on a low-preference task, and allowing an individual to choose to work on either a high-preference or a low-preference task. Bambara et al. (1995) used four prompting conditions: direct imperatives (i.e., direct requests), indirect imperatives (i.e., prompts were phrased as questions), choice (i.e., offered a choice between two tasks), and conditional choice (i.e., direct imperatives were modified by adding a conditional phrase that offered control over when or if to take initiative). The following paragraphs describe these studies in more detail.

In one study, individuals with developmental disabilities attended to a task twice as much when they chose that task than when the task was chosen for them (Parsons et al., 1990). Parsons et al. provided choices to four adults, ages 31 to 38 years, who attended a sheltered workshop, two who functioned in the moderate range of mental
retardation, and two in the severe range. All four individuals exhibited behavior problems such as aggression, and all four had limited verbal ability. Each subject was exposed to three treatment conditions: (a) being assigned a high-preference task, (b) being assigned a low-preference task, and (c) being offered a choice of tasks to work on. Each participant was exposed to all three treatment conditions each day. On-task behavior for each participant was highest during conditions of being assigned to work on a high-preference work task and being provided the opportunity to choose a work task (average 90% and 91%, respectively). On-task behavior was lowest (average 46%) during the condition of being assigned a low-preference task. Results of this study indicated that individuals with severe developmental disabilities attended to a task nearly twice as much when they had chosen that task (even if the chosen task was not a preferred task) or if the task was a high-preference task.

Bambara et al. (1994) found similar results when they evaluated five adults with severe or profound mental retardation in either a work enclave or segregated training center during a typical work routine. On-task behavior was recorded using momentary time sampling during three conditions: (a) assignment of a high-preference task, (b) assignment of a low-preference task, and (c) choice between the high- and low-preference tasks. They found that when the participants were either assigned a high-preference task or presented with a choice condition, the participants demonstrated higher levels of on-task behavior than when assigned a low-preference task. However, for one of the participants, differences occurred between the choice and no-choice conditions,
although he did not demonstrate a strong preference for either task. This would indicate that, for this participant, the mere act of choosing was preferred over being assigned a preferred task.

Attention to task is important if educators are to be successful in helping students with developmental disabilities to achieve their highest potential in leisure skill as well as in the social skills that accompany the leisure activities. But attention to task is not sufficient for learning and development to take place; an individual also needs to actively participate in the task for optimum learning to take place.

Positive effects of choice-making on increasing participation in activities have been demonstrated (Bambara et al., 1995; Dunlap et al., 1994). Students learn best when they are actively engaged (McDonnell et al., 1991). Bambara et al. (1995) observed five adults with severe or profound mental retardation during conditions of low-preference assignment, high-preference assignment, and choice of work activity. They demonstrated that participation was highest during choice conditions, and lowest during low-preference assignment conditions.

Similarly, Dunlap et al. (1994) observed two 11-year-old elementary school children with emotional and behavioral challenges during choice and no-choice conditions in order to investigate the influence of choice-making on task engagement and disruptive behavior. Both boys were fifth graders in a public elementary school, and in a self-contained classroom serving students who were labeled emotionally handicapped. All procedures were conducted during two regularly scheduled periods of independent
seatwork: spelling and English. The dependent variables for both students were disruptive behavior and task engagement. Activities that were presented during both of the conditions were typical independent activities that were appropriate for their educational objectives. Reversal designs were used to evaluate the influence of choice-making on task engagement as well as on disruptive behavior. As with the Bambara et al. (1995) study, task engagement was demonstrably higher during choice conditions. In addition, in this study none of the activities had been determined to be preferred or non-preferred activities; rather, both students regularly complained about working on the tasks. However, these complaints were not displayed during choice conditions, even though the student frequently worked on the same activities during both conditions.

If students are to reach their greatest potential in recreation and leisure, and if they are to gain the maximum accompanying social skills, they need to voluntarily participate. It would seem that the results of the Bambara et al. (1995) and Dunlap et al. (1994) studies would carry over to the leisure/recreation field, possibly even more so, because choice and perceived freedom are defining qualities of leisure. Certainly this is another area needing further investigation.

Providing an individual with choices increased performance in activities, and prevented or reduced problem behaviors (Bambara et al., 1994; Bambara et al., 1995; Dyer et al., 1990; Parsons et al., 1990). Although the previous sections addressed attention to task and active engagement in a task, special educators are aware that optimum performance in the task is also desirable and an often pursued goal. Results of
the Bambara et al. (1994) and Parsons et al. studies indicate that preference for a task may be an important determinant in the effectiveness of choice in influencing task performance. In other words, when a subject was offered a choice including a high-preference task, once selecting that task, their performance was higher than when choosing between two low-preference or non-preferred tasks. In order to achieve optimum performance on leisure skills then, it would seem that it is not enough to just provide choices to students with developmental disabilities. Rather it is necessary to determine an individual’s preferences first, and then offer choices of those preferred activities.

For some individuals just the act of choosing may be preferred over being assigned, even when assigned a preferred task (Bambara et al., 1994; Parsons et al., 1990). The importance of understanding the preferences of each individual cannot be overstated, and consequently speaks to the notion of perceived freedom of choice and locus of control. If an individual is truly at leisure, then they have a level of perceived freedom that is inherently crucial to their personal development.

In summary, the results of these studies suggest at least five important factors: (a) individuals with developmental disabilities indeed have preferences for certain tasks; (b) individuals with developmental disabilities will attend to a task twice as much when they have chosen that task; (c) choice-making has been shown to increase participation in activities; (d) providing an individual with choices has been demonstrated to improve performance in activities and to prevent or reduce problem behaviors; and (e) for some
individuals just the act of choosing may be preferred over being assigned, even when assigned a preferred task.

Methods of Presenting Choices to Individuals with Disabilities

The previous section discussed the various ways in which choice is important to individuals with developmental disabilities. Not only is choice important for increasing task attention, participation, performance, and self-determination, it is also mandated by IDEIA. Although it may be apparent that individuals with developmental disabilities indeed have preferences (Bambara et al., 1994; Bambara et al., 1995; Parsons et al., 1990) and that service providers are obligated to provide choices and determine preferences (Smull, 1996; O’Brien et al., 1997), the question of how best to determine preferences remains.

Unfortunately special educators and service providers cannot “just ask” many individuals with developmental disabilities; they will too often get an invalid response, due to the many response factors that are involved. For example, Sigelman, Budd, et al. (1982) examined methodological issues involved in interviewing 52 individuals with developmental disabilities. The individuals ranged from 11 to 17 years old, and their disabilities ranged from mild to moderate mental retardation. Questioning techniques were evaluated for (a) the extent to which subjects could provide an answer, (b) the extent to which answers agreed with parallel answers given by parents or attendants, and (c) the extent to which answers were free from systematic response bias (e.g., carelessness, social desirability, extremity, acquiescence; Topf, 1986). The results
indicated that open-ended questions were ultimately unanswerable by the individuals with developmental disabilities. When the open-ended questions were supplemented with clarifying examples and probes, the response bias was only exacerbated. A yes/no checklist resulted in significant acquiescence bias, or the tendency to continually answer “yes” regardless of the question. Forced-choice questions, particularly with pictures, increased the validity of the responses for individuals with developmental disabilities. Sigelman, Budd, et al. (1982) concluded that when questioning individuals with developmental disabilities, one can never assume the validity of their answers; validity must always be demonstrated. Furthermore, yes/no questions are generally a poor technique to use when questioning individuals with developmental disabilities.

In another study, Sigelman and Budd (1986) interviewed 176 institutionalized and non-institutionalized children and adults ranging in disability from mild to severe, and with limited ability to respond. They asked the same questions first without, then with accompanying drawings intended to clarify the question content. The drawings had no impact on the yes/no questioning technique, but they did improve responsiveness to the forced-choice questions (multiple choice and either-or) and decreased bias toward choosing the last of two or three options. The line drawings seemingly facilitated keeping all of the options of the forced-choice questions in short-term memory.

More recently, Strand (1995) interviewed 60 adults with developmental disabilities, all working in sheltered workshops. The interviews were conducted in two different settings: a one-on-one setting and again during the individual plan meeting.
Results indicated that individuals with developmental disabilities were likely to acquiesce to questions in both settings. Strand concluded that although the answers may be consistent over time, the individual with developmental disabilities might not be providing true reflections of their choices, preferences, or desires.

In summary, although individuals with severe developmental disabilities in fact have preferences for certain tasks (e.g., Bambara et al., 1995; Parsons et al., 1997), there are many response factors that hinder attempts to determine those preferences (e.g., Sigelman, Budd, et al., 1982; Strand, 1995). This is problematic, because the individual planning process requires the determination of, and planning around, personal preferences. Assessment processes need to find a way to determine preferences despite response factors.

**Leisure Assessment**

Assessment is a critical component to the leisure or recreational area of transition for youth with developmental disabilities. A leisure assessment identifies the leisure preferences and interests of the student, as well as other information that is important when trying to ascertain leisure skills and interests including: leisure interests, leisure preferences, leisure skills, history of leisure participation, knowledge of opportunities, barriers to participation, current activity patterns, family and friend involvement in leisure pursuits, and medical considerations (i.e., limitations and precautions; Schleien et al., 1997). In addition, assessment can assist with identification of outcome goals.
Several leisure assessments have been developed for the general population (Appendix A). These instruments consist of interest checklists, questionnaires, or interview-style open-ended questions. Some of the more readily available leisure assessment instruments that address leisure interests and preferences for the general population are summarized in Table 2.2.

