



TimeWise: Taking Charge of Leisure Time

Final Report to NIDA

R21 DA13193

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28 October 2004

Executive Summary

One area that has received very little systematic attention from prevention researchers is the use of free time by adolescents. Recent findings suggest that boredom during free time may play a major role in the onset of substance use. For example, a recent study by The National Center on Addiction and Substance Abuse (2003) found that adolescents who reported being often bored are 50 percent more likely than those not often bored teens to smoke, drink, get drunk, and use illegal drugs. Thus, youth, faced with a lack of challenges and interesting things to occupy their time, may turn to drugs as a way to entertain themselves and deal with boredom in their free time. Current drug prevention programs do little to help youth construct positive and fulfilling leisure experiences.

The present study was designed as an efficacy trial to test a leisure-based approach to drug abuse prevention by focusing on mediators hypothesized to promote the positive use of free time and thus avoid substance use. Unlike programs designed to promote positive activity, the approach used in this program (*TimeWise: Taking Charge of Leisure Time*) is based on a more complete understanding of what motivates adolescents to participate in leisure activities and specifically addresses how to overcome boredom and develop interests. Learning about their motivation is used to guide youth through a process of selecting activities that are both healthy and personally satisfying. *TimeWise* consists of six core lessons in the 7th grade, and three booster sessions in each of grades 8 and 9.

Nine schools in rural central Pennsylvania participated in this project. All of the schools were chosen based on low socioeconomic status. Schools were randomized to experimental (four) and comparison (five) conditions. All of the *TimeWise* lessons were taught by either the PI or trained research staff; as a result, implementation fidelity was very high. Because *TimeWise* was viewed as part of the regular school curriculum, all students in the experimental schools received the program.

To assess student reaction, short interviews were conducted with approximately one-fifth of the students who participated in one of the *TimeWise* experimental schools. These students indicated that the program was very well received and provided practical and relevant information. Anecdotal and informal evidence from teachers and school principals also indicated that students had reported positive feedback to these school personnel. There were, however, a number of students who lived in very remote areas who reported that some of the exercises in *TimeWise* were difficult to relate to due to accessibility problems. This feedback has been incorporated into the revised *TimeWise* curriculum.

Approximately two-thirds of the students participated in the prospective panel evaluation design. Using standardized measures from both the drug prevention and leisure education fields, students completed a pretest at the beginning of the 7th grade and a post-test at the end of each academic year in grades 7, 8 and 9 (2001, 2002, and 2003).

The results of this study on the hypothesized mediators and, to a lesser extent, substance use, are very encouraging. In most instances the outcomes are as hypothesized and the effect sizes are in keeping with other drug prevention programs. Due to smaller sample

sizes, however, some of the findings are not statistically significant at the .05 level. In addition, there were some findings that were gender-specific.

The main mediators through which this program was hypothesized to work involved encouraging youth to engage in healthy free time pursuits and shifting motivation from negative motivation (i.e., doing things during free time because of boredom or being forced by external sources) to positive motivation (i.e., doing things because they are challenging and because it is personally satisfying). The effects of *TimeWise* on motivational strategies indicate that *TimeWise* was successful in these areas.

Perhaps the clearest effect of *TimeWise* on motivational strategies can be summarized by reviewing the program's statistically significant effects on intrinsic motivation (a desired form of motivation) and amotivation (i.e., doing things due because there is nothing else to do and lack of self-regulation). On average, students in the *TimeWise* condition had greater intrinsic motivation throughout the study than students in the comparison condition. Similarly, the overall effect on amotivation was as hypothesized: Students who received the *TimeWise* intervention had lower amotivation than comparison students throughout the study, despite the developmental indication that amotivation increased over time in all students.

A key focus of *TimeWise* was to reduce the sense of boredom experienced by youth and increase their sense of interest in their non-school lives. The results indicated that interest was significantly greater (i.e., boredom was lower) in students who received the *TimeWise* intervention compared to comparison students throughout the study ($p=.0161$). Similarly, initiative (i.e., taking charge and pursuing an interest) was significantly greater for students who received *TimeWise* than comparisons.

Developmentally, students' awareness of available leisure activities decreased with age. *TimeWise* students, however, were aware of more leisure activities than comparison students, on average. This result, however, was significant only for males.

Substance use distal outcomes were analyzed in the same manner as the proximal outcomes (i.e., by time, gender, and condition). While most effects on substance use were not statistically significant, almost all effects were in the desired direction. Among the substances most used by both males and females in this sample, the use of cigarettes, alcohol, marijuana (males only) and inhalants was lower among the students who received *TimeWise*. Within these results, two statistically significant findings did emerge: *TimeWise* males were significantly less likely to use marijuana and inhalants. These two significant findings first appeared at the end of the 8th grade and became more pronounced at the end of the 9th grade.

We cautiously interpret the emergence of these statistically significant findings at the end of the 8th and 9th grades as an indication that *TimeWise* was having a cumulative, beneficial effect on substance use prevention at a time when substance use begins to increase. Furthermore, the fact that these two findings are specific to boys, whose substance use is higher at these grades, is not surprising. Statistically it is difficult to find significant program effects on substance use when substance use is very low. However, when substance use begins to increase, as it did among the 8th and 9th grade comparison

boys in our sample, statistically significant findings are easier to detect. The fact that we find generally positive, but non-significant findings in the 7th grade for boys, and across all grades for girls, may simply be a product of generally low substance use for these youth in both conditions. A longer follow-up period would be required to determine if this hypothesis is correct.

Given these findings, we conclude that *TimeWise* is a promising approach to the prevention of substance use among adolescents. The mediators we targeted responded positively to the relatively brief intervention in rural environments that were low in resources. With greater dosage, or in a more resourced environment, we hypothesize that these effects may be even greater.

TimeWise has generated a lot of interest, both in the U.S. and internationally. In the U.S., due to its broad appeal, ETR Associates has published (August, 2004) both the teacher and student manuals and these are currently on sale throughout the U.S. The American Association of Health, Physical Education, and Recreation sponsored a session at their annual meeting in 2003 to promote *TimeWise*. In addition, the National Recreation and Park Association, the largest association of recreation providers in the world, has approached us to develop an after-school counterpart based on *TimeWise*.

Internationally, a number of countries have found *TimeWise* to be an appealing product. The theoretical framework serves as one of the core strategies for the current NIDA-funded study of HealthWise in Cape Town, South Africa. *TimeWise* is currently being implemented and tested by a colleague in the former East Germany, and we have collaborated with potential partners in Australia and Columbia to run similar pilot trials. In addition, at a meeting held in Guatemala in August, 2004, several representatives from drug prevention agencies in Central and South America inquired about the program after hearing a presentation about the need for drug prevention efforts to include a focus on healthy use of leisure time.

The popular appeal of *TimeWise*, combined with the promising effects unveiled in this trial, leaves us optimistic that it can be a useful and marketable product to help adolescents negotiate their early teens and remain substance-free. A larger trial, with longer-term follow-up, however, is needed before we can feel confident about its effects.

Background

The *TimeWise*: Taking Charge of Leisure Time project was a three year study funded by NIDA to test the effectiveness of a novel approach to drug prevention. Based on a strategy of leisure education to prevent boredom and increase the positive use of free time, this program functioned to change the ways that adolescents approach the use of their leisure. Armed with both a positive perspective on healthy leisure, and reality-based knowledge of free time pursuits, our hypothesis was that *TimeWise* would encourage youth to avoid substance use during the times when they are most prone to become engaged with drugs.

Compared with other approaches to substance use prevention, *TimeWise* did not teach adolescents about specific substances and their effects. Instead, the premise of *TimeWise* is that youth need help in learning how (a) to develop healthy interests and (b) to take personal responsibility for initiating positive leisure activities (e.g., Silbereisen & Eyferth, 1986; Silbereisen & Todt, 1994). *TimeWise* did address substance use directly, but in the context of using leisure time in healthy ways.

TimeWise is comprised of six core lessons targeted at middle school youth. The program was designed to teach students to (a) determine personally satisfying and meaningful leisure activities and interests, (b) understand the benefits of participating in healthy leisure, (c) understand how one's motivation affects one's experience and participation in healthy behaviors, (d) alleviate boredom and increase optimal experience in leisure time, (e) learn how to take responsible action to participate in desired activities, and (f) identify and overcome constraints that get in the way of participation in desired activities.

