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**ENGAGEMENT WITHIN AND ACROSS LEISURE ACTIVITIES IN ADOLESCENCE:  
IMPLICATIONS FOR SUBSTANCE USE AND SEXUAL ACTIVITY**

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by

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## ABSTRACT

The two studies that comprise this dissertation were designed to examine the relationship between participation and engagement within and across leisure activities and health risk behaviors for a sample of approximately 2300 South African youth. The first study looked across four types of leisure activities (i.e., social; active; creative; performance-based). For each type of activity, youth were labeled as (a) non-participants, (b) amotivated and/or bored participants, or (c) motivated/interested participants at the beginning and end of eighth grade. Latent transition analysis was used to determine profiles of motivation and engagement within and across the four types of leisure activities. Five profiles were found for males, whereas six profiles were found for females. In nearly all cases, youth who belonged to profiles characterized by participation but amotivation and boredom had a higher probability of alcohol use, tobacco use, and sexual activity relative to profiles characterized by non-participation or profiles characterized by participation but motivation and interest.

The second study took an in-depth approach to examining engagement in active and social leisure. For each activity, participants were labeled based on their level of participation (i.e., low; moderate; high), level of interest (i.e., low; moderate; high), and type of motivation (i.e., amotivation; extrinsic motivation; identified/intrinsic motivation). Engagement profiles then were determined separately for youth who participated in active leisure and youth who participated in social leisure. Males' active leisure was characterized by one engagement profile (*Moderate Active: Engaged*) whereas females' active leisure was characterized by three engagement profiles (*Low Active: Mixed; Low Active: Engaged; Moderate Active: Engaged*). All male active leisure participants and most female active leisure participants experienced identified/intrinsic motivation and interest. Relative to non-participants, active leisure participants had higher prevalence of lifetime and past-month cigarette use and lifetime sexual activity.

Further, females who belonged to the *Low Active: Mixed* profile had a higher probability of alcohol use, tobacco use, and sexual activity relative to females who belonged to the other two profiles.

Males and females' social leisure was characterized by two engagement profiles (*Moderate-Low Social: Mixed; Moderate High Social: Mixed*). In contrast to active leisure, all youth who spent time in social leisure were amotivated but interested. Relative to non-participants, social leisure participants had higher prevalence of alcohol use, tobacco use, and sexual activity. There were not significant differences between the two social leisure profiles in terms of substance use, but youth who reported sexual activity were more likely to belong to the *Moderate-Low Social: Mixed* profile.

These studies suggest that experiences within leisure activities such as level of engagement may moderate the relationship between leisure activity participation and health risk behaviors. Implications for future research and prevention in South Africa and the United States are discussed.

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## Chapter 1

### **Leisure Activities and Health Risk Behaviors in Adolescence**

Youth around the world spend a significant amount of time in leisure (Larson & Verma, 1999). In South Africa, the focus of the current study, leisure accounts for 30% of the average adolescent's day (Møller, 1992). Similarly, American youth spend 30 – 50% of their time in leisure pursuits (Csikszentmihalyi & Larson, 1984; Hofferth & Sandberg, 2001; Larson, Richards, Sims, & Dworkin, 2001; Larson & Seepersad, 2003; Larson & Verma, 1999).

How adolescents' spend their leisure time is an important area of inquiry, as leisure represents a unique context of opportunity and risk (Carengie Corporation, 1992). Depending on the characteristics of the activities undertaken in leisure, leisure has the potential to promote health and well-being and aid in the development of positive characteristics such as prosocial identity, initiative, and intrapersonal and interpersonal skills, but also may provide opportunities for youth to engage in health risk behaviors such as substance use and sexual activity (Barber, Eccles, & Stone, 2001; Darling, Caldwell, & Smith, 2005; Fredricks & Eccles, 2006; Larson, 2000; Osgood, Anderson, & Shaffer, 2005; Zill, Nord, & Loomis, 1995).

Given the unique role of leisure activities in both adolescent development and risk behaviors, leisure may be an important context of health promotion and prevention in adolescence (Caldwell & Smith, 2006). To the extent that the relationship between adolescents' participation in specific types of leisure activities and health risk behaviors and the reasons for this relationship are known, this knowledge can be used to support programs and policies aimed at increasing opportunities for leisure activities that are associated with desired health outcomes, as well as to change the nature of leisure contexts that are associated with risky behaviors. Further, to the

extent that the characteristics of the participants in a given leisure activity are known, preventive interventions can be targeted to meet the participants' needs.

Given limitations of past research, however, additional studies are needed in order to effectively inform leisure-focused and leisure-based preventive interventions. To date, most studies of the relationship between leisure activities and health risk behaviors have focused on the participation/non-participation dichotomy. Although this type of research is useful for identifying leisure activities that are generally associated with particular health risk behaviors, it does not take into account that level of participation and experiences within leisure activities may influence or be associated with health risk behaviors.

One type of experience that may moderate the relationship between leisure activities and health risk behaviors is engagement. Past studies of leisure motivation and interest, two aspects of engagement, suggest that youth who are not intrinsically motivated and/or not interested in leisure are at higher risk of substance use (Caldwell, 2005a; Caldwell, Baldwin, Walls, & Smith, 2004; Sharp, Caldwell, Graham, & Ridenour, 2006). Although studies of this nature have not examined motivation and interest within specific types of leisure activities, they may have important implications for the relationship between specific activities and health risk behaviors. For example, although sport participation generally is associated with lower cigarette use than non-participation (Fredricks & Eccles, 2006; Yin, Katims, & Zapata, 1999; Zill et al., 1995), youth who are not intrinsically motivated and not interested while playing sport may have higher cigarette use than non-participants. Therefore, research is needed that takes the role of motivation and interest into account.

Another limitation of past research on the relationship between leisure activities and health risk behaviors is that few studies of this nature have acknowledged the fact that many adolescents participate in more than one leisure activity (Larson, Hansen, & Moneta, 2006) and that unique patterns of participation across activities may have implications for health risk

behaviors (Bartko & Eccles, 2003; Tibbits, Caldwell, Smith, & Wegner, in press). For example, little is known about the health implications of participating in activities associated with health risk behaviors *and* activities considered to protect against health risk behaviors.

Finally, few studies have examined the relationship between leisure activity participation and health risk behaviors among non-Western youth. To the extent that the inherent characteristics of a given leisure activity is the same cross-nationally, one might expect the health implications also to be the same. If the context and characteristics of a given leisure activity is substantially different, however, the health implications likely also would be different. Thus, research is needed that examines the context of leisure activities for non-Western youth, as well as the relationship between these activities and health risk behaviors.

#### *Dissertation Aims and Research Questions*

The two studies in this dissertation were designed to fill some of the gaps in the literature on the relationship between leisure activity participation and health risk behaviors in order to inform leisure-focused and leisure-based preventive interventions. Both studies used person-centered approaches in order to examine the relationships between leisure activity participation, substance use, and sexual activity among a predominately Colored sample of South African youth. Although research concerning this population is limited, the research that is available suggests that leisure activities have important health implications for South African adolescents (Campbell, Williams, & Gilgen, 2002; Kaufman, Clark, Manzini, & May, 2004). For example, findings suggest that sport participation may protect against sexual risk behaviors, particularly for females. Additional research is needed in order to verify, expand on, and effectively use these findings to promote health and prevent health risk behaviors.

The first study in this dissertation looked across four different types of leisure activities (i.e., social; active; creative; performance-based) in terms of participation and engagement (i.e., motivation and interest). This study was designed to highlight the role of amotivation and

boredom in the relationship between leisure activity participation and health risk behaviors. Thus, for each of the four types of leisure activities youth were classified as (a) non-participants, (b) amotivated and/or bored participants, or (c) interested and motivated participants. After classifying youth in terms of individual leisure activities, profiles of were determined across activities. The purpose of this aspect of the study was to examine whether there are different profiles of participation/motivation/interest across leisure activities (e.g., non-participation in all activities; non-participation in some activities but amotivation and/or boredom in others). Next, the relationship between these profiles and sexual activity and alcohol and tobacco use were examined. Given research suggesting significant gender differences in leisure activity opportunities and participation (Bhana, 2008; Burnett, 2002; Goslin, 2002; Hargreaves, 1997; Nauright, 1997; Pelak, 2005; Wegner, Flisher, Muller, & Lombard, 2006), gender differences also were explored.

Rather than looking across leisure activities, the second study took an in-depth look at participation and engagement separately for active leisure and social leisure. In this study, profiles were determined based on level of participation (i.e., low; moderate; high), motivational engagement (i.e., amotivation; extrinsic motivation; identified/intrinsic motivation) and emotional engagement (i.e., boredom; moderate interest; high interest). Additionally, the relationship between the profiles and sexual activity and alcohol and tobacco use were examined. Gender differences also were explored.

#### *Organization of This Chapter and the Dissertation*

This chapter begins by discussing the term *leisure* and reviewing research on the developmental and health implications of leisure and specific leisure activities. As very little research has been conducted on the developmental and health implications of leisure activities for South African youth, the majority of the literature review focuses on research with American youth but incorporates research on South African youth when possible. Next, a discussion of the

limitations of past research on adolescents' leisure activities is presented, followed by examples of leisure-focused and leisure-based preventive interventions. This chapter ends with a detailed discussion of the research questions addressed by the two empirical studies in this dissertation.

The second and third chapters present the findings of the two empirical studies. Each of these two chapters includes a literature review as well as methods, results, and discussion sections. The fourth chapter presents a discussion of the contributions of this dissertation to research on the relationship between leisure activities and health risk behaviors, as well as research on South African youth. Additionally, directions for future research, including a discussion of the implications of this dissertation for leisure-focused and leisure-based preventive interventions, are discussed.

#### *What Constitutes Leisure?*

Before discussing the role of leisure in development, it is important to discuss the meaning of the term *leisure*. The term *leisure* has been used four different ways in research on adolescents (Csikszentmihalyi & Kleiber, 1991; Sharp et al., 2006). First, *leisure* has been defined as non-school, non-work time (e.g., “discretionary time” or “free time”). Second, it has been suggested that leisure occurs in the context of specific types of activities, particularly those that are adult-organized (Csikszentmihalyi & Kleiber, 1991; Sharp et al., 2006). From this perspective, leisure is activity-specific.

Third, *leisure* has been referred to as “the combination of free time and the expectation of preferred experience” (Kleiber, 1999b, p. 3). Proponents of this definition of leisure suggest that the activities undertaken in non-school, non-work time only constitute *leisure* to the extent that these activities are self-chosen and intrinsically motivated (Csikszentmihalyi & Kleiber, 1991). Csikszentmihalyi and Kleiber note that individuals may be intrinsically motivated to participate in harmful, destructive, or otherwise unbeneficial activities, which is in contrast to the general conception of leisure as promoting health and well-being.

The fourth definition of leisure, which is not used as extensively as the previous three, suggests that leisure refers to self-chosen activities that lead to self-enhancement (i.e., self-actualization; Csikszentmihalyi & Kleiber, 1991). According to this definition, activities in non-school, non-work time are only *leisure* activities if they promote self-improvement and self-development.

At the core, the difference in opinion regarding what constitutes leisure centers on whether or not activities that are not self-chosen, intrinsically motivated, and/or self-enhancing but that occur in non-school, non-work time truly are *leisure* activities. Sharp et al. (2006) address this issue in their study of the relationship between parental characteristics, motivation, and interest in leisure and note that leisure researchers tend to base their studies on the third conceptualization of leisure (i.e., preferred experience), whereas developmental researchers tend to rely on the second definition (i.e., activities).

The two studies in this dissertation draw heavily from prior leisure research (e.g., the examination of motivation and interest within the broad construct of leisure; Caldwell, 2005a; Caldwell, Baldwin et al., 2004), as well as developmental theory (e.g., the health consequences of participation in specific leisure activities; Barber et al., 2001; Darling et al., 2005; Fredricks & Eccles, 2006; Larson, 2000; Osgood et al., 2005; Zill et al., 1995). Given that the studies in this dissertation focus on engagement (i.e., preferred experience) within specific activities, the term *leisure activities* is used throughout the dissertation.

#### *Leisure: A Unique Developmental Context*

Several characteristics of leisure make it a unique developmental context. First of all, research suggests that youth have the greatest opportunities for autonomous decision-making and action in leisure (Caldwell, 2005a; Caldwell & Baldwin, 2005; Csikszentmihalyi & Larson, 1984). Additionally, leisure provides opportunities for self-reflection not available in other contexts (Coatsworth, Palen, Sharp, & Ferrer-Wreder, 2006; Coatsworth et al., 2005; Kleiber,

1999a). Taken together, these findings suggest that youth may have both greater freedom and greater opportunities to “try on” different roles in leisure. For many youth, these experimental roles are positive (e.g., trying out for different afterschool activities), but for others they involve health risk behaviors (e.g., trying different drugs).

Further, Iso-Ahola (1980) and Kelly (1987) suggest that leisure is an important context of socialization in adolescence. At the most basic level, youth learn their strengths and limitations in leisure through their own perceptions and others’ perceived and actual reactions, thus influencing identity development (Barber, Stone, Hunt, & Eccles, 2005). For example, an adolescent might classify, or be classified, as a nerd because he/she enjoys reading but not sports or a jock because he/she enjoys sports.

Additionally, youth are exposed to different types of people depending on their leisure choices. For example, youth who participate in adult-organized leisure activities presumably are exposed to prosocial peers and adults, whereas youth who primarily spend leisure time with friends or alone may not be. As a result, compared to non-participants, participants in adult-organized leisure pursuits may acquire beliefs and skills that allow them to better function with other prosocial individuals. In turn, these beliefs and skills may influence health risk behaviors.

Caldwell (2005b) expands on this idea by suggesting that the developmental implications of adolescents’ leisure experiences are dependent on the context of leisure, the characteristics of the activities undertaken in leisure, and an adolescents’ experiences within leisure. According to this perspective, leisure contexts can be characterized by peer attributes, the level of adult guidance and supervision, the types of opportunities available (e.g., self- or adult-directed, challenging or unchallenging), and psychological and physical attributes (e.g., perceived safety, cleanliness, etc.). Leisure activities can be characterized by the activity’s purpose (e.g., goal-directed, creative, relaxing, etc.), level of challenge, and level of participation. Leisure



experiences can be characterized by emotions (e.g., interest, boredom, flow, stress) and motivation (e.g., amotivation, extrinsic motivation, and intrinsic motivation; Caldwell, 2005b).

Iso-Ahola (1980) and Kelly (1987) note, however, that youth also are socialized *into* leisure (i.e., selection effects). Research points to several demographic characteristics that may be associated with leisure choices, including age, gender, ethnicity, and socioeconomic status (SES; Bartko & Eccles, 2003; Hofferth & Sandberg, 2001; Mahoney, Larson, Eccles, & Lord, 2005; McHale, Crouter, & Tucker, 2001). Prior academic achievement (Eccles, Barber, Stone, & Hunt, 2003; McHale et al., 2001), achievement motivation (Fredricks & Eccles, 2006), and problem behavior (Eccles et al., 2003; McHale et al., 2001; Persson, Kerr, & Stattin, 2007) may also be associated with leisure choices. Finally, perceived competence at a particular leisure activity may also influence participation (Iso-Ahola, 1980; Kelly, 1987; Kleiber, 1999a; Mahoney, Larson, Eccles et al., 2005).

Mahoney et al. note “Activity selection involves a reciprocal process between contextual constraints and opportunities for participation, and the individual’s motivation and ability to perceive and act on them” (2005, p. 13). This perspective suggests that in addition to individual characteristics, familial (e.g., parental support and approval of an activity), social (e.g., peer support and approval of an activity), and community-level factors (e.g., availability of an activity) may influence adolescents’ leisure activity participation (Caldwell & Baldwin, 2005; Caldwell & Darling, 1999; Caldwell, Weichold, & Smith, 2006; Hutchinson, Baldwin, & Caldwell, 2003; Mahoney, Larson, Eccles et al., 2005; Persson et al., 2007). As a whole, this body of research suggests that leisure choices are dependent on a wide variety of characteristics that also may impact health risk behaviors, but also that above and beyond these pre-existing characteristics leisure choices have the potential to contribute to development and impact health risk behaviors.

*Adult- and Youth-Organized Leisure Activities*

In addition to studies on the developmental and health implications of leisure broadly defined, a growing body of research has examined the unique developmental opportunities and health implications of specific types of leisure activities (Barber et al., 2001; Darling et al., 2005; Fredricks & Eccles, 2006; Larson, 2000; Osgood et al., 2005; Zill et al., 1995). The majority of the research of this nature has focused on the developmental and health implications of adult- and youth-organized leisure activities. A discussion of this research is presented, followed by discussion of the role of selection effects in these findings. Given that very few researchers have examined these topics for South African youth, the bulk of this review focuses on research with American youth.

*Adult-organized Activities.* Adult-organized leisure activities are organized by adults in the school or community (e.g., sports teams and choral groups), and thus have an element of adult supervision and guidance. In contrast, youth-organized leisure activities generally are not organized by adults and are thought to have minimal adult-supervision (e.g., hanging out with friends and pick-up sports games). Previous studies have referred to adult-organized leisure activities by many different names, including *extracurricular* (Darling et al., 2005; Eccles et al., 2003; Fredricks & Eccles, 2006; Mahoney & Cairns, 1997), *organized* (Hansen, Larson, & Dworkin, 2003; Larson et al., 2006; Mahoney, Larson, Eccles et al., 2005), and *structured* (Bartko & Eccles, 2003; Gilman, Meyers, & Perez, 2004; Huebner & Mancini, 2003; Mahoney & Stattin, 2000). Often, these alternate labels are used interchangeably. Similarly, youth-organized activities often are referred to as *unstructured*.

Researchers who have used these alternate labels assume that leisure activities that are organized by adults in the school or community have common elements such as formal rules, opportunities for goal-setting and skill-building, and consistent meeting times, whereas youth-organized activities do not have these characteristics (Mahoney, Larson, & Eccles, 2005). It is important to note, however, that very few studies of leisure activity participation actually have

examined the nature of adult-organized and youth-organized activities, and thus these assumptions may not be valid. The terms adult-guided and youth-guided were chosen because they have not previously been used and therefore assumptions about the characteristics of these activities are not implied.

As a whole, research suggests that youth who participate in adult-organized leisure activities have greater emotion regulation, initiative, academic achievement and attainment than their non-participating peers (Eccles et al., 2003; Larson, 2000; Mahoney, Cairns, & Farmer, 2003; Mahoney & Cairns, 1997; Mahoney, Larson, Eccles et al., 2005). The relationship between adult-organized leisure activities and positive developmental outcomes is even more pronounced for youth who are at-risk of academic failure (Mahoney et al., 2003; Mahoney & Cairns, 1997). For example, Mahoney and Cairns found that among youth who were at the highest risk of dropping out of high school, those who participated in at least one school-based activity were significantly less likely to drop out than those who did not participate in any school-based activities.

In addition to promoting healthy development, research suggests that adult-organized leisure activities may serve to protect youth against involvement in health risk behaviors such as substance use (Barber et al., 2001; Eccles & Barber, 1999; Eccles et al., 2003; Feldman & Matjasko, 2005; Zill et al., 1995). Zill and colleagues found that tenth graders who spent between 1 - 19 hours in school-based leisure activities were significantly less likely to use tobacco, marijuana, and cocaine than those not involved in school-based leisure activities, even after controlling for relevant characteristics of individuals, parents, and schools. School-based activity participation did not, however, impact binge drinking. No known studies, however, have examined the relationship between adult-organized leisure activities and sexual behaviors.

*Youth-organized Activities.* As noted, few studies have examined the benefits and risks of youth-organized leisure activities. Some authors have suggested that youth-organized leisure

activities may increase inter- and intra-personal skills such as problem solving, decision-making, and initiative, whereas excessive participation in adult-organized leisure activities may in fact hinder the development of these skills (Caldwell & Smith, 2006; Kloep & Hendry, 2007).

Empirical research is clearly needed in order to test this hypothesis.

Further, few studies have specifically studied the relationship between youth-organized leisure activity participation and engagement in risky behaviors. Osgood and colleagues (2005), however, found that substance use and sexual activity were most common during unsupervised leisure activities immediately following the end of the school day, and that even indirect supervision decreased adolescent involvement in risky behaviors. These findings suggest that to the extent that leisure activities are unsupervised and peer-oriented, youth may have greater opportunities to engage in risky behaviors (Barber et al., 2005; Binion, Miller, Beauvais, & Oetting, 1988; Kegler, Cleaver, & Kingsley, 2000; McHale et al., 2001; Osgood et al., 2005; Vicary, Smith, Caldwell, & Swisher, 1998).

Additionally, research on European youth recreation centers highlights the potential risks of youth-organized activities (Mahoney & Stattin, 2000; Mahoney, Stattin, & Magnusson, 2001; Persson, Kerr, & Stattin, 2004). Stattin and colleagues found that youth centers characterized by minimal adult supervision provide a context for unsupervised socializing among peers, and in turn, are associated with greater delinquency. For example, males who attended youth centers in Sweden with very little adult supervision regularly had more criminal offenses than non-attendees (Mahoney et al., 2001). Similarly, females who attended youth centers and either spent a lot of time socializing with friends or were romantically involved with males had higher rates of delinquency than females who did not attend youth centers (Persson et al., 2004).

The literature on adult-organized activity participation also sheds light on the relationship between youth-organized activity participation and risk behaviors (Barber et al., 2001; Eccles & Barber, 1999; Eccles et al., 2003; Feldman & Matjasko, 2005; Zill et al., 1995). Although most

studies of adult-organized activity participation do not specifically examine youth-organized activity participation, one can reasonably assume that many of the youth who are not participating in adult-organized activities have leisure time and are engaging in youth-organized leisure activities. Thus, one could hypothesize that adolescents who spend the majority of their time in youth-organized leisure activities are more likely to engage in health risk behaviors.

*Developmental Implications of Leisure Activity Participation versus Selection Effects.*

Proponents of adult-organized leisure activities suggest that the relationship between participation in adult-organized leisure activities and increased positive outcomes occurs because adult-organized activities encourage interactions with prosocial adults and peers, which leads to the development of prosocial identity. In turn, youth with prosocial identities are thought to be less likely to endorse and engage in risk behaviors, and more likely to experience protection through other factors such as high academic achievement (Eccles et al., 2003; Larson, 2000; Larson et al., 2006; Mahoney et al., 2003; Mahoney, Larson, Eccles et al., 2005). In addition, adult-organized leisure activities limit time in unsupervised settings, thus limiting opportunities for engagement in risky behaviors. In contrast, youth-organized activities may not provide the same opportunities for prosocial interactions, and potentially allow for unsupervised time with peers.