The Leisure Motivation Scale (LMS; a subscale of the Idyll Arbor Leisure Battery) requires the individual to have moderate to no cognitive impairment (IQ 80+) and use basic reading and math skills to assess motivation for participation in leisure activities. For this reason, the LMS is not an appropriate tool to use with individuals with severe disabilities and communication difficulties. Another subscale of the Idyll Arbor Leisure Battery, the Leisure Interest Measure (LIM) measures an individual’s interest in eight domains of leisure activities. It contains 29 statements that are read by the individual or to the individual, and to which the individual responds by indicating on a scale of 1 to 5 how “true” the statement is. Whether the individual self-administers the assessment, or a professional reads the statements to the individual, the LIM requires the individual to have moderate to no cognitive impairment, and requires reading and math skills. Again, these are requirements that do not meet the needs of individuals with severe disabilities and communication difficulties.
<table>
<thead>
<tr>
<th>Name and Purpose of Assessment</th>
<th>Author(s)</th>
<th>Recommended Group</th>
<th>Reliability &amp; Validity</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idyll Arbor Leisure Battery (IALB) Leisure Motivation Scale (LMS): measures a client’s motivation for participation in leisure activities</td>
<td>Mounir Ragheb, Jacob Beard</td>
<td>Clients with moderate to no cognitive impairment; adapted IQ of 80 or above</td>
<td>Internal consistency reliabilities range from .90 - .92</td>
<td>Basic reading and math skills are required to take this assessment</td>
</tr>
<tr>
<td>Idyll Arbor Leisure Battery (IALB) Leisure Interest Measure (LIM): helps identify the degree to which a client is interested in each of the 8 domains of leisure activities</td>
<td>Jacob Beard, Mounir Ragheb</td>
<td>Clients with moderate to no cognitive impairment; adapted IQ of 80 or above</td>
<td>Alpha reliability for entire scale = .87</td>
<td>Developed to be used with “normal” populations to self-administer and score</td>
</tr>
<tr>
<td>Leisurescope Plus and Teen Leisurescope Plus: measures the degree of interest an individual has in ten areas of leisure</td>
<td>Connie Nall Schenk</td>
<td>Teens and adults with little to no cognitive impairment</td>
<td>Test-retest reliability ranges from .58 - .84 (p&lt;.001+) in all categories; validity against Holland Codes ranged from -.21 - .46 (p=.001+); against Sensation Seeking Scale ranged from -.23 - .67 (p=.001+)</td>
<td>Test is designed to be self-administered and self-scored</td>
</tr>
<tr>
<td>Idyll Arbor Activity Assessment: gathers information about an individual to be able to develop a treatment plan (e.g., personal and medical history, leisure interests, leisure history, individual performance/ social strengths, and maladaptive behaviors)</td>
<td>Joan Burlingame</td>
<td>Clients who live in nursing homes or other long-term care facilities</td>
<td>Description given – no psychometric results listed</td>
<td>Service provider fills out assessment report form</td>
</tr>
<tr>
<td>Assessment of Leisure and Recreation Involvement (LRI): measures an individual’s perception of his/her involvement in leisure and recreation</td>
<td>Mounir G. Ragheb</td>
<td>Individuals who have moderate to no cognitive impairment</td>
<td>Alpha reliability for subscales ranged from .90 to .78 with .95 total on Long form and .93 total on Short form</td>
<td>Intended for use with general population</td>
</tr>
</tbody>
</table>
### Overview of leisure assessments that address choices (Burlingame & Blaschko, 2002)

<table>
<thead>
<tr>
<th>Name and Purpose of Assessment</th>
<th>Author(s)</th>
<th>Recommended Group</th>
<th>Reliability &amp; Validity</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leisure Assessment Inventory (LAI): measures leisure behavior of adults, including preference for some activities over others and leisure interest</td>
<td>B. A. Hawkins, P. Ardovino, N. Brattain, A. Foose, N. Ohlsen</td>
<td>Seniors and adult with developmental disabilities, middle-aged and older adults with moderate to no cognitive disabilities</td>
<td>Intercorrelations among LAI indexes range from -.28 - .47 ($p &lt; .01$); reliability scores range from .48 - .84 ($p &lt; .01$)</td>
<td>Uses pictures for older adults; uses probing questions and requires individuals to provide reasoning for selections</td>
</tr>
<tr>
<td>State Technical Institute’s Leisure Assessment Process (STILAP): measures client’s indicated interests in various activities, areas client is interested in learning more about, and the degree to which the client’s leisure lifestyle is balanced</td>
<td>Nancy Navar &amp; Joan Burlingame</td>
<td>Clients with MR/DD and adolescents and adults with physical or psychological disabilities</td>
<td>There is disagreement as to whether there is any stated reliability or validity.</td>
<td>Suggested for use with clients over the chronological age of 10; may require assistance from client’s family or significant others; activity checklist</td>
</tr>
</tbody>
</table>

The Leisurescope Plus measures the degree to which teens or adults with little to no cognitive impairment have interest in 10 areas of leisure. The assessment uses 45 visual comparisons and is designed to be self-administered and self-scored, requiring reading and math skills. Additionally, although the reliability of the Leisurescope Assessment is fair to good, its validity as measured against Holland Codes and Sensation Seeking Scale is fair to poor.

The Idyll Arbor Activity Assessment is designed for individuals who live in nursing homes or other long-term care facilities. Instead of an individual communicating their own interests, a service provider uses the assessment tool to gather information about leisure traits, including interests and history. No parametric measures were listed for reliability and validity measures.
The Assessment of Leisure and Recreation Involvement (LRI) is intended for use with the general population and measures an individual’s perception of his/her involvement in leisure and recreation. Although the reliability of the subscales is good, this tool does not meet the needs of individuals with developmental disabilities and communication difficulties because it requires the individual to respond to a series of statements by rating their agreement on a scale of 1 to 5. This technique is not feasible for individuals with developmental disabilities.

The Leisure Assessment Instrument (LAI) consists of a three-part structured interview and was designed to assess leisure activities, participation, leisure interests, leisure preferences, and leisure constraints. The instrument was designed to be sensitive to various issues related to questioning people with mental retardation (Hawkins, Ardovino, & Hsieh, 1998), such as avoiding difficult or emotion-laden wording, avoiding the use of abstract concepts, maintaining short questions, and avoiding open-ended questions or structured responses that produce acquiescence and approval-seeking behavior. However the testing still requires individuals to provide reasoning behind their selections, a task that would be quite difficult for individuals with developmental disabilities.

The State Technical Institute’s Leisure Assessment Process (STILAP) is an activity checklist designed to measure an individual’s indicated interest in various activities as well as areas about which an individual has an interest in learning more. The STILAP consist of an activity checklist and is designed for individuals with mental
retardation or developmental disabilities (MR/DD), adults with physical or psychological disabilities. Implementation of this assessment may require assistance from an individual’s family member or significant other, especially if the individual cannot answer the questions independently.

The Leisure Diagnostic Battery (LDB; Witt & Ellis, 1985) is another commonly used battery of tests designed to measure perceived freedom in leisure for a variety of populations such as children and youth, adults, adults with disabilities, and aged adults. The LDB is a 25-item, 5-point Likert-type scale, based on the leisure “state of mind” concepts of intrinsic motivation, perceived competence, perceived control, flow, optimal arousal, and playfulness. Scales A, B, C, D, and E are designed to measure the degree of perceived freedom in leisure; Scale F measures barriers to leisure experiences; Scale G measures leisure preferences; and Scale H measures knowledge of leisure opportunities. Although the LDB appears to be comprehensive in leisure assessment and is widely used in the general population, if an individual has difficulties related to vocabulary or verbal comprehension, then that individual’s scores on each scale can be affected (Witt & Ellis, 1987). Therefore, the LDB may not be the best tool to use with people with communicative disabilities.

Even though there are a number of leisure assessments available, most are not appropriate for use with individuals with developmental disabilities. Most leisure assessment instruments use checklists, pictorial representations of checklists, or questionnaires based on observation or verbal report. In addition, many leisure
assessments rely too heavily on caregiver input, consequently undermining individual choice. Assessments that use questionnaires encourage response biases of social desirability and acquiescence, which people with developmental disabilities tend to display (Schuman & Presser, 1977; Sigelman, Budd, Spanhel, & Schoenrock, 1981; Sudman & Bradburn, 1974). Furthermore, this type of assessment is not appropriate for individuals with limited communication skills.

The predicament is how to conduct the leisure assessment with very little in the way of appropriate instrumentation. Additionally, many of the commercially available leisure assessments rely on an individual’s previous experiences. Yet individuals with developmental disabilities typically have a lack of experience in real life situations, especially leisure related activities. Other than limited adapted physical education classes where the focus is on motor skill development or team sports, individuals with developmental disabilities have had little experience with community leisure opportunities (Schleien et al., 1997). Therefore, the problem remains of how to determine the choices, needs, and preferences for leisure activities of individuals with severe developmental disabilities.

Although assessing leisure interests for individuals with severe developmental disabilities and communication difficulties is essential, it can also be more challenging for service providers. An informal Internet poll of therapeutic recreation specialists indicated that out of 31 respondents, 18 had developed their own assessment package, and 13 respondents were using one or more of the commercially available assessments
(electronic mailing list survey of rehabilitation service providers regarding leisure assessments used, collected by J. L. Kreiner, summer 2002). Of the five respondents who indicated a concern regarding the assessment packages, three were unhappy with their current assessment system and two were pleased with their current assessment practice. Many special educators and other service providers develop their own case-sensitive assessments. For example, the switch-activated microcomputer used to assess the leisure preferences of three youth, who were 10 to 12 years old, who had severe developmental disabilities, and did not speak (Dattilo & Mirenda, 1987), was discussed previously in this chapter. In this study, the students were provided a choice between two and five leisure activities (listening to music, watching action videos, feeling vibrations, using a blender to make a milkshake, and viewing a slide show). Although each subject was able to reliably choose their preference out of the five activities, they still were not offered the gamut of leisure options available to the typical population.

Researchers have been developing their own leisure assessment tools for some time. Swift and Lewis (1985) investigated the leisure preferences of 51 boys with learning disabilities (LD) who were in grades 4 through 6. Although there are a number of tools available that can assess leisure preferences, these investigators chose to develop their own set of questions. Incidentally, they found that the boys with LD generally preferred the same types of activities (e.g., sports, televisions shows, hobbies) as their peers without learning disabilities.
York, Vandercook, and Stave (1990) also developed their own questionnaire to identify favorite independent leisure activities of 142 seventh graders without developmental disabilities. They used this list of favorite activities to identify age-appropriate recreation and leisure activities for students with developmental disabilities, instead of arbitrarily selecting activities based on assumptions of adult team members. This is another indication of the quest to meet the needs of students with developmental disabilities, and meet the individual planning requirements of IDEIA with little assistance from available leisure assessments.