Rationale for Leisure Education

In 1912, John Dewey argued that schools should be educating youth for the wise use of leisure time. One of the seven cardinal principles of education was "to educate for worthy use of leisure time." Unfortunately, Dewey's imploration has been largely ignored. The Carnegie Council on Adolescent Development's (1992) report on time use of youth and adolescents calls time "a matter of risk and opportunity," pointing to the paradoxical nature of leisure time. The Carnegie Council reports that about 40% of a youth's time can be labeled as "free" time. The report states that despite compelling evidence suggesting that participation in leisure time activities contributes to healthy development for youth, leisure time is also a context for adolescent rebellion, vandalism, and participation in unhealthy activities such as using drugs and alcohol, violent activities, and sexual behavior (e.g., Caldwell & Smith, 1995; Levin, Smith, Caldwell, & Kimbrough, 1995).

One of the reasons leisure is risky is because some adolescents *experience* leisure negatively. Boredom, stress, and conflict are all negative experiences that might be associated with leisure. Perceptions of boredom have been linked with a number of problem behaviors such as alcohol and drug abuse (Brake, 1997; Iso-Ahola & Crowley, 1991; Orcutt, 1985, higher rates of dropping out of school (Farrell, Peguero, Lindsey, & White, 1988), vandalism (Caldwell & Smith, 1995), and obesity (Abramson & Stinson, 1977; Ganley, 1998; Rodin, 1975; Wilson, 1986).

Although there are multiple reasons for experiencing boredom in leisure (Caldwell, Darling, Payne, & Dowdy, 1999), reasons that resonate most with adolescents are “I don’t have anything to do” and “I have to do it.” The *TimeWise* curriculum and in and after school opportunities directly address understanding and overcoming boredom. Along with boredom, the other important leisure related concepts addressed are: interest development and initiative (Bronfenbrenner & Morris, 1998; Csikszentmihalyi, 1990; Larson, 2000), intrinsic motivation and self-determination (e.g., Ryan & Deci, 2000b; Vallerand, 1997), and ability to take action (Silbereisen & Eyferth, 1986; Silbereisen & Todt, 1994).

In light of the free time paradox, the Carnegie Council report suggests that making creative and constructive use of the free time available to youth by participating in “high-yield leisure” and recreational activities is an important task because such high-yield leisure leads to an increase in future educational and life achievement. As Zill, Nord, and Loomis (1995) cautioned, it is not the “filling of time” that is important, but rather filling time with activities that develop skills, create challenges, and provide fulfilling experiences.

Most youth, however, do not know how to make their time meaningful. In an era where the leisure of youth is dominated by TV watching and video game playing, it is not surprising that the ability to self-initiate meaningful activities alone or with peers is a decreasing skill. To further compound this issue, some children’s leisure today is so often tightly structured and controlled that by the time they reach the age where they are developing autonomy from parents, and are concomitantly faced with blocks of “freedom” (i.e., leisure time), they are often unprepared and ill-equipped to construct meaningful activities. This is one of the reasons why we chose middle school students for the target of this intervention.

Since many youth of today do not know how to construct for themselves high yield leisure, intervention efforts must be undertaken. The *TimeWise* leisure education program is designed to help youth learn about free time, develop leisure skills, and how to take responsibility for creating positive experiences. One premise of leisure education is that teaching youth to actively take charge of their own leisure time and experience is an important developmental process that leads to increased chances of personal life-long success in life. Preliminary evidence from a recent study suggests that those who learn to be active producers of their own leisure experiences are at less risk for engaging in socially maladaptive and unhealthy behaviors (Caldwell & Darling, 2000).

Metatheoretical Bases of *TimeWise*

Theories of adolescent development share a number of underlying tenets, which “are not tied to a particular content domain” (Lerner, 1998, p. 1). These theories stress the mutual and multi-directional influences among various levels of organization within the person and across the contexts in which they function (Bronfenbrenner & Morris, 1998; Ford & Lerner, 1992; Gottlieb, 1992) and serve as broad guides to understanding human development and behavior. This convergence in theoretical foundations is, in part, tied to viewing human development in terms of intraindividual *developmental processes*. In the case of *TimeWise*, our orientation towards developmental processes maintains that

healthy human functioning is characterized by that individual's active orientation in self-constructing how they operate in their environments (Lerner & Walls, 1999; Sameroff, 1980, Wolhwill, 1973).

To a limited extent, a number of these theories have been directly applied to the domain of free time activities, leisure, and/or youth development programs (Baltes, Lindenberger, & Staudinger, 1998; Bronfenbrenner & Morris, 1998; Larson, 2000; Ryan & Deci, 2000a, 2000b; Silbereisen & Eyferth, 1986; Silbereisen & Todt, 1994). While using slightly different language, the general explanatory foundation of these theories accounts for *taking action in context* (Silbereisen & Eyferth), and addresses the developmental consequences of sustained activity engagement within a given context.

Two theories, selective optimization with compensation (SOC) theory (e.g., Baltes, 1997; Lerner, Freund, De Stefanis, & Habermas, 2001) and self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000a, 2000b) are particularly compatible to each other and have strong empirical support. These two theories provided the metatheoretical basis for *TimeWise*. A brief general overview of these theories is provided next, followed by a discussion of the integration of them, and related theories (such as boredom and initiative), in the *TimeWise* conceptual framework.

SOC. Lerner et al. (2001) suggested that the theory of selective optimization with compensation (e.g., Baltes, 1997) could provide a framework for understanding how youth attempt to regulate their own lives as they interact with their environments. SOC is predicated on the adaptive relation between human and context and posits successful development as the "conjoint maximization of gains (desirable goals or outcomes) and the minimization of losses (avoidance of undesirable goals or outcomes)" (Baltes, et al., 1998, p. 1054). The self-regulatory processes of selection, optimization, and compensation are not linear, nor are they mutually exclusive, and are heuristically posited as interactive and dynamic processes (Baltes, 1997; M. Baltes & Carstensen, 1996; Freund & P. Baltes, 1998, 2000). In consideration of how these processes apply to adolescent development, Lerner et al. stated that SOC informs the study of adolescent development as investigating

...how a youth decides what 'to do,' how he or she 'does' (what is selected), and how he or she may either 'keep at it' or identify alternative routes to healthy functioning in the face of failure or loss. Thus, selection, optimization, and compensation denote processes of goal-selection, goal-pursuit, and goal-maintenance/alternation, respectively. (p. 32)

That is, Lerner et al. (2001) present SOC as an explanatory framework that encompasses developing preferences or goals, choosing and committing to goals, maintaining and adhering to goals for advancement, or in the face of loss, failure, or decline, the compensation and reformulation of goals. These processes are generally studied in specific content areas or domains, such as free time or leisure.

SOC establishes goal selection, goal-pursuit, and goal-maintenance/alteration as a basic framework for conceptualizing activity engagement. When SOC is viewed in terms of the pursuit of goals, the conceptual similarity with other motivational or self-regulatory theories such as self-determination theory (SDT) is clearly evident. At the broadest theoretical level, SOC and SDT posit healthy adolescent development as the ability to

successfully “developmentally regulate” and adapt to one’s situation (Lerner & Walls, 1999; Ryan, Sheldon, Kasser & Deci, 1996; Deci & Ryan, 2000a, 2000b; Walls & Little, under review). SOC helps to conceptualize adolescent functioning with respect to general self-regulatory dynamics, while SDT provides a more complete framework for assessing underlying motivational states associated with variation in activity engagement.

SDT. Ryan and Deci’s recent extensions of SDT have reemphasized motivation as a self-regulatory process (Ryan & Deci, 2000a, 2000b). SDT addresses the natural human tendency to actively engage in the world and is a framework for investigating the social or environmental factors that enhance or forestall intrinsically and extrinsically regulated forms of motivation.

Previous applications of self-determination theory to the domains of sport and leisure have often treated intrinsic and extrinsic motivation in a dichotomous manner (Vallerand & Fortier, 1998). The more elaborate conceptualization is as a continuum of motivation or self-regulatory style, which involves the descriptive and functional differences among individuals’ styles of relating to the pursuit of a given activity (Ryan & Connell, 1989). Individuals who are intrinsically motivated exhibit “the inherent tendency to extend and exercise one’s capabilities, to explore, and to learn” as the defining characteristic of their motivation in a given area and reside at one end of a continuum of motivational self-regulation (Ryan & Deci, 2000a, p. 70). Thus, at one end of this continuum, fully intrinsically motivated individuals are found. In the middle of the continuum, four different regulatory styles have been described: (a) in integrated regulation, the goal and its pursuit has been integrated into the self and is in congruence with personal values and needs; (b) in identified regulation, a goal is adopted, its pursuit is owned, and it is seen as personally important but not fully owned; (c) in introjected regulation, regulatory behaviors are adopted in a superficial way, but not fully owned; and finally, (d) in external regulation, behaviors proceed purely for the receipt of a reward. At the far end of the continuum, a final state, amotivation, reveals completely unmotivated characteristics. All of these styles of motivation pertain to adolescents except for the integrated style, which is too complex and “mature” for the developing adolescent (e.g., Vallerand, 1997).