An alternative viewpoint, however, is that the relationship between leisure activities and outcomes is the result of selection effects (Fredricks & Eccles, 2006; McHale et al., 2001). In other words, adolescents choose to participate in leisure activities based on their pre-existing characteristics, beliefs, and expectations, and in turn these characteristics are related to other developmental outcomes. For example, youth who are at-risk of problem behavior may be more likely to choose peers and leisure activities that provide support and/or opportunities for problem behaviors, whereas youth with prosocial orientations may be more likely to choose activities that support and reinforce those orientations. As previously noted, several individual-, familial-, peer-, and community-level characteristics are associated with leisure activity selection (Caldwell &

Baldwin, 2005; Fredricks & Eccles, 2006; Hofferth & Sandberg, 2001; Iso-Ahola, 1980; Kelly, 1987; Kleiber, 1999a; Mahoney, Larson, Eccles et al., 2005; Persson et al., 2007).

Longitudinal studies that have controlled for selection effects shed some light on this issue (Barber et al., 2001; Darling et al., 2005; Fredricks & Eccles, 2006; Osgood et al., 2005; Zill et al., 1995). As a whole, these studies suggest that above and beyond selection effects, there is a relationship between activities and health risk behaviors. Thus, current research and theory suggest that selection effects influence leisure activity choices, but the characteristics of leisure activities also influence the individual participating (Fredricks & Eccles, 2006; Iso-Ahola, 1980; Kelly, 1987; McHale et al., 2001).

*Limitations of the Adult-Organized Versus Youth-Organized Framework.* When interpreting the results of research on adult-organized and youth-organized leisure activities it is important to discuss several limitations. First, as noted, adult-organized and youth-organized leisure activities are often not clearly defined within a given study. Second, certain types of leisure activities are assumed to fall within one category or another without actually examining the characteristics of activities within the setting under examination. Third, leisure activities that fall within the categories of adult-organized (i.e., extracurricular, organized, structured) and youth-organized (i.e., unstructured) may be characteristically different. For example, it is possible that adult guidance and adult supervision in school-based sports teams and school-based musical groups, two leisure activities that many would consider to be adult-organized, may differ greatly. When these activities are grouped together, these differences are lost and it is difficult to determine which characteristics of adult-organized activities are required to support positive outcomes.

As a result of the limitations of grouping leisure activities into broad categories, as well as the recognition that specific types of leisure activities may have specific benefits and risks, several authors have examined the developmental and health implications of participation in

specific types of leisure activities (Bartko & Eccles, 2003; Dworkin, Larson, & Hansen, 2003; Eccles et al., 2003; Hansen et al., 2003). The available research in this area is reviewed in the following section. With the exception of sport, no known studies have examined the implications of leisure activity participation among South African youth. Thus, the bulk of the research reviewed refers to findings for American youth.

#### *Developmental and Health Implications of Specific Types of Leisure Activities*

Socializing with friends, using media (e.g., watching TV and movies), and participating in sport are the most popular leisure activities among American and South African youth (Csikszentmihalyi & Larson, 1984; Larson & Seepersad, 2003; Møller, 1992; Palen, 2008; Wegner et al., 2006). Other commonly reported leisure activities include listening to music, reading, and participating in creative activities such as dance, choir, and singing.

Before discussing the implications of these types of leisure activities for health and development, it is important to reiterate that leisure activity participation in both the United States and South Africa is dependent on a variety of factors including SES and race. Youth in both countries who have low SES and/or reside in impoverished areas are less likely to participate in adult-organized leisure activities (Kaufman et al., 2004; Lareau, 2002; Larson & Verma, 1999; McHale et al., 2001; Møller, 1992; Wegner et al., 2006). In terms of race, research suggests that Whites in the United States and South Africa have the greatest access to and participation in adult-organized leisure activities such as sport (Burnett, 2002; Goslin, 2002; Harvard Family Research Project, 2007; Hofferth & Sandberg, 2001). Furthermore, compared to White American youth, African American and Latino youth spend more of their leisure time with parents and other family members (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; Larson et al., 2001; Yin et al., 1999).

*Social Leisure.* As noted, spending unsupervised time with friends may afford youth opportunities to engage in risk behaviors not possible while with prosocial adults (Barber et al.,

2005; Binion et al., 1988; Kegler et al., 2000; McHale et al., 2001; Osgood et al., 2005; Vicary et al., 1998). As a whole, the available research with American youth regarding social leisure suggests that it is associated with higher risk behaviors and delinquency. In a cross-sectional study of Mexican American youth, Yins, Katims, and Zapata (1999) found that youth who spent unsupervised time in social leisure had higher rates of delinquency. Similarly, a longitudinal study found that youth who switched from adult-organized leisure activities to social leisure had higher delinquency than those who stayed in adult-organized activities (Persson et al., 2007). Finally, Caldwell and Darling (1999) found that that youth who spent more unsupervised time in social leisure were more likely to “party,” especially if their friends valued partying, and thus were more likely to engage in substance use.

It is important to note that it is likely that social leisure has developmental benefits in addition to risks. For example, social leisure may afford youth opportunities to build inter- and intra-personal skills (Caldwell & Smith, 2006; Kloep & Hendry, 2007), and in some cases may provide necessary social support not possible in other settings. Although additional research is needed to better understand the positive and negative implications of social leisure, the available research suggests that to the extent that social leisure is unsupervised, health risk behaviors are more likely.

*Media.* In addition to time with friends, media use accounts for a significant portion of adolescents’ leisure time (Csikszentmihalyi & Larson, 1984; Larson & Seepersad, 2003; Møller, 1992). Approximately 30% of American youth and 25% of South African youth report watching TV for three or more hours per day (Centers for Disease Control and Prevention, 2006; Reddy et al., 2003). This percentage is even higher for Latino (46%) and African American youth (64%). Additionally, one study found that using media such as movies, music, and video games accounted for 7 – 9.5 hours of the average American adolescent’s day (Brown & Witherspoon, 2002).



Arnett (1995) suggests that the amount of time spent using media makes media an important source of socialization in adolescence. Although educational media has the potential to convey healthy messages and promote normative development, the available research with American youth suggests that media often conveys unhealthy messages that are associated with alcohol and tobacco use, as well as lenient attitudes about sexual behavior (Brown, 2006; Brown & Witherspoon, 2002; Cooper, Valentine, Nye, & Lindsay, 1999). Information currently is not available concerning the health implications of South African adolescents' media use, but there is no theoretical reason to believe that South African youth are less influenced by media-based health messages.

*Sport.* Sport is the most commonly studied leisure activity in both the United States and South Africa. Generally, males have higher rates of sport participation than females (Fredricks & Eccles, 2006; Tibbits, Caldwell, & Smith, in preparation). Further, South African females generally have substantially fewer opportunities for formal sport participation than males, and non-Whites generally have fewer opportunities than Whites (Burnett, 2002; Goslin, 2002; Pelak, 2005). As a result, non-White youth, females, and those in impoverished areas more commonly participate in youth-organized sport (e.g., pick-up games).

As a whole, American research consistently indicates that school- or community-based sport participation is associated with better academic outcomes than non-participation, but associations with health risk behaviors are mixed (Barber et al., 2001; Cooper et al., 1999; Fredricks & Eccles, 2006; Zill et al., 1995). Numerous cross-sectional and longitudinal studies have found participation in team sports to be associated with higher frequency of alcohol use in adolescence, as well as higher rates of risky alcohol use such as binge drinking, for both males and females (Barber et al., 2001; Bartko & Eccles, 2003; Darling et al., 2005; Eccles et al., 2003; Fredricks & Eccles, 2006; Zill et al., 1995). Further, males who participate in school-sponsored, male-dominated sports such as football and wrestling and females who participate in community-

based, mixed gender sports such as surfing appear to be at higher risk of substance use than males and females who participate in other types of sports (Moore & Werch, 2005). Sport participation, however, is associated with lower use of tobacco and marijuana (Fredricks & Eccles, 2006; Yin et al., 1999; Zill et al., 1995).

Fewer studies have examined the health implications of South African adolescents' sport participation. The available research suggests that females' sport participation, particularly when it is consistent, is associated with lower substance use and lower sexual activity, as well as greater condom use for compared to females who do not participate or do so inconsistently (Campbell et al., 2002; Kaufman et al., 2004; Tibbits et al., in preparation).

The findings concerning males' sports participation, however, are mixed. Tibbits and colleagues (in preparation) found that males who reported alcohol use and males who reported tobacco use were more likely to have participated in sport and/or physical activities at some point during a period of two years than to be non-participants during the two year period. In contrast, males who reported sexual activity were more likely to be non-participants than sport and/or physical activity participants. Similarly, Campbell and colleagues (Campbell et al., 2002) found that males who were members of sports clubs were less likely than non-members to have HIV. Another study, however, found that male sport participants were less likely to use condoms than non-participants (Kaufman, Clark, Manzini, & May, 2002; Kaufman et al., 2004).

Given that research suggests that sport is protective for females but may be risky for males in South Africa, Kaufman et al. (2004) suggest that different health messages may be conveyed to males and female adolescents in sport. Similarly, Burnett (2002) suggests that sports such as rugby, soccer, and cricket that were traditionally reserved for males convey messages to participants that "perpetuates masculine culture and hegemonic gender relations" (p. 180). It is reasonable to assume that attitudes regarding sexual activity and substance use are one aspect of "masculine culture." Similar assertions have been made in order to explain the relationship

between male-dominated sports and health risk behaviors for American youth (Moore & Werch, 2005).

As a whole, the American and South African findings suggest that sport participation has both positive and negative health implications. Few studies, however, have articulated the reasons behind these mixed findings. Thus, additional research and theory is needed in order to fully understand the link between sports and health risk behaviors.

*Clubs, Organizations, and Performing Arts.* As with sport participation, American research on school-sponsored clubs and organizations (e.g., student government) has produced mixed findings. Currently no research has been conducted on this topic for South African youth. Participation in school-sponsored clubs is associated with higher educational achievement and attainment (Barber et al., 2001; Bartko & Eccles, 2003; Cooper et al., 1999; Eccles et al., 2003; Fredricks & Eccles, 2006; Iso-Ahola & Weissinger, 1990). Further, one study found that youth whose leisure activities exclusively included school-based clubs, homework, and reading had low rates of total problem behavior (Bartko & Eccles, 2003).

The relationship between participation and health risk behaviors, however, is unclear. In one study, cross-sectional analyses indicated that participation in school clubs was associated with lower alcohol and marijuana use for males, but these findings were not replicated in longitudinal analyses (Fredricks & Eccles, 2006). In contrast, Barber and colleagues (2001) found that males who participated in school-sponsored clubs had lower marijuana use than males who did not participate, but for females the reverse was true. Finally, Eccles et al. (2003) found that participation was unrelated to substance use. No known studies have examined the relationship between school-sponsored clubs and sexual behaviors.

Research concerning the developmental implications of participation in school-sponsored performing arts also has produced mixed findings. As with other school-sponsored activities, research suggests that participation in performing arts activities is associated with higher

academic achievement and attainment (Barber et al., 2001). In terms of substance use, Barber and colleagues (2001) found that youth in the performing arts were more likely to increase their drinking over time, whereas Zill and colleagues (1995) found that students in the performing arts were less likely to use alcohol, tobacco, and other drugs. Further, Eccles and colleagues (2003) found that participation was unrelated to substance use. No known studies have examined the relationship between school-sponsored performing arts and sexual behaviors.

*Limitations of Past Research on Leisure Activity Participation and Health Risk Behaviors*

Although adolescents' leisure activity choices have clear health implications, for the most part this information has not been used to develop leisure-focused and leisure-based preventive interventions. One reason for this is that past research on leisure activity participation and health risk behaviors generally has not been explicitly designed with intervention development in mind. As a result, several design limitations of existing studies prevent their findings from being fully utilized in the development of preventive interventions. These limitations include examining individual leisure activities rather than participation across leisure activities and ignoring experiences within leisure activities. These limitations, and suggestions for future research, are discussed in the following subsections.

*Participation across Leisure Activities.* As noted, most studies of leisure activity participation have examined activities independently (e.g., the relationship between sport and health risk behaviors; the relationship between social leisure and health risk behaviors). Although studies that examine individual leisure activities shed light on the types of leisure activities that are generally associated with either positive or negative outcomes, they do not take into account the fact that many youth participate in more than one leisure activity (Larson et al., 2006). The implication of participation in multiple activities is that attitudes about health risk behaviors and opportunities to engage in health risk behaviors may differ based on an individual's unique combination of leisure experiences. For example, an adolescent who participates in a leisure

activity that encourages the growth of prosocial identity and positive goal setting and also spends unsupervised time with friends may have lower risk of substance use and sexual activity than an adolescent who exclusively spends leisure time with friends.

One study that examined participation across leisure activities for American youth found that participating in multiple leisure activities was associated with lower marijuana use than participating in one or no leisure activities (Fredricks & Eccles, 2006). The relationship between participation and alcohol use, however, varied by ethnicity. White youth who participated in several leisure activities had lower alcohol use than non-participants, whereas African American youth who participated in several leisure activities had higher alcohol use than non-participants.

In addition to the variable-centered approach to examining participation across activities, a small body of research has used person-centered approaches (i.e., determining profiles). Bartko and Eccles (2003) used cluster analysis to identify six profiles of American adolescents' activity participation: *Uninvolved* (i.e., low participation in all measured activities); *Volunteer* (i.e., volunteering); *Work* (i.e., most time spent in work); *Sports* (i.e., sports and friends); *School* (i.e., reading, school-based clubs, and homework); and *High Involved* (i.e., high involvement in all activities except unsupervised activities). Overall, youth with the *School* and *High Involved* profiles had the lowest problem behavior (e.g., delinquent acts and substance use), whereas individuals with the *Sports* and *Uninvolved* profiles had highest problem behavior.

Similarly, Tibbits, Caldwell, Smith, and Wegner (Tibbits et al., in press) used latent class analysis in order to determine the relationship between South African adolescents' profiles of leisure activity participation across eight types of leisure activities and substance use. Males' activity participation was characterized by five leisure activity profiles: *Uninvolved* (i.e., TV/movies only); *Sports and Volunteer* (i.e., TV/movies, sport/physical activity and volunteering); *Mixed: Recreation and Hobbies* (i.e., TV/movies, time with friends, sport/physical activity, hobbies/creative activities, and parks and recreation centers); *Mixed: Artistic* (i.e.,

TV/movies, time with friends, sport/physical activity, music/singing, and drama/dance); *Highly Involved* (i.e., participation in all eight measured leisure activities). Females' activity participation was characterized by four leisure activity profiles: *Uninvolved* (i.e., TV/movies only); *Uninvolved but Social* (i.e., TV/movies and time with friends); *Mixed* (i.e., TV/movies, sport/physical activity, hobbies/creative activities, music/singing, and volunteering); *Highly Involved* (i.e., participation in all eight measured leisure activities). Youth who reported past-month substance use and youth who reported sexual activity had lower odds of belonging to the *Uninvolved* profile compared to all other profiles.

The American and South African studies were similar in that they each identified profiles characterized by non-participation and participation in several leisure activities. Interestingly, South African non-participants were less likely to report substance use than those who reported participation in leisure activities, whereas American non-participants generally had higher odds of substance use than participants. This discrepancy may be explained by the fact that the activities measured in the American study were explicitly adult-organized, whereas the activities measured in the South African study were likely youth-organized, given that there are few opportunities for adult-organized activity involvement in the area studied (Kaufman et al., 2004; Møller, 1992; Wegner et al., 2006). Thus, youth who exclusively watch TV and movies, presumably at home, may receive the greatest adult supervision. This suggests that although on the surface there are similarities between some of the American and South African profiles, they likely represent different types of youth (i.e., those with numerous connections to adults versus those with limited connections to adults in leisure time).

Although research using traditional variable-oriented approaches has made important contributions to our understanding of the relationships between individual leisure activities and health risk behaviors, additional person-centered research can aid in the development of leisure-focused and leisure-based preventive interventions. In the two studies discussed above, American

youth who are members of the *Uninvolved* profile and South African youth who participate in leisure activities outside of the home appear to have the highest need for intervention.

*Engagement in Leisure Activities.* Another limitation of past research is that few studies have examined adolescents' experiences within leisure activities. Youth who are disengaged in their leisure activities may not acquire the developmental benefits of their activities and may be more likely to become involved in health risk behaviors (Caldwell, 2005a; Caldwell et al., 2004; Sharp et al., 2006). A review of research and theory on leisure motivation and interest, two aspects of engagement, follows.

Much of the research on leisure motivation and interest stems from Self-Determination Theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000). The main tenet of SDT is that there is a continuum of motivation: amotivation, extrinsic motivation, and intrinsic motivation (Deci & Ryan, 2000; Ryan & Deci, 2000). Amotivation (i.e., amotivated regulation) refers to actions without purpose (e.g., playing sports because there is nothing else to do). Extrinsic motivation refers to actions taken as a result of perceived social pressure. Extrinsic motivation is further broken down into three types of regulation: external regulation, introjected regulation, and identified regulation. External regulation refers to actions with the purpose of fulfilling an external demand or acquiring a reward (e.g. playing sports because it's required in physical education). Introjected regulation refers to actions taken with the purpose of avoiding negative feelings such as guilt or enhancing self-esteem (e.g., playing sports in order to feel athletic). Finally, identified regulation refers to actions taken because the actions have personal meaning or long-term benefits (e.g., playing sports in order to get a scholarship to go to college). In contrast to amotivation and extrinsic motivation, intrinsic motivation (i.e., intrinsic regulation) refers to actions taken in order to fulfill internal, personally meaningful desires (e.g., playing sports because they are fun).

Generally, intrinsic motivation is more common in leisure than in contexts such as school (Caldwell, 2005a; Caldwell & Baldwin, 2005; Csikszentmihalyi & Larson, 1984). For example, Caldwell, Weichold, and Smith (2006) found that American, German, and South African youth were more likely to report intrinsic and identified motivation in leisure than extrinsic motivation or amotivation. Another study of South African youth also found that for each of eight types of leisure activities (e.g., volunteering and spending time with friends) intrinsic motivation was more common than the other types of motivation (Palen, 2008). As a whole, these findings suggest that intrinsic motivation in leisure and in leisure activities is normative in adolescence.

Further, research suggests that intrinsic motivation may protect youth from engaging in health risk behaviors. Caldwell et al. (2006) found that intrinsic motivation was negatively associated with past-month alcohol use for American youth and that identified motivation was negatively associated with alcohol use for American and South African youth. The authors also found that youth who were amotivated were more likely to report engaging in property damage, whereas youth who experienced identified motivation were less likely to report this behavior.

Studies have shown that youth who are intrinsically motivated are less likely to experience boredom and more likely experience interest in leisure (Caldwell, 2005a; Iso-Ahola & Weissinger, 1987; Sharp et al., 2006; Weissinger, Caldwell, & Bandalos, 1992). In contrast, youth who are amotivated or extrinsically motivated in leisure are more likely to report leisure boredom.

In turn, boredom is predictive of risk behaviors. Qualitative studies (McIntosh, MacDonald, & McKeganey, 2005; Patrick et al., in press) suggest that Western youth and South African youth who are bored and/or perceive that there are few interesting leisure opportunities available are more likely to engage in risk behaviors such as substance use. Further, interest in participating in activities such as sport sometimes is reported as a reason to avoid substance use.



Empirical research mirrors these findings. Leisure boredom is associated with tobacco (Caldwell & Smith, 1995; Smith & Caldwell, 1989), alcohol (Caldwell & Smith, 1995), and marijuana use (Gordon & Caltabiano, 1996; Iso-Ahola & Crowley, 1991). Further, youth who are bored in their daily experiences (i.e., leisure and non-leisure) are more likely to be substance users or abusers (Johnston & O'Malley, 1986; Kegler et al., 2000; Orcutt, 1984; Wang, Fitzhugh, Cowdery, & Trucks, 1995; Wang, Fitzhugh, Eddy, & Westerfield, 1998). Taken together, the qualitative and empirical findings suggest that youth may use substances in order to alleviate boredom.

The one study of the relationship between general leisure boredom and substance use among South African youth did not find a significant relationship (Wegner et al., 2006). Research has not, however, examined the relationship between boredom within and/or across specific types of leisure activities and health behaviors among South African or American youth. This is an important area of inquiry given that adolescents' interest, as well as motives for participating in specific types of leisure activities, may vary and these variations may be associated with differential relationships between participation and outcomes.

Given findings in the broad leisure context, it is reasonable to hypothesize that youth who are not intrinsically motivated and/or not interested within leisure activities may be at-risk of substance use and other health risk behaviors. To revisit the person-centered study of South African adolescents' leisure activities (Tibbits et al., in press), youth who experience motivation and interest in several leisure activities may be at lower risk of using substances and having sex than youth who experience amotivation and boredom in several leisure activities.

*Directions for Future Intervention-Focused Leisure Activity Research.* To summarize, additional studies are needed in order to translate the findings of research on the link between leisure activities and health risk behaviors to leisure-focused and leisure-based preventive interventions. Future research should look across leisure activities, as well look at experiences

such as engagement within activities, when determining the relationship between leisure activities and health risk behaviors.

#### *Existing Leisure-Focused and Leisure-Based Preventive Interventions*

Although for the most part researchers have not taken what we know about leisure and leisure activities and translated that knowledge into preventive interventions, it is important to note that there are a few exceptions. A brief review of the literature on leisure-focused and leisure-based preventive interventions follows.

*Leisure-Focused Preventive Interventions.* Two leisure-focused preventive interventions aimed at promoting health and reducing risky behaviors in adolescence are TimeWise and HealthWise (Caldwell, Smith et al., 2004; Smith et al., 2008). TimeWise (Caldwell, 2004b; Caldwell, Baldwin et al., 2004) is a school-based curriculum that includes lessons on identifying healthy leisure interests, understanding motivation in leisure, and pursuing goals in leisure. HealthWise, the overarching project from which the data for this study was taken, is a school-based curriculum delivered in the eighth and ninth grades and includes the TimeWise curriculum as well as lessons on basic life skills such as decision making and interpersonal communication, substance use knowledge and resistance education, and sexual health education. Additionally, HealthWise Youth Development Specialists connect youth with community services and leisure opportunities.