Hoover, Wheeler, & Reetz (1992) interviewed forty individuals with developmental disabilities, ages 21 to 65, using a self-made tool to determine their leisure satisfaction. Of the individuals questioned, 55% were mildly retarded, 30% were moderately retarded, and 15% were severely retarded. The self-developed questionnaire they used consisted of yes/no questions and open-ended questions answerable by simple phrases. Additionally, the individuals were questioned in the offices of their sheltered workshops or group homes. The results were as follows: 90% of the individuals questioned were satisfied with access to books and magazines; 95% found it easy to relax at their residence; 93% stated that they were usually happy; 20% felt they had enough friends; and the majority were dissatisfied with their participation level with pets, volunteer work, gardening, and outdoor activities. The results of this study indicate several constructs from the 1982 Sigelman, Budd, et al. study. For example, the open-ended, more general questions used in the Hoover et al. study may have resulted in a
higher-level satisfaction response because the participants were demonstrating the response bias of social desirability. Sigelman, Budd, et al. found that individuals with developmental disabilities ultimately cannot answer open-ended questions. In addition, the more specific, forced-choice questions utilized in the Hoover et al. study may have resulted in a lower level of satisfaction response because individuals with developmental disabilities are better able to answer forced-choice questions.

Although there are numerous commercially available leisure assessments for the general population, they are seldom appropriate for individuals with developmental disabilities. The commercially available instruments use questioning techniques that are ineffective for people with developmental disabilities. Leisure service providers who work with the disability population frequently develop their own custom tool(s). This is indicative of the need for a new instrument designed with the communication needs of individuals with developmental disabilities in mind.

**Summary and Purpose of this Study**

Leisure is an important factor in the lives of individuals with developmental disabilities. Quality leisure experiences can add to the quality of life for all individuals. Although addressing leisure programming is mandated by IDEIA, it is often a neglected component of a student's transition program while in school (Sitlington, 1996). Person-centered planning has been shown to be an integral component in an individual's development of self-determination. Determining leisure preferences for individuals with developmental disabilities has been quite difficult, perhaps due to the lack of leisure
assessments that are appropriate for individuals with limited communication skills.

Commercially available instruments used to assess leisure interests in the general population use questioning techniques that are ineffective for people with developmental disabilities and communication difficulties. There is a need for a leisure interest assessment instrument designed to meet the needs of individuals with developmental disabilities. Therefore, the purpose of this study was to develop an interactive software program that uses a forced-choice presentation of photographs to assist transition-age youth (16 to 22 years old) with developmental disabilities in making and communicating choices regarding leisure interests and preferences. This program is called the Preferences for Leisure Attributes (PLA) Assessment.

Additionally, the following questions were addressed in this study: Does the PLA Assessment have (a) content validity, (b) reliability, and (c) construct validity? (d) Is the PLA Assessment (a computerized, forced-choice presentation of leisure activity photographs) an effective tool to assist transition-age youth with severe developmental disabilities and communication difficulties in indicating their leisure preferences?
CHAPTER III: METHOD

Development of the PLA Assessment

The purpose of the PLA Assessment is to provide special education teachers, therapeutic recreation specialists, rehabilitation counselors, and other service providers with a method of determining leisure and recreation interests of transition-age students with developmental disabilities and communication difficulties, in an efficient and reliable manner. The PLA Assessment provides students with a choice between two pictures of activities presented on the computer screen, and students select the picture of the activity they prefer. The student has the option of selecting a “neither” button if they don’t prefer either of the pictures. Associated with each picture, but not shown on the computer screen, is a database of attributes related to that activity. As the student makes selections of preferred activities, the computer program compiles a profile for that student consisting of his or her preferred leisure attributes. The program will provide the student, teacher, and service providers with a leisure profile, thereby helping to narrow down the list of possible activities so that students can spend their valuable transition years validating leisure interest areas and choices, experiencing and developing skills in their preferred activities, making connections with lifelong community leisure and recreation options, experiencing successes, and increasing self-esteem.

The PLA Assessment was evaluated for (a) content validity, (b) reliability, and (c) construct validity. In addition, data were collected to determine if the PLA Assessment
was an effective tool to assist transition-age youth (16 to 22 years old) with severe
developmental disabilities and communication difficulties to indicate their leisure
preferences.

To develop a broad range of leisure activities, a comprehensive list of adult
leisure and recreation activities was compiled by cross referencing lists of activities
obtained from leisure references, therapeutic recreation references, Education Resources
Information Center (ERIC), and the internet (e.g., DeGrazia, 1962; Hawkins, Eklund, &
Martz, 1992; McKechnie, 1974; Witt & Ellis, 1985, www.dogpile.com). A key word
search of terms related to leisure and recreation activities for adults was conducted using
each resource. Adult activities, rather than children’s activities, were selected because the
ultimate goal of special education for transition-age students is to prepare them for adult
interdependence and community life, including lifelong leisure activities. Pictures of each
activity were obtained by searching the Internet, specifically, www.webshots.com.
(Webshots terms of agreement and copyright information are included in Appendix B.)
Pictures were downloaded, saved, and transformed to bitmap format for ease of use.

Leisure activity attributes were selected based on a review of several commonly
used leisure assessments (DeGrazia, 1962; Hawkins et al., 1992; McKechnie, 1974; Witt
& Ellis, 1985), each of which uses attributes, or a similar categorization, as part of their
assessment procedure. For example, for use in Scale G (Leisure Preferences) of the LDB,
Witt & Ellis (1987) identified the following activity domains and style domains:
Activity Domains:
  outdoor/nature
  music/dance/drama
  sports
  arts/crafts/hobbies
  mental/linguistic

Style Domains:
  individual/group
  risk/non-risk
  active/passive

DeGrazia (1962) classified activity types as follows:

  active–passive
  participant–spectator
  solitary–social
  indoor–outdoor
  in the home–outside the home
  and sedentary–on the feet

McKechnie (1974) identified the following dimensions of leisure activities:

  mechanics
  crafts
  intellectual
  slow living
  sports
  glamour sports

The Leisure Interest Inventory identifies activities by the following domains:

  team sports       intellectual pursuits
  water sports      youth activities
  games             fitness
  outdoor activities spectator
  homeskills        crafts
  arts              social interest
  reflective/quiet   adventure
  individual sports and special interest/hobbies
The Leisure Interest Inventory also identifies activities by style of participation:

- risk taking
- aggressiveness
- sociability
- competitiveness
- discipline
- mental focus
- spontaneity
- relaxation

After comparing each of these lists, a comprehensive list of leisure activity attributes was developed for the purposes of this study, and with the intent of including all of the possible attributes, within the following categories (also see Appendix C):

<table>
<thead>
<tr>
<th>Category of Activity</th>
<th>Motor skill required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation sports</td>
<td>Good fine motor skills</td>
</tr>
<tr>
<td>Spectator sports</td>
<td>Fair fine motor skills</td>
</tr>
<tr>
<td>Arts</td>
<td>Good gross motor skills</td>
</tr>
<tr>
<td>Social activities</td>
<td>Fair gross motor skills</td>
</tr>
<tr>
<td>Hobbies</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Equipment needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor activities</td>
<td>Minimal equipment</td>
</tr>
<tr>
<td>Outdoor activities</td>
<td>Moderate equipment</td>
</tr>
<tr>
<td>Home activities</td>
<td>Maximum equipment</td>
</tr>
<tr>
<td>Community activities</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social attributes</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual activities</td>
<td>Minimal cost</td>
</tr>
<tr>
<td>Small group activities</td>
<td>Moderate cost</td>
</tr>
<tr>
<td>Large group activities</td>
<td>Maximum cost</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical activity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal physical activity required</td>
<td></td>
</tr>
<tr>
<td>Moderate physical activity required</td>
<td></td>
</tr>
<tr>
<td>Maximum physical activity required</td>
<td></td>
</tr>
</tbody>
</table>
Content Validity

A database was developed consisting of a picture of each activity and a list of critical attributes in each of the following categories: category of activity, location, level of physical activity, degree of motor skill required, level of social activity, equipment, and cost (Appendix D).

Participants. To select the attributes that best describe each picture, and vice versa, four experts were consulted for their input. The four professionals represented the fields of leisure, recreation, physical education, adapted physical education, and special education. All four consultants have earned a Ph.D. and all are professors in their fields at major colleges or universities.

Each consultant was given a collection of the pictures along with the attributes, in checklist format. The consultants rated each picture according to attributes in each of the categories. The checklists from each of the consultants were then evaluated for inter-rater agreement using descriptive statistics. For each picture, the attributes with the highest agreement ratings were then incorporated into the computer software program.

Instrument Development

After the pictures of leisure and recreation activities were collected and the database of critical attributes was applied to each picture, a computer program—the PLA Assessment—was written using Microsoft Visual Basic 6.0 Professional Edition. The PLA Assessment works in the following manner: an assessment facilitator (e.g., special education teacher, therapeutic recreation specialist, rehabilitation counselor, or other
service provider) inputs identifying data (such as name and age) for the individual taking
the assessment. Once the identification screen is completed or updated, two pictures of
activities are randomly selected and displayed on the computer screen side-by-side; the
student selects the picture of his or her choice by (a) touching a touch screen, (b) pointing
and clicking with a mouse, or (c) pointing to the screen while the assessment facilitator
uses the mouse to point and click. Once the choice is made another set of pictures is
displayed on the screen, from which the student can choose a preferred activity. This
process continues until the student finishes the set, becomes distracted, or tires. If the
student does not finish an adequate dataset (for this study, a minimum of 36 pairs of
pictures was required so that the subjects had a chance to view and choose between all
available pictures), results can be saved, and the assessment can be continued at a later
time for completion.

As the student selects his or her preferred activity from the set of pictures, the
computer program gathers data regarding his or her preferences in terms of critical
attributes of the activities. The program then compiles a report (Appendix E) based on
the critical attributes of the selected preferences, as well as the actual activity selected.
The assessment facilitator is able to save the report to disk, to view the report on screen,
or to print out a hard copy of the report.

Tests of Psychometric Properties of the PLA Assessment

Tests of psychometric properties were performed on the PLA Assessment to
determine if one could use the PLA Assessment to make inferences regarding leisure
attribute preferences. The PLA Assessment was evaluated for reliability and validity consistent with classical test theory.

Construct Validity Evaluation

To determine if the PLA Assessment is measuring that which is intended, preferences for attributes of leisure activities, the assessment tool must demonstrate validity. Construct validity of the PLA Assessment was determined by administering a combination of tests to 23 subjects without developmental disabilities.

Subjects. Subjects ranged in age from 18 to 61, with the mean age of 33.7, did not have developmental disabilities, and were all members of a college class. Seventeen of the subjects were female and six were male. The subjects were recruited immediately following their class, the project was explained to them, and they were given the option of participating or quitting during the test administration if they so chose.