Although SOC and SDT provided the metatheoretical foundation for *TimeWise*, other theories, which can be subsumed under this metatheoretical framework of human action, also provided guidance to developing the intervention. The curricular lessons in *TimeWise* were designed to operationalize concepts found in these theories that suggested activities that could serve as vehicles to reduce risk or promote healthy engagement in free time. These theories also served to help us identify the proximal outcomes of the study and will be described next in the context of the specific core lessons.

TimeWise Curriculum

The *TimeWise* study followed one cohort of early adolescents for three years. In the first year (grade seven), students received six core lessons, lasting about 50 minutes each. This was the most intensive period of the program, which was designed to build a firm base in the language and skills offered in the program that the students could then implement. Each lesson built on the next, and topics were often revisited in multiple places in the curriculum (e.g., self-determination and interest development). The first year curriculum was comprised of six lessons: (a) self-awareness of time use and the benefits associated with leisure activities, (b) reasons for participating in free time activities, (c) recognizing personal interests and managing boredom, (d) the active pursuit of meaningful activity (decision making and planning), (e) managing free time for balance and variety, and (f) integration of concepts. In each of the second and third years (grades eight and nine), students received three booster sessions of *TimeWise*. The core lessons will be described next.

Lesson One: Time Use and Benefits of Leisure. In the first lesson students identified the kinds of things they did in their free time and were asked to reflect on the benefits (e.g., physical, mental, and spiritual) they received from activity participation. The concept of benefits was introduced along with the concept of activity consequences. Students were encouraged to reflect on their activity choices and consider the possible healthy and unhealthy consequences. Students were also asked to complete a four-day time diary (two weekdays and two weekend days) for homework. This diary was referred to throughout the six lessons.

A number of theoretical perspectives were incorporated broadly into this lesson, which set the stage for subsequent lessons. SDT (e.g., Ryan & Deci, 2000) provided the idea that to take action on desired activities, youth must first become aware of their current leisure patterns. Therefore, self-analysis was an important part of this lesson. From a prevention perspective, encouraging youth to take responsibility for their own leisure time by doing things to increase their benefits in leisure promotes healthy behaviors and decreases negative behaviors (e.g., Simeonsson, 1994). Developmentally, helping youth identify their leisure patterns and matching benefits corresponds to the process of establishing emotional autonomy in a responsible manner.

Lesson Two: Reasons for Participating in Free Time Activities. The constructive use of free time requires balancing what one “has to do” with “what one wants to do” and is a complex and dynamic process. Employing a differentiated view of motivation as a theoretical basis of *TimeWise* (SDT) meant that students were introduced to reasons associated with amotivated, externally, and internally motivated styles of leisure activity engagement. The lesson focused on the intrinsic enjoyment of activities based on a real interest in the activity (intrinsic motivation), or because the activity served a future purpose, such as learning to play an instrument to get into the school band (identified motivation). Students were taught that more benefits accrue if they do things in their leisure time that are in line with intrinsic or identified forms of motivation. In contrast, situations associated with acting because they have nothing else to do (amotivation), they have to (external motivation), or are driven by the need to fit in or be popular with their friends (introjected motivation) were also discussed.

During adolescence, peers are a predominant source of external pressure and a potential threat to internalization and the expression of intrinsic motivation. Thus, the optimal self-regulatory style is to assess one's peer context and determine whether one's peer group needs to be narrowed, adapted, or modified (Lerner et al., 2001). This type of developmental regulation is a particularly important leisure skill because (a) associating with peers supportive of substance use is associated with higher levels of substance use and (b) spending time in unstructured social settings predicts substance use, which is mediated through time spent in a party-type social setting (Caldwell & Darling, 1999). In this lesson, students were encouraged to think about their own motivational styles, what happens when they internalize others' desires (which can be both positive and negative), and how they can support their own intrinsic interests, even when they are contrary to their immediate peer group or parents.

A number of behavioral consequences or subjective conditions have been associated with the varying motivational styles. Specifically, identified and intrinsic forms of motivation have been positively associated with the expression of interest, which contributes to positive developmental outcomes (Larson, 2000). Boredom is associated with extrinsic forms of motivation as well as amotivation and has been well documented with risk behaviors (as described in the next section). Thus the next lesson focused on developing interests and managing boredom.

Lesson Three: Developing Interests and Managing Boredom. We were particularly interested in boredom because perceptions of nothing to do, no place to go, and boredom have been linked with a number of problem behaviors such as alcohol and drug abuse (Brake, 1997; Caldwell & Smith, 1995; Iso-Ahola & Crowley, 1991; Orcutt, 1985), higher rates of dropping out of school (Farrell, Peguero, Lindsey, & White, 1988), vandalism (Caldwell & Smith, 1995), and obesity (Abramson & Stinson, 1977; Ganley, 1998; Rodin, 1975; Wilson, 1986). Although there are multiple reasons for experiencing boredom in leisure, reasons that resonate most with adolescents are "I don't have anything to do" and "I have to do it" (Caldwell, Darling, Payne, & Dowdy, 1999). Lesson three directly addressed understanding and overcoming boredom and helped students begin to identify current and future interests as an antidote for boredom.

Interest development is very much connected with the concept of initiative (Bronfenbrenner & Morris, 1998; Larson, 2000) and is linked with healthy development (Lerner et al., 2001). According to Lerner et al., initiative occurs when a preferred activity is selected, constraints to participation are faced, and the challenges presented are overcome, allowing continued involvement in the activity. Lerner et al. noted, "constraints and limitations of (internal and external) resources (e.g., stamina, money, social support) are present throughout the entire lifespan [e.g., P. Baltes, 1997] ..." (p. 32). Therefore, SOC theory suggests that youth should learn to select interests that are personally meaningful and doable from a range of possible choices. Lerner et al. suggested that this focused approach prevents "diffusion of resources" (p. 32), which may prevent a youth from pursuing one or two meaningful activities. Although this concept is introduced in this lesson, in lesson five, a discussion about the need for variety and balance in one's leisure is continued. Attitudes and stereotypes that constrain one from developing or even thinking about a potential interest were discussed in this lesson; other

types of constraints were discussed later in the curriculum and will be discussed subsequently in this paper.

Ability to Restructure. Avoiding boredom is important, but also important is the ability to turn a boring situation into something that at least is somewhat interesting. We view this ability as an important part of developmental regulation that will assist youth in having healthier leisure. Although having a variety of interests helps one to avoid boredom, youth naturally find themselves in situations they classify as boring. The theory behind the ability to restructure a situation (for example, choose different goals or change the focus of activity) comes from Iso-Ahola's (1980) work on optimal arousal, as well as from SOC. Iso-Ahola and Lerner et al. (2001) stressed the importance of developmental regulation in response to the context or specific situation one finds oneself in. Lerner et al. suggested that, in particular, the "optimization" component of SOC is particularly linked with the process of developmental regulation, consistent with Iso-Ahola's discussion of the need for one to regulate one's arousal level. *TimeWise* provides youth with specific ideas about how to restructure boring situations.

These first three lessons were preparatory for the "action" orientation of the next three lessons. In lessons four through six, students learned about planning skills and resources that would enable them to effectively act on their environments in order to pursue desired leisure interests. Lesson four directly dealt with planning and decision making skills, as well as overcoming interpersonal and structural constraints to preferred activity.

Lesson Four: Planning and Decision Making Skills. The theoretical impetus for this lesson stemmed from the work on initiative development (Bronfenbrenner & Morris, 1998; Larson, 2000), SOC (Lerner et al., 2001) and development as action in context (Silbereisen & Eyferth, 1986; Silbereisen & Todt, 1994). Building from the previous lessons, where youth discovered what their interests are and why having long-term interests are important (e.g., avoiding boredom), here youth learned to actively construct their own free time in ways that are meaningful and interesting to them. They were asked to select one or two activities that they would really like to pursue from the list of possible interests they developed in lesson three. In order to maximize their opportunities to be involved in preferred leisure activities, we began the lesson with a discussion of the planning process and youth were encouraged to plan ahead for some activities so that they could participate in those activities they were interested in. We also guided youth through exercises that increased their awareness of things to do in and around their communities.