Research suggests that the TimeWise curriculum is effective at decreasing amotivation and increasing identified motivation and interest in leisure (Caldwell, 2004a). Additionally, males who received the TimeWise curriculum were less likely than males in the comparison group to use marijuana and inhalants (Caldwell, 2004c). Further, youth who received TimeWise were less likely to report damaging property than youth in the comparison group (Caldwell & Smith, 2006).

Similar to the TimeWise findings, research findings from HealthWise suggest that youth who received the program were more likely to experience intrinsic motivation in leisure than the

control group (Caldwell, Patrick, Smith, Palen, & Wegner, 2008; Palen, Smith, & Caldwell, 2008). Caldwell et al. found that students in the HealthWise school with the greatest fidelity of implementation had higher intrinsic and identified motivation and lower introjected motivation than students in the comparison schools. Further, compared to the control group, youth who received HealthWise had lower levels of recent and heavy cigarette and alcohol use, and HealthWise males had delayed onset of sexual activity (Smith et al., 2008). Taken together, these results suggest that encouraging healthy leisure experiences and providing youth with the skills and opportunities to take advantage of those experiences is an important avenue for promoting health and preventing risk behaviors in adolescence.

*Leisure-Based Preventive Interventions.* As noted, little has been done to translate research findings concerning the relationship between health risk behaviors and leisure activities into leisure-based interventions. As a result, no known leisure-based interventions aimed at preventing health risk behaviors in adolescence have been developed *and* empirically tested. This is not to say that initiatives of this nature do not exist within schools and communities, only that information concerning the evaluation of these initiatives currently is not available. Thus, in this section a broad, international initiative, Sport for Development (UNICEF, 2003), is briefly described in order to give an example of what an evidence-based, leisure-based intervention might look like.

UNICEF's Sport for Development was founded on the premise that sport is an important context of health promotion and development across the lifespan. This initiative aims to effectively utilize sport as a context for the delivery of health messages by increasing adolescents' access to prosocial adults within sport and mobilizing community agencies and coaches to deliver life skills training and drug information within the context of sport programs.

Within each participating country, UNICEF aims to facilitate the use of existing resources to promote health through sport. Although this approach may lead to greater

sustainability of programs, it also has resulted in different programs being implemented in different countries and an absence of published evaluation research. Therefore, research clearly is needed to test the efficacy of this strategy, as well as to develop similar initiatives in other popular leisure activities.

#### *Description of the Two Dissertation Studies*

The two studies in this dissertation utilized person-centered approaches to clarify the nature of leisure activity participation, as well as the relation between leisure activity participation and health risk behaviors, in order to inform leisure-focused and leisure-based interventions. Participants included a sample of South African youth serving as the control group in the HealthWise South Africa prevention trial. The first study utilized latent transition analysis in order to determine whether there were profiles of youth based on their participation and engagement (i.e., interest and motivation) within and across four types of leisure activities (i.e., social; active; creative; performance-based). Gender differences in the profiles also were examined.

This study sheds light on many questions, including whether interest and motivation are activity-specific (e.g., all youth are motivated and interested in a particular activity) or person-specific (e.g., youth are motivated and interested across all of the activities in which they participate). Additionally, this study examined whether youth who had different profiles of participation, interest and motivation also were different in regard to three types of health risk behaviors: alcohol use, tobacco use, and early sexual activity.

The second study used latent class analysis to determine whether there were profiles of youth based on their level of participation (i.e., low; moderate; high), emotional engagement (i.e., boredom; moderate interest; high interest), and motivational engagement (i.e., amotivation; extrinsic motivation; identified/intrinsic motivation) when participating in active and social leisure activities. In this study, the two types of leisure activities were examined separately (i.e.,

profiles were identified separately for active leisure and social leisure participants). Gender differences in the profiles also were examined. Additionally, the relationships between the profiles and sexual activity and substance use were explored.

**Chapter 2**

**Engagement Within and Across Leisure Activities in Adolescence: Gender Differences and Implications for Substance Use and Sexual Activity**

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### Abstract

This study utilized a person-centered approach in order to (a) establish profiles based on adolescents' engagement (i.e., motivation and interest) within and across four types of leisure activities, (b) determine gender differences in these profiles, and (c) examine the relationship between the profiles and substance use and sexual activity. Participants included 2284 youth from an under resourced region of South Africa. Although there were gender differences in the profiles, results suggest that both males and females who are disengaged in their leisure activities (i.e., amotivated and bored) are at higher risk of substance use and sexual activity than youth who are engaged. Results are discussed in light of past research as well as implications for policy and prevention.

## Engagement Within and Across Leisure Activities in Adolescence: Implications for Substance Use and Sexual Activity

Much research has been conducted concerning the relationship between leisure activities and health behaviors in adolescence, and several important findings are worth noting. First, most youth participate in multiple leisure activities (Larson et al., 2006). Second, youth who participate in adult-supervised leisure activities generally have better outcomes (e.g., lower substance use) than those who participate in unsupervised activities (Barber et al., 2001; Darling et al., 2005; Fredricks & Eccles, 2006; Osgood et al., 2005; Zill et al., 1995). Third, some types of leisure activities, such as community service and religious activities, are nearly always associated with positive outcomes (Barber et al., 2005; Eccles et al., 2003; Hansen et al., 2003), whereas other types of leisure activities, such as sport, generally are associated with mixed outcomes (e.g., higher alcohol use and binge drinking but lower tobacco and marijuana use; Barber et al., 2001; Bartko & Eccles, 2003; Darling et al., 2005; Eccles et al., 2003; Fredricks & Eccles, 2006; Zill et al., 1995).

Many questions concerning leisure activities and health behaviors, however, remain unanswered. For example, do the above-mentioned findings hold true for non-Western youth and if so, what role does engagement within leisure activities play in these findings? Although few studies have examined adolescents' engagement within leisure activities, engagement may serve to moderate the relationship between activity participation and health behaviors. For example, youth who spend most of their leisure time with friends but are bored may seek out ways to become alleviate their boredom such as participating in risk behaviors like substance use. Thus, research is needed that identifies profiles of youth based on their participation and engagement in leisure activities and links these profiles with health risk behaviors.

The current study examined engagement within and across leisure activities for a predominately Colored (i.e., mixed race of European, Asian, or African descent) sample of South



African youth. The Context-Activity-Experience Model (Caldwell, 2005b) and Self-Determination Theory (Ryan & Deci, 2000) provided the conceptual and theoretical framework for the study. Person-centered methods were utilized in order to determine whether youth differ in terms of engagement (i.e., interest and motivation) within and across four types of leisure activities. This type of analysis sheds light on many questions, including whether engagement is activity-specific (e.g., all youth are motivated and interested in a particular activity) or person-specific (e.g., youth are motivated and interested across all of the activities in which they participate). Additionally, the current study examined whether youth who had different profiles of participation, interest and motivation in their leisure activities also were different in regard to three types of health risk behaviors: alcohol use, tobacco use, and early sexual activity.

#### *The Context-Activity-Experience Model*

The Context-Activity-Experience Model (Caldwell, 2005b) provided the conceptual framework for the examination of engagement in this study. This model suggests that the developmental implications of adolescents' leisure are dependent on the context of leisure, the characteristics of the activities undertaken in leisure, and experiences within these leisure activities. Leisure contexts may differ based on peer and adult attributes, the types of opportunities available (e.g., self- or adult-directed; challenging or unchallenging), and psychological and physical attributes (e.g., perceived safety). Leisure activities may differ based on their purpose (e.g., goal-directed, creative, relaxing), level of challenge, and level of participation required. Leisure experiences may differ based on one's emotions (e.g., interest, boredom, flow, stress) and motivation within the activity (e.g., amotivation, extrinsic motivation, and intrinsic motivation; Caldwell, 2005b).

As noted, the current study focused on two aspects of engagement, motivation and interest, within and across leisure activities. Motivation and interest were chosen because prior research on these variables in the broad context of leisure has shown important associations with

substance use and other risk behaviors (Caldwell & Smith, 1995; Caldwell & Smith, 2006; Iso-Ahola & Crowley, 1991). This study is an extension of that work in that it examines motivation and interest within specific types of leisure activities rather than general leisure motivation and interest.

Although the context and characteristics of the leisure activities themselves were not the focus of this study, they undoubtedly play a role in engagement within leisure activities. Thus, literature on the context and characteristics of the leisure activities of South African youth were used to guide the interpretation of the results in this study. A review of this literature follows.

#### *The Context and Characteristics of Leisure Activities for South African Youth*

Several factors should be noted when considering the context of leisure activities for South African youth. First, there are important racial and gender differences in the availability of leisure activities. Sporting resources, for example, were primarily reserved for urban White males before and during Apartheid (Nauright, 1997). Although effort has been made post-Apartheid to improve access to sporting facilities and opportunities for females and non-White youth, many argue that there still are important gender and racial inequalities in access to both adult-organized and youth-organized sport (Bhana, 2008; Burnett, 2002; Goslin, 2002; Hargreaves, 1997; Nauright, 1997; Pelak, 2005; Wegner et al., 2006). For instance, rural areas and urban areas populated largely with non-Whites often have few facilities or resources (e.g., staff and running water) for school- or leisure-time sport participation, and in many areas males have greater access to and social support for sport participation. In the area under examination in this study, few youth have the opportunity to participate in adult-organized sport, or other adult-organized leisure activities. Additionally, youth in this and other impoverished areas are forced to contend with violence, gangs, and drugs on the street that may hinder active engagement in leisure pursuits that are available outside of the home (Kaufman et al., 2004; Møller, 1992; Wegner et al., 2006).

These contextual variables may have important implications for the characteristics of leisure activities. In areas with low community resources for adult-organized leisure activities, youth who do participate in leisure activities outside of the home may be unsupervised or inadequately supervised (Kaufman et al., 2004; Møller, 1992; Wegner et al., 2006). As a consequence, they may be more likely to be influenced by peer norms and have greater opportunities to engage in risk behaviors, although this is an empirical question.

Further, leisure activities that are generally thought to build important life skills (e.g., goal setting, decision-making) when adult-organized and supervised may not build these skills when youth-organized. For example, youth who play youth-organized pick-up sport games may have fewer opportunities to learn to set and reach goals than youth who participate in adult-organized sport and formal tournaments. Although youth may also acquire other important skills in informal, youth-organized leisure activities, to date no known studies have examined this process in either the American or South African context.

#### *Engagement within Leisure Activities*

Undoubtedly, the context and characteristics of adolescents' leisure activities have the potential to impact engagement within leisure activities (Caldwell, 2005b). As noted, the current study focuses on two aspects of engagement: motivation and interest. Past research on motivation and interest as well as the ways in which context and activity characteristics may influence these variables is presented below.

*Motivation in Leisure Activities.* Self-Determination Theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000) provides the theoretical foundation for the discussion of motivation in the current study. SDT is based on the premise that there is a continuum of motivation: amotivation, extrinsic motivation, and intrinsic motivation (Deci & Ryan, 2000; Ryan & Deci, 2000). Amotivation (i.e., amotivated regulation) refers to actions without purpose (e.g., spending time with friends because there is nothing else to do). Extrinsic motivation refers to actions taken as a

result of perceived social pressure and is further broken down into three types of regulation: external regulation, introjected regulation, and identified regulation. Externally regulated actions fulfill an external demand or lead to the acquisition of a reward (e.g. spending time with friends because of peer pressure). Actions that result from introjected regulation are taken to avoid negative feelings such as guilt or to enhance self-esteem (e.g., spending time with friends because it increases feelings of popularity). Finally, identified regulation refers to actions taken because they have personal meaning or long-term benefits (e.g., spending time with friends because friends provide social support). In contrast to amotivation and extrinsic motivation, intrinsic motivation (i.e., intrinsic regulation) refers to actions taken in order to fulfill internal, personally meaningful desires (e.g., spending time with friends because it is fun).

Several studies of American youth have found intrinsic motivation to be higher in leisure than in contexts such as school (Caldwell, 2005a; Caldwell & Baldwin, 2005; Csikszentmihalyi & Larson, 1984). Further, Caldwell, Weichold, and Smith (2006) found that South African youth were more likely to report intrinsic and identified motivation in leisure than extrinsic motivation or amotivation, and that identified motivation was negatively associated with alcohol use. Another study of South African youth also found that for each of eight types of leisure activities (e.g., volunteering and spending time with friends) intrinsic motivation was more common than the other types of motivation (Palen, 2008). As a whole, these findings suggest that intrinsic motivation and identified motivation in leisure are normative and healthy for South African adolescents.

Contextual constraints that influence the availability and nature of leisure activities, however, may also impact motivation within leisure activities. To the extent that youth have few options in their leisure and the available options do not match their true interests or skills, they may be more likely to experience amotivation in the leisure activities that are available. In turn, amotivated youth may be less likely to benefit from the positive aspects of leisure activities (e.g.,

prosocial influence and goal-setting in prosocial activities). Additionally, youth who feel that their leisure activities are not purposeful may be more prone to peer influence within leisure activities, particularly if those leisure activities are unsupervised. In other words, amotivated youth may “go with the flow” rather than making resolute decisions about their actions.

As amotivation is the least studied and understood aspect of SDT, the current study was designed to highlight the relationship between amotivation in leisure activities and health behaviors. Thus, in order to present a parsimonious model focused on amotivation, intrinsic and extrinsic motivation were combined in this study. Although intrinsic and extrinsic leisure motivation undoubtedly conceptually are different, they are more similar to each other than to amotivation. That is, youth who participate in leisure activities as a result of either extrinsic or intrinsic reasons participate for a reason, whereas youth who are amotivated participate because they do not have a reason to do anything else.

*Boredom and Interest in Leisure Activities.* In addition to amotivation/motivation, another important aspect of engagement within leisure activities is boredom/interest. Research suggests that youth experience leisure boredom or interest for a number of reasons, including personal characteristics like sensation seeking (O'Hanlon, 1981; Watt & Vodanovich, 1999) and cognitive restructuring ability (Caldwell, 2005a; Farmer & Sundberg, 1986; Vodanovich, 2003; Vodanovich, Kass, & Neuliep, 1990; Watt & Vodanovich, 1999). Additionally, contextual characteristics of leisure activities such as repetition or inadequate challenge may be associated with boredom (Csikszentmihalyi & Larson, 1984; Larson & Richards, 1991; O'Hanlon, 1981; Robinson, 1975). The one study of leisure boredom among South African youth suggests that females experience greater leisure boredom than males, and that Black youth and Colored youth experience greater leisure boredom than Whites (Wegner et al., 2006).

Boredom is problematic in adolescence in that it is associated with health risk behaviors. Studies of American youth suggest that youth who are bored in their daily experiences are more

likely to be substance users or abusers (Johnston & O'Malley, 1986; Kegler et al., 2000; Orcutt, 1984; Wang et al., 1995; Wang et al., 1998). Additionally, boredom in leisure is associated with tobacco (Caldwell & Smith, 1995; Smith & Caldwell, 1989), alcohol (Caldwell & Smith, 1995), and marijuana use (Gordon & Caltabiano, 1996; Iso-Ahola & Crowley, 1991). Several researchers explain these findings by suggesting that adolescents use substances in order to alleviate boredom. It is important to note however, that leisure interest also sometimes is associated with negative behaviors such as property damage (Caldwell & Smith, 2006), suggesting that youth may be interested in leisure activities that are not healthy or positive (Csikszentmihalyi & Kleiber, 1991)

The one study of the relationship between general leisure boredom and substance use among South African youth did not find a significant relationship (Wegner et al., 2006). Research has not, however, examined the relationship between boredom within and across specific types of leisure activities and health behaviors. For example, youth who are bored when spending time with friends may be at higher risk of becoming involved in substance use than youth who are bored when playing sports, as spending time with friends may present more opportunities for use. Like amotivation, boredom within leisure activities may be especially prevalent and problematic in areas in which leisure activity choices are limited and there are few opportunities for formalized, adult-supervised leisure activities.

#### *The Current Study*

The current study expanded on past research by utilizing a person-centered approach in order to examine South African adolescents' engagement (i.e., motivation and interest) within leisure activities. The first aim of this study was to determine profiles of participation, motivation, and interest within and across social, active, creative, and performance-based leisure activities (i.e., engagement profiles). This component of the study was designed to explore whether motivation and interest vary within and across leisure activities. Several questions were addressed

with this analysis, including (1) Are youth motivated and interested or amotivated and bored across several different types of leisure activities?; (2) Are youth motivated and interested in some leisure activities, but amotivated and bored in others?; (3) Are some leisure activities universally motivating and interesting or amotivating and boring?; and (4) Do youth remain in the same engagement profile over time? If not, to which profile do they transition?

The second aim of the study was to examine gender differences in the engagement profiles. By statistically comparing models in which the interpretation of the engagement profiles was forced to be the same for males and females to models in which the profiles were allowed to differ it was possible to ascertain whether the interpretation of the engagement profiles truly was different for males and females. Questions addressed by this analysis include (1) Do certain profiles (e.g., “the motivated/interested across several leisure activities” proposed in the first question of the first aim) exist for females but not for males? In other words, is the nature of participation, motivation and interest within and across leisure activities different for males and females?; and (2) In the event that the engagement profiles have the same interpretation for males and females, is the prevalence the same?

The third aim was to examine the relationships between the engagement profiles and substance use and sexual activity. These analyses addressed the question of whether youth who had used substances or had sex had higher relative odds of belonging to a particular engagement profile (e.g., amotivated/boredom across several leisure activities relative to motivated/interested across several leisure activities). Additionally, the probability of substance use and sexual activity for each engagement profile was examined.

## Method

### *Participants*

Participants included 2284 students from five schools serving as the comparison group in a trial of a preventive intervention aimed at reducing substance use and risk of HIV/AIDS among

adolescents. All schools were located in an under-resourced township near Cape Town, South Africa. Beginning in the eighth grade, self-report surveys were collected every six months via hand-held personal digital assistants (PDAs). Data from the beginning of eighth grade (Time 1) and end of eighth grade (Time 2) were utilized in this study. At Time 1, the mean age of participants was 13.88 (50% male). The majority of participants (87%) identified themselves as Colored (i.e., mixed race of Asian, European, or African descent). A smaller percentage identified as Black (6%), White (5%) or Other (2%).

### *Measures*

*Leisure Activity Participation, Motivation, and Interest.* Participation in leisure activities was assessed with the question “During the past four weeks have you spent time insert leisure activity after school and over weekends?” (0 = No; 1= Yes). This study examined social (i.e., hanging out with friends), active (i.e., doing sports or other physical activities), creative (i.e., doing hobbies or creative activities such as artwork, drawing, woodwork, needlework, beadwork, and collecting things), and performance-based (i.e., participating in a drama or dance group) leisure activities.

Youth who responded that they had participated in a given leisure activity were then asked about their motivation for participation and level of interest in the activity. Motivation was measured with the question “Why do you usually spend time insert leisure activity?” (0 = There is nothing else to do [amotivation]; 1 = I feel like I have to [extrinsic motivation]; 2 = I do it for a purpose [identified motivation]; and 3 = I want to [intrinsic motivation]). Interest was assessed with the question “How do you feel about insert activity?” (0 = It is boring; 1 = It is OK; and 2 = It is interesting).

Given the special interest in amotivation and the need to address the research questions in the most parsimonious manner, responses from the participation, motivation and interest items were recoded such that for each of the four leisure activities, youth were given one of three labels:



(1) Non-participant, (2) Participant who was bored and/or amotivated in the activity, or (3) Participant who was interested and motivated (either extrinsically or intrinsically) in the activity.

*Lifetime Sexual Activity.* Lifetime sexual activity was assessed with the question “Have you ever had sex? This means intimate contact with someone during which the penis enters the vagina (female private parts)” (0 = No; 1 = Yes).

*Lifetime Substance Use.* Lifetime use of alcohol and cigarettes were assessed with the questions “How many drinks of alcohol (including beer and wine) have you had in your entire life?” and “How many cigarettes have you smoked in your entire life?,” respectively. Answers were dichotomized such that 0 = No lifetime use and 1 = Lifetime use.

*Past-Month Substance Use.* Past-month use of alcohol and cigarettes were assessed with the questions “During the past four weeks did you use alcohol (including wine and beer)?” and “During the past four weeks did you smoke cigarettes?,” respectively (0 = No; 1 = Yes).

#### *Analytic Strategy*

*Latent Transition Analysis.* Longitudinal engagement profiles were determined using latent transition analysis (SAS PROC LTA; Lanza, Collins, Lemmon, & Schafer, 2008). Latent transition analysis is a statistical technique used to (1) determine profiles of individuals based on chosen indicators (in this case, participation, motivation, and interest in four types of leisure activities); (2) determine whether the meaning of the profiles is the same over time; (3) determine whether the prevalence of the profiles is the same over time; and (4) determine whether members of a given profile at Time 1 remain in that profile or transition to another profile over time.

Latent transition analysis uses three types of parameters (Lanza, Flaherty, & Collins, 2003). The first type of parameter,  $\delta$  (delta), is the prevalence of each profile at each time point. The second type of parameter are the item-response probabilities,  $\rho$  (rho), which represent the probability of endorsing a particular response (e.g., being motivated/interested in a given leisure activity) given membership in a particular profile. These probabilities range from 0 to 1, where

probabilities close to 0 and 1 indicate a strong relationship between the item and the profile (Lanza et al., 2003). Item-response probabilities are also sometimes interpreted as prevalence estimates. For example, in the case of social leisure, if item-response probabilities for Profile 1 were .02 for non-participation, .98 for amotivation/boredom, and .00 for motivation/interest, the interpretation would be that (a) members of Profile 1 have a high probability (.98) of being amotivated/bored in social leisure and (b) 98% of youth in Profile 1 are amotivated/bored in social leisure and 2% do not spend time in social leisure. Generally, item-response probabilities greater than .50 are used to define a given profile (e.g., in the previous example if the item-response probability for amotivation/boredom in social leisure had been .55 rather than .98, that profile would still be defined as amotivated/bored in social leisure).

The third type of parameter,  $\tau$  (tau), represents the percentage of participants who remain in the same profile or transition to another profile from Time 1 to Time 2 (i.e., transition probabilities). Conceptually, at Time 1 an individual may belong to a profile characterized by amotivation/boredom in several leisure activities, but by Time 2 he/she may belong to a profile characterized by motivation/interest in several leisure activities. As a group, 80% of members of a given profile may stay in that profile from Time 1 to Time 2, but 20% may transition to another profile.