The subjects were asked to rate their preferences of leisure attributes with a written questionnaire (Appendix F). Each subject also took the PLA Assessment. In order to control for test bias, half of these subjects took the written questionnaire first and the PLA Assessment second, the other half of the subjects took the PLA Assessment first and the written questionnaire second.

The results from both tests were correlated for each subject. Data were evaluated using the Spearman rho test for correlation, resulting in bivariate nonparametric correlations for each category as well as for the entire PLA Assessment.
Reliability Evaluation

To be interpretable, a test must be reliable (Kerlinger, 1986). In other words, will the PLA Assessment tell the same thing each time--does it give a true score of the individual’s preferences for attributes associated with leisure activities?

Subjects. To test the reliability of the PLA Assessment, 29 transition-age students with developmental disabilities were recruited as subjects; these students were from self-contained special education classes for students with multiple handicaps from local school districts in northeast Ohio. Subjects ranged in age from 13 to 21, with a mean age of 17.8. Thirteen of the students were female and sixteen were male. Once informed consent was obtained from each subject’s parent(s), and assent was obtained from the subject, he or she was administered the PLA Assessment two times, for at least 36 selections each time.

The two trials were compared for test/re-test reliability using the Spearman rho test for correlation. Discriminability, the ability to differentiate between preferences and the ability to point out what is unrelated (e.g., does the individual choose the picture on the left each time; Kerlinger, 1986), was evaluated using descriptive statistics.

Indication of Preference

To determine whether transition-age youth (16 to 22 years old) with severe developmental disabilities and communication difficulties have leisure preferences, the PLA Assessment data that were collected for the 29 subjects were compared to the probability of selecting each attribute. A chi square test was implemented to determine
whether the attribute preferences selected by the subjects were different from what would be expected with the given set of attributes.

Additionally, the parents of each of the subjects were asked to complete a questionnaire about their child’s leisure preferences. The results of the parent questionnaire and the subject’s PLA Assessment were compared for convergence (evidence gathered from both sources indicate the same or similar results) using the Spearman rho test for correlation.

Practicality Evaluation

For the leisure interest assessment instrument to be beneficial to service providers, it must be able to be administered with ease, readily available, and easy to interpret. Practicality of the PLA Assessment software program was determined by surveying seven special educators and service providers on the usability and appearance of the program (Meinke, 2000; Wang, 1998), accuracy of the results, and helpfulness of the results (Kerlinger, 1986).

The individuals were given a copy of the program for a period of 7 to 14 days to test its usability. They were then asked to complete a questionnaire consisting of Thurstone equal-appearing interval scale and open-ended questions (Kerlinger, 1986) regarding the appearance, usability, readability, and helpfulness of the software program (Appendix G). They were encouraged to verbalize responses to the test writer as well. Responses from the subjects were evaluated using descriptive statistics, and anecdotal remarks were accumulated.
CHAPTER IV: RESULTS

The purpose of this project was to develop and evaluate an assessment tool (the PLA Assessment) designed to facilitate communication of leisure preferences for individuals with severe developmental disabilities and communication difficulties. Once the PLA Assessment was developed, it was evaluated for (a) content validity, (b) reliability, and (c) construct validity. To determine content validity of the PLA Assessment, four experts in fields related to leisure/recreation, special education, physical education, and adapted physical education were consulted to assign critical attributes to pictures of leisure activities. Construct validity of the PLA Assessment was determined by administering a written questionnaire and the PLA Assessment to subjects without developmental disabilities, and correlating the results of the two tests. Reliability of the PLA Assessment was determined by correlating two administrations of the PLA Assessment to subjects who had developmental disabilities and communication difficulties. In addition, the following questions were addressed in this study: (1) Do transition-age youth (16 to 22 years old) with severe developmental disabilities and communication difficulties have leisure preferences? (2) Does the PLA Assessment (a forced-choice presentation of leisure activity photographs) assist transition-age youth with severe developmental disabilities and communication difficulties to indicate their leisure preferences? Detailed explanations of each of these results are described in the following sections.
Inter-Rater Reliability for Content Validity of the PLA Assessment

Content validity of the PLA Assessment was determined by consulting with four experts who rated each one of 73 pictures of leisure activities according to critical attributes in the categories of activity, cost, equipment, location, degree of motor skills required, level of physical activity, and level of social activity. Inter-rater agreement was determined on each category of attributes as well as on the test as a whole (Table 4.1). Percent agreement on each category of attributes ranged from 87.3 to 93.8, with overall agreement on the ratings at 89.6 percent. For each picture, the attributes with the highest agreement ratings were then incorporated into the computer software program.

Table 4.1

<table>
<thead>
<tr>
<th>Category</th>
<th>% agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>91.1</td>
</tr>
<tr>
<td>Cost</td>
<td>87.3</td>
</tr>
<tr>
<td>Equipment Needed</td>
<td>87.3</td>
</tr>
<tr>
<td>Location</td>
<td>87.7</td>
</tr>
<tr>
<td>Motor Skills Required</td>
<td>90.4</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>93.8</td>
</tr>
<tr>
<td>Social Attributes</td>
<td>89.0</td>
</tr>
<tr>
<td>Whole Assessment</td>
<td>89.6</td>
</tr>
</tbody>
</table>

Construct Validity

Construct validity of the PLA Assessment was determined by administering a combination of tests to 23 participants without developmental disabilities. The participants were asked to rate his or her preference for leisure attributes with a written questionnaire, and each subject also took the PLA Assessment. To control for test bias, odd numbered participants completed the PLA Assessment first, and even numbered
participants completed the written questionnaire first. In addition, 10 of the participants
took the written questionnaire without definitions of the terminology, and 13 of the
participants were given definitions. The results from the PLA Assessment and the written
questionnaires were then correlated.

The Spearman rho test for correlation was used, resulting in bivariate
nonparametric correlations in each category of attribute in the assessment (Table 4.2) as
well as for the assessment as a whole (Table 4.3).

Table 4.2
Construct Validity by Category

<table>
<thead>
<tr>
<th>Category</th>
<th>r</th>
<th>level of significance</th>
<th>actual significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>.454</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Cost</td>
<td>.393</td>
<td>.01</td>
<td>(.001)</td>
</tr>
<tr>
<td>Equipment Needed</td>
<td>.341</td>
<td>.01</td>
<td>(.005)</td>
</tr>
<tr>
<td>Location</td>
<td>.304</td>
<td>.01</td>
<td>(.003)</td>
</tr>
<tr>
<td>Motor Skills Required</td>
<td>-.018</td>
<td>NA</td>
<td>(.871)</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>.318</td>
<td>.01</td>
<td>(.009)</td>
</tr>
<tr>
<td>Social Attributes</td>
<td>.361</td>
<td>.01</td>
<td>(.002)</td>
</tr>
</tbody>
</table>

Table 4.3
Construct Validity for the Whole Assessment

<table>
<thead>
<tr>
<th>Category</th>
<th>r</th>
<th>level of significance</th>
<th>actual significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Assessment</td>
<td>.357</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Condition 1*</td>
<td>.421</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Condition 2^</td>
<td>.306</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Condition 3#</td>
<td>.420</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Condition 4@</td>
<td>.282</td>
<td>.01</td>
<td>(.000)</td>
</tr>
</tbody>
</table>

* Participants 1-10 were given the written questionnaire without extra explanation.
^ Participants 11-23 were given additional directions when given the written
questionnaire (Appendix H).
# Odd-numbered participants took the PLA Assessment first.
@ Even-numbered participants took the written questionnaire first.
In each category, except motor skills, there were low positive correlations ranging from .304 to .454, which were significant at the .01 level. Correlation on the test overall was .357, significant at the .01 level.

Test-Retest Reliability

Reliability of the PLA Assessment was determined by having transition-age students who were members of various classrooms for students with multiple disabilities participate in taking the assessment on two separate occasions, at least one day apart. There were 29 subjects who participated in this part of the study; 13 of the subjects were female and 16 of the subjects were male. Ages of the subjects ranged from 13 to 21, with the mean age being 17.8.

Test-retest reliability was evaluated using the Spearman rho test for correlation, resulting in bivariate nonparametric correlations in each category. Positive correlations were noted in each category, significant at the .01 level (Table 4.4). Correlation coefficients in each category ranged from .715 to .878. Test-retest reliability on the PLA Assessment as a whole resulted in a correlation coefficient of .871, significant at the .01 level.
Table 4.4

<table>
<thead>
<tr>
<th>Category</th>
<th>r</th>
<th>level of significance</th>
<th>(actual significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>.818</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Cost</td>
<td>.878</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Equipment Needed</td>
<td>.873</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Location</td>
<td>.832</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Motor Skills Required</td>
<td>.715</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>.767</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Social Attributes</td>
<td>.740</td>
<td>.01</td>
<td>(.000)</td>
</tr>
<tr>
<td>Whole Assessment</td>
<td>.871</td>
<td>.01</td>
<td>(.000)</td>
</tr>
</tbody>
</table>

Discriminability

To determine whether subjects tended to choose the picture on the same side each time (e.g., to determine whether the individual chose the picture on the left each time), discriminability was evaluated using descriptive statistics (Table 4.5). On the first implementation of the PLA Assessment (Test A), the mean percentage of left hits was 52.5% and the mean percentage of right hits was 47.5%. Standard deviation for each was 10.5. On the second implementation (Test B), the mean percentage of left hits was 48.2%, and the mean percentage of right hits was 51.8%. Standard deviation for each in Test B was 12.9.
Table 4.5

<table>
<thead>
<tr>
<th>Discriminability</th>
<th>Range</th>
<th>Mean</th>
<th>standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test A (N-29)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Left hits</td>
<td>33-87</td>
<td>52.5</td>
<td>10.5</td>
</tr>
<tr>
<td>% Right hits</td>
<td>13-67</td>
<td>47.5</td>
<td>10.5</td>
</tr>
<tr>
<td># Neither hits</td>
<td>0-88</td>
<td>13</td>
<td>23.9</td>
</tr>
<tr>
<td>Test B (N-29)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Left hits</td>
<td>19-71</td>
<td>48.2</td>
<td>12.9</td>
</tr>
<tr>
<td>% Right hits</td>
<td>29-81</td>
<td>51.8</td>
<td>12.9</td>
</tr>
<tr>
<td># Neither hits</td>
<td>0-64</td>
<td>11.9</td>
<td>19.7</td>
</tr>
<tr>
<td>Combined Tests (N-58)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Left hits</td>
<td>19-87</td>
<td>50.3</td>
<td>11.9</td>
</tr>
<tr>
<td>% Right hits</td>
<td>13-81</td>
<td>49.7</td>
<td>11.9</td>
</tr>
<tr>
<td># Neither hits</td>
<td>0-88</td>
<td>12.9</td>
<td>21.7</td>
</tr>
</tbody>
</table>

On the combination of Test A with Test B, the mean percentage of left hits was 50.3%, and the mean percentage of right hits was 49.7%. Standard deviation for each was 11.9 for the combination of tests.