Constraints theory (e.g., Jackson & Rucks, 1995) was an important foundation for this lesson. After having encouraged youth to think of a number of things that interested them in the previous lesson, here we helped youth narrow the range of alternatives to focus on the most doable activities given resource and other possible constraints. This was very important to the youth in our study as they lived in rural areas where resources were limited. In a discussion of constraints and persistence, youth identified potential constraints to their desired interests, determined whether or not the constraints were real or perceived, and problem solved ways to negotiate the constraints. Youth were cautioned that sometimes constraints are real and that they have to adapt, have back-up interests and perhaps chose different goals.

Lesson Five: Managing Free Time for Balance and Variety. This lesson extended the previous lesson where students learned to be planful and deliberate in their leisure time in order to maximize their opportunities to be involved in preferred leisure activities. In lesson five, youth learned to manage the unplanned or unexpected events that occur in their free time, including negotiating things that happened when they hang out with friends and/or encountering periods of being bored. Also in this lesson youth learned the importance of having a variety of activity types and friends in their repertoire, and a balance of how they spend their time on a daily and weekly basis. Still based broadly on SDT and SOC, the theoretical basis for this part of the lesson addressed the need for stability and novelty (optimal arousal; Iso-Ahola, 1980; Mannell & Kleiber, 1997) and the need to avoid boredom.

Lesson Six: Integration. The last lesson in grade 7 was a synthesis of concepts learned across all lessons. Students engaged in a review session, and then choose among a number of exercises (e.g., collage, poetry writing) to express what they learned in *TimeWise*.

Booster Lessons. Booster sessions of *TimeWise* were provided to students in the springs of 2002 (grade 8) and 2003 (grade 9). Continuing the foundation from the core lessons, these booster lessons extended the material, provided opportunities to more closely interact with the material (e.g., educating others about leisure, which required students to develop posters or video tapes of lessons learned from the core *TimeWise* lessons), and covered the material in more depth appropriate to their developmental age. These booster lessons included:

1. Educating Others About Leisure
2. Making Decisions and Taking Risks
3. Achieving Flow
4. Managing Stress and Becoming Mindful
5. Friendships and Leisure
6. Leisure and Change.

***TimeWise* Research Design and Findings**

The primary objective of this efficacy trial was to compare *TimeWise* to a no-treatment comparison group. Nine schools were recruited to participate: Four were randomly assigned to the experimental group and five to the comparison group. All schools were in rural school districts in Pennsylvania and were chosen to represent relatively poor, small (i.e., less than 1,000 students) school districts. In each school, approximately 1/3 of the students received free or reduced price lunches.

The selection criteria for this study represented an opportunity to study a population often overlooked: disadvantaged rural youth. Rural youth represent one-quarter of American adolescents, yet they have been largely neglected in research investigations. The National Center on Addiction and Substance Abuse (CASA) at Columbia University (2000) chronicled the epidemic of substance abuse in America's rural towns. Their findings suggest that rural adolescents are at an equal, and possibly increased, risk for substance abuse compared to their non-rural peers. The CASA survey revealed that rural eighth graders are more likely to use tobacco products (cigarettes and smokeless tobacco), consume alcohol, get drunk, smoke marijuana, and use cocaine than eighth graders in urban centers.

The *TimeWise* curriculum was pilot tested in the fall of 2000 and implemented in four rural school districts in central Pennsylvania in the springs of 2001 (20 classrooms participated), 2002, and 2003. All students in the experimental schools received *TimeWise*. The comparison condition received no leisure education; schools in both conditions received drug and alcohol information in their health curriculum. Both outcome and process data were collected.

Baseline data were collected in September and October 2000 after gaining human subjects approval from Penn State and parental consent was obtained. A team of trained university students followed a strict protocol and distributed questionnaires that participants self-administered in their classrooms, typically during homeroom. In order to help students feel comfortable filling out questions on sensitive material (i.e., substance use), teachers were not present during the administration of the questionnaire. No students refused to participate during data collection, and they took between 20 and 40 minutes to complete the questionnaires. The first wave of follow-up data was collected in the spring of 2001 (T2). At both time points, if students were absent on the day of data collection, we went back to the school at another time to re-administer the questionnaire. There were between three and six weeks between the end of the *TimeWise* program and administration of all questionnaires.

Sample

We received parental permission from and collected data on between 51% and 88% of all grade seven students in each of nine schools (the average was 63%). Of the 634 seventh grade students at baseline (fall 2000) who received parental permission and agreed to participate in the study, 315 were female (49.7%). Posttest data were collected on students in the springs of 2001, 2002, and 2003. The final N = 475, which represented 75% of the original participants. Loss of participants primarily was due to students

moving, as well as students who were missing at the time of data collection. Three separate efforts (through the schools) were made to enable the missing students to complete the posttests. After failing to contact the student after three follow-up contacts, we ceased trying.

At baseline, ninety-five percent of all students were European-American. The areas where the participating schools were located were rural, as indicated by students' responses about where they lived; 30.4% reported living in a rural area, 29.0% lived in a neighborhood but not "in town," and 25.2% lived in a small town. Only 6.9% reported living on a farm. (In the school districts served by this study there are no towns in excess of 2,500 people.) Using the means students used to buy lunch as a proxy measure for socio-economic status, 56.7% of students reported buying lunch at full price, 20.8% received a free lunch, and 11.3% were eligible for reduced price lunches. About 4.5% of students either brought lunch from home, or went home for lunch. These results suggest that about a third of the students came from a lower socio-economic background.

Implementation and Student Reaction

Either the principle investigator or trained staff delivered the curriculum across the three years. Fidelity was monitored by a series of process evaluation forms completed after each session as well as observations of the teaching by the PI. Forms used to monitor fidelity and process are included in Appendix A.

Approximately 20% of the students who participated in one of the *TimeWise* schools were interviewed to ascertain their reactions to the program. Students were very positive and indicated that they thought the program should be continued. The interview guide and summary of student responses is located in Appendix B.

Measures

Proximal Outcomes

Many of the measures for the proximal outcomes were developed specifically for this study. Because of this, cognitive interviews (Willis, 1994) were conducted with a convenience sample of adolescents to help assess the validity, readability, and understandability of the measures. Eight adolescents, aged 12 to 16, participated in a series of interviews. First, the adolescents read the items in the questionnaire and responded using the Likert-type response scale given. Second, after the adolescents completed the questionnaires, two members of the research team asked the adolescents about each item. The questions asked by the researchers assessed any problem areas the adolescents had understanding specific items or the wording of items. Face validity was also discussed as the youth were asked if the question would make sense to young adolescents. Each of the eight adolescents' responses to such probing questions was recorded, and the entire research team studied each item based upon the feedback given by the subjects. A revised item pool was then developed based on the information gained through this process.

Students responded to a series of items for each construct using the following response scale: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5

= strongly agree. Items were reverse coded as necessary. Scales were constructed such that a high score indicated a high level of the construct.

Motivation. Motivation was measured using the Free Time Motivation Scale for Adolescents (FTMS-A, Baldwin & Caldwell, 2003), which was based on earlier work on motivation, including the leisure scale for high school students (Pelletier, et al., 1995), the Self Regulation Questionnaire for elementary students (Ryan & Connell, 1989), the Academic Motivation Scale (Vallerand, et al., 1992), and measures of motivation in the sport domain (Chatzisarantis, Biddle, & Meek, 1997; Goudas, Biddle, & Fox, 1994). The FTMS-A assesses five of the motivational self-regulatory styles: (a) amotivation (e.g., I don't know, nothing much interests me, $\alpha = .77$), (b) extrinsic motivation (e.g., That is the rule in my house, $\alpha = .77$), (c) introjected motivation (e.g., I want people to like me, $\alpha = .78$), (d) identified motivation (e.g., What I do is important to me, $\alpha = .68$), and (e) intrinsic motivation (e.g., I like what I do, $\alpha = .70$). These dimensions have been empirically verified to exist along a continuum from intrinsic to extrinsic motivation (Baldwin, & Caldwell, 2003; Ryan & Connell, 1989; Walls & Little, under review).

Affective response to leisure. A second type of proximal outcome focused on the degree to which one was bored or interested in activities. To measure degree of boredom, the boredom subscale of the Leisure Experience Battery for Adolescents (Caldwell, Smith, & Weissinger, 1992) was expanded to include level of interest. Thus, this measure included seven items such as, "For me, free time just drags on and on," as well as "My free time activities are very interesting to me." Cronbach's alpha for internal consistency for this seven-item measure was .75. The expanded dimensionality of this measure mirrored the way in which the "boredom and interest development" *TimeWise* lesson was structured. In this lesson, boredom and interest were treated as opposite feelings one could have about free time, and students were helped to think about what made things boring, what made things interesting, and how to turn a boring situation into an interesting situation.