*Missing Data.* PROC LTA utilizes maximum likelihood with the EM algorithm in order to estimate missing responses on the items used to determine profile membership (i.e., participation, motivation and interest in leisure activities; Lanza et al., 2008). Due to the longitudinal nature of this study, at Time 1 less than 1% of the responses for the items used to determine profile membership were missing, whereas at Time 2 18% of the responses missing.

When covariates are added to a PROC LTA model, participants with values missing on the covariates are dropped from the analysis. In this study, less than 1% of the responses were missing on the covariates.

*Analysis Plan.* Several steps were taken in order to determine the final number of profiles as well as gender differences. A complete discussion of these steps is included in the Results section.

First, a baseline model was determined which included both males and females. Next, statistical tests were conducted using the baseline model in order to determine whether or not there were gender differences in the item-response probabilities (i.e., the meaning of the profiles). In this study there were gender differences, so the models were re-run separately for males and females in order to determine if the number of profiles differed for males and females.

After the baseline model and gender differences were determined, the relationships between the profiles and health risk behaviors were estimated using the multinomial logistic regression feature within PROC LTA. Each health risk behavior was entered separately. This analysis answered the question as to whether youth who had used substances or had sex had higher relative odds of belonging to a particular engagement profile. After determining these relationships, the intercepts and beta weights from these analyses as well as the overall prevalence of health risk behaviors were used to transform (a) the logs odds of belonging to a latent class relative to the reference group given substance use or sexual activity to (b) the probability of substance use and sexual activity given latent class.

## Results

### *Prevalence of the Leisure Activity Variables and Health Risk Behaviors*

The prevalence of the leisure activities and health risk behaviors examined in this study are presented in Table 2-1. Males and females were very similar in terms of levels of participation, interest, and motivation for social and performance-based leisure activities (i.e., drama and dance). Amotivation and boredom were most prevalent in social leisure (approximately 33%).

Males had significantly higher participation in active leisure activities (73% versus 46%) and slightly higher participation in creative leisure activities (i.e., creative activities and hobbies; 60% versus 51%) than females. For males, motivation and interest were highest in active leisure activities, whereas for females interest was highest in creative activities.

### *Model Selection*

*Selecting the Baseline Model.* The baseline model, which was used to determine gender differences, was selected by comparing the likelihood ratio statistic ( $G^2$ ), Akaike's information criterion (AIC), and the Bayesian information criterion (BIC) for models with two to six profiles. First, the AIC and BIC values were examined. The BIC suggested a 3-profile solution (i.e., the 3-profile solution had the lowest BIC value), whereas the AIC suggested a 6-profile solution. As all models had good fit (i.e., the G-squared values were close to or less than the degrees of freedom; Lanza et al., 2003), model identification and interpretability were used in order to select the model.

Model identification was tested by examining the  $G^2$  distribution of 100 random start values. With this test, models in which the lowest  $G^2$  also are the most prevalent are deemed to be identified (Lanza et al., 2003). The 3-profile, 4-profile, and 5-profile solutions all met this criterion, and thus interpretability was used to select the appropriate model. The 5-profile solution was selected as the baseline model because it had item-response probabilities with the clearest interpretation.

As it is not possible to examine transition probabilities from Time 1 to Time 2 unless the item-response probabilities for the profiles are the same at Time 1 and Time 2, a statistical test was conducted in order to determine whether it was appropriate to constrain the item-response probabilities to be equal at Time 1 and Time 2. A model in which the item-response probabilities were constrained to be equal across time was compared to a model in which the item-response probabilities were allowed to vary across time. The  $G^2$  and degrees of freedom ( $df$ ) were noted

for each model. The difference between the two  $G^2$  (93.18) and the two  $df$  (40) were then examined in terms of the  $\chi^2$  distribution, which was statistically significant ( $p < .05$ ). A comparison of the two models, however, indicated that interpretation of the profiles was the same at both time points (i.e., the item-response probabilities were very similar), and as a result Time 1 and Time 2 were constrained to be equal.

*Using the Baseline Model to Test for Gender Differences in the Item-Response*

*Probabilities.* After selecting the 5-profile solution, gender differences in the item-response probabilities were examined. To test for measurement invariance across gender, the  $G^2$  and  $df$  for a model in which item-response probabilities were constrained to be equal for males and females were compared to the  $G^2$  and  $df$  for a model in which item-response probabilities were allowed to differ. The  $\chi^2$  difference test was statistically significant ( $\chi^2(40)=190.89$ ), indicating that there were significant gender differences in the item-response probabilities. Additionally, the meaning of the profiles differed for males and females. Thus, results for males and females were examined separately. The same model selection procedures that were used to select the appropriate baseline model were used to select the appropriate model for males and females separately (e.g., the AIC, BIC, tests of model identification, and tests of invariance over time).

*Results for Males*

For males, the 3-profile solution had the lowest BIC, but it was not possible to determine the lowest AIC (see Table 2-2). In order to determine the appropriate number of profiles, models with 3 – 6 profiles were examined in terms of interpretability and identification. The 5-profile model was selected (see Table 2-3) because it was identified and had the clearest interpretation. These profiles included *Non-participants*; *Active & Creative: Engaged (AC: Engaged)*; *Mixed Engagement*; *Active, Creative, & Social: Disengaged (ACS: Disengaged)*; and *Active, Creative, & Social: Engaged (ACS: Engaged)*. The  $\chi^2$  difference test of measurement invariance across time was not statistically significant ( $\chi^2(40)=49.02$ ), indicating that the meaning of the profiles

was the same at Time 1 and Time 2. As a result, the item-response probabilities were constrained to be equal across the two time points. The prevalence was allowed to vary in order to determine whether profile membership differed at the two time points.

*Profile Prevalence, Interpretation, and Stability for Males.* The *Non-Participants* profile, which included 23% of males at Time 1 and 27% of males at Time 2, was defined by a lack of involvement in active, creative, and performance-based leisure activities. Fifty-two percent of youth in this profile spent time in social leisure activities, although among participants there was not a clear majority in terms of amotivation/boredom (30%) and motivation/interest (22%). As can be seen in the bottom section of Table 2-3, 95% percent of *Non-Participants* remained in that profile from Time 1 to Time 2.

At Time 1, 22% of males belonged to the *AC: Engaged* profile and by Time 2, 16% belonged to this profile. Most profile members did not spend time in social (90%) or performance-based leisure activities (74%), but did participate in active and creative activities (74% and 66%, respectively). Further, they reported high levels of motivation/interest in the activities in which they participated. With regard to active leisure activities, 70% reported being interested and motivated, whereas only 4% reported being amotivated/bored. Somewhat less strong, but still following the same pattern, youth who participated in creative leisure activities reported motivation/interest (56%) compared to being amotivated/bored (10%). Males in this profile were not as stable as *Non-Participants* from Time 1 to Time 2; only 61% who were in this profile at Time 1 remained there at Time 2. Most youth who moved to another profile at Time 2 moved to the *Mixed Engagement* (20%) or *ACS: Engaged* profiles (10%).

The *Mixed Engagement* profile, which included 28% of males at Time 1 and 30% at Time 2, was similar to the *AC: Engaged* profile in that most youth in this profile participated in active and creative leisure activities and were motivated/interested while doing so. Members of *Mixed Engagement* differed from members of the *AC: Engaged* profile, however, in that the

majority participated in social leisure. Further, most males in this profile (69%) were amotivated/bored in social leisure. The majority of youth (78%) who started in the *Mixed Engagement* profile at Time 1 remained there at Time 2.

The ACS: *Disengaged* profile was characterized by social, active, and creative leisure activity participation. This profile represented 16% of males at Time 1 and 14% at Time 2. The majority of profile members were amotivated/bored in active leisure activities (67%). Motivation and interest in social and creative activities, however, was less clear. The highest item-response probabilities are less than .50 (e.g., .49 for amotivation/boredom in social activities; .43 for amotivation/boredom in creative activities). It is important to note, however, that among males who participated in these two activities, the majority indicated that they are amotivated/bored. Additionally, only 42% of males remained in this profile from Time 1 to Time 2. Youth who transitioned were most likely to become members of the *Mixed Engagement* (22%) and *Non-Participants* (19%) profiles.

The ACS: *Engaged* profile differed from the ACS: *Disengaged* in that males in this profile were motivated/interested in active, creative, and social leisure activities. This profile represented 11% of males at Time 1, and 13% at Time 2. The stability of this profile was very high; 90% of males who were members of the ACS: *Engaged* profile at Time 1 also were members of that profile at Time 2.

#### *Associations between Males' Engagement Profiles and the Time 1 Health Risk Behaviors.*

After establishing the engagement profiles for males, the health risk behaviors were individually examined using multinomial regression in order to determine the association between substance use and sexual activity and profile membership. (see Table 2-4). Given the interest in amotivation and boredom in the current study, the ACS: *Disengaged* profile was chosen as the reference group for these analyses. This strategy answered the question as to whether males who used substances and/or had sex were more likely to belong to the ACS: *Disengaged* profile

relative to the other profiles. All relationships were significant,  $p < .05$ . With the exceptions of the *ACS: Engaged* profile and lifetime alcohol use ( $OR = 1.00$ ) and the *AC: Engaged* profile and past-month cigarette use ( $OR = 1.28$ ), youth who had used alcohol and cigarettes had higher odds of being in the *ACS: Disengaged* profile relative to the other profiles. Further, youth who had reported sexual activity also had higher odds of being in the *ACS: Disengaged* profile relative to the other profiles.

The probability of substance use and sexual activity for each profile is presented in Figure 2-1. Members of the *ACS: Disengaged* profile had a substantially higher probability of lifetime sexual activity, lifetime and past-month alcohol use, and lifetime cigarette use. The *AC: Engaged* profile, however, had the highest probability of past-month cigarette use.

#### *Results for Females*

For females, the 3-profile solution had the lowest BIC, but the 6-profile solution had the lowest AIC (see Table 2-2). In order to determine the appropriate number of profiles, models with 3 – 6 profiles were examined in terms of interpretability and identification. The 6-profile model was selected (see Table 2-5) because it was identified and had the clearest interpretation. These profiles included *Non-participants; Social: Disengaged; Social: Engaged; Active & Creative: Engaged (AC: Engaged); Active, Creative, & Social: Disengaged (ACS: Disengaged);* and *Active, Creative, & Social: Engaged (ACS: Engaged)*. The  $\chi^2$  difference test of measurement invariance across time was not statistically significant ( $\chi^2(48)=25.24$ ), indicating that the meaning of the profiles was the same at Time 1 and Time 2. As a result, the item-response probabilities were constrained to be equal across the two time points, but the prevalence was allowed to vary.

*Profile Prevalence, Interpretation, and Stability for Females.* The *Non-Participants* profile, which included 17% of females at Time 1 and 15% of females at Time 2, was defined by non-participation in social, active, creative, and performance-based leisure activities. This profile was not particularly stable, as only 47% of members at Time 1 remained in the profile at Time 2.



Most youth who transitioned (34%) became members of the *Social: Disengaged* profile at Time 2.

Females in the *Social: Disengaged* profile (20% of the sample at Time 1; 24% at Time 2) exclusively spent time in social leisure. Further, the majority (82%) experienced amotivation/boredom in social leisure. Most members of this profile at Time 1 were also members at Time 2 (78%). All members who transitioned moved into the *Non-Participants* profile.

The *Social: Engaged* profile (12% of females at Time 1; 16% at Time 2) was similar to the *Social: Disengaged* profile as members of this profile exclusively spent time with friends. Rather than being amotivated/bored, however, most members of the *Social: Engaged* profile (78%) experienced motivation/interest in social leisure. Further, 100% of females in this profile at Time 1 remained in this profile at Time 2.

The *AC: Engaged* profile accounted for 19% of females at Time 1 and 14% at Time 2. Few members of the *AC: Engaged* profile participated in social or performance-based leisure activities, but most participated in active (66%) and creative (55%) leisure activities. Further, most members of this profile were motivated/interested in these activities. Only half of youth who were in this profile at Time 1 remained in this profile at Time 2.

The *ACS: Disengaged* profile included 12% of females at Time 1 and Time 2 and was characterized by a high probability of participation in active (73%), social (70%), and creative (66%) leisure activities. Most females in this profile were amotivated/bored in social leisure (54%). Motivation and interest in active and creative leisure activities, however, was less clear. The highest item-response probabilities were less than .50 (e.g., .46 for amotivation/boredom in active leisure activities; .43 for amotivation/boredom in creative activities). It is important to note, however, that participants in these two activities are more likely to indicate amotivation/boredom

than motivation/interest. In terms of stability, only 52% of profile members at Time 1 remained in this profile at Time 2. Transitioning members moved to all profiles except *ACS: Engaged*.

The *ACS: Engaged* profile represented 20% of the sample at Time 1 and 19% of the sample at Time 2. This profile differed from the *ACS: Engaged* in that females in this profile clearly were motivated/interested when participating in active, social, and creative leisure activities. Additionally, half of the females in this profile participated in performance-based activities and were motivated/interested while doing so. Unlike the *ACS: Disengaged* profile, the *ACS: Engaged* profile was relatively stable; 80% of youth remained in that profile from Time 1 to Time 2. The other 20% transitioned to the *ACS: Disengaged* profile.

*Associations between Females' Engagement Profiles and the Time 1 Health Risk Behaviors.* After establishing the engagement profiles for females, the health risk behaviors were individually examined using multinomial regression in order to determine the association between substance use and sexual activity and profile membership. (see Table 2-6). As with males, the *ACS: Disengaged* profile was chosen as the reference group for these analyses. This strategy answered the question as to whether females who used substances or had sex were more likely to belong to the *ACS: Disengaged* profile relative to the other profiles and enabled some comparisons across gender.

All relationships were significant,  $p < .01$ . Females who had used alcohol and cigarettes had higher odds of being in the *ACS: Disengaged* profile relative to the other profiles. Further, youth who had reported sexual activity also had higher odds of being in the *ACS: Disengaged* profile relative to the other profiles.

The probability of substance use and sexual activity for each profile is presented in Figure 2-2. Members of the *ACS: Disengaged* profile had a substantially higher probability of all five health risk behaviors relative to members of the other four profiles. In contrast, members of

the *AC: Engaged* profile had a substantially lower probability of substance use relative to all other profiles.

### Discussion

This study utilized a person-centered approach in order to examine gender differences in profiles of participation and engagement (i.e., motivation and interest) within and across four types of leisure activities among a sample of Colored South African adolescents. This analysis allowed for the identification of profiles of youth within and across leisure activities, the prevalence of each profile, and the probability of remaining in each profile from Time 1 (the beginning of eighth grade) to Time 2 (the end of eighth grade). Additionally, the relationships between the engagement profiles and substance use and sexual activity were examined in order to determine whether profile membership was differentially associated with these health behaviors. A discussion of the results in light of past research, implications for future research, and implications for policy and program development follows.

#### *Gender Differences in the Number and Structure of the Engagement Profiles*

Comparisons of the number and interpretation of the engagement profiles for males and females revealed important gender differences. As a result, data were analyzed separately for males and females. The data for males was best summarized by a 5-profile solution, whereas the data for females was best summarized by a 6-profile solution. Four profiles had similar interpretation across gender: *Non-Participants*; *AC: Engaged*; *ACS: Disengaged*; and *ACS: Engaged*. *Non-Participants* did not participate in any of the measured leisure activities, and members of *AC: Engaged* participated in active and creative activities and were motivated/interested. Members of *ACS: Disengaged* participated in active, creative, and social leisure activities but were amotivated/bored. Members of *ACS: Engaged* participated in the same activities but were motivated/interested.

Additionally, females had two engagement profiles centered on spending time with friends (i.e., *Social: Disengaged* and *Social: Engaged*). These profiles differed only in terms of motivation and interest; females in the *Social: Disengaged* profile were amotivated/bored with friends, whereas members of the *Social: Engaged* profile were motivated/interested with friends. At Time 1, 32% of females belonged to the one of the two social profiles. By Time 2, membership in the social profiles rose to 40%.

There also was one engagement profile specific to males: *Mixed Engagement*. Members of this profile were amotivated/bored in social leisure, but motivated/interested in active and creative leisure activities. This profile included approximately 30% of males at Times 1 and 2.

#### *Stability of Membership in the Engagement Profiles from Time 1 to Time 2*

In addition to determining gender differences in number and meaning of the engagement profiles, the current study also examined the stability of membership in the profiles from Time 1 to Time 2. For males, the *Non-Participants* profile was most stable from Time 1 to Time 2. This finding suggests that males who do not participate in any leisure activities are unlikely to start participating over the course of the school year. Given that approximately 25% of males fell into this category, future research should examine the personal, familial, and social predictors of non-participation among males.

Not surprisingly, the *ACS: Engaged* profile was also highly stable from Time 1 to Time 2 for males. In contrast, males in the *ACS: Disengaged* profile were the most likely to transition to another profile, namely to the *Mixed Engagement* and *Non-Participants* profiles. These findings are logical, as one would expect youth to be more inclined to remain in activities in which they are motivated/interested, and less inclined to remain in activities in which they are amotivated/bored.

For females, the *Social: Disengaged*, *Social: Engaged*, and *ACS: Engaged* profiles were the most stable from Time 1 to Time 2. These findings suggest that regardless of their level of

interest and motivation, females who primarily spend time with friends are likely to continue to do so. That is, they are unlikely to start participating in other leisure activities, or to stop participating in social leisure. The findings regarding the *ACS: Engaged* profile for females are congruent with the findings for males; females who participate in a range of leisure activities and feel motivated/interested while doing so are unlikely to stop participating over the course of a school year. Twenty-percent of females in this profile, however, do become amotivated/bored (i.e., transition to the *ACS: Disengaged* profile), and this is a group that warrants future study.

The remaining three engagement profiles for females (*Non-Participants*, *AC: Engaged*, and *ACS: Disengaged*) were very unstable; approximately half of the members of these profiles transitioned to other profiles from Time 1 to Time 2. Members of the *Non-Participants* profile were most likely to transition to *Social: Disengaged*, indicating that they become involved in social rather than skill-building activities. Members of the *AC: Engaged* profile were most likely to transition to the *ACS: Engaged* profile, but also transitioned to all other profiles. Members of the *ACS: Disengaged* transitioned to all other profiles except the *ACS: Engaged* profile, suggesting that over time they were more likely to drop out of specific leisure activities than develop motivation/interest in the leisure activities in which they participated at Time 1.

#### *Gender Differences in the Prevalence*

In addition to transitions, there are several gender differences in prevalence that are worthy of mention. First, a much higher percentage of females than males failed to participate in any of the measured skill-based leisure activities (i.e., active, creative, and performance-based activities). At Time 1, 49% of females but only 23% of males fell into this category (i.e., the *Non-Participants*, *Social: Disengaged*, and *Social: Engaged* profiles). At Time 2, 55% of females and 27% of males fit this description.

A simple explanation for these findings is that females simply prefer social leisure activities. Before accepting this explanation, however, it is important to note three pieces of

information. First, research suggests that South African females, particularly non-White females in rural and/or impoverished areas, continue to have fewer leisure resources and options than males (Burnett, 2002; Goslin, 2002; Hargreaves, 1997; Nauright, 1997; Pelak, 2005; Wegner et al., 2006). Second, in this study the vast majority of females who did not participate in skill-based leisure activities also either (a) did not participate in social leisure activities or (b) were amotivated/bored in social leisure activities (i.e., members of the *Non-Participants* and *Social: Disengaged* profiles). Third, despite their amotivation/boredom, most females in the *Social: Disengaged* profile remain in that profile over time. This differs from the typical transition pattern discussed above in which profiles characterized by amotivation/boredom are more likely to transition to other profiles over time. Further, as noted, members of the *Social: Disengaged* profile that do transition move to the *Non-Participants* profile.

These findings suggest that social leisure might be the only type of leisure activity option available for many females in this sample. Research that examines a broad range of leisure activities as well as leisure opportunities and constraints is needed to shed further light on this issue. Given that it appears that social leisure is the only type of leisure activity for many females, research is also needed that illuminates the developmental context of social leisure. Currently, little is known about the risks or developmental opportunities that are presented in social leisure activities.

It also is important to note that as a whole, females were more likely than males to belong to engagement profiles characterized by complete amotivation/boredom. Females' amotivated/bored profiles included *Social: Disengaged* and *ACS: Disengaged*, and accounted for 32% of the sample at Time 1 and 36% of the sample at Time 2. Males had one amotivated/bored profile, *ACS: Disengaged*, that included 16% of the sample at Time 1 and 14% of the sample at Time 2. Although males in the *Mixed Engagement* profile experienced amotivation/boredom in social leisure, they experienced motivation/interest in active and creative leisure activities. As

theory and past research do not suggest that females are biologically predisposed to experience more amotivation and boredom than males (Deci & Ryan, 2000; Newberry & Duncan, 2001; Ryan & Deci, 2000; Sundberg, Latkin, Farmer, & Saoud, 1991; Vodanovich, 2003), it is likely that the previously discussed contextual factors (e.g., limited leisure opportunities) explain this finding.

*Engagement: Activity-Specific or Person-Specific?*

A unique contribution of the present study is that it allowed for the examination of participation and engagement across leisure activities within individuals. As a result, it was possible to determine (a) whether certain types of leisure activities were commonly experienced as engaging or disengaging and (b) whether there were profiles of individuals who were engaged or disengaged across leisure activities. As a whole, the findings suggest that the latter is more likely to be true.

With the exception of the *Mixed Engagement* profile, all profiles for males and females are characterized by motivation/interest or amotivation/boredom across all leisure activities. The fact that profiles characterized by amotivation/boredom in some leisure activities but motivation/interest in others are relatively rare, coupled with the fact no single type of activity was boring/amotivating to all youth, suggest that boredom/interest and amotivation/motivation may be person-specific rather than activity-specific.

Future research that incorporates measures of amotivation/motivation and boredom/interest in a broad range of leisure activities, as well as global measures of amotivation/motivation and boredom/interest would further shed light on this issue. Additionally, research is needed in order to understand whether youth who are amotivated and bored across leisure activities also share other common characteristics (e.g., depression).