Indication of Preference

To determine whether the selections made by the transition-age subjects were indeed preferences, as opposed to just random selections, the probability of selecting each attribute in the database was first calculated (Table 4.6). Chi-square values were calculated between the subjects’ observed choices and the expected probability for each attribute. In addition chi-square values were calculated for parents’ choices (Table 4.7). The observed choices of attribute preferences indicated by the students were significantly different than the expected attribute preferences, in the categories of location (p=.03) and motor skills required (p=.05) as well as the PLA Assessment overall (p=.000).
Table 4.6
Probability of Selecting Attributes
(73 Pictures of Activities)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Categories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation sports</td>
<td>25</td>
<td>34</td>
</tr>
<tr>
<td>Spectator sports</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Arts</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Social activities</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td>Hobbies</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoor activities</td>
<td>6</td>
<td>22</td>
</tr>
<tr>
<td>Outdoor activities</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td>Home activities</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Community activities</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td><strong>Social attributes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual activities</td>
<td>23</td>
<td>32</td>
</tr>
<tr>
<td>Small group activities</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td>Large group activities</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td><strong>Physical activity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. phys. activity</td>
<td>33</td>
<td>45</td>
</tr>
<tr>
<td>Mod. phys. activity</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>Max. phys. activity</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td><strong>Motor skill required</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good fine motor skills</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Fair fine motor skills</td>
<td>18</td>
<td>25</td>
</tr>
<tr>
<td>Good gross motor skills</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>Fair gross motor skills</td>
<td>27</td>
<td>37</td>
</tr>
<tr>
<td><strong>Equipment needed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal equipment</td>
<td>45</td>
<td>62</td>
</tr>
<tr>
<td>Moderate equipment</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>Maximum equipment</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal cost</td>
<td>45</td>
<td>62</td>
</tr>
<tr>
<td>Moderate cost</td>
<td>22</td>
<td>30</td>
</tr>
<tr>
<td>Maximum cost</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 4.7  

<table>
<thead>
<tr>
<th>Category</th>
<th>Parent’s Chi Square (df = 1)</th>
<th>Student’s Chi Square (df = 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>p</td>
</tr>
<tr>
<td>Activity</td>
<td>2.80</td>
<td>.59</td>
</tr>
<tr>
<td>Location</td>
<td>1.50</td>
<td>.22</td>
</tr>
<tr>
<td>Motor Skills Req.</td>
<td>4.53</td>
<td>.21</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>0.077</td>
<td>.78</td>
</tr>
<tr>
<td>Social Attributes</td>
<td>6.08</td>
<td>.05</td>
</tr>
<tr>
<td>Whole Assessment</td>
<td>35.36</td>
<td>.002</td>
</tr>
</tbody>
</table>

The observed choices of the parents' selections were significant in the category of social attributes (p=.048) as well as the PLA Assessment overall (p=.002).

**Convergence**

Test convergence was measured by comparing each of the subject’s preferences as indicated by the PLA Assessment, with preferences as reported by parents on a written questionnaire. Correlation of the subjects’ preferences to preferences selected by their parents was evaluated using the Spearman rho test for correlation, resulting in bivariate nonparametric correlations in each category, as well as an overall correlation for the whole test. There were 25 sets of subjects for this part of the project. Four parents chose not to participate.

Using the Spearman rho test for correlation, bivariate nonparametric correlations were completed for each category of the PLA Assessment, as well as for the entire test. Although positive correlations were noted in each category, they were low, and they were not significant (Table 4.8). Correlation coefficients in each category ranged from .022
to .266. Convergence between the students and the parents on the assessment tool as a whole resulted in a correlation coefficient of .953, significant at the .01 level.

Table 4.8

<table>
<thead>
<tr>
<th>Category</th>
<th>r</th>
<th>level of significance</th>
<th>(actual significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>.250</td>
<td>NA</td>
<td>(.228)</td>
</tr>
<tr>
<td>Location</td>
<td>.222</td>
<td>NA</td>
<td>(.286)</td>
</tr>
<tr>
<td>Location *</td>
<td>.260</td>
<td>NA</td>
<td>(.219)</td>
</tr>
<tr>
<td>Motor Skills Required</td>
<td>.266</td>
<td>NA</td>
<td>(.379)</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>constant</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Social Attributes</td>
<td>.026</td>
<td>NA</td>
<td>(.903)</td>
</tr>
<tr>
<td>Whole Assessment</td>
<td>.953</td>
<td>.01</td>
<td>(.000)</td>
</tr>
</tbody>
</table>

* This category was analyzed using only the attributes of “inside” and “outside.”
NA=not applicable

Practicality of the Software

Seven of the teachers who helped implement the assessment during this study were given a questionnaire to determine the usability of the PLA Assessment. The questionnaire consisted of five questions. The first two questions were open-ended questions related to the amount of time spent using the software and how long it took to get familiarized with using the software. The last three questions were Likert-type questions, on a scale of 1 to 5, related to the appearance of the program, usability of the program, and helpfulness of the program.

The seven teachers spent an average of 56.57 minutes (range of 6 to 180 minutes) using the software. They indicated that it took an average of 2.86 minutes (range of 1 to 5) to become familiar with using the software. On a scale of 1 to 5, one being the lowest, and five being highest, the teachers rated the appearance of the software program
an average of 3.86 (range of 3 to 5). They rated the usability of the program an average of 4.57 (range of 4 to 5), and they rated the helpfulness of the software program an average of 3.57 (range of 2 to 5).

The subjects’ responses on the open-ended questions, although few, were typically constructive suggestions regarding making the software program more useful. For example, adding a way to track the number of selections the student makes (2 comments), or giving an option for the examiner to choose the number of slides to be viewed (1 comment). Another subject referred to the possibility of providing an auditory option (1 comment). Other responses on the open-ended questions were general positive comments about the program, for example favorable remarks about the pictures (2 comments). Only one subject noted the opinion that the program might be “too high” for some students with more severe disabilities. Specific comments made by the seven teachers regarding suggestions for the software program are included in Appendix I.
CHAPTER V: DISCUSSION

The physical, emotional, psychological and social benefits of leisure (Cordes & Ibrahim, 1996) are significant factors in the pursuit of self-actualization and quality of life (Dattilo, 1999). The ability to participate in leisure activities of choice is essential to this process. Leisure assessment is an important aspect of the planning process for individuals with severe developmental disabilities, yet the methods of currently available leisure assessments result in response biases (Sigelman, Budd, et al., 1982; Strand, 1995) that make the interpretation of the instruments ineffective. The endeavor of this study was to develop a mechanism for assessing leisure interests of individuals with developmental disabilities and communication difficulties, while reducing response biases. The Preferences for Leisure Attributes (PLA) Assessment was developed with the intention of assisting students with developmental disabilities and communication difficulties to convey their leisure interests to teachers or other services providers. The PLA Assessment is a reading-free, forced-choice, computerized presentation of leisure activity photographs, designed to develop a profile of preferred leisure attributes for the student. Service providers can then use the results of the PLA assessment to develop individualized leisure programming.

A list of leisure activities was compiled, and pictures of each of these activities were obtained from www.webshots.com. Assignment of the attributes for each leisure activity picture was determined by collaborating with four experts. Inter-rater agreement
for the attributes of each activity was determined and for the software program in its entirety. Leisure activity pictures were assigned the attributes with the highest rates of inter-rater agreement. This procedure was the basis for developing the database for the PLA Assessment software program.

The PLA Assessment software was written to function in the following manner: once the service provider enters identifying information for the transition-age student, two pictures of leisure activities are presented on the computer screen; the student chooses the picture he or she prefers, and the computer program compiles a profile for that student consisting of the preferred leisure attributes. When the student tires, becomes distracted, or completes at least 36 choices (for this study), the service provider can save the information, or print out a profile of the student's preferred leisure attributes.

The PLA Assessment was evaluated for content validity, construct validity, and reliability. Furthermore, the PLA Assessment was evaluated as to whether it is an effective means of indicating leisure preferences of transition-age students with severe developmental disabilities and communication difficulties. A discussion of the results of these evaluations follows, including limitations of this study and implications for future research.

Psychometric Properties of the PLA Assessment

To assess the psychometric properties of the PLA Assessment, four statistical analyses were performed to assess reliability and validity. The four types specifically assessed were: content validity, construct validity, test-retest reliability, and test
convergence. Of these four analyses, three resulted in positive outcomes. Content validity was achieved with an 89.6 percent inter-rater agreement on the test overall. Construct validity of the PLA Assessment on the other hand, resulted in a low positive correlation of .357, significant at the .01 level. Test-retest reliability resulted in a correlation of .871, significant at the .01 level on the test overall. Test convergence resulted in the .953 correlation, significant at the .01 level on the test overall. In addition to the psychometric properties, several professionals also rated the practicality of the PLA Assessment as having high practicality. Each of these areas of validity and reliability are discussed further in the following sections.

**Content Validity**

To measure content validity, four experts independently assigned attributes to each of 73 leisure activity pictures. Percent agreement of inter-rater reliability ranged from 87.3 to 93.8 on each of the attribute categories, with the overall test agreement of 89.6%. Therefore, one can assume with some confidence that the pictures of leisure activities each represent the attributes assigned to them, and that the attributes accurately describe the pictures to which they are assigned. Therefore, when a subject selects a picture, it is highly likely that he or she is selecting the associated attributes.