Leisure skills. A third set of variables assessed the degree to which students perceived they possessed a set of leisure skills that were hypothesized to act as risk or protective factors to substance use. These measures, all developed for this study, included *initiative* (e.g., I give up easily if things don't go my way, $\alpha = .65$), *peer influence* (e.g., It is easiest to do what everyone else wants to do in my free time, $\alpha = .64$), *planning and decision making skills* (e.g., I can plan activities myself without help from my parents, $\alpha = .75$), and the *ability to restructure a boring situation* (e.g., [I know how to...] Turn a boring situation into something that is more interesting to me, $\alpha = .84$).

Awareness and Participation. The final set of variables dealt with students' awareness of leisure activities in their communities. *Awareness* was measured with four items, including for example, "[In my community...] I know of places where there are lots of things to do, $\alpha = .50$."

We were also interested in whether they had *participation in new and interesting leisure activities* (e.g., In the last six months, I learned a new activity; I have at least one hobby I am really interested in; $\alpha = .72$). Three additional survey items regarded *amount of time participating* in various activities; students rated how often they had gone to a natural

public area, participated in school or community clubs, and participated in organized sports (response scale ranged from 1 = never to 6 = almost every day).

Distal Outcomes

The substance use measures chosen for this investigation reflect those utilized by Botvin et al.'s (1990) Life Skills Training evaluation instrument. Students self-reported their cigarette, alcohol (including frequency of use, frequency of drunkenness and frequency of binge drinking), and marijuana use (Botvin et al., 1995). The item responses included 1 (never), 2 (a few times, but not in the last year), 3 (a few times per year), 4 (once per month), 5 (a few times per month), 6 (once per week), 7 (a few times per week), 8 (once per day) and 9 (more than once per day).

Effects on Mediators

Initially we analyzed the immediate effects of *TimeWise* on the proximal outcomes at Time 2 (2001). This analysis was published in the *Journal of Leisure Research* (Caldwell, Baldwin, Walls & Smith, 2004) and a copy of that paper is in Appendix C.

We are still analyzing the data from all four rounds of data collection, but have performed a number of analyses that suggest the efficacy of *TimeWise*. In this report, we present the results of a series of repeated measures ANOVA over four waves of data to examine the effects of *TimeWise* on *internalized motivation*, *amotivation*, *boredom/interest*, and *awareness of things to do in the community*. Gender and age were included in the analysis.

A summary of the results for the mediators indicates that *TimeWise* was successful in affecting most of the mediators as hypothesized. The main mediators through which this program was hypothesized to work involved encouraging youth to engage in healthy free time pursuits and shifting motivation from negative motivation (i.e., doing things during free time because of boredom or being forced by external sources) to positive motivation (i.e., doing things because they are challenging and because it is personally satisfying). The effects of *TimeWise* on motivational strategies indicate that *TimeWise* was successful in these areas.

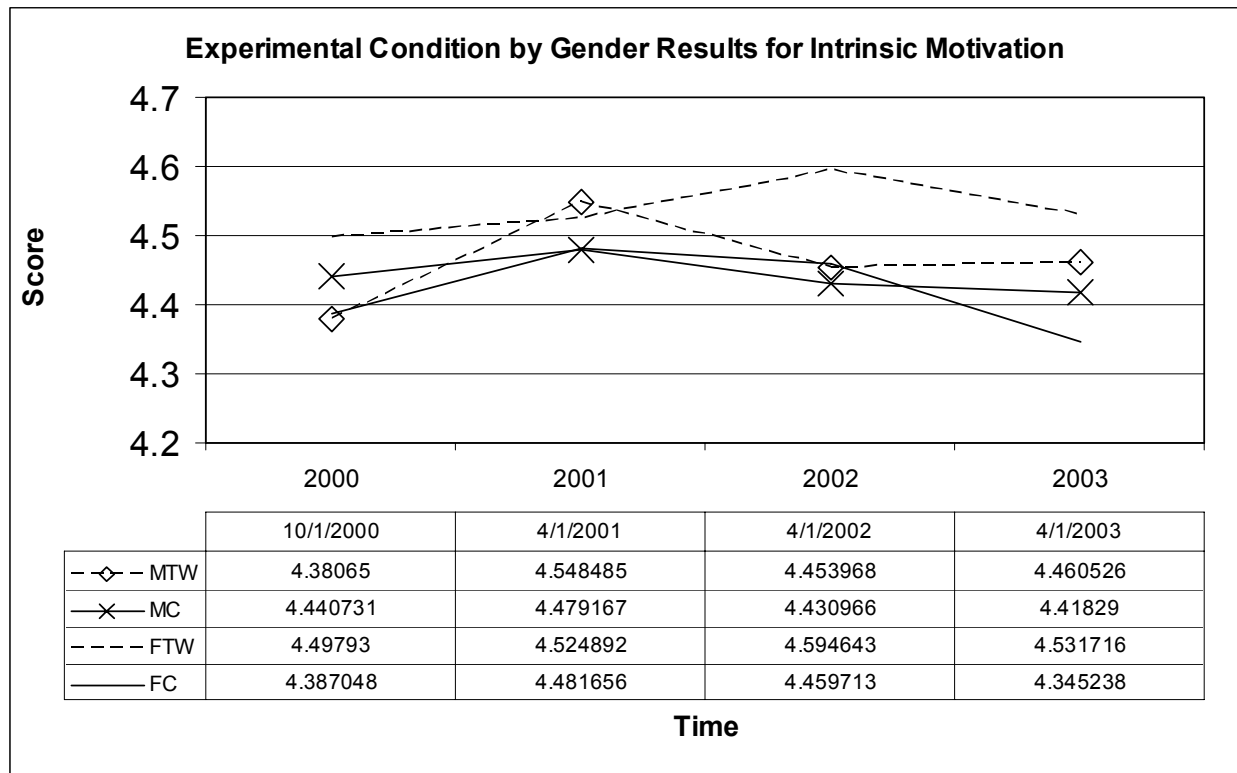
Perhaps the clearest effect of *TimeWise* on motivational strategies can be understood by reviewing the program's statistically significant effect on intrinsic motivation (a desired form of motivation). On average, students in the *TimeWise* condition had greater intrinsic motivation throughout the study than students in the control condition. The effects on intrinsic motivation are displayed in Figure 1, where 2000 is the pretest, and 2001, 2002, and 2003 represent the three post-tests at the end of 7th, 8th, and 9th grades. This figure indicates that females who received *TimeWise* (FTW) maintained a higher level of intrinsic motivation through the four data points than females in the comparison group (FC). A similar finding applies to the *TimeWise* males (MTW) compared to the comparison males (MC).

A similar finding applies to the overall effect on amotivation (i.e., doing things because there is nothing else to do and lack of self-regulation). Students who received the

TimeWise intervention had lower amotivation than control students throughout the study, despite the developmental indication that amotivation increased over time in all students.