*Differential Associations between Engagement Profiles and Health Risk Behaviors*

In addition to establishing the engagement profiles, another primary aim of this study was to determine whether or not the engagement profiles were differentially associated with health risk behaviors. For both males and females, the relationships between the engagement profiles and lifetime and past-month alcohol and cigarette use and lifetime sexual activity were statistically significant. Given that this study aimed to highlight the relationship between amotivation and health behaviors, the *ACS: Disengaged* profile served as the reference group in these analyses.

*Findings for Males.* In nearly all cases, males who reported health risk behaviors had higher odds of belonging to the *ACS: Disengaged* profile relative to the other profiles. The one exception was that youth who reported past-month cigarette use had lower odds of belonging to the *ACS: Disengaged* profile relative to the *AC: Engaged* profile. Additionally, with the exception of the *AC: Engaged* profile and past-month cigarette use, males in the *ACS: Disengaged* profile had a higher probability of substance use and sexual activity relative to the other profiles.

When thinking about these findings, it is important to revisit the ways in which the *ACS: Disengaged* profile differs from the other profiles. Like the *Mixed Engagement* and *ACS: Engaged* profiles, the *ACS: Disengaged* profile participates in social, active, and creative activities. The one distinction, however, is that members of the *ACS: Disengaged* profile are amotivated/bored in all three types of leisure activities, the *Mixed Engagement* profile is only amotivated/bored with friends, and the *ACS: Engaged* profile is motivated/in all three activities. Members of the *AC: Engaged* profile do not hang out with friends, but do participate in active and creative leisure activities and are interested and motivated in both activities. Thus, with the exception of the *AC: Engaged* profile and past-month cigarette use, these findings suggest that males who are amotivated/bored across different types of leisure activities are more likely to engage in health risk behaviors. Given that involvement in health risk behaviors generally is still



fairly uncommon at Time 1, the fact that members of the *ACS: Disengaged* profile have a significantly higher probability of health risk behaviors suggests that this group is truly unique and should be a target for preventive interventions.

Before effective interventions can be developed, however, additional research is needed to understand why youth in this profile are at higher risk of substance use and sexual activity. There are several possible explanations for these findings. First, males who are amotivated/bored across a range of leisure activities also may have other characteristics or risk factors that predispose them to health risk behaviors. For example, males who have a need for stimulation and/or high sensation seeking may be more likely to be bored across leisure activities, and also more likely to try to achieve an adequate level of stimulation by having sex and using substances (O'Hanlon, 1981; Watt & Vodanovich, 1999). Further, youth who engage in health risk behaviors as early as the eighth grade may fall into the category of *life-course persistent* delinquents described in the literature on adolescents' antisocial behavior (Moffitt, 1993). Although this literature does not explicitly refer to adolescents' leisure activities, it does suggest that early engagement in delinquency is not normative and often is preceded by neurological deficits and environmental support of delinquency. Given that youth in this study live in an impoverished area, those who reported that they were amotivated/bored across leisure activities may not have had access to personally meaningful and enriching leisure activities, resulting in leisure dissatisfaction as well as opportunities to engage in risk behaviors.

An alternative explanation is that amotivation and boredom with friends is a risk factor for substance use and sexual activity for males, but motivation and interest in other activities is a protective factor. This would explain why the *Mixed Engagement* profile did not stand out in terms of risk behaviors, but the *ACS: Disengaged* profile did. Future research is clearly needed to further elucidate the relationship between amotivation and boredom in leisure activities and males' health risk behaviors.

*Findings for Females.* The findings were very similar for females. Females who had used substances and/or had sex had higher odds of belonging to the *ACS: Disengaged* profile relative to the other profiles. Further, members of this profile had the highest probability of substance use and sexual activity. As in the case of males, these findings suggest that females who are disengaged in their leisure activities should be the target of preventive intervention.

Interestingly, members of the *AC: Engaged* profile, which is characterized by being engaged in active and creative leisure activities, had a substantially lower probability of substance use relative to the other profiles. Aside from engagement, what differentiates this profile from the others is that it does not include social leisure. Thus, although social leisure appears to be associated with lower risk than disengaged leisure, it may be associated with more risk than exclusively participating and being engaged in skill-based leisure activities. Additional research on the developmental implications of social and skill-based leisure for South African females is needed in order to clarify these findings.

### *Limitations*

Several limitations should be taken into consideration when interpreting the results of this study. First, the data for this study were collected in one impoverished region of South Africa and primarily included Colored adolescents. Thus, the findings may not generalize to South African youth of different races, with different economic circumstances, or in different regions.

Other limitations concerned data collection and measurement. All data for this study came from self-reports. Although this likely had minimal impact on questions concerning leisure activity participation, youth may have under- or over-reported substance use or sexual activity based on perceived social expectations. Additionally, reliable measures of selection effects (e.g., SES) were not available in this dataset and as a result it was not possible to control for selection effects. It is important to note that no known studies have identified factors influencing South

African adolescents' leisure activity participation, so any potential selection effects included would have to be chosen based on research with American youth.

Additionally, although the profiles included two time points, a full examination of the longitudinal relationships between the profiles and health risk behaviors was beyond the scope of this study. Future research should examine concurrent changes in activity participation and health risk behaviors in order to gain a better understanding of the direction of influence.

#### *Conclusions and Implications for Preventive Interventions*

The results of this study suggest that there are profiles of youth who share levels of engagement within and across leisure activities, and that these profiles have different risk of substance use and sexual activity. Males and females who engage in a range of leisure activities but are amotivated and/or bored in all of their leisure activities appear to be at greatest risk of substance use and sexual activity. As a whole, these findings suggest that amotivation and boredom within leisure activities may play an important role in health risk behaviors. Conversely, substance use may lead to amotivation and boredom in leisure. Longitudinal research that takes into account experiences within leisure activities, as well as the reasons for these experiences and changes within these experiences is needed to further elucidate the relationship between activity-specific amotivation and boredom and health risk behaviors.

Despite the fact that the reasons why youth experience amotivation and boredom in leisure activities are currently speculative, the findings of this study do have implications for policy and intervention. Given that females have a lower prevalence of participation in skill-based leisure activities and a higher prevalence of amotivation and boredom within leisure activities, providing opportunities for engaging leisure activities among females should be prioritized. In terms of intervention, parents and activity leaders should be made aware that amotivation and boredom within leisure activities is not normative and may in fact be associated with health risk behaviors. Further, activity leaders should be educated, and able to deliver interventions,

concerning health risk behaviors in adolescence. Developing preventive interventions to be implemented within specific types of leisure activities also should be a priority for future research.

Table 2-1

*Prevalence of Leisure Activity Variables and Health Risk Behaviors by Gender at the Beginning of Eighth Grade*

	Male	Female	Total
<i>Social Leisure</i>			
No Participation	39	41	40
Amotivated/Bored	34	33	33
Motivated/Interested	27	26	27
<i>Active Leisure</i>			
No Participation	27	54	41
Amotivated/Bored	15	11	13
Motivated/Interested	57	35	46
<i>Creative Leisure</i>			
No Participation	40	49	44
Amotivated/Bored	16	13	15
Motivated/Interested	44	38	41
<i>Performance-based Leisure</i>			
No Participation	75	75	75
Amotivated/Bored	7	4	6
Motivated/Interested	18	20	19
<i>Health Risk Behaviors</i>			
Lifetime Alcohol	43	37	40
Past-Month Alcohol	14	11	13
Lifetime Cigarettes	33	31	32
Past-Month Cigarettes	22	21	21
Lifetime Sexual Activity	14	4	9

Table 2-2  
*Selection of the Engagement Profiles by Gender*

Males					Females				
Profiles	G <sup>2</sup>	df	AIC	BIC	Profiles	G <sup>2</sup>	df	AIC	BIC
2	2387.15	6541	2425.15	2520.90	2	2332.86	6541	2370.86	2466.64
3	2178.90	6528	2242.90	<b>2404.17</b>	3	2202.92	6528	2266.92	<b>2428.24</b>
4	2096.19	6513	2190.19	2427.06	4	2100.01	6513	2194.84	2431.79
5	2012.48	6496	2140.48	2463.01	5	2043.43	6496	2171.43	2494.08
6	1945.60	6477	2111.60	2529.89	6	1970.48	6477	<b>2136.48</b>	2554.92
7	1901.90	6456	2109.90	2634.03	7	1940.67	6456	2148.67	2672.98

*Note.* The lowest AIC and BIC in bold.

Table 2-3

*Prevalence, Item-Response Probabilities, and Transition Probabilities of Males' Engagement Profiles*

	Profile				
	Non-Participants	AC: Engaged	Mixed Engagement	ACS: Disengaged	ACS: Engaged
<b>Prevalence</b>					
Time 1: Beginning of 8th Grade	0.23	0.22	0.28	0.16	0.11
Time 2: End of 8th Grade	0.27	0.16	0.30	0.14	0.13
<b>Item-Response Probabilities</b>					
<i>Social Leisure</i>					
No Participation	0.48	<b>0.90</b>	0.05	0.31	0.07
Amotivated/Bored	0.30	0.00	<b>0.69</b>	0.49	0.00
Motivated/Interested	0.22	0.10	0.26	0.20	<b>0.93</b>
<i>Active Leisure</i>					
No Participation	<b>0.58</b>	0.26	0.10	0.26	0.08
Amotivated/Bored	0.07	0.04	0.08	<b>0.67</b>	0.00
Motivated/Interested	0.35	<b>0.70</b>	<b>0.82</b>	0.07	<b>0.92</b>
<i>Creative Leisure</i>					
No Participation	<b>0.80</b>	0.34	0.26	0.33	0.28
Amotivated/Bored	0.05	0.10	0.17	0.43	0.03
Motivated/Interested	0.15	<b>0.56</b>	<b>0.57</b>	0.24	<b>0.69</b>
<i>Performance-based Leisure</i>					
No Participation	<b>0.98</b>	<b>0.74</b>	<b>0.71</b>	<b>0.61</b>	<b>0.71</b>
Amotivated/Bored	0.01	0.03	0.05	0.20	0.09
Motivated/Interested	0.01	0.23	0.24	0.19	0.20

<b>Transition Probabilities from Time 1 (rows) to Time 2 (columns):</b>	Non- Participants	AC: Engaged	Mixed Engagement	ACS: Disengaged	ACS: Engaged
Non-Participants	<i>0.95</i>	0.00	0.00	0.05	0.00
AC: Engaged	0.00	<i>0.61</i>	0.20	0.10	0.08
Mixed Engagement	0.05	0.06	<i>0.78</i>	0.11	0.00
ACS: Disengaged	0.19	0.08	0.22	<i>0.42</i>	0.09
ACS: Engaged	0.07	0.00	0.03	0.00	<i>0.90</i>

Note. Item-response probabilities > .50 are in bold. Item-response probabilities that add to > .50 are in italics. Transition probabilities representing the probability of remaining in the same profile from Time 1 to Time 2 are in italics. A = Active; C= Creative; S = Social.



Table 2-4  
*Associations between Males' Engagement Profiles and Health Risk Behaviors*

	Profile				
	Non-Participants	AC: Engaged	Mixed Engagement	ACS: Disengaged	ACS: Engaged
Lifetime Alcohol	0.61	0.93	0.41	1.00	1.00
Past-month Alcohol	0.12	0.32	0.23	1.00	0.12
Lifetime Cigarettes	0.56	0.27	0.53	1.00	0.59
Past-month Cigarettes	0.63	1.28	0.37	1.00	0.60
Lifetime Sex	0.12	0.12	0.23	1.00	0.30

*Note:* All  $p$  values > .05. Non-Participants is the reference profile. A = Active; C = Creative; S = Social.

Table 2-5

*Prevalence, Item-Response Probabilities, and Transition Probabilities of Females' Engagement Profiles*

	Profiles					
	Non-Participants	Social: Disengaged	Social: Engaged	AC: Engaged	ACS: Disengaged	ACS: Engaged
<b>Prevalence</b>						
Time 1: Beginning of 8th Grade	0.17	0.20	0.12	0.19	0.12	0.20
Time 2: End of 8th Grade	0.15	0.24	0.16	0.14	0.12	0.19
<b>Item-Response Probabilities</b>						
<i>Social Leisure</i>						
No Participation	<b>0.98</b>	0.00	0.20	<b>0.85</b>	0.30	0.07
Amotivated/Bored	0.02	<b>0.82</b>	0.02	0.15	<b>0.54</b>	0.31
Motivated/Interested	0.00	0.18	<b>0.78</b>	0.00	0.16	<b>0.61</b>
<i>Active Leisure</i>						
No Participation	<b>0.94</b>	<b>0.77</b>	<b>0.75</b>	0.34	0.27	0.24
Amotivated/Bored	0.06	0.06	0.05	0.07	0.46	0.06
Motivated/Interested	0.00	0.17	0.20	<b>0.59</b>	0.27	<b>0.70</b>
<i>Creative Leisure</i>						
No Participation	<b>0.76</b>	<b>0.70</b>	<b>0.64</b>	0.45	0.34	0.22
Amotivated/Bored	0.14	0.11	0.05	0.04	0.43	0.10
Motivated/Interested	0.10	0.19	0.31	<b>0.51</b>	0.23	<b>0.68</b>
<i>Performance-based Leisure</i>						
No Participation	<b>0.94</b>	<b>0.94</b>	<b>0.94</b>	<b>0.65</b>	<b>0.63</b>	0.45
Amotivated/Bored	0.05	0.00	0.06	0.02	0.20	0.05
Motivated/Interested	0.01	0.06	0.06	0.33	0.17	<b>0.50</b>

**Transition Probabilities from  
Time 1 (rows) to Time 2  
(columns):**

	Non- Participants	Social: Disengaged	Social: Engaged	AC: Engaged	ACS: Disengaged	ACS: Engaged
Non-Participants	<i>0.47</i>	0.34	0.00	0.19	0.00	0.00
Social: Disengaged	0.22	<i>0.78</i>	0.00	0.00	0.00	0.00
Social: Engaged	0.00	0.00	<i>1.00</i>	0.00	0.00	0.00
AC: Engaged	0.09	0.01	0.10	<i>0.50</i>	0.11	0.19
ACS: Disengaged	0.03	0.16	0.15	0.14	<i>0.52</i>	0.00
ACS: Engaged	0.00	0.00	0.00	0.00	0.20	<i>0.80</i>

Note. Item-response probabilities > .50 are in bold. Item-response probabilities that add to > .50 are in italics.

Transition probabilities representing the probability of remaining in the same profile from Time 1 to Time 2 are in italics. A = Active; C= Creative; S = Social.

Table 2-6  
*Associations between Females' Engagement Profiles and Health Risk Behaviors*

	Profile					
	Non-Participants	Social: Disengaged	Social: Engaged	AC: Engaged	ACS: Disengaged	ACS: Engaged
Lifetime Alcohol	0.35	0.50	0.93	0.17	1.00	0.79
Past-month Alcohol	0.27	0.20	0.34	0.06	1.00	0.31
Lifetime Cigarettes	0.28	0.45	0.63	0.24	1.00	0.51
Past-month Cigarettes	0.31	0.60	0.48	0.30	1.00	0.54
Lifetime Sex	0.09	0.01	0.12	0.06	1.00	0.12

*Note:* All  $p$  values < .01. Non-Participants is the reference profile. A = Active; C = Creative; S = Social.

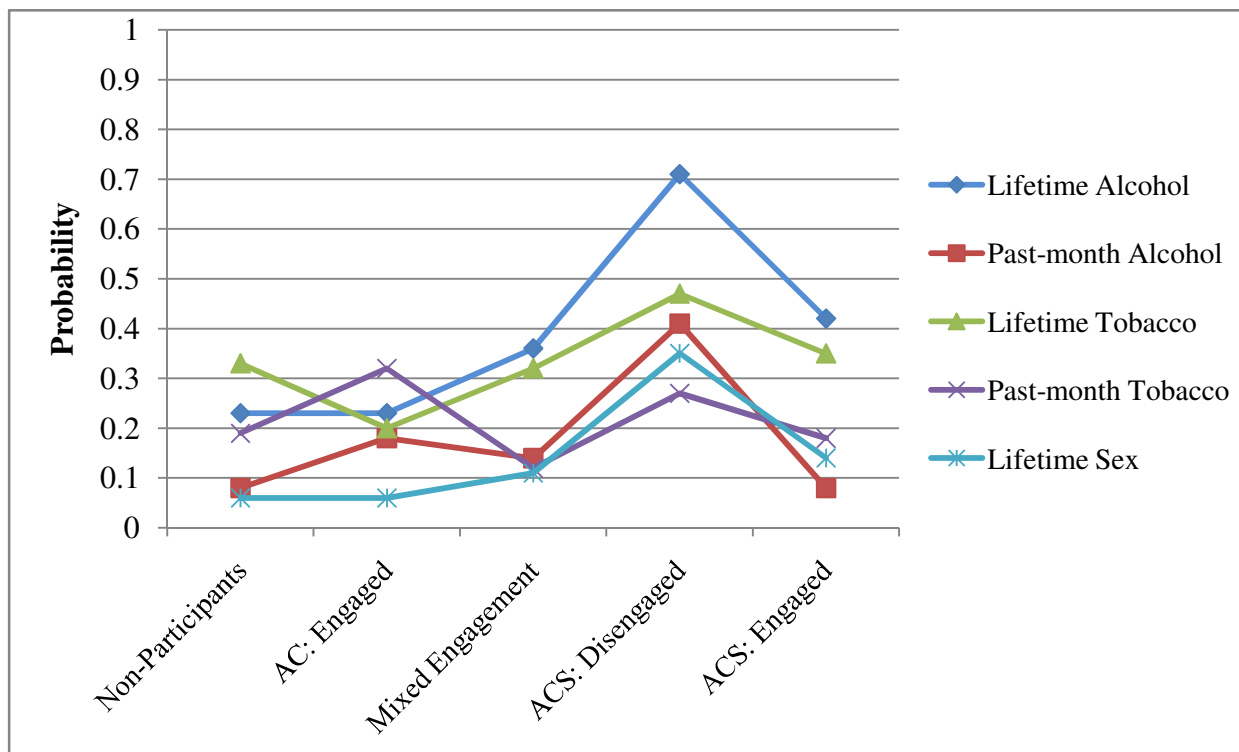


Figure 2-1  
*Probability of Health Risk Behaviors by Engagement Profile for Males*

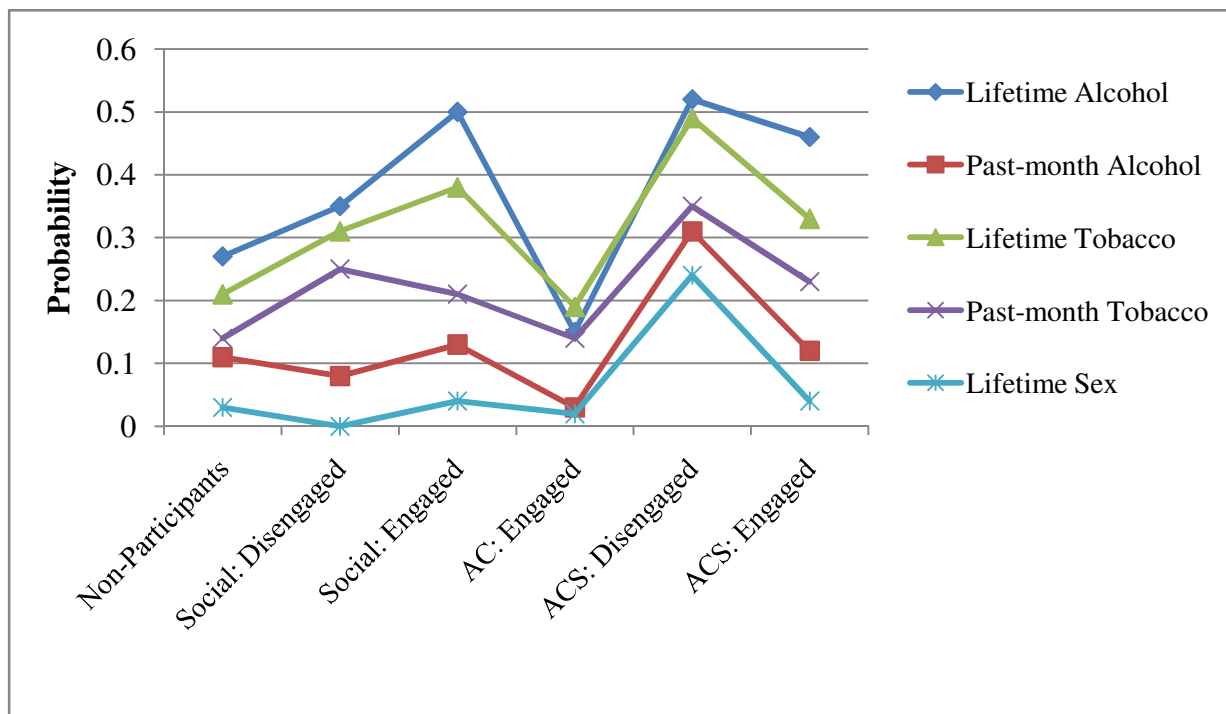


Figure 2-2  
*Probability of Health Risk Behaviors by Engagement Profile for Females*

**Chapter 3**  
**Engagement Within Active and Social Leisure Activities in Adolescence: Gender Differences and Implications for Substance Use and Sexual Activity**

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## Abstract

This study utilized a person-centered approach in order to (a) establish profiles of youth based on their level of participation, motivational engagement (i.e., type of motivation), and emotional engagement (i.e., level of interest) within active and social leisure activities, (b) determine gender differences in these profiles, and (c) examine the relationship between the profiles and health risk behaviors among a sample of 2280 South African youth. Males' active leisure was characterized by one engagement profile (*Moderate Active: Engaged*) whereas females' active leisure was characterized by three engagement profiles (*Low Active: Mixed; Low Active: Engaged; Moderate Active: Engaged*). Relative to non-participants, active leisure participants had higher prevalence of lifetime and past-month cigarette use and lifetime sexual activity. For females, members of the *Low Active: Mixed* profile had the highest probability of substance use and sexual activity relative to the other two profiles. Males and females' social leisure was characterized by two engagement profiles (*Moderate-Low Social: Mixed; Moderate-High Social: Mixed*). There were not significant differences between the two social leisure profiles in terms of substance use, but youth who reported sexual activity were more likely to belong to the *Moderate-Low Social: Mixed* profile. Results are discussed in light of past research as well as implications for policy and prevention.