**Construct Validity**

To measure construct validity of the PLA Assessment, twenty-three subjects without developmental disabilities took the PLA Assessment, as well as a written questionnaire in which they ranked their leisure attribute preferences. A Spearman rho
test for correlation between these two measures resulted in low positive correlations on each attribute category, but significant at the .01 level. In addition, correlation between the two measures on the test overall was also low but significant at the .01 level. One exception was the category of motor skills required, which had a very low negative correlation that was not significant. This negative correlation in the category of motor skills may be due to (a) the subjects’ not understanding the vocabulary (e.g., gross motor skills, fine motor skills); (b) the subjects’ answering in a socially desirable manner for motor skills, rather than their true preferences; or (c) the written questionnaire not representing true preferences. These results are somewhat similar to the results of the Leisurescope Plus, Leisure Assessment Inventory (LAI) and the Assessment of Leisure and Recreation Involvement (LRI; Burlingame & Blaschko, 2002) in that construct studies for the Leisurescope Plus, the LAI and the LRI resulted in low to negative correlations ($p<.01$; see Table 2.2).

There could be several explanations for the low positive correlations in this part of the study for the PLA Assessment. One explanation could be the method of giving instruction during data collection. While the first 10 subjects were taking the written questionnaire, they voiced concern about the difficulty of defining the leisure attributes listed on the survey (Appendix C). As a result, the last 13 subjects were provided additional directions in terms of defining those attributes (Appendix H). Curiously, for those subjects who were not given extra definitions, the correlation between the two measures as a whole was slightly higher than for those subjects who were given extra
definitions. In addition, the subjects who took the PLA Assessment first had a slightly higher correlation between the two measures than those subjects who took the written questionnaire first. This could be a function of learning as the experience of observing the pictures used in the PLA Assessment may have provided some insight to the subjects for answering questions on the questionnaire.

Another explanation for the low level of construct validity, despite the high rates of inter-rater reliability and content validity for the PLA Assessment, could be due to the use of a nonstandardized written questionnaire. The questionnaire used for this study was self-made and simply contained a list of the attributes within each category as used for the PLA Assessment (Appendix C). A better method for determining the construct validity of the PLA Assessment might be to measure the constructs against an already validated assessment. By using an instrument that is already demonstrated to have some validity, a more definite determination could be made about the construct validity of the PLA Assessment.

**Reliability**

There were 29 transition-age students with developmental disabilities who participated in this study and who were administered the PLA Assessment on two separate occasions, separated by at least one day. A Spearman rho test resulted in a high positive correlation (.871) between the two administrations of the PLA Assessment, significant at the .01 level. This indicates an acceptable level of reliability in the PLA Assessment (APA test Standards). Although the Leisure Motivation Scale (LMS) and the
Leisure Interest Measure (LIM) of the Idyll Arbor Leisure Battery have reliability scores as high as or higher than the PLA Assessment; other leisure assessments do not share this quality of high reliability (Burlingame & Blaschko, 2002). In addition, discriminability results for the PLA Assessment indicate that students were not selecting pictures just on the left or just on the right; there was a relatively even distribution of left and right hits. This even distribution of left and right hits suggests the absence of the response biases of carelessness, social desirability, extremity, and acquiescence (Topf, 1986) that were demonstrated by Sigelman, Budd, et al. (1982) and that are common for people with developmental disabilities. Therefore, the even distribution of left and right hits demonstrates that the PLA Assessment can successfully eliminate this one source of response bias.

**Convergence**

Parents of 25 of the 29 transition-age subjects with developmental disabilities chose to participate in the study. These parents completed a written questionnaire regarding their perceptions of their child's leisure attribute preferences. Although individual categories of attributes had low levels of convergence between the parents’ selections and the students’ selections ($r = .026-.266$), the PLA Assessment, as a whole, had a high level of convergence ($r = .953$), significant at the .01 level. The results of the individual categories of attributes in this study concur with previous research (Sigelman, Budd, et al., 1982; Strand, 1995) which investigated agreement between individuals with disabilities and their parents/attendants. Sigelman, Budd, et al. (1982) found an 81%
agreement across groups when conducting a parallel interview with a family member or significant other of the subject. When conducting the parallel interviews with attendants of the individuals with disabilities, Sigelman, Budd, et al. (1982) had a 59.3% agreement, and Strand (1995) had 51% agreement in similar studies.

This seeming discrepancy between parent and student selections suggests that although individual attributes did not appear to have agreement, the combinations of leisure attribute preferences that the students selected on the PLA Assessment were in agreement with the combination of attribute selections their parents made on the written questionnaire. These results imply that the PLA Assessment must be interpreted as a whole, not by its component parts. For example, it is not enough to just say that an individual prefers participation sports when in fact the individual prefers participation sports that are indoors, individual in nature, with minimal physical activity, and require fair gross motor skills. If the entire combination of attributes is not taken into consideration, the service provider could mistakenly arrange an activity for that individual that was indeed a participation sport, but was outdoors, with a large group of people, requiring maximum physical activity, and good gross motor skills. In this case, the activity would not likely be a choice of the individual, even though it may contain the attribute of being a participation sport. The activity is lacking other attributes that the individual also prefers.
Practicality

Practicality of the software program was determined by surveying seven special educators or service providers on the usability and appearance of the program, accuracy of the results, and helpfulness of the results. The individuals were provided a copy of the program for a period of 7 to 14 days to evaluate its practicality. They were then asked to complete a questionnaire consisting of Thurstone equal-appearing interval scale and open-ended questions (Kerlinger, 1986) regarding the appearance, usability, readability, and helpfulness of the software program. Each area was rated average to above average, and the participants in this part of the study indicated that the PLA Assessment is a tool they will find quite useful in determining preferences and consequently making programming decisions. Specific comments/suggestions from the evaluators are listed in Appendix I.

Assessing Leisure Preferences with the PLA Assessment

The review of the literature (chapter 2) indicates that many of the commercially available leisure assessments for the general population are not appropriate when used with individuals with developmental disabilities, because the questioning techniques result in response biases for people with developmental disabilities. The need for a new leisure assessment instrument, designed with the communication needs of individuals with developmental disabilities in mind is indicated by the fact that many leisure service providers who work with the disability population often develop their own custom tool(s) in order to meet the needs of their clients with developmental disabilities (electronic
mailing list survey of rehabilitation service providers regarding leisure assessments used, collected by J. L. Kreiner, summer 2002). The PLA Assessment appears to be a good candidate to meet the need for a new assessment based on several aspects, which are explained in the following paragraphs.

The chi-square analysis of the leisure attributes selected by the students and the probability of selecting each attribute resulted in a significant difference. Because the observed values were significantly different than the expected values, one can confidently deduce that the students with developmental disabilities were indeed selecting their preferences for leisure attributes, rather than just making random selections. This finding is consistent with previous studies that found that students with developmental disabilities indeed have and can express preferences for certain tasks (e.g., Bambara et al., 1994; Bambara et al., 1995; Parsons et al., 1990).

Further, the PLA Assessment is designed and suitable for use with individuals with severe developmental disabilities because it does not require the individual to have reading or math skills, does not require a verbal response, and does not require input from anyone except the individual. Consequently, the PLA Assessment can adequately reduce the possibility of response bias. Each of the other assessments that address leisure choices, and that were reviewed for the purposes of this study either require some level of reading and/or math skills (IALB, Leisurescope Plus, LRI), require responses to probing questions or reasoning skills (STILAP, LAI) or require input from a caregiver (STILAP, Idyll Arbor Activity Assessment). Because the PLA does not contain the qualities that
result in response bias, and individuals were able to select their preferences for leisure attributes, the PLA Assessment seems to be a successful tool to afford students with developmental disabilities the opportunity to communicate their leisure interests.

Implications

There are several noteworthy implications of the results of this study. First, the PLA Assessment tool was determined to be reliable and somewhat valid, and equally important, effective in determining leisure preferences for individuals with severe developmental disabilities. This finding is significant because there has not been a reliable leisure assessment tool for this population. With the use of a reliable assessment tool, service providers such as special educators, transition specialists, leisure educators, recreation therapists, etc., who work with individuals with developmental disabilities can make more informed decisions about leisure programming for individuals with developmental disabilities.

The individuals with disabilities in this study demonstrated that they indeed have preferences for attributes associated with leisure activities. This is consistent with previous studies which showed that individuals with severe developmental disabilities demonstrate preferences for certain tasks (e.g., Bambara et al., 1994; Bambara et al., 1995; Dattilo & Mirenda, 1987; Parsons et al., 1990). Furthermore, the current study demonstrated that the individuals with developmental disabilities and communication difficulties in this study were able to make choices regarding their preferences by using the PLA Assessment tool. This finding could be useful in that the PLA Assessment
provides a mechanism for individuals with disabilities to communicate their preferences to service providers, whereas currently available leisure assessment tools do not. Because we know that individuals with developmental disabilities have preferences (e.g., Bambara et al., 1994; Bambara et al., 1995; Dattilo & Mirenda, 1987; Parsons et al., 1990), and can make choices (e.g., Dattilo & Mirenda, 1987) when given appropriate means to communicate, the PLA Assessment tool can be used as the means of communicating their leisure preferences.

When students with developmental disabilities can communicate their leisure preferences, then decisions about leisure programming can be made more efficiently and effectively by the service providers. Consequently, valuable learning time can be spent developing skills in leisure activities, including the concomitant physical, emotional, psychological, and social benefits of leisure (Cordes & Ibrahim, 1996). Because the PLA Assessment is an effective tool to determine leisure preferences for individuals with developmental disabilities, time traditionally spent exploring activities in order to determine those preferences can instead be used to develop skills in preferred leisure activities. When students with disabilities are afforded the opportunity to choose and participate in their preferred leisure activities, they are also afforded the opportunity to benefit from the physical, emotional, psychological, and social aspects of leisure that are beneficial to all individuals (Cordes & Ibrahim, 1996). This benefit in the long run results in improving their self-concept and quality of life (Williams & Dattilo, 1997).
In order to provide individuals with developmental disabilities with the opportunity to express their leisure preferences, those professionals who most often work with them need to be trained in alternative forms of communication. One possible means of ensuring that professionals are prepared to assess leisure preferences is that institutions of higher education need to be sure that pre-service teachers and other service providers are specifically trained to understand the benefits of leisure, including the importance of leisure education. While not specifically a topic of this research project, collaboration between special education and leisure education is certainly an area that needs further consideration. Additionally, service providers need to be skillful at facilitating the communication process, and “listening” to the choices of their students with disabilities (Smull, 1996). Again, institutions of higher education could be a place where pre-service teachers and other service providers could be trained to “hear” the choices and preferences of the individuals with severely limited communication skills who they will be serving.