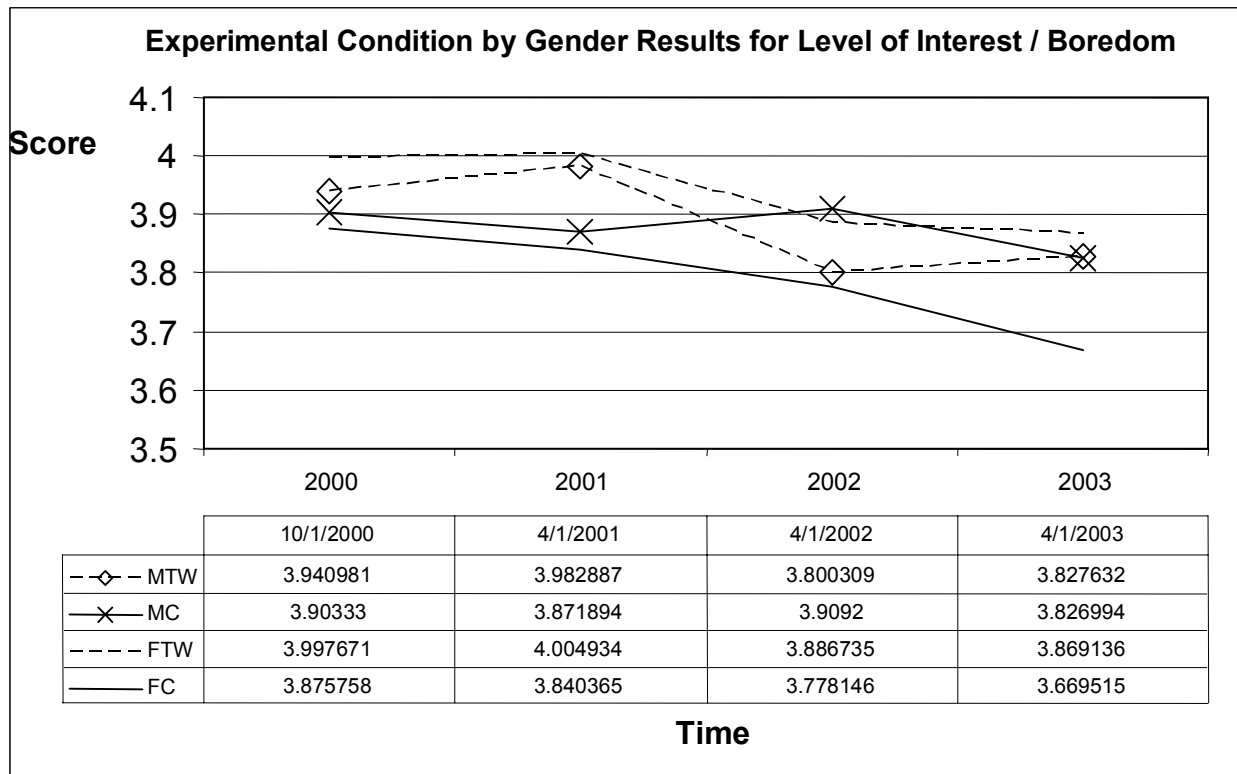
A key focus of *TimeWise* was to reduce the sense of boredom experienced by youth and increase their sense of interest in their non-school lives. The results displayed in Figure 2 indicate that interest was significantly greater (i.e., boredom was lower) in students who received the TimeWise intervention compared to control students throughout the study ($p=.0161$).

Figure 1: Intrinsic Motivation



The results for initiative (i.e., taking charge and pursuing an interest) and students' awareness of available leisure activities, were similar to those presented above. Initiative was significantly greater for students who received *TimeWise*, and *TimeWise* students (significant for males only), were aware of more leisure activities than control students.

Figure 2: Interest and Boredom



Effects on Substance Use

Substance use distal outcomes were analyzed in the same manner as the proximal outcomes (i.e., by time, gender, and condition). Overall, while most effects on substance use were not statistically significant, almost all effects were in the desired direction.

The figures below summarize the results for cigarettes, chewing tobacco, alcohol, marijuana, and inhalants. The four time points and the four groups (by condition and gender) are the same as the graphs above. The scale on the left represents the average responses to the use of specific substances using the following answer categories: 1 (never), 2 (a few times, but not in the last year), 3 (a few times per year), 4 (once per month), 5 (a few times per month), 6 (once per week), 7 (a few times per week), 8 (once per day) and 9 (more than once per day).

There were no significant effects of *TimeWise* on smoking cigarettes. Figure 3 indicates, however, that within gender, the *TimeWise* students were smoking less than the comparison students (not significant).

The use of chewing tobacco, predominately a male-used substance that increased as youth aged, was lower among *TimeWise* males (not statistically significant, see Figure 4). Very few females ever used chewing tobacco in this sample.

Figure 3: Cigarettes

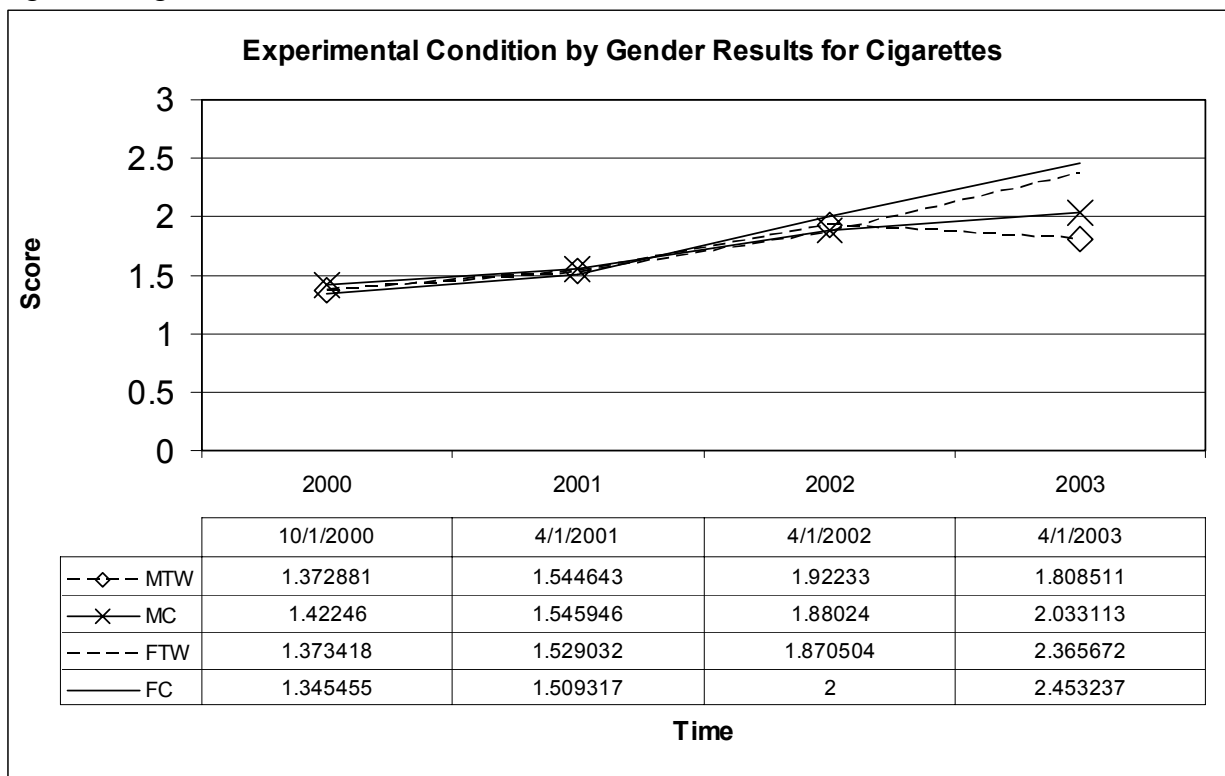
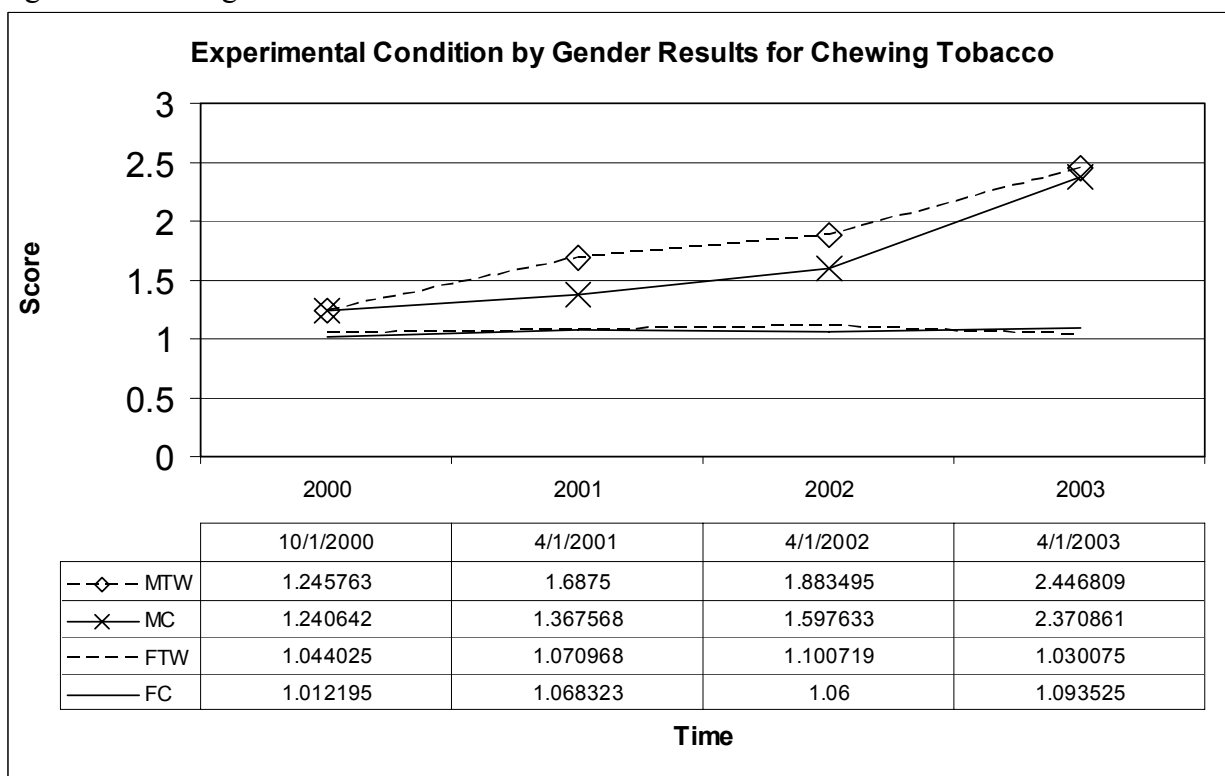
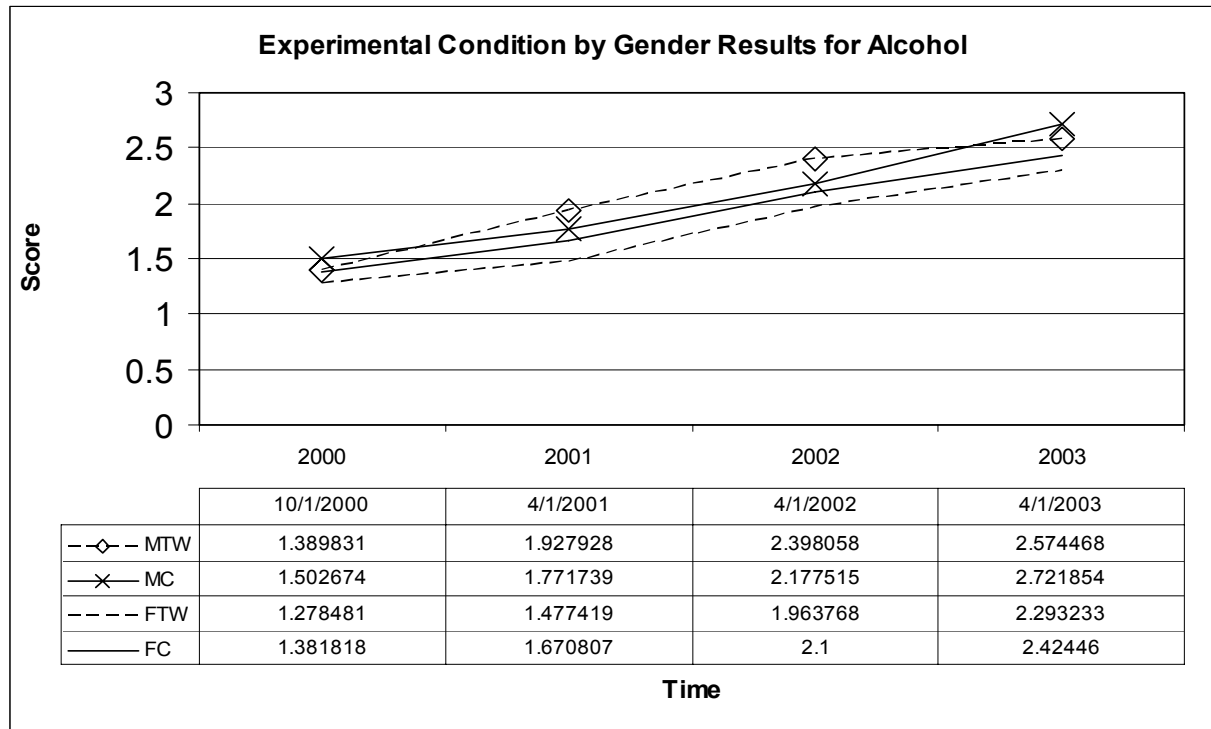