## Engagement Within Active and Social Leisure Activities: Gender Differences and Implications for Substance Use and Sexual Activity

Around the world, playing sport and spending time with friends stand out as two of the most common leisure activities in adolescence (Larson & Verma, 1999). As a result, a large body of literature has been devoted to examining the developmental and health implications of these two types of activities. The bulk of this literature suggests that youth who play sport are at decreased risk of several health risk behaviors (e.g., insufficient physical activity, tobacco use, and drug use), but increased risk of alcohol use and binge drinking (Barber et al., 2001; Darling et al., 2005; Fredricks & Eccles, 2006; Osgood et al., 2005; Zill et al., 1995). Further, research suggests that unsupervised time with friends may provide opportunities for inter- and intrapersonal development, but also may present greater opportunities to engage in health risk behaviors such as substance use and sexual activity (Kloep & Hendry, 2007; Osgood et al., 2005).

What is missing from this type of research, however, is an understanding of the role of engagement within leisure activities and health risk behaviors. Youth who spend time in active and social leisure activities but are disengaged (e.g., amotivated and/or bored) may not fully benefit from the positive aspects of these leisure activities. For instance, a disengaged sport participant may not foster the same kind of prosocial relationships with peers and adults within the activity as an engaged participant would. In turn, the absence of this protective factor may place youth of this nature at risk of becoming involved in health risk behaviors. Similarly, an adolescent who spends time with friends in leisure but is disengaged may turn to risk behaviors in order to alleviate the feeling of disengagement. Research clearly is needed to sort out these hypothesized relationships.

Engagement within leisure activities also may have important ramifications for intervention development and implementation. To the extent that youth can be profiled based on their level of engagement within leisure activities, and in turn these profiles are associated with

unique patterns of health risk behaviors, activity-based interventions can be targeted to the youth who most need them. For example, if it is established that disengaged sport participants are at highest risk of alcohol use, then clearly this profile would have different intervention needs than the engaged profile. Further, the disengaged profile likely would not be receptive to a universal formal or informal preventive interventions delivered by the coach. Thus, research on engagement within specific leisure activities clearly can help inform the design of efficacious leisure-based interventions.

The current study was designed to examine engagement within active leisure (i.e., sport and physical activities) and social leisure (i.e., spending time with friends) among a predominately Colored (i.e., mixed race of European, Asian, or African descent) sample of South African youth. The aims of this study were three-fold. The first aim was to establish whether there were profiles of youth based on their level of participation and engagement in active and social leisure activities (i.e., engagement profiles). In this study, two types of engagement were examined: motivational engagement (i.e., type of motivation) and emotional engagement (i.e., level of interest). Second, gender differences in the profiles also were examined as participation rates are known to vary for males and females in this population. Third, the relationships between the engagement profiles and sexual activity and substance use were explored.

#### *Current Research on Active and Social Leisure*

As noted, several studies have examined the developmental and health implications of participation in active and social leisure activities. A review of the literature on each type of leisure activity is presented separately.

*Active Leisure Activities in Adolescence.* Although active leisure in this study is measured as sport *and* physical activities, little research has examined the relationships between physical activity participation and health risk behaviors. Further, qualitative research in the area from which the data for this study were collected suggests that sport is much more popular and

accessible than individual physical activities (Palen, 2008). Thus, this review focuses on research on sport in adolescence.

Of all leisure activities, sport is the most commonly studied both in South Africa and the United States. Much of the research on sport has focused on the predictors of participation. Demographic variables such as gender, ethnicity, and social status are known to be associated with sport participation among youth. Both in the United States and South Africa males have higher rates of participation than females, Whites have higher participation than non-Whites, and youth with higher socioeconomic status (SES) have higher participation than youth with low SES (Bartko & Eccles, 2003; Bhana, 2008; Burnett, 2002; Fredricks & Eccles, 2006; Goslin, 2002; Hargreaves, 1997; Hofferth & Sandberg, 2001; Mahoney, Larson, Eccles et al., 2005; McHale et al., 2001; Nauright, 1997; Pelak, 2005; Wegner et al., 2006).

In addition to demographic characteristics, research with American youth points to other important predictors of sport participation. These include prior academic achievement (Eccles et al., 2003; McHale et al., 2001), achievement motivation (Fredricks & Eccles, 2006), parental support of participation (Pelak, 2005), and problem behavior (Eccles et al., 2003; McHale et al., 2001; Persson et al., 2007). Perceived competence may also be a particularly salient factor in the decision to participate or not participate in sport (Iso-Ahola, 1980; Kelly, 1987; Kleiber, 1999a; Mahoney, Larson, Eccles et al., 2005). Thus, youth undoubtedly are socialized *into* sport (Iso-Ahola, 1980; Kelly, 1987), which suggests that sport participants may be characteristically different than non-participants.

Additionally, theory and research suggest that youth are socialized *in* sport (Iso-Ahola, 1980; Kelly, 1987). That is, there are several characteristics of sport that make it an important context of development. Perkins and Noam (2007) note that sport is not an inherently positive developmental context, but that if the characteristics of sport experiences are appropriate then they have great potential to promote positive development and healthy behavior. Common

characteristics of developmentally appropriate sport settings discussed by these and other researchers include supervision by prosocial adults, support of healthy relationships between participants, clear rules and expectations (i.e., structure), opportunities for goal-setting, skill development, and initiative development.

A limitation of much of the research on sport participation is that it has not explicitly examined the characteristics of the sport context. In other words, all sport experiences have been considered to be equal. For example, most studies have not assessed the degree of adult guidance and supervision within sport, or the quality of adolescents' relationships with their coaches and teammates. In thinking about the context of sport, it is important to note that participants in the current study come from an area of South Africa with few resources for formal sport participation, and thus for most of the youth, sport participation is informal (e.g., pick-up games) and may lack the characteristics of quality sport programs outlined by Perkins and Noam.

Keeping these limitations in mind, there is evidence to suggest that sport is a context of both opportunity and risk. As a whole, research concerning American youth suggests that those who participate in formal sport programs have greater academic achievement and attainment (Barber et al., 2001; Cooper et al., 1999; Fredricks & Eccles, 2006; Zill et al., 1995) and lower tobacco and marijuana use (Fredricks & Eccles, 2006; Perkins & Noam, 2007; Yin et al., 1999; Zill et al., 1995) compared to youth who participate in other types of leisure activities. Cross-sectional and longitudinal research, however, also consistently points to a positive relationship between formal sport participation and frequency of alcohol use and binge drinking in adolescence (Barber et al., 2001; Bartko & Eccles, 2003; Darling et al., 2005; Eccles et al., 2003; Fredricks & Eccles, 2006; Zill et al., 1995). Additionally, one study found that males in varsity sports were more likely than those who don't play sports to father children in high school (Zill et al., 1995). More recent research suggests that males who participate in male-dominated sports

(e.g., football) and females who participate in mixed-gender sports (e.g., surfing) may be at highest risk of substance use (Moore & Werch, 2005).

Data concerning sport participation and substance use is currently unavailable for South African youth, but a limited body of research has examined the relationship between sport and sexual activity among young adults. Results for males are mixed; high community-level sport participation is associated with lower condom use (Kaufman et al., 2002; Kaufman et al., 2004), whereas belonging to a sport club is associated with lower likelihood of being HIV positive (Campbell et al., 2002). For females, living in a community with high community-level sport participation is associated with lower prevalence of sexual intercourse (Kaufman et al., 2002; Kaufman et al., 2004) and belonging to a sport club is associated with greater condom use (Campbell et al., 2002). As a whole, these findings suggest that active leisure, and particularly sport participation, may play an important role in not only adolescent development, but also in the decision to engage in health risk behaviors.

*Social Leisure in Adolescence.* Research suggests that friendships play an important role in general adolescent development, as well the development of health risk behaviors (Barry & Wentzel, 2006; Bauman, Carver, & Gleiter, 2001; Bauman & Fisher, 1986; Savin-Williams & Berndt, 1990). As in the case of sport participation, findings suggest socialization *into* (e.g., choosing friends based on one's preexisting characteristics) and socialization *in* (e.g., friends reinforcing or changing one's behavior) friendships influence adolescents' overall development, as well as their engagement in health risk behaviors. For example, adolescents choose friends with similar substance use attitudes and behaviors, and friends' attitudes and behaviors reinforce the adolescents' own attitudes and behaviors (Bauman et al., 2001; Bauman & Fisher, 1986).

Although friendship relationships are known to be an important factor in adolescent development and social leisure is one of the most popular leisure activities, no known studies have examined the developmental benefits of social leisure activities. Kloep and Hendry (2007)

suggest that spending leisure time in social leisure contributes to the development of inter- and intra-personal skills. Empirical research is needed to support these assertions, as well as to identify other important benefits of social leisure time.

A more extensive body of research, however, has examined the health risk behaviors associated with social leisure, particularly when it is unsupervised. As a whole, American research suggests that youth who spend unsupervised leisure time with friends have greater delinquency, substance use, and sexual activity (Caldwell & Darling, 1999; Osgood et al., 2005; Persson et al., 2007; Yin et al., 1999). These studies support the widely held belief that leisure time with friends, particularly if it is unsupervised, may afford youth opportunities to engage in risk behaviors not possible with prosocial adults (Barber et al., 2005; Binion et al., 1988; Kegler et al., 2000; McHale et al., 2001; Osgood et al., 2005; Vicary et al., 1998). Additionally, youth who exclusively spend their time in social leisure may miss out on opportunities for positive growth and skill development in adult-organized leisure activities, thus predisposing them to health risk behaviors. Empirical research is needed to confirm these hypotheses.

#### *Engagement in Active and Social Leisure Activities*

Although research points to relationships between active and social leisure activities and health risk behaviors, few studies have examined the potential moderators of these relationships, such as engagement. This study focused on two types of engagement: emotional engagement (i.e., level of interest) and motivational engagement (i.e., type of motivation). Additionally, level of participation was examined in order to understand level of commitment to each activity. A review of the research and theory on motivation and interest, as well as a discussion of the definition of engagement used in the current study follows.

*Self-Determination Theory and Leisure Motivation.* Self-Determination Theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2000) provides the theoretical basis for the examination of motivation as a component of engagement. SDT is based on the premise that there is a continuum

of motivation: amotivation, extrinsic motivation, and intrinsic motivation. Amotivation (i.e., amotivated regulation) refers to actions without purpose (e.g., playing sports because there is nothing else to do). Extrinsic motivation refers to actions taken as a result of perceived social pressure and is further broken down into three types of regulation: external regulation, introjected regulation, and identified regulation. External regulation refers to actions with the purpose of fulfilling an external demand or acquiring a reward (e.g. playing sports because it's required in physical education). Introjected regulation refers to actions taken with the purpose of avoiding negative feelings such as guilt or enhancing self-esteem (e.g., playing sports in order to feel athletic). Finally, identified regulation refers to actions taken because the actions have personal meaning or long-term benefits (e.g., playing sports in order to get a scholarship to go to college).

In contrast to amotivation and extrinsic motivation, intrinsic motivation (i.e., intrinsic regulation) refers to actions taken in order to fulfill internal, personally meaningful desires (e.g., playing sports because they are fun). It is important to note that identified regulation is sometimes grouped with intrinsic motivation as it also has an element of personal meaningfulness (Younker, 2008). In this study, youth who experienced identified or intrinsic motivation within an activity were labeled motivationally engaged, whereas those who experienced amotivation or extrinsic motivation were labeled motivationally disengaged.

*Leisure Interest and Boredom in Adolescence.* In addition to motivation, interest is another important aspect of engagement within leisure activities. Interest refers to the feeling of focused attention and enjoyment. Boredom, on the other hand, is characterized by the absence of focus and enjoyment. Studies have shown that youth who are intrinsically motivated are less likely to experience boredom and more likely experience interest in their leisure activities (Caldwell, 2005a; Iso-Ahola & Weissinger, 1987; Sharp et al., 2006; Weissinger et al., 1992). In contrast, youth who are amotivated or extrinsically motivated in leisure are less likely to report interest in their leisure activities.

Theory and research suggest that youth experience interest or boredom for a number of reasons, including personal characteristics like sensation seeking (O'Hanlon, 1981; Watt & Vodanovich, 1999) and cognitive restructuring ability (Caldwell, 2005a; Farmer & Sundberg, 1986; Vodanovich, 2003; Vodanovich et al., 1990; Watt & Vodanovich, 1999). Additionally, contextual characteristics of leisure activities such as repetition or inadequate challenge may be associated with boredom (Csikszentmihalyi & Larson, 1984; Larson & Richards, 1991; O'Hanlon, 1981; Robinson, 1975).

The one study of leisure interest/boredom among South African youth found that females experience lower interest than males, and that Black youth and Colored youth experience lower interest than Whites (Wegner et al., 2006). Interest within specific types of leisure activities, however, has not been examined. In this study, youth who were moderately or highly interested within a given leisure activity were considered to be emotionally engaged, whereas youth who were bored were considered to be emotionally disengaged.



*Leisure Engagement and Health Risk Behaviors.* Understanding the role of motivational and emotional engagement in leisure activities is needed, as research on the broader leisure context suggests that these variables are predictive of health risk behaviors. Caldwell et al. (2006) found that intrinsic motivation in leisure was negatively associated with past-month alcohol use for American youth and that identified motivation was negatively associated with alcohol use for American and South African youth. The authors also found that youth who were amotivated in leisure were more likely to report damaging property, whereas youth who experienced identified motivation were less likely to report damaging property.

In terms of boredom, youth who are bored in their daily experiences are more likely to be substance users or abusers (Johnston & O'Malley, 1986; Kegler et al., 2000; Orcutt, 1984; Wang et al., 1995; Wang et al., 1998). Additionally, boredom in leisure is associated with tobacco (Caldwell & Smith, 1995; Smith & Caldwell, 1989), alcohol (Caldwell & Smith, 1995), and marijuana use (Gordon & Caltabiano, 1996; Iso-Ahola & Crowley, 1991). It is important to note, however, that the one study of the relationship between general leisure boredom and substance use among South African youth did not find a significant relationship (Wegner et al., 2006). Additionally, interest also is sometimes associated with risk behaviors, as youth can be fully interested in activities that are not healthy (Caldwell & Smith, 2006; Csikszentmihalyi & Kleiber, 1991). As a whole, however, research supports the idea that leisure interest is associated with fewer health risk behaviors than boredom. Currently, however, no known studies have examined interest within specific activities such as active and social leisure.

### *The Current Study*

The current study expanded on past research by utilizing a person-centered approach in order to examine South African adolescents' level of participation, motivational engagement, and emotional engagement within active and social leisure activities. The first aim of this study was to determine profiles of participation, motivational engagement, and emotional engagement within

active and social leisure (i.e., engagement profiles). Each of the two types of activities were examined separately. This component of the study was designed to explore whether level of participation (i.e., low; moderate; high), motivational engagement (i.e., amotivation; extrinsic motivation; identified/intrinsic motivation), and emotional engagement (i.e., boredom; moderate interest; high interest) vary among youth who participate in active or social leisure. This analysis answers the questions (1) Are some youth who regularly participate in active or social leisure motivationally and/or emotionally disengaged? and (2) Are there motivational and emotional differences between youth who participate at high and low levels?

The second aim of the study was to examine gender differences in the engagement profiles. By statistically comparing models in which the interpretation of the engagement profiles was forced to be the same for males and females to models in which the profiles were allowed to differ it was possible to ascertain whether the interpretation of the engagement profiles was truly different for males and females. Questions addressed by this analysis include (1) Do certain profiles exist for females but not for males? In other words, is the nature of participation and motivational and emotional engagement different for males and females?; and (2) In the event that the engagement profiles have the same interpretation for males and females, is the prevalence the same?

The third aim was to examine the relationship between the engagement profiles and lifetime and past month alcohol and tobacco use and lifetime sexual activity. These analyses addressed the question of whether youth who reported substance use and youth who reported sexual activity were more likely to belong to specific engagement profiles relative to others (e.g., high participation but emotional and motivational disengagement in active leisure compared to high participation and emotional and motivational engagement in active leisure). Additionally, the probability of substance use and sexual activity for each profile was examined.

## Method

### *Participants*

Participants included 2284 students from five schools serving as the comparison group in a trial of a preventive intervention aimed at reducing substance use and risk of HIV/AIDS among adolescents. All schools were located in an under resourced township near Cape Town, South Africa. Beginning in the eighth grade, self-report surveys were collected every six months via hand-held personal digital assistants (PDAs). Baseline data were utilized in this study. The mean age of participants was 13.88 (50% male), and the majority of participants (87%) identified themselves as Colored (i.e., mixed race of Asian, European, or African descent). A smaller percentage identified as Black (6%), White (5%) or Other (2%).

### *Measures*

*Participation, Motivation, and Interest in Active and Social Leisure.* Participation in active and social leisure was assessed with the questions “During the past four weeks have you spent time doing sports and physical activities after school and over weekends?” and “During the past four weeks have you spent time hanging out with friends after school and over weekends?” respectively. Data from youth who indicated that they participated in active leisure (57%; 72% of males, 46% of females) were utilized in the active leisure analyses. Compared to non-participants, a greater percentage of active leisure participants had engaged in lifetime and past-month cigarette use and lifetime sexual activity (see Table 3-1). Data from youth who indicated that they spent time in social leisure were utilized in the social leisure analyses (60%; 61% of males, 59% of females). Compared to youth who had not spent time in social leisure, a greater percentage of youth who had spent time in social leisure had engaged in lifetime and past-month alcohol and tobacco use and lifetime sexual activity (see Table 3-1).

For each of the two leisure activities, youth who indicated that they participated were also asked about their level of participation, motivation for participation, and level of interest in the activity. Level of participation was assessed with the question “How often do you usually spend

time insert activity after school and over weekends?” (0 = less than 1 hour per week; 1= 1-5 hours per week; 2= 6-10 hours per week; 3 = more than 10 hours per week).

The mean score on the social leisure participation measure was 1.40 ( $SD = 1.06$ ), indicating an average participation level between 1-10 hours. Thus, in this study low social leisure participation was defined as less than 1 hour per week, moderate participation was defined as 1-10 hours per week, and high participation was defined as more than 10 hours per week. The mean score on active leisure participation measure was slightly lower ( $M = .99$ ;  $SD = .95$ ), indicating an average participation level between 1-5 hours per week. To keep the measures consistent across activities, it was decided also to define low active leisure participation as less than 1 hour per week, moderate active leisure participation as 1-10 hours per week, and high active leisure participation as greater than 10 hours per week.

Motivation was measured with the question “Why do you usually spend time in insert activity?” (0 = There is nothing else to do [amotivation]; 1 = I feel like I have to [extrinsic motivation]; 2 = I do it for a purpose [identified motivation]; and 3 = I want to [intrinsic motivation]). Given conceptual similarities between identified and intrinsic motivation, as well as the fact that preliminary analyses suggest that identified and intrinsic motivation are one construct (Younker, 2008), in this analysis identified and intrinsic motivation responses were combined. Interest was assessed with the question “How do you feel about insert activity?” (0 = It is boring; 1 = It is OK; and 2 = It is interesting).

*Lifetime Sexual Activity.* Lifetime sexual activity was assessed with the question “Have you ever had sex? This means intimate contact with someone during which the penis enters the vagina (female private parts)” (0 = No; 1 = Yes).

*Lifetime Substance Use.* Lifetime use of alcohol and cigarettes was assessed with the questions “How many drinks of alcohol (including beer and wine) have you had in your entire

life?” and “How many cigarettes have you smoked in your entire life?” respectively. Answers were dichotomized such that 0 = No lifetime use and 1 = Lifetime use.

*Past-Month Substance Use.* Past-month use of alcohol and cigarettes were assessed with the questions “During the past four weeks did you use alcohol (including wine and beer)?” and “During the past four weeks did you smoke cigarettes?” respectively (0 = No; 1 = Yes).

### *Analytic Strategy*

The engagement profiles were determined using latent class analysis (SAS PROC LCA; Lanza et al., 2008). Latent class analysis is a statistical technique used to determine profiles of individuals based on chosen indicators (in this case, level of participation and motivational and emotional engagement in active and social leisure).

Latent class analysis estimates two types of parameters (Lanza et al., 2003). The first type of parameter,  $\gamma$  (gamma) is the prevalence of each profile. The second type of parameter,  $\rho$  (rho), are the item-response probabilities, which represent the probability of endorsing a particular response (e.g., being motivationally engaged in active leisure) given membership in a particular profile. These probabilities range from 0 to 1, where probabilities close to 0 and 1 indicate a strong relationship between the item and the profile (Lanza et al., 2003). Item-response probabilities are also sometimes interpreted as prevalence estimates. For example, in the case of active leisure, if Profile 1 had item-response probabilities of .02 for amotivation, .00 for extrinsic motivation, and .98 for identified/intrinsic motivation, the interpretation would be that (a) members of Profile 1 have a high probability (.98) of identified/intrinsic motivation in active leisure and (b) 98% of youth in Profile 1 have identified/intrinsic motivation and 2% have amotivation in active leisure. Generally, item-response probabilities greater than .50 are used to define a given profile (e.g., in the previous example if the item-response probability for identified/intrinsic motivation in active leisure had been .55 rather than .98, that profile would still be defined as motivationally engaged in active leisure).

*Missing Data.* PROC LCA utilizes maximum likelihood with the EM algorithm in order to estimate missing responses on the items used to determine profile membership (i.e., participation, motivation and interest in leisure activities; Lanza et al., 2008). When covariates are added to a PROC LCA model, participants with values missing on the covariates are dropped from the analysis. In this study, less than 1% of the responses were missing for the items used to determine profile membership and for the covariates.

*Analysis Plan.* Several steps were taken in order to determine the final number of profiles as well as gender differences. A complete discussion of these steps is included in the Results section.

First, baseline models that included both males and females were determined separately for active leisure and social leisure participants. Next, statistical tests were conducted using the baseline models in order to determine whether or not there were gender differences in the item-response probabilities (i.e., the meaning of the profiles). In the event of gender differences, the models were re-run separately for males and females in order to determine if the number of profiles differed for males and females.