It should be noted that the PLA Assessment, or any other assessment tool, does not preclude actual experience. That is, if adults without disabilities seemingly use their previous experiences to determine their preferences, then individuals with disabilities need to be afforded opportunities to experience many activities, environments, and configurations in order to be able to make more informed choices about their preferences. The value of experience on making choices and developing preferences should be a topic for further study. For example, one interesting observation during the implementation of
the PLA Assessment in this study was the way in which the two separate sets of subjects (those with and without developmental disabilities) approached the decision-making process in choosing between the two pictures presented on the computer screen during the assessment. It was observed that the subjects without developmental disabilities were very thoughtful about their selections, and used their past experiences to determine their preferences. Many of the subjects overtly voiced their thought process. For example, one might indicate that “my sister broke her leg skiing, so I don't think I want to try that.” On the other hand, the subjects with developmental disabilities appeared to be much more spontaneous in making their selections, apparently not using any previous experience to determine their preferences. This apparent disparity in thought processes used to make selections seems to be consistent with the notion that people with developmental disabilities have fewer experiences from which to draw on when making choices.

Another interpretation could be that individuals with developmental disabilities use their experiences differently than individuals without disabilities, when making choices. It was apparent during this study that individuals without developmental disabilities tended to use a different level of reasoning to make decisions about their preferences than individuals with developmental disabilities. In this study, individuals with developmental disabilities made choices about which leisure attributes they favored, but it was unclear as to how or on what basis their choices were made. In contrast, individuals without developmental disabilities used past experiences and a deeper level
of reasoning to select their leisure preferences. Therefore, it seems that the difference between a choice and a preference may be the addition of experience and reasoning.

If this difference between choice and preference is true, then individuals with developmental disabilities must be afforded meaningful experiences that will facilitate that development from merely making choices to developing preferences, in order to more fully develop their self-determination. Martin et al. (2001) and Wehmeyer, Kelchner, & Richards (1996) have defined self-determination as the ability to make choices and decisions regarding one’s own quality of life free from unnecessary external influence or interference. Leisure is an avenue to develop self-determination (Mannell & Kleiber, 1997), and the PLA Assessment is a tool that can be used with some confidence for individuals with disabilities to exercise their choices, consequently increasing self-determination. This increased self-determination can carry over to other aspects of an individual’s life, such as community living and career, thus improving quality of life.

Limitations of the Study

One limitation of this study is the inequality of the representation of attributes in each category (see Table 4.6). For example, it was possible for the picture representation of attributes in each category to range from 4 pictures to 25 pictures in the category called category of activity, or even from 6 pictures to 45 pictures in the category of cost. Although the unequal distribution of attributes did not seem to affect the probability of selecting the attributes of the leisure activities in this study, one still should question the distribution of attributes in terms of representativeness. Even though each attribute was
not represented equally, they may have been represented proportionately in terms of the broad range of activities. Nonetheless this representation of attributes should be investigated. If the inequality of representation of attributes in the PLA Assessment is demonstrative of the universal distribution of attributes in leisure activities, then the results of this study are indeed strengthened. However, if the universal distribution of attributes in leisure activities is discovered to be more equally distributed, then the PLA Assessment should be revised to reflect the universal set of leisure attributes, so individuals with disabilities can have the opportunity to choose from the universal set of options.

Another limitation is that the pictures were presented randomly. This is problematic because subjects could have been presented with the same picture more than once, and consequently the same choices of attributes, before having the opportunity to choose another activity, and consequently different attributes. Although this did not seem to make a difference statistically, a future adjustment to the PLA Assessment software program should be a more systematic presentation of the pictures so that pictures are not repeated, until all pictures have been presented once. This adjustment would ensure that more pictures (and therefore attributes) are shown and have had the opportunity to be selected. If individuals have an opportunity to choose from a wider selection of attributes, then they will accordingly be able to more accurately communicate their preferences. When students are presented with a choice between only a few alternatives (e.g., the 1987 Dattilo & Mirenda study in which the subjects were only given a choice between 2
of 5 leisure activities) they are not being provided with the same opportunities as the typical population.

Another possible adjustment to the PLA Assessment could be to purposefully pair pictures of chosen activities with other pictures of chosen (or non-chosen) activities in order to more precisely narrow down students choices of attributes. A more systematic presentation of pictures in the PLA Assessment could afford a student with severe communication limitations the ability to more accurately communicate their preferences to service providers. Again, the pairing of pictures during the PLA Assessment is an area for future consideration.

As discussed previously, this study used a nonstandardized written questionnaire during the evaluation of the construct validity of the PLA Assessment. This is a concern because the validity of the PLA Assessment was measured against an instrument that was itself not tested for validity. In future studies, the written questionnaire needs to be standardized before it is used, or it needs to be replaced with an already standardized assessment. This analysis was the only part of the study that resulted in somewhat inconsistent statistical results. Other statistical analyses (content validity, test-retest reliability, convergence) of the PLA Assessment indicate that it is still an effective tool for determining leisure attribute preferences for individuals with developmental disabilities and communication difficulties. However, the methods used in this study for determining construct validity, particularly the use of the nonstandardized written
questionnaire, were not sound and need to be repeated with more reliable methods in order to better determine, or try to improve the construct validity of the PLA Assessment.

Topics for Future Research

The results of this study bring up several questions that merit further investigation. First, the psychometrics of the PLA Assessment should be replicated in order to assure confidence in the assessment results. In this study the positive results in content validity, test-retest reliability, and overall test convergence are noteworthy; however, replication of these results with more subjects, and possibly subjects of a variety of backgrounds and ability levels would strengthen the confidence of the tool as well as the generalizability. Although the result of the construct validity for the PLA Assessment was disappointing, it was similar to results of established leisure assessments (Burlingame & Blaschko, 2002) such as the Leisurescope Plus, Leisure Assessment Inventory (LAI), and the Assessment of Leisure and Recreation Involvement (LRI). Reasons for the phenomenon of low construct validity in leisure assessments in general need to be studied further. Additionally, means of improving construct validity for leisure assessments in general, and specifically the PLA Assessment, need to be researched.

A second area that merits further study is the role experience plays in the determination of one’s preferences. In this study it seemed that individuals with developmental disabilities used levels of reasoning to make their choices that were different than their counterparts without disabilities. It would be interesting to study the role of reasoning ability on choice-making, as well as the role of past experiences on that
reasoning process. In addition, once an individual with a developmental disability chooses a leisure activity, and has had the opportunity to experience that activity, the role of that experience on future choices (or on changing one’s mind) needs to be studied.

Although not a topic included in this study, adding of the attribute of disability to the photos used in the PLA Assessment would be interesting, as well as helpful in the individual planning process for individuals with developmental disabilities. In other words, do individuals with developmental disability prefer to participate in activities with others who also have developmental disabilities or with individuals without developmental disabilities?

Conclusion

This study demonstrated that the PLA Assessment is a valid and reliable tool to afford individuals with developmental disabilities and communication difficulties a means of communicating their leisure preferences. The PLA Assessment, as demonstrated in this study, can reduce response bias from assessment, permitting service providers to more confidently implement person-centered planning. Further, the results of this study confirmed that individuals with developmental disabilities indeed have leisure preferences. Specifically, this study results in a tool (PLA Assessment) that will assist service providers in special education, leisure education, rehabilitation, etc. in providing meaningful leisure experiences for individuals with disabilities based on their own choices. In turn, these meaningful leisure experiences can be used to allow individuals with disabilities to make more informed choices based on these actual experiences. The
cycle of choosing, experiencing, and using experiences to refine choices is self-
determining for individuals with disabilities.
APPENDIX A
Leisure Assessments Developed for the General Population
The following list of Leisure Assessments was obtained from http://www.recreationtherapy.com “Assessment Resources”

**Assessment Red Book**, Joan Burlingame (idyarbor@ix.netcom.com), Idyll Arbor, (425) 432-3231
- Burlingame Software Scale
- BUS Utilization Assessment
- Comprehensive Evaluation in Recreation Therapy (Physical Disabilities)
- Comprehensive Evaluation in Recreation Therapy (Psychiatric Disabilities)
- Communication Device Evaluation
- Cross Country Skiing Assessment
- Downhill Skiing Assessment
- Fox Activity Therapy Social Skills Baseline
- Free Time Boredom Measure
- Functional Assessment of Characteristics for Therapeutic Recreation
- Functional Hiking Technique
- General Recreation Screening Tool
- Idyll Arbor Activity Assessment
- Idyll Arbor Leisure Battery
- Idyll Arbor Reality Orientation Assessment
- Leisure Competency Measure
- Leisure Assessment Inventory
- Leisure and Recreation Involvement
- Leisurescope Plus
- Life Satisfaction Scale
- Maladapted Social Functioning Scale for Therapeutic Recreation Programming
- Measurement of Social Empowerment and Trust
- Recreation Early Development Screening Tool
- State Technical Institute Assessment Process (STILAP)
- Teen Leisurescope Plus
- Therapeutic Recreation Activity Assessment (TRAA)

**Assessment in long term care**, Judith Voelkl, jvoelkl.umich.edu, (313) 769-7100


**Cognitive Assessment**, D. Laree Shanda, (509) 838-7212

**Constructive Leisure Activity Survey #1**, Patsy Edwards, (213) 652-7389

**Constructive Leisure Activity Survey #2**, Patsy Edwards, (213) 652-7389

**Family Leisure Assessment Checklist**, Jean Folkerth, Folkerth@mail.findlay.edu

**Gerontologic Assessment Protocol**, Martha Kemeny, (609) 924-7711


**Leisure Asset Scale**, Dianne Bowtell, (403) 471-2262

89
Leisure Barriers Inventory, Julie Dunn, (904) 644-4244


LeisurePref, Patsy Edwards, (213) 652-7389

Leisure Well-Being Inventory, C. Forrest McDowell, (503) 343-9544

Ohio Leisure Skills Scales on Normal Functioning, Roy Olsson, Jr, Roy.Olsson@UToledo.Edu, (419) 537-4950

Therapeutic Recreation Software, Andrew Ritchey, dsgrandy@isisneet.com, (902) 452-8473, download demo: http://home.istar.ca/~trs
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APPENDIX C
Leisure Activity Attributes Used by the PLA Assessment
## Comprehensive List of Leisure Activity Attributes by Category