Figure 4: Chewing Tobacco



Among males, the *TimeWise* students increased their use of alcohol by the end of grades 7 and 8 slightly higher than the comparison group (not statistically significant, see Figure 5). By the end of the 9th grade, however, as alcohol use became more frequent across all students, the comparison group's use exceeded that of the *TimeWise* males (not significant). Among females, while the differences are not significant, alcohol use among *TimeWise* recipients remained lower than the comparison group at all time points.

Figure 5: Alcohol Use



The results for boys use of marijuana parallels the results for alcohol use, *TimeWise* boys appear to be slightly higher users of marijuana at the end of 7th and 8th grades, but this difference is not significant (see Figure 6). Post hoc analyses of 9th grade use, however, (controlling for Time 1 use) indicated that *TimeWise* reduced marijuana use for boys ($p=.0504$). Similar to the findings for the other substances, girls use was generally lower than that of boys, and *TimeWise* girls used less than the comparison girls.

Again, the same pattern emerges for inhalant use as for alcohol and marijuana. These data reveal a non-linear effect for males that is statistically significant ($p=.0402$) by the end of the 9th grade, with *TimeWise* males less likely to use inhalants. The use of inhalants among females in either group was very low.

Figure 6: Cannabis Use

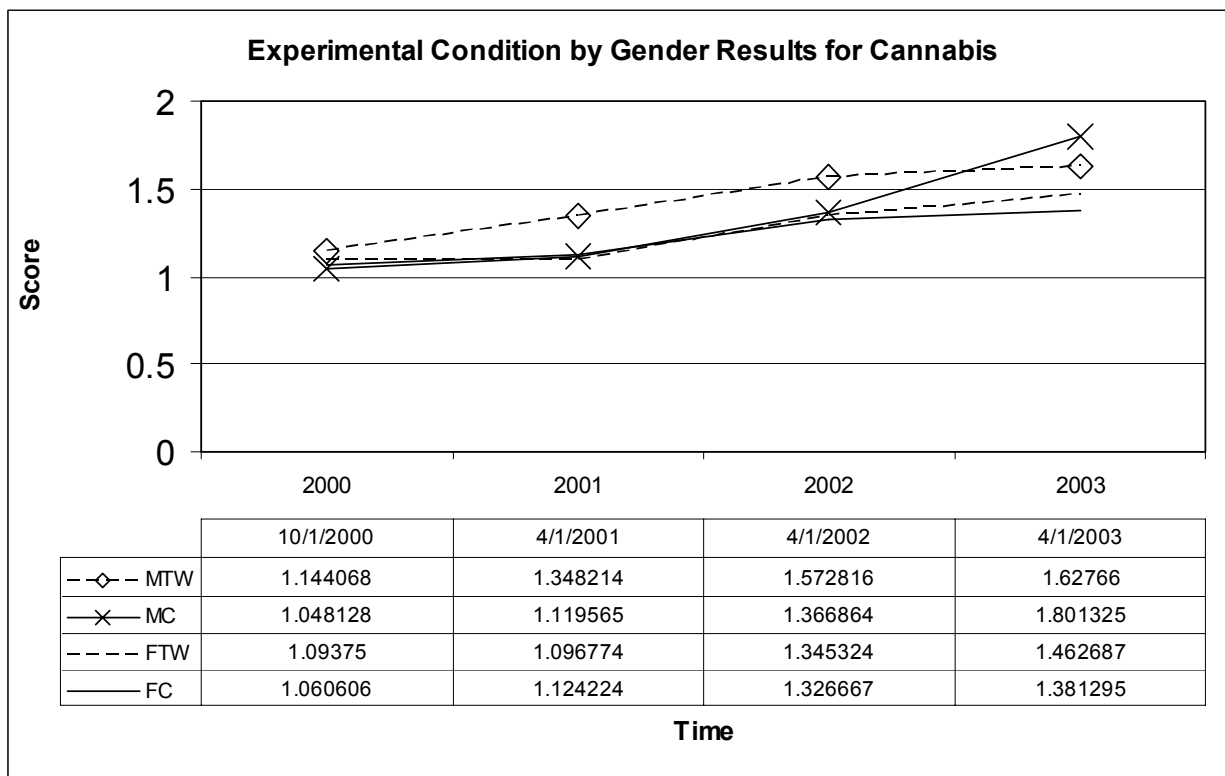
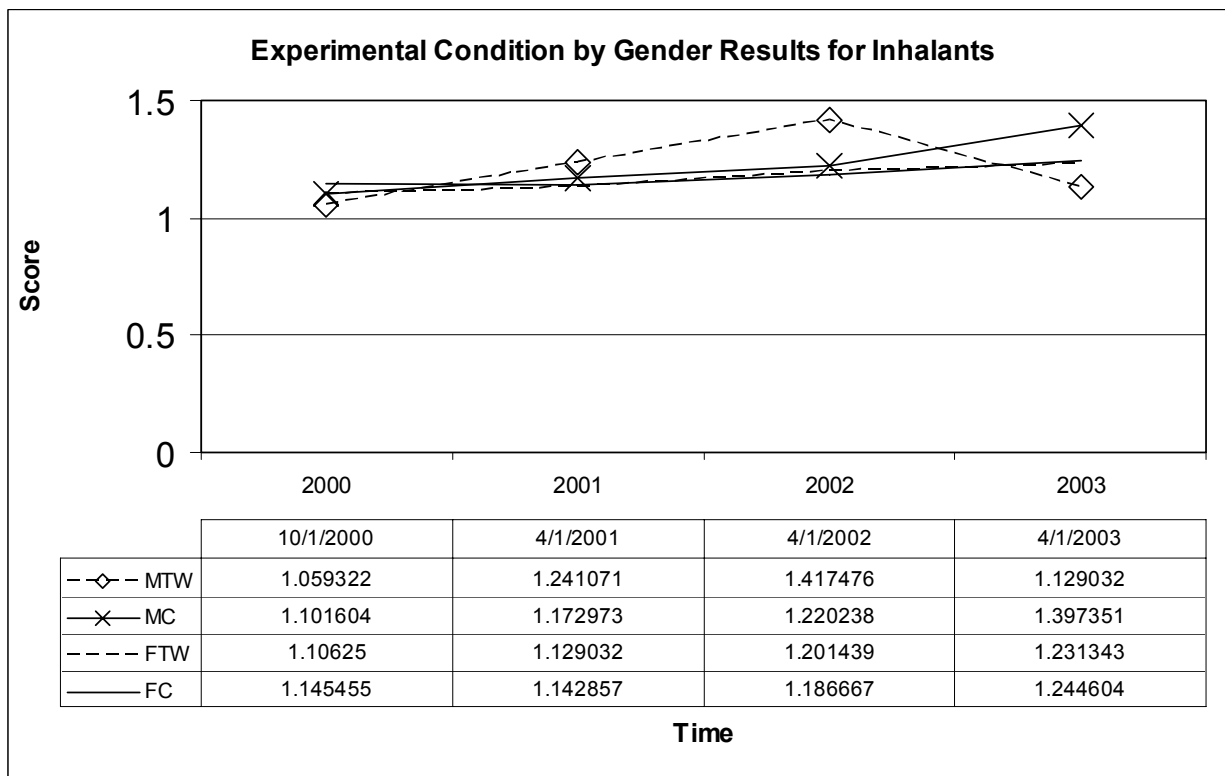