After the number baseline models and gender differences were determined, the relationships between the engagement profiles and health risk behaviors were estimated using the multinomial logistic regression feature within PROC LCA. Each health risk behavior was entered separately. This analysis answered the question as to whether youth who had used substances or had sex had higher relative odds of belonging to a particular engagement profile. After determining these relationships, the intercepts and beta weights from these analyses as well as the overall prevalence of health risk behaviors were used to transform (a) the logs odds of belonging to a latent class relative to the reference group given substance use or sexual activity to (b) the probability of substance use and sexual activity given latent class.

## Results

### *Model Selection*

The baseline models, which were used to determine gender differences, were selected by comparing the likelihood ratio statistic ( $G^2$ ), Akaike's information criterion (AIC), and the Bayesian information criterion (BIC) for models with two to four profiles for active and social leisure. First, the AIC and BIC values were examined. Next, the interpretability of the solution was examined. Finally, model identification was tested by examining the  $G^2$  distribution of 100 random start values. With this test, the models in which the lowest  $G^2$  is also the most prevalent are deemed to be identified (Lanza et al., 2003). The results of the active leisure models are discussed first, followed by a discussion of the results of the social leisure models.

#### *Baseline Active Leisure Model and Gender Differences*

In the baseline active leisure model, the BIC suggested a 2-profile solution (e.g., the 2-profile solution had the lowest BIC), whereas the AIC suggested a 3-profile solution. The 3-profile solution was chosen as it had better fit (i.e., the G-squared values were close to or less than the degrees of freedom; Lanza et al., 2003), was more interpretable (i.e., had fewer item-response probabilities close to .50), and was identified.

To test for measurement invariance across gender, a model in which item-response probabilities were constrained to be equal for males and females was compared to a model in which item-response probabilities were allowed to differ. The  $\chi^2$  difference test was statistically significant ( $\chi^2(18) = 30.97$ ), indicating that there were significant gender differences in the item-response probabilities. Additionally, the meaning of the profiles differed for males and females. Thus, results for males and females were examined separately. The same model selection procedures that were used to select the appropriate model for males and females combined were used to select the appropriate model for males and females separately (e.g., the AIC, BIC, and tests of model identification).

#### *Active Leisure Engagement Model for Males*

For males, the BIC suggested a 1-profile solution but the AIC suggested a 2-profile solution (see Table 3-2). The 1-profile and 2-profile models had acceptable fit and were identified, so they were compared in terms of interpretability. As both of the profiles in the 2-profile solution had similar meaning (i.e., moderate participation, high interest, and identified/intrinsic motivation) and this meaning corresponded with the 1-profile solution, the 1-profile solution was selected. The item-response probabilities for this profile are presented in Table 3-3. As noted, this profile suggests that most male active leisure participants have moderate levels of participation (58%), high levels of interest (66%), and experience identified/intrinsic motivation (58%; i.e., *Moderate Active: Engaged*).

*Relationship between Active Leisure Engagement Profiles and Health Risk Behaviors for Males.* As there was only one profile of males' active leisure engagement, it was not possible to compare profiles in terms of health risk behaviors.

#### *Active Leisure Engagement Models for Females*

For females, the BIC suggested a 1-profile solution, whereas the AIC suggested a 3-profile solution (see Table 3-2). After comparing the two different solutions, the 3-profile solution was chosen because the solution was identified and the profiles were differentiated. The three profiles for females were *Low Active: Mixed Engagement*, *Low-Moderate Active: Engaged*, and *Moderate-High Active: Engaged* (see Table 3-3). Females in the *Low Active: Mixed Engagement* profile (13% of the sample) participated in active leisure for less than one hour per week (72%) but experienced interest while participating (66%). Only 18% of this profile, however, experienced identified/intrinsic motivation. The *Low Active: Engaged* profile (52% of the sample) was characterized by low (58%) participation, but interest (54%) and identified/intrinsic motivation (56%). The *Moderate Active: Engaged* profile (35% of the sample) was characterized by moderate participation in active leisure (80%), interest (71%), and identified/intrinsic motivation (64%).



*Relationship between Active Leisure Engagement Profiles and Health Risk Behaviors for Females.* In order to examine the relationship between the engagement profiles and health risk behaviors for females, the *Low Active: Mixed Engagement* profile was compared to the other two profiles. This answered the question as to whether youth who engaged in a given health risk behavior had higher or lower odds of belonging to a profile characterized non-identified/intrinsic motivation relative to profiles characterized by identified/intrinsic motivation.

There were statistically significant differences between the three profiles on all health risk behaviors ( $p < .05$ ; see Table 3-4). Females who reported sexual activity, females who reported alcohol use (lifetime and past-month), and females who reported tobacco use (lifetime and past-month) had higher odds of belonging to the *Low Active: Mixed Engagement* profile relative to the other two profiles.

The probability of substance use and sexual activity for each of the profiles is presented in Figure 3-1. Members of the *Low Active: Mixed Engagement* profile had a substantially higher probability of all five health risk behaviors than members of the other two profiles. Further, the *Low Active: Engaged* profile had the lowest probability of past-month alcohol and tobacco use, whereas the *Moderate Active: Engaged* profile had the lowest probability of lifetime alcohol and tobacco use and lifetime sexual activity.

#### *Baseline Social Leisure Model and Gender Differences*

In the baseline social leisure model, the AIC and BIC suggested a 2-profile solution, and this solution was identified (see Table 3-5). To test for measurement invariance across gender, a model in which item-response probabilities were constrained to be equal for males and females was compared to a model in which item-response probabilities were allowed to differ. The  $\chi^2$  difference test was statistically significant ( $\chi^2(12) = 58.99$ ), indicating that there were significant gender differences in the item-response probabilities. An inspection of the item-response

probabilities, however, revealed that the meaning of the profiles was similar for males and females. Thus, the social leisure model was constrained to be equal across gender.

#### *Final Social Leisure Model*

The prevalence of the profiles and the item-response probabilities are presented in Table 3-6. From this table, it is clear that the two profiles (*Moderate-Low Social: Mixed Engagement*) and (*Moderate-High Social: Mixed Engagement*) differ primarily on level of interest. The *Moderate-Low Social: Mixed Engagement* profile (41% of males and 25% of females) was characterized by moderate (52%) to low (33%) participation and moderate interest (84%), but amotivation (57%). The *Moderate-High Social: Mixed Engagement* profile (59% of males and 75% of females) was characterized by moderate (57%) to high (26%) participation and high interest (84%), but amotivation (52%).

#### *Relationship between Social Leisure Engagement Profiles and Health Risk Behaviors.*

There were not significant differences between the two profiles in terms of substance use. Youth who reported lifetime sexual activity, however, had lower odds of belonging to the *Moderate-High Social: Mixed Engagement* profile relative to the *Moderate-Low Social: Mixed Engagement* profile ( $OR = .20, p < .01$ ). Both profiles had similar probabilities of reporting sexual activity (.07 for *Moderate-Low Social: Mixed Engagement* and .11 for *Moderate-High Social: Mixed Engagement*).

### Discussion

This study makes a unique contribution to the research on adolescents' active and social leisure by examining the relationship between participation and engagement within these leisure activities and health risk behaviors. A person-centered approach was utilized in order to determine profiles of youth based on their level of participation and motivational engagement (i.e., type of motivation) and emotional engagement (i.e., level of interest) within these activities. Participants included Colored adolescents in one region of South Africa. A discussion of the

results in light of past research, implications for future research, and implications for policy and program development follows.

*Differences in the Health Risk Behaviors of Participants and Non-Participants*

As the current study examined active leisure and social leisure participants, it is important to revisit how participants and non-participants differ before discussing the engagement profiles. Chi-square comparisons indicate that youth who spent time in social leisure were much more likely to have engaged in lifetime and past month substance use, as well as more likely to have engaged in lifetime sexual activity compared to youth who did not spend time in social leisure. To the extent that social leisure is unsupervised, it may present youth with opportunities to engage in health risk behaviors. The context of social leisure was not measured in this study, however, so this explanation is speculative.

Additionally, active leisure participants had higher prevalence of cigarette use and sexual activity compared to non-participants. The finding regarding cigarette use at first seems surprising given that research with American youth suggest that sport in particular is protective against cigarette use (Fredricks & Eccles, 2006; Yin et al., 1999; Zill et al., 1995). It is important to note, however, that research with American youth has focused on team sports, whereas in this context sports and other physical activities often are informal. Thus, the physical demands of informal sport and physical activities may be lesser than in formal sport and physical activities, thereby resulting in fewer performance-related repercussions of substance use.

Taken together, the findings regarding active leisure and social leisure are in congruence with Tibbits and colleagues' study (in press) that looked at participation across several types of leisure activities and found that South African youth who did not participate in any of eight types of leisure activities were less likely to report substance use compared to youth who participated in leisure activities. The authors suggested that the unsupervised context of many of these activities

may have contributed to the findings. Thus, additional research on the context of leisure activities is needed.

#### *Gender Differences in the Engagement Profiles*

Two of the goals of this study were to determine active leisure and social leisure engagement profiles and to examine gender differences in these profiles. Males' active leisure participation was summarized by one profile (*Moderate Active: Engaged*). In contrast, three profiles of active leisure participation were found for females (*Low Active: Mixed Engagement*, *Low Active: Engaged*, and *Moderate Active: Engaged*). Overall, males were more likely to participate at a moderate level, whereas females were more likely to participate at a low level. These findings are in line with past research with South African youth that suggests that sport in particular is a preferred leisure activity (Møller, 1992), but that males have greater opportunities for participation than females (Bhana, 2008; Burnett, 2002; Goslin, 2002; Hargreaves, 1997; Nauright, 1997; Pelak, 2005).

Additionally, the gender differences in the profiles suggest that females are less likely than males to experience identified/intrinsic motivation in active leisure. One example of this is the fact that only females had a profile characterized by interest but not identified/intrinsic motivation (i.e., *Low Active: Mixed Engagement*). Additionally, even though the majority of females in the *Low Active: Engaged* profile reported identified/intrinsic motivation, a significant percentage reported amotivation. This was not the case for males. As a whole, these findings suggest that at least some female active leisure participants participate because they feel like they have to or they feel like they do not have other options. Although these females still experience interest in active leisure, it is not a preferred type of leisure activity. It is important to note, however, that as a whole the majority of males and female active leisure participants experience identified/intrinsic motivation and interest in active leisure.

In contrast to the active leisure engagement profiles, there were not gender differences in the social leisure engagement profiles. Both males and females in the two social leisure profiles (*Moderate-Low Social: Mixed Engagement* and *Moderate-High Social: Mixed Engagement*) reported emotional engagement but motivational disengagement. The two profiles only differed on their level of interest (i.e., moderate versus high). Thus, it appears as though spending time with friends in leisure is not necessarily a preferred activity, but nevertheless is considered enjoyable.

#### *Similarities and Differences in the Active Leisure and Social Leisure Engagement Profiles*

A few similarities between the active leisure and social leisure engagement profiles are worth noting. First of all, none of the profiles were characterized by boredom (i.e., emotional disengagement). This suggests that (a) youth are unlikely to participate in leisure activities in which they are bored or (b) youth find a ways to make the available activities interesting. Attempts to make the activities interesting could include healthy strategies such as using cognitive restructuring techniques (Caldwell, 2005a; Farmer & Sundberg, 1986; Vodanovich, 2003; Vodanovich et al., 1990; Watt & Vodanovich, 1999) and/or unhealthy strategies such as engaging in health risk behaviors (McIntosh et al., 2005; Newcomb, Chou, Bentler, & Huba, 1988; Patrick et al., in press).

Second, this study suggests that interest and non-intrinsic motivation can and do co-occur. This was true for the *Low Active: Mixed Engagement* profile for females, as well as the two social leisure engagement profiles. These findings are in contrast to past variable-centered research with American youth that suggests that leisure interest and intrinsic motivation are more likely to co-occur (Caldwell, 2005a; Iso-Ahola & Weissinger, 1987; Sharp et al., 2006; Weissinger et al., 1992). These results point to the utility of person-centered approaches at uncovering relationships not possible with variable centered approaches.

#### *Relationships between the Profiles and Health Risk Behaviors*

Given research indicating relationships between active leisure and social leisure and health risk behaviors, as well research pointing to a relationship between leisure interest and motivation and health risk behaviors, another aim of this study was to examine the relationship between the active and social leisure engagement profiles and health risk behaviors.

Females who had engaged in health risk behaviors (i.e., lifetime and past-month alcohol and tobacco use and lifetime sexual activity) had higher odds of belonging to the *Low Active: Mixed Engagement* profile relative to the other two profiles. Additionally, females in the *Low Active: Mixed Engagement* profile had the highest probability of substance use and sexual activity. Thus, among females, experiencing amotivation or extrinsic motivation in active leisure may be a risk factor for health risk behaviors. Alternately, health risk behaviors may be a risk factor for amotivation or extrinsic motivation in active leisure. Additional longitudinal research is needed to determine the direction of influence. As there appears to be only one active leisure engagement profile for males, it was not possible to examine these relationships.

There were not statistically significant differences between the two social engagement profiles in terms of substance use. Youth who reported lifetime sexual activity, however, had lower odds of belonging to the *Moderate-High Social: Mixed Engagement* profile relative to the *Moderate-Low Social: Mixed Engagement* profile.

#### *Implications for Preventive Interventions*

The findings of this study have several implications for intervention and policy. The fact that the vast majority of youth who participate in active leisure experience both interest and identified/intrinsic motivation suggests that active leisure may be an important context for the delivery of preventive interventions. Since youth generally are engaged in active leisure, they may be more receptive to positive health messages. In communities with formal active leisure opportunities, such as sports teams, these interventions could be delivered by the

coaches/supervising adults. This approach has been taken by organizations such as Grassroot Soccer (Peacock-Villada, DeCelles, & Banda, 2007).

As youth in many areas of South Africa participate mainly in informal sports and physical activities, however, building rapport with influential youth and training them to deliver positive health messages may be equally effective. In the United States, using peer leaders to deliver school-based substance abuse prevention programs has been successful (Tobler et al., 2000). No known programs have utilized this approach in informal leisure activities.

At a broader level, this study suggests that interventions are needed that encourage youth to become engaged in personally meaningful, interesting, and healthy leisure pursuits. To the extent that interventions of this nature are effective, youth may spend less of their time in social leisure and more time in motivationally engaging leisure pursuits.

HealthWise (Caldwell, Smith et al., 2004; Smith et al., 2008), the overarching project from which the data for this study was taken, is one of the few interventions of this nature. HealthWise is a school-based intervention delivered in the eighth and ninth grades and includes lessons on life skills (e.g., decision making and interpersonal communication), substance use knowledge and resistance education, and sexual health education. Additionally, HealthWise has a substantial leisure component, TimeWise (Caldwell, 2004b; Caldwell, Baldwin et al., 2004), which includes lessons on identifying leisure interests, understanding motivation in leisure, and pursuing leisure-based goals.

Overall, research findings from the program are promising. Caldwell et al. (2008) found that students in the HealthWise school with the greatest fidelity of implementation had higher intrinsic and identified motivation and lower introjected motivation and motivation than students in the comparison schools. Further, compared to the control group, youth who received HealthWise had lower levels of recent and heavy cigarette and alcohol use, and HealthWise males had delayed onset of sexual activity (Smith et al., 2008). Taken together, these results

suggest that encouraging healthy leisure experiences, as well as providing youth with the skills and opportunities to take advantage of those experiences, is an important avenue for promoting health and preventing risk behaviors in adolescence.

Interventions aimed at promoting engagement in healthy leisure activities will only be effective, however, to the extent that there are leisure opportunities. Clearly, many youth in this study perceived that their only option in leisure was to spend time with friends. Although research is needed to ascertain whether youths' perceptions of leisure opportunities reflect actual leisure opportunities, this finding suggests that youth in this area of South Africa may be underserved in regard to leisure. Thus, policies that fund the research on healthy leisure alternatives as well as fund the implementation of these alternatives are clearly needed.

#### *Limitations*

Several limitations should be taken into consideration when interpreting the results of this study. First, the data were collected in an impoverished region of South Africa and primarily included Colored adolescents. Thus, the findings may not generalize to South African youth of different races, with different economic circumstances, or in different regions. In terms of active leisure in particular, youth who have greater opportunities for adult-organized participation may have different engagement profiles and/or different relationships between these engagement profiles and health risk behaviors. Thus, future research should make clear distinctions between adult- and youth-organized active leisure.

Additionally, all data for this study were collected via self-report measures. Although there is no reason to believe that youth would alter their responses to their leisure-oriented questions, it is possible that youth would under- or over-report substance use or sexual activity based on perceived social expectations.

Another limitation related to data collection was the precision of measurement. First of all, sport and physical activity was measured as a single item. Although research suggests that



sport is significantly more popular than individual physical activities (Palen, 2008), it is possible that some adolescents' who responded that they participated in sport/physical activities were referring to physical activities. This is problematic to the extent that adolescents' engagement within sport and physical activities are differentially related to health risk behaviors. To date, no known studies have addressed this issue. Thus, future research on the differential relationships between sport, both adult- and youth-organized, and other physical activities and health risk behaviors is needed.

Second, information concerning the content of the two types of leisure activities was not available. For example, it was not possible to determine whether the leisure activities took place in informal or formal settings, and whether the activities were supervised or unsupervised. Although past research in this region shed some light on these questions (Palen, 2008), additional research on this topic would strengthen the interpretation of the results.

Finally, it was not possible to determine causal relationships given the cross-sectional nature of the study. Thus, it is possible that youth chose their leisure activities and were engaged or disengaged within their leisure activities for reasons that also explained their substance use and sexual activity. It is important to note, however, that this does not preclude the possibility that engagement within active leisure and social leisure also played a role in substance use and sexual behavior. In this study it was not possible to control for selection effects, but future studies would be strengthened by doing so.

#### *Conclusions and Implications for Preventive Interventions*

Despite the limitations of this study, the results suggest that there are profiles of youth who share similar levels of participation and engagement within active leisure and social leisure, and that in some cases these profiles differ in regard to two types of health risk behaviors: substance use and sexual activity. These findings suggest that the field of leisure activity-focused research must move beyond simply examining participation in order to truly understand the

nature of the relationship between leisure-activities and health risk behaviors. Longitudinal research that takes into account experiences within leisure activities, as well as the reasons for these experiences is especially needed to advance the field.

Given that active leisure, and sport in particular, is popular and that youth tend to be engaged in active leisure, active leisure may be an ideal context for the delivery of preventive interventions. Thus, developing empirically validated programs that can be delivered by coaches or influential peers should be a research priority. Additionally, interventions that steer youth away from unsupervised time with friends and other risky leisure activities and into healthy, personally engaging activities have the potential to have a significant public health impact.

Table 3-1  
*Descriptive Statistics by Participation Status (N = 2280)*

Variable	Active Leisure Non- Participants N (%)	Active Leisure Participants N (%)	$\chi^2$	Social Leisure Non- Participants N (%)	Social Leisure Participants N (%)	$\chi^2$
Lifetime Alcohol Use	359 (39)	541 (41)	0.79	287 (32)	612 (45)	39.71***
Past-month Alcohol Use	113 (12)	180 (13)	0.37	90 (10)	202 (15)	11.84***
Lifetime Cigarette Use	280 (30)	450 (62)	2.99†	233 (26)	496 (36)	27.55***
Past-month Cigarette Use	95 (10)	202 (15)	11.38***	92 (10)	202 (15)	10.66***
Lifetime Sexual Activity	46 (5)	164 (12)	34.29***	61 (7)	147 (11)	10.46***

Note. † $p < .10$ , \*\*\* $p < .001$ .

Table 3-2  
*Selection of Active Leisure Engagement Profiles by Gender*

Profiles	Males				Females			
	G <sup>2</sup>	df	AIC	BIC	G <sup>2</sup>	df	AIC	BIC
1	33.50	20	45.50	<b>73.77</b>	54.31	20	66.31	<b>91.87</b>
2	14.94	13	<b>40.94</b>	102.19	30.74	13	56.74	112.11
3	5.89	6	45.89	140.12	12.57	6	<b>52.57</b>	137.76

*Note.* The lowest AIC and BIC are in bold.

Table 3-3

*Prevalence and Item-Response Probabilities of the Active Leisure Engagement Profiles for Males (N = 822) and Females (N = 523)*

	Profile			
	Males	Females		
	Moderate Active: Engaged	Low Active: Mixed Engagement	Low Active: Engaged	Moderate Active: Engaged
<b>Prevalence</b>				
<i>Beginning of 8<sup>th</sup> Grade</i>	1.00	0.13	0.52	0.35
<b>Item-Response Probabilities</b>				
<i>Participation: Active Leisure</i>				
Low Participation	0.29	<b>0.72</b>	<b>0.58</b>	0.11
Moderate Participation	<b>0.58</b>	0.00	0.42	<b>0.80</b>
High Participation	0.13	0.28	0.00	0.09
<i>Interest: Active Leisure</i>				
Bored	0.04	0.17	0.00	0.04
Moderately Interested	0.30	0.17	0.46	0.25
Highly Interested	<b>0.66</b>	<b>0.66</b>	<b>0.54</b>	<b>0.71</b>
<i>Motivation: Active Leisure</i>				
Amotivation	0.18	<i>0.37</i>	0.31	0.00
Extrinsic Motivation	0.24	<i>0.45</i>	0.12	0.36
Identified/Intrinsic Motivation	<b>0.58</b>	0.18	<b>0.56</b>	<b>0.64</b>

Note. Item-response probabilities > .50 are in bold and item-response probabilities that add to > .50 are italicized.

Table 3-4

*Associations between Active Leisure Engagement Profiles and Health Risk Behaviors for Females*

	Profiles		
	Low Active: Mixed Engagement	Low Active: Engaged	Moderate Active: Engaged
Lifetime Alcohol	1.00	0.08	0.04
Past-month Alcohol	1.00	0.20	0.06
Lifetime Cigarettes	1.00	0.04	0.38
Past-month Cigarettes	1.00	0.00	0.11
Lifetime Sex	1.00	0.02	0.00

*Note:* All  $p$  values < .05. Low Active: Mixed Engagement is the reference profile.

Table 3-5  
*Selection of Social Leisure Engagement Profiles*

Profiles	G <sup>2</sup>	df	AIC	BIC
1	74.34	20	86.34	117.69
2	11.00	13	<b>37.00</b>	<b>104.92</b>
3	3.64	6	43.64	148.13

*Note.* The lowest AIC and BIC are in bold.