**As Used by the PLA Assessment**

<table>
<thead>
<tr>
<th>Category of Activity</th>
<th>Motor skill required</th>
<th>Location</th>
<th>Equipment needed</th>
<th>Social attributes</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation sports</td>
<td>Good fine motor skills</td>
<td>Indoor activities</td>
<td>Minimal equipment</td>
<td>Individual activities</td>
<td>Minimal cost</td>
</tr>
<tr>
<td>Spectator sports</td>
<td>Fair fine motor skills</td>
<td>Outdoor activities</td>
<td>Moderate equipment</td>
<td>Small group activities</td>
<td>Moderate cost</td>
</tr>
<tr>
<td>Arts</td>
<td>Good gross motor skills</td>
<td>Home activities</td>
<td>Maximum equipment</td>
<td>Large group activities</td>
<td>Maximum cost</td>
</tr>
<tr>
<td>Social activities</td>
<td>Fair gross motor skills</td>
<td>Community activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hobbies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Physical activity**

- Minimal physical activity required
- Moderate physical activity required
- Maximum physical activity required
APPENDIX D
Example of Attributes To Be Applied to a Specific Leisure Activity
### PLAY ARCADES

<table>
<thead>
<tr>
<th>Category of Activity</th>
<th>Motor skill required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation sports</td>
<td>Good fine motor skills</td>
</tr>
<tr>
<td>Spectator sports</td>
<td>Fair fine motor skills</td>
</tr>
<tr>
<td>Arts</td>
<td>Good gross motor skills</td>
</tr>
<tr>
<td>Social activities</td>
<td>Fair gross motor skills</td>
</tr>
<tr>
<td>Hobbies</td>
<td></td>
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<table>
<thead>
<tr>
<th>Location</th>
<th>Equipment needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor activities</td>
<td>Minimal equipment</td>
</tr>
<tr>
<td>Outdoor activities</td>
<td>Moderate equipment</td>
</tr>
<tr>
<td>Home activities</td>
<td>Maximum equipment</td>
</tr>
<tr>
<td>Community activities</td>
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<table>
<thead>
<tr>
<th>Social attributes</th>
<th>Cost</th>
</tr>
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<tbody>
<tr>
<td>Individual activities</td>
<td>Minimal cost</td>
</tr>
<tr>
<td>Small group activities</td>
<td>Moderate cost</td>
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<tr>
<td>Large group activities</td>
<td>Maximum cost</td>
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<table>
<thead>
<tr>
<th>Physical activity</th>
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<tr>
<td>Minimal physical activity</td>
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<tr>
<td>Moderate physical activity</td>
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<td>Maximum physical activity</td>
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# PLA Assessment Report

## Page 1

<table>
<thead>
<tr>
<th>Today’s Date</th>
<th>Student Name</th>
<th>Student Age</th>
<th>Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/05/04</td>
<td>Sam</td>
<td>16</td>
<td>J. Kreiner</td>
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<table>
<thead>
<tr>
<th>Total number selected</th>
<th>Number of Activities</th>
<th>Percentage of activities</th>
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<tr>
<td>Left Picture Hits</td>
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<td>Right picture hits</td>
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<thead>
<tr>
<th>Categories</th>
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<tr>
<td>Participation Sport</td>
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<td>10</td>
</tr>
<tr>
<td>Spectator Sport</td>
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<td>Hobbies</td>
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<table>
<thead>
<tr>
<th>Location</th>
<th>Number of Activities</th>
<th>Percentage of activities</th>
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<tr>
<td>Indoor</td>
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<td>Outdoor</td>
<td>32</td>
<td>41</td>
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<td>Home</td>
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<td>Community</td>
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<th>Social type</th>
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<tr>
<td>Individual</td>
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<td>46</td>
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<tr>
<td>Small group</td>
<td>34</td>
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<tr>
<td>Large group</td>
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<table>
<thead>
<tr>
<th>Physical activity</th>
<th>Number of Activities</th>
<th>Percentage of activities</th>
</tr>
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<td>Minimal</td>
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<td>72</td>
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<td>Moderate</td>
<td>19</td>
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<td>Maximum</td>
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<table>
<thead>
<tr>
<th>Motor skill required</th>
<th>Number of Activities</th>
<th>Percentage of activities</th>
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<tbody>
<tr>
<td>Good fine motor</td>
<td>4</td>
<td>5</td>
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<tr>
<td>Fair fine motor</td>
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<tr>
<td>Good gross motor</td>
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<td>11</td>
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<tr>
<td>Fair gross motor</td>
<td>19</td>
<td>24</td>
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</table>

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Number of Activities</th>
<th>Percentage of activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
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<td>Moderate</td>
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<tr>
<td>Maximum</td>
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<td>11</td>
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<table>
<thead>
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<th>Cost</th>
<th>Number of Activities</th>
<th>Percentage of activities</th>
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<td>58</td>
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<tr>
<td>Moderate</td>
<td>21</td>
<td>27</td>
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<tr>
<td>Maximum</td>
<td>12</td>
<td>15</td>
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PLA Assessment Report
Page 2

Today’s Date: 07/05/04
Student Name: Sam
Student Age: 16
Facilitator: J. Kreiner

Recommended Activities:
- Go Out For Ice Cream (100% match)
- Talk on the Telephone (86% match)

List of chosen activities:
- Go out for ice cream
- Water the garden
- Go to a fast food drive through
- Have pet bunnies
- Go out for ice cream
- Have pet bunnies
- Play
- Make arts & crafts
- Play cards
- Go out for ice cream
- Go swimming
- Work in a garden
- Watch farm animals
- Play drums
- Play board games
- Go surfing
- Go to a fast food drive through
- Talk on the telephone
- Play beach volleyball
- Play baseball
- Read a newspaper
- Go to a fast food drive through
- Play checkers
- Go to a fast food drive through
- Read a newspaper
- Go to a fast food drive through
- Go to eat
- Play
- Go camping
- Go to a fast food drive through
- Go out for ice cream
- Go out for pizza
- Have a pet cat
- Make arts & crafts
- Go for a walk in the cold
- Have a pet cat
- Work in the garden
- Go out to eat
- Go for a walk in the cold
- Have a pet cat
- Cook in the kitchen
- Have a pet dog
- Go out for pizza
- Go to a concert
- Play checkers
- Go sailing
- Play
- Go on a date
- Play cards
- Go out for ice cream
- Join a quilting club
- Make arts & crafts
- Walk on the beach
- Watch a football game
- Play piano
- Cook in the kitchen
- Have a pet cat
- Do yoga

COMMENTS:
APPENDIX F
Written Questionnaire Regarding Leisure Preferences
Development of a Vocabulary-Free Leisure Interest Assessment Instrument
For Individuals with Severe Developmental Disabilities
and/or Communication Difficulties

Group 4 Questionnaire

Directions: Please answer the following questions related to your own leisure interests and preferences.

1. What is your age? ___________  Sex: ____ Male     ____ Female
   Occupation ______________________________________________________
   Education level: ___ Less than 12 years
   ___ Completed high school
   ___ Some college work
   ___ Completed undergraduate degree
   ___ Post-graduate work

2. Rank order the following leisure activity categories, according to your own preferences (1=MOST preferred):
   _____ Participation sports
   _____ Spectator sports
   _____ Arts
   _____ Social activities
   _____ Hobbies

3. Rank order the following leisure activity locations, according to your own preferences (1=MOST preferred):
   _____ Indoor activities
   _____ Outdoor activities
   _____ Home activities
   _____ Community activities

4. Rank order the following leisure activity social attributes, according to your own preferences (1=MOST preferred):
   _____ Individual activities
   _____ Small group activities
   _____ Large group activities
5. Rank order the following level of physical activity required during leisure activity, according to your own preferences (1=MOST preferred):

_____ Minimal physical activity required
_____ Moderate physical activity required
_____ Maximum physical activity required

6. Rank order the following levels of motor skills required during leisure activities, according to your own preferences (1=MOST preferred):

_____ Good fine motor skills
_____ Fair fine motor skills
_____ Good gross motor skills
_____ Fair gross motor skills

7. Rank order the following levels of leisure equipment needs, according to your own preferences (1=MOST preferred):

_____ Minimal equipment
_____ Moderate equipment
_____ Maximum equipment

8. Rank order the following levels of leisure activity cost, according to your own preferences (1=MOST preferred):

_____ Minimal cost
_____ Moderate cost
_____ Maximum cost

Thank you for your time!!
APPENDIX G
Questionnaire Regarding Usability of PLA Assessment
Development of a Vocabulary-Free Leisure Interest Assessment Instrument for Individuals with Severe Developmental Disabilities and/or Communication Difficulties

Group 1 Questionnaire

Directions: Please spend some time using the accompanying software program, and then answer the following questions. (Feel free to use the back of this form for additional comments.)

1. How much total time did you spend with the software? ________________

2. How long did it take you to “get the hang” of how to operate the program? ________________

3. Rate your overall satisfaction with the appearance of the software:
   Looks good       It’s okay       Needs a lot of work
   1                2              3               4             5
   Comments:

4. Rate your overall satisfaction with the usability of the software:
   Easy to use       It’s okay       Hard to figure out
   1                2              3               4             5
   Comments:

5. Rate your overall satisfaction with the helpfulness of the software:
   Very helpful       It’s okay       Not helpful at all
   1                2              3               4             5
   Comments:
APPENDIX H
Directions for Written Questionnaire Regarding Leisure Preferences
Here are a few guidelines to assist with some of the decisions regarding the attributes:

#1 – Your decisions should be based on the particular picture, as opposed to the activity in general.

#2 – Within the CATEGORIES section:
   Arts = creative component
   vs.
   Hobbies = habitual activity

#3 – SOCIAL ATTRIBUTES are being defined as follows:
   Small group = 5 other people, or less
   Large group = more than 5 others

#4 – EQUIPMENT NEEDED is being defined as follows:
   Minimal equipment = 2 or less pieces of equipment
   Moderate equipment = 3-5 pieces of equipment
   Maximum equipment = more than 5 pieces of equipment, OR
   More than 2 LARGE pieces of equipment, OR
   At least 1 higher cost item (greater than $15)

#5 – COST is being defined as follows:
   Minimum Cost = $0-5
   Moderate Cost = $6-15
   Maximum Cost = greater than $15
APPENDIX I
Comments Regarding Usability of the PLA Assessment
Comments from Group 1 Participants

- I like the pictures.
- It may be too high for some of the MR/DD students with moderate/intensive needs.
- It would be helpful if each screen was numbered so we could keep track of how many the students have done.
- Pictures are big enough to accommodate students with visual disabilities.
- An auditory option may be helpful.
- Numbering the slides would help the person administering the test.
- Or give an option to choose the amount of slides to be viewed.


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REFERENCES