Figure 7: Inhalant Use



Conclusions

In summary, we conducted ten analyses on substance use: five substances, each analyzed separately by gender. Two of these analyses revealed statistically significant findings (marijuana and inhalants) for males. No differences were significant for females. The pattern which these data reveal, however, combined with the fact that post-hoc analyses indicate that the significant findings apply to the last follow-up, suggests that these trends are promising.

We cautiously interpret the emergence of the two statistically significant findings (marijuana and inhalant use) among males at the end of the 9th grade as an indication that *TimeWise* was having a cumulative beneficial effect on substance use prevention at a time when substance use begins to increase. Furthermore, the fact that these two findings are specific to boys, whose substance use was generally higher than the girls in this study, is not surprising.

Another reason for optimism is the fact that the patterns of use which emerged for each substance generally favor the *TimeWise* group regardless of gender. Also, strictly from a statistical perspective, it is difficult to find significant program effects on substance use when substance use is very low, as was the case in this sample. However, when substance use begins to increase, as it did among the 8th and 9th grade comparison boys in our sample, statistically significant findings are easier to detect. We will conduct further analyses with these data and focus on levels of use to determine if any other patterns emerge. Given these results, however, we conclude that a longer follow-up period would have been needed to determine if the escalating use of substances over time by the comparison group would have continued to separate the *TimeWise* group from the non-treatment comparison youth. The findings revealed here regarding substance use, combined with the mediator analyses presented above, suggest that a longer term study may be warranted.

Additional Findings Related to *TimeWise*

Free Time Motivation Scale for Adolescents

Because a strong theoretical component of *TimeWise* revolved around motivation, and because one did not exist that would be appropriate for our purpose, a new scale had to be constructed before analysis could be conducted. Thus, Baldwin and Caldwell (2003) developed the Free Time Motivation Scale for Adolescents (FTMS-A). The FTMS-A is a self-report measure of reasons for engaging in free time activities. Examination of each of the motivation subscales indicated that they displayed acceptable measurement properties and reasonable levels of fit. The test of the overall model indicated that without modification the model was minimally acceptable. The deletion of two items from the introjected subscale improved the fit to an acceptable level and provides preliminary evidence of the validity of the FTMS-A scale. However, replication of this finding along with further analysis of the reliability and discriminate validity is needed. A copy of this article is in Appendix C.

We also conducted a number of sub-studies that are currently in preparation for

submission for publication. These sub-studies have been presented at a variety of conferences, including Society for Prevention Research, Society for Research on Adolescence, Canadian Congress on Leisure Research, and Leisure Research Symposium. A complete list of conference presentations follows the end of this report.

Sub-Study One: Using baseline data Caldwell, Boone, and Baldwin (2002) cluster analyzed the FTMS-A; four clusters emerged. Cluster one was labeled “Intrinsics” (N=286). These youth are driven by the satisfaction of engaging in specific activities and by being able to achieve their goals. Pleasers (N=227) are intrinsically motivated overall, but tend to focus on what others expect of them. Moderates (N=88) are intrinsically motivated, but also scored moderately high on other types of motivation. Finally, Apathetics (N=27) reported relatively low levels of each type of motivation. The composition of the motivation clusters is consistent with self-determination theory and the numbers of students in each group (cluster) make sense. As expected, most students had a healthy and intrinsically motivated perspective on their leisure (the two clusters that best represent intrinsic forms of motivation had the highest numbers of students). It is less common, but theoretically and practically problematic, for students to be more extrinsically motivated (in this case in the form of peers) or amotivated.

The purpose of developing the clusters was to assess the effect of motivation style on mediators thought to influence healthy or unhealthy behavior (in the case of the NIDA grant, substance use). Comparisons of the clusters on a variety of leisure mediators using one-way analysis of variance revealed that Intrinsics are less bored in their free time than Pleasers. Intrinsics also report the lowest levels of cigarette and alcohol use. Pleasers are more influenced by both parents and peers than Intrinsics. Roughly 17% of the Moderate group report experimental use of cigarettes and alcohol. Moderates are more bored and are less able to restructure their free time than are Pleasers and Intrinsics. Furthermore, 20% of the Moderate group is experimental or irregular users of cigarettes, and 32% are experimental users of alcohol. Finally, Apathetics are more bored in their free time than Pleasers and Intrinsics. Twenty percent and 30% of apathetic group are experimental or irregular users of cigarettes and alcohol, respectively. In conclusion, the motivation clusters related to the other mediators as hypothesized, providing evidence for the conceptual foundation of *TimeWise*. Furthermore, the program theory is preliminarily validated, as those individuals in clusters characterized by intrinsically motivated behavior are less bored and have lower levels of substance use and those in the cluster characterized by amotivation are more bored and rebellious.

Sub-study Two: The Moderating Influence of Parents on Adolescent Initiative (Hutchinson, Caldwell, & Baldwin, 2002): There is a growing body of literature that attests to the influence of parents, both positive and negative, on adolescent development (see Collins et al. 2000 for a review of this literature). We were particularly interested in how parental involvement in an adolescent’s free time activities interacted with the adolescent’s ability to take initiative to create opportunities for personally meaningful activity engagement in the free time context (Larson, 2000). Self-determination theory (Ryan & Deci, 2000), the theoretical framework for this investigation, suggests that adolescents who are internally motivated will be more self-directed in taking initiative in their leisure, whereas adolescents who are externally motivated or amotivated will exhibit less initiation and ability to plan and create enjoyable activities for themselves. The

purpose of this paper was to examine the effects of parental influence on adolescent initiative through parenting practices such as monitoring, knowledge and control. In particular, we wanted to know if parental knowledge, monitoring and control have differential impacts on adolescent initiative, based on the adolescents' form of motivation.

Initiative refers to the adolescent's ability to restructure a situation to create more enjoyable, interesting, or challenging forms of activity engagement (e.g., I know how to: "making things more challenging