Table 3-6

*Prevalence and Item-Response Probabilities of the Social Leisure Engagement Profiles (N = 1372)*

	Profiles	
	Moderate-Low Social: Mixed Engagement	Moderate-High Social: Mixed Engagement
<b>Prevalence</b>		
Males Beginning of 8th	0.41	0.59
Females Beginning of 8th	0.25	0.75
<b>Item-Response Probabilities</b>		
<i>Participation: Social Leisure</i>		
Low Participation	0.33	0.17
Moderate Participation	<b>0.52</b>	<b>0.57</b>
High Participation	0.15	0.26
<i>Interest: Social Leisure</i>		
Bored	0.16	0.00
Moderately Interested	<b>0.84</b>	0.16
Highly Interested	0.00	<b>0.84</b>
<i>Motivation: Social Leisure</i>		
Amotivation	<b>0.57</b>	<b>0.52</b>
Extrinsic Motivation	0.15	0.12
Identified/Intrinsic Motivation	0.28	0.36

Note: Item-response probabilities > .50 are in bold.



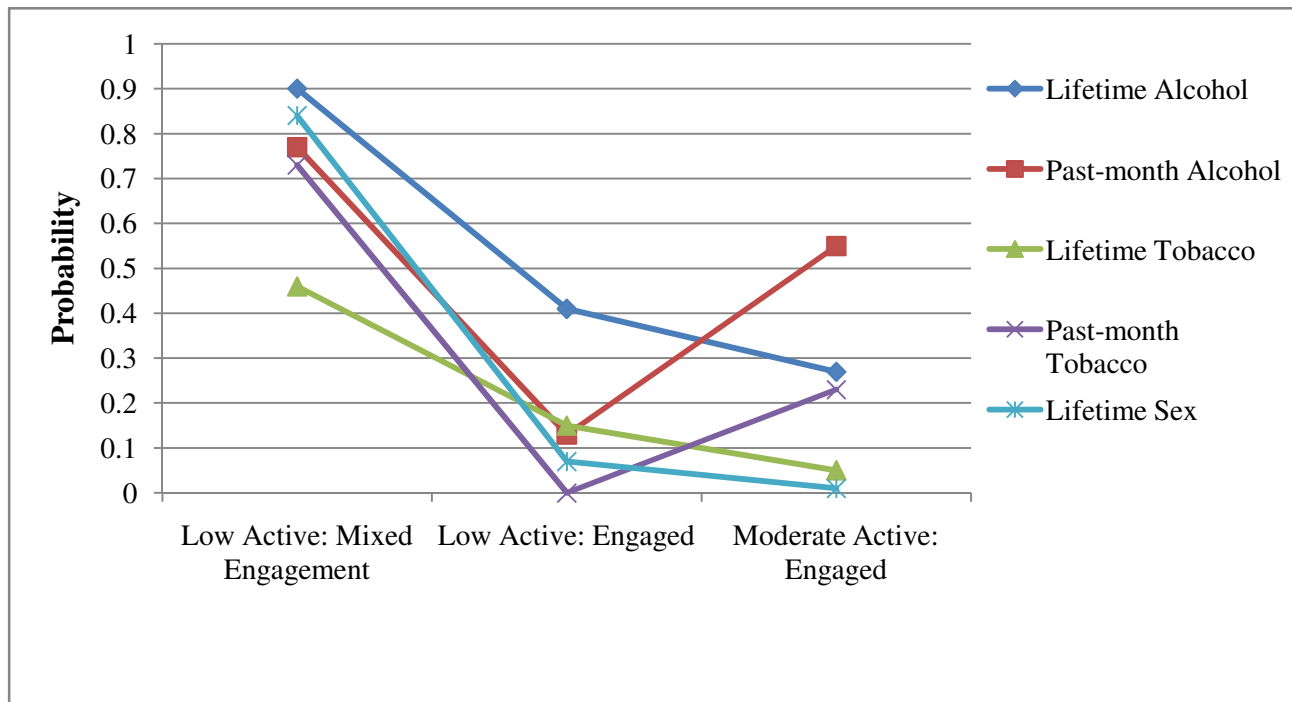


Figure 3-1  
*Probability of Health Risk Behaviors by Active Leisure Engagement Profile for Females*

## **Chapter 4**

### **Contributions and Directions for Future Research**

The two studies that comprise this dissertation were designed to examine the relationship between profiles of engagement (i.e., motivation and interest) across and within leisure activities and health risk behaviors. In the first study, youth were classified on each of four types of leisure activities (i.e., social; active; creative; and performance-based) as being (a) non-participants, (b) amotivated and/or bored participants, or (c) motivated and interested participants. This study allowed for an examination of amotivation/boredom and motivation/interest both within each of the leisure activities (i.e., a person could be amotivated/bored in social leisure), as well as across the leisure activities (i.e., a person could be amotivated/bored in all activities). Additionally, the relationships between the profiles and lifetime sexual activity and lifetime and past-month alcohol and cigarette use were examined.

The second study examined profiles separately for active leisure and social leisure. This study differed from the first in that it was designed to determine engagement via level of participation (i.e., low, moderate, or high), type of motivation (i.e., amotivation, extrinsic motivation, or intrinsic motivation), and level of interest (i.e., boredom, moderate interest, or high interest). Thus, each of these three constructs was measured in greater depth than in the first study, but it was not possible to look across different activities within the same analysis. The relationships between the profiles and lifetime sexual activity and lifetime and past-month alcohol and cigarette use also were examined.

These two studies make several unique contributions to the literature on leisure activity participation, health risk behaviors, and motivation and interest. First, the studies in this dissertation suggest that there are unique profiles of engagement within and across leisure activities and that engagement profiles are associated with health risk behaviors. Second, these studies suggest that there are important gender differences not only in leisure activity

participation, but also engagement within leisure activities. This chapter discusses these contributions as well as directions for future research.

### *Profiles of Leisure Activity Participation and Engagement*

Past research regarding the relationship between leisure activity participation and health risk behaviors (Barber et al., 2001; Eccles & Barber, 1999; Eccles et al., 2003; Feldman & Matjasko, 2005; Zill et al., 1995) as well as research on the relationship between leisure motivation and interest and health risk behaviors (Caldwell & Smith, 1995; Caldwell & Smith, 2006; Gordon & Caltabiano, 1996; Iso-Ahola & Crowley, 1991; Smith & Caldwell, 1989) laid the foundation for the two studies that comprise this dissertation. The present studies differ from past research, however, in many important ways. First of all, whereas past research primarily has focused on examining the relationship between participation in individual leisure activities and health risk behaviors, the first study examined participation across several leisure activities. Thus, it was possible to determine if (a) there were different profiles of individuals based on their participation across leisure activities, and (b) if these profiles differentially associated with health risk behaviors. Identifying profiles is beneficial from a prevention standpoint in that it allows one to understand who is at-risk of engaging in the outcome of interest and to design interventions accordingly. The specific implications of the findings of the current studies to preventive interventions are discussed in the section on future research directions.

The current studies also differed from past research on leisure activity participation in that they both examined motivation and interest within leisure activities in addition to participation. Thus, rather than simply determining profiles based on non-participation/participation or level of participation, these studies also allowed for the examination of engagement within, and in the first study across, leisure activities. It was hypothesized that adolescents' engagement within and across leisure activities would moderate the relationship between leisure activity participation and

health risk behaviors. The results of these studies, which are discussed in more detail in the following section, provide support for this hypothesis.

#### *South African Adolescents' Leisure Activity Participation*

In addition to shedding light on experiences within leisure activities as a moderator of the relationship between leisure activities and health risk behaviors, this dissertation also contributes to the literature concerning South African adolescents' leisure experiences. Prior to the initiation of the HealthWise study from which the data for this dissertation was derived, very little research had examined the nature of leisure for South African youth or the relationship between leisure and health risk behaviors. Møller's research (1992) conducted in the early 1990s shed some light on these issues, but similar research had not been undertaken following the end of Apartheid. Further, most studies of South African adolescents' leisure exclusively included Black youth. Given the unique developmental and health consequences of leisure activities, the prevalence of health risk behaviors reported by South African youth (Reddy et al., 2003), and the increased leisure opportunities for non-White youth after Apartheid (Nauright, 1997), research on South African adolescents' leisure undoubtedly was and is needed.

Several studies are now available concerning leisure for Colored South African youth as a result of the HealthWise study. For example, an in-depth qualitative study conducted by Palen and colleagues (Palen, 2008) shed light on common leisure activities in which adolescents engage, as well as their motivations for participation and non-participation. Other studies have highlighted the fact that leisure amotivation, extrinsic motivation, and boredom are associated with health risk behaviors for South African youth (Caldwell et al., 2006), but that motivation is malleable (Caldwell et al., 2008).

The two studies in this dissertation differ from most of the work being done within the broader HealthWise project, however, in that they focused on specific types of leisure activities rather than the general construct of leisure. As noted, research of this nature is important as

different types of leisure activities may have unique developmental and health implications. Given that the context of leisure activities likely influences experiences, however, it is not safe to assume that a particular leisure activity would have the same developmental and health implications in different cultural or economic contexts. The following subsections discuss the research findings that are specific to South African adolescents.

*Preferred Leisure Experiences and Gender Differences.* As a whole, the findings of this dissertation suggest that active leisure is a preferred leisure activity among South African youth. This finding is in congruence with other literature on sport in South Africa (Burnett, 2002; Goslin, 2002; Nauright, 1997). In the second study, approximately 70% of males and 50% of females participated in active leisure at the beginning of eighth grade. Further, of those who participated, the majority of males and females were interested and intrinsically motivated. Similarly, in the first study, profiles that included active leisure participation generally were characterized by interest and motivation.

In contrast, the findings suggest that social leisure is not a preferred activity. This was surprising given that past literature suggests otherwise (Møller, 1992). In the second study, approximately 60% of males and females spent time in social leisure, but the vast majority participated simply because they perceived that they did not have any other leisure options. In the first study, a significant percentage of females belonged to a profile characterized by amotivation and boredom in social leisure. These findings highlight the fact that participation is not synonymous with preferred experience.

Another finding concerned gender discrepancies in participation. In the first study, females were less likely to participate in any of the eight leisure activities and more likely to spend time exclusively in social leisure than males (50% of females vs. 25% of males). In addition, approximately 30% of females versus 15% of males were amotivated in all of the leisure activities in which they participated. As a whole, these findings suggest that the leisure needs of

females in this region of South Africa are not being met. Policies clearly are needed that encourage female adolescents' participation in meaningful, healthy leisure activities.

*The Relationship between Leisure Activities and Health Risk Behaviors.* In addition to contributing to the literature on preferred experiences and gender differences in South African adolescents' leisure activities, this dissertation also adds to the literature on the relationship between leisure activities and health risk behaviors for South African youth. Prior to this project, only two known studies had been conducted on this topic (Campbell et al., 2002; Kaufman et al., 2002) and both exclusively focused on sport and sexual behavior among Black youth. Findings from these studies suggested that sport was a protective context for females, whereas results were mixed for males.

In the second study of the current project, active leisure participants had a higher prevalence of smoking and sexual activity than non-participants and youth who spent time in social leisure had a higher prevalence of all of the health risk behaviors examined compared to non-participants. Further, female active leisure participants who belonged to the profile characterized by non-identified/intrinsic motivation had a higher probability of lifetime and recent substance use and lifetime sexual activity relative to the profiles characterized by identified/intrinsic motivation. As there was only one active leisure profile for males, it was not possible to examine profile differences in health risk behaviors.

In the first study, type of motivation and level of interest stood out more than type of activity in terms of associations with health risk behaviors. That is, no leisure activity was uniformly associated with amotivation and boredom across profiles. It is important to note, however, that a large portion of the profiles that included social leisure were characterized by amotivation/boredom in this activity. Further, in general youth who belonged to profiles characterized by amotivation/boredom across multiple activities (i.e., ACS: *Disengaged* for males and females) had the highest probability of substance use and sexual activity.

As a whole, these findings support the notion that the relationship between leisure activities and health behaviors is moderated by engagement within leisure activities. It is important to note, however, that leisure activities in which all participants share similar experiences of disengagement (e.g., social leisure and amotivation) may be universally risky. The fact that social leisure participants had a higher prevalence of health risk behaviors than non-participants, as well as the fact that the two social leisure engagement profiles were not differentiated in terms of substance use provides some support for this hypothesis.

In considering these findings, however, it is important to discuss issues of selection. The fact that youth who participated in social leisure, and to some degree active leisure, were at higher risk of engaging in health risk behaviors does not necessarily indicate that activity participation caused health risk behaviors. As the data examining the relationship between profiles and health risk behaviors is not longitudinal, conclusions of that nature are not possible. Thus, it is conceivable that youth who are inclined toward participating in health risk behaviors simply are more likely to spend their time in social or active leisure, perhaps in unsupervised settings.

Additionally, as noted, the findings from the first study suggest that youth are either amotivated/bored or motivated/interested in all activities in which they participate. The fact that there were two profiles that included social leisure, active leisure, and creative leisure that were distinguished only by their amotivation/boredom and motivation/interest, as well as the fact that generally youth were either amotivated/bored or motivated/interested in all of their activities, seem to suggest that amotivation/boredom and motivation/interest are at least in some instances person-specific rather than activity-specific. This indicates that the characteristics youth bring into their leisure activities (a) have the potential to influence their experiences within leisure activities and (b) have the potential to influence their health risk behaviors.

*Directions for Future Research*

This section discusses directions for future research. First, the implications of this dissertation for policies and preventive interventions are discussed, followed by a discussion of the measurement of leisure activity participation.

*Implications for Policies and Preventive Interventions.* Taken together, the two studies in this dissertation have several implications for policies and preventive interventions. Clearly, there is a need in this region of South African for high quality leisure activities, particularly for females. Even in the absence of a formalized prevention curriculum, promoting healthy development via participation in intrinsically motivated leisure activities that include supervision by positive adult role models, opportunities for goal setting and skill building, and reduced time in unsupervised settings with peers may go a long way toward reducing engagement in risk behaviors (Mahoney, Larson, & Eccles, 2005).

To the extent that participation is not intrinsically motivated, however, the health benefits of high quality leisure activities may be reduced. Thus, research is needed to assess adolescents' desired leisure activities and policies are needed that provide long-term funding for these activities. Aside from the financial aspects, the major challenge of this type of endeavor is ensuring that leisure activities in which youth are interested are implemented in such a manner that they are of high quality but also engaging. In other words, in order to promote health via leisure activities adult supervision and guidance is needed, but this potentially is a factor that would prevent the participation of youth in danger of becoming involved in health risk behaviors.

*How Do We Recruit Youth into Healthy Leisure Activities and Under What Circumstances Should We Try?* The discussion of youths' preferred leisure activities raises the question of how to recruit youth into healthy leisure activities. Although one may be tempted to suggest that parents and teachers require participation in leisure activities deemed to be healthy and disallow participation in leisure activities deemed to be unhealthy, as noted, the findings from this dissertation suggest that strategy may not produce the desired results. To the extent that



forced participation results in amotivation or extrinsic motivation, youth in a "healthy" leisure activity may be at higher risk of engaging in substance use and sexual activity than youth in no leisure activities or an "unhealthy" leisure activity. Further, given that fact that "healthy" and "unhealthy" leisure activities have not been definitively determined and that some activities seem to have mixed risks (e.g., sports) this is not the ideal strategy.

Thus, a better strategy may be to provide opportunities for participation in healthy activities and guide youth in how to make healthy decisions in their leisure. The HealthWise curriculum (Caldwell, Smith et al., 2004) does just that. As noted, HealthWise includes lessons on basic life skills (e.g., decision making, interpersonal communication), substance use resistance education, and sexual health education, in addition to the TimeWise curriculum. Additionally, Youth Development Specialists connect youth with community services and leisure opportunities. The fact that several HealthWise-based studies (Caldwell et al., 2008; Palen et al., 2008), as well as the TimeWise studies with American youth (Caldwell, 2004c; Caldwell, Baldwin et al., 2004) suggest that leisure motivation is malleable in adolescence, additional strategies of this nature are needed.

Further, in order to have large-scale public health impacts, leisure-focused preventive interventions must occur in the broader context of coordinated, developmentally appropriate, school-, family-, and community-based preventive interventions (Greenberg, 2004). Undoubtedly, youth who have the support and resources that they need to develop into healthy individuals are much likely to make healthy choices in their leisure than youth who do not. Thus, among leisure researchers, understanding how to link leisure-focused preventive interventions with existing school-family- and interventions should be a research priority. Likewise, among prevention researchers, understanding how to collaborate with those who provide recreation and afterschool programs should be a research priority.

*Developing Sport-Based Prevention Programs.* Of all of the leisure activities, sport may be most conducive to the implementation of preventive interventions. First of all, there is some evidence to suggest in the current studies as well as past studies with South African (Tibbits et al., in preparation) and American (Barber et al., 2001; Bartko & Eccles, 2003; Darling et al., 2005; Eccles et al., 2003; Fredricks & Eccles, 2006; Zill et al., 1995) youth that sport participants represent a higher-than-average risk group in terms of substance use and sexual behavior.

Second, the findings of the second study in this dissertation suggest that participants in sport and physical activities generally are intrinsically motivated and interested. Research is needed to establish whether or not this finding also holds for American youth. Youth who are engaged within an activity may pay more attention and be more receptive to messages conveyed in a prevention program. For example, the literature on interest suggests that youth retain more information when they are interested in a particular topic (Hidi, 1990).

Third, given that coaches have the potential to serve important roles in adolescents' lives (Conroy & Coatsworth, 2006; Reeve & Weiss, 2006), youth may be more amenable to messages delivered by coaches than other adults. Similarly, in the case of informal sport with no adult leaders, peer leaders may be effective program implementers (Tobler et al., 2000), although empirical research is needed to confirm this assertion.

The first steps for developing and implementing sport-based preventive interventions should be (a) understanding the health messages that naturally are conveyed in sport and (b) developing methods to target unhealthy messages. South African research suggests that male-dominated sports may promote hyper-masculinity and derogatory views toward women (Bhana, 2008; Nauright, 1997), which in turn may be related to substance use and sexual activity. Similarly, American research suggests that youth in male-dominated sports have higher health risk behaviors than non-participants or participants in gender-balanced sports (Moore & Werch, 2005).

Some programs have already been developed in the sport context to promote health and prevent problem behaviors (Le Menestrel & Perkins, 2007; Perkins & Noam, 2007; UNICEF, 2003). In South Africa, organizations such as UNICEF and Grassroot Soccer currently are implementing active leisure-based youth development programs and prevention programs. Research concerning the efficacy of these programs at preventing health risk behaviors, however, is limited. Clearly, research is needed that evaluates and improves existing initiatives. To the extent that the programs are found to be efficacious, Type II Translation research is also needed, as the number of youth being served by these programs is relatively low.

Additionally, research is needed to modify existing preventive interventions and develop new interventions for the sport context. For example, research is needed to test whether empirically validated universal school-based prevention programs such as LifeSkills Training (Botvin & Griffin, 2004) also can be utilized in sport and delivered by coaches.

The findings from the studies in this dissertation also suggest that selected or indicated interventions may be warranted. Thus, additional research is needed that aims to (a) determine profiles of sport participants with differential health risk behaviors and (b) develop appropriately targeted interventions. As sport participation is very prevalent, particularly among males, sport-based interventions have the potential to make a large public health impact.

#### *Refining the Measurement of Leisure Activities*

The findings of the studies that comprise this dissertation suggest that simply examining participation vs. non-participation is not sufficient to truly understand the range of adolescents' experiences within leisure activities or the relationship between leisure activities and health risk behaviors. Thus, the next phase of leisure activity research should focus on (a) identifying important indicators of experiences within leisure activities, as well as general characteristics of participants and (b) identifying profiles of individuals within and across leisure activities based on these characteristics.

A more basic problem that plagues the leisure activity research, however, is that too many assumptions are made in regard to the characteristics of leisure activities. For example, “sport” often is measured across contexts with no information regarding contextual factors. As noted in this dissertation, “sport” in economically advantaged areas may have an entirely different meaning than “sport” in economically deprived areas. The same also can be said for many other types of leisure activities. This fact muddles our understanding of the relationship between leisure activity participation and health risk behaviors.

Thus, future studies that assess leisure activity participation should include several questions that aim to understand the quality and context of leisure activity experiences. At a minimum, these questions should include the topics of (a) level of adult supervision (i.e., none, some, or full), (b) the formal (i.e., school- or community-based) or informal nature of the activity, and (c) the level and type of skills acquired in the activity. Improving the measurement of leisure activity participation will go a long way towards improving our understanding of the relationship between leisure activity participation and developmental and health outcomes.

### *Conclusions*

Taken together, the findings from the two studies in this dissertation suggest that the field of leisure activity-focused research must move beyond simply examining participation in order to truly understand the nature of the relationship between leisure-activities and health risk behaviors. Longitudinal research that takes into account the context of leisure activities, experiences and engagement within leisure activities, and the reasons for these experiences should take priority. Research of this nature can aid in the development of universal and selected leisure-focused and leisure-based interventions.

Further, the results of the two studies in this dissertation suggest that among South African youth, amotivation within leisure activities may predispose youth to health risk behaviors and/or serves as a marker for youth who engage in health risk behaviors. In either case, South

African youth who are amotivated in leisure activities and/or exclusively spend time in social leisure are prime candidates for preventive interventions.

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#### PUBLICATIONS

##### *Accepted for Publication*

**Tibbits, M.K.**, Caldwell, L.L., & Smith, E.A, Wegner, L. The relation between profiles of leisure activity participation and substance use among South African youth. *The World Leisure Journal*.

##### *Under Review*

Syvertsen, A.K., Cleveland, M., Gayles, J., **Tibbits, M.K.**, & Faulk, M.T. Profiles of protection among adolescents. Submitted to *Prevention Science*.

##### *In Progress*

Faulk, M.T., **Tibbits, M.K.**, Caldwell, L.L., & Ferrer-Wreder, L. The influence of leisure-based parental behavior on adolescents' substance use. To be submitted to *The Journal of Leisure Research*.

**Tibbits, M.K.**, Bumbarger, B., Kyler, S., & Perkins, D.F. Sustaining evidence-based interventions under real-world conditions: Results from a large-scale diffusion project. Revise and Resubmit, *Prevention Science*.

**Tibbits, M.K.**, Caldwell, L.L., & Smith, E.A. Longitudinal profiles of sport and physical activity participation among South African youth: Implications for substance use and sexual activity. To be submitted to *The Journal of Adolescent Health*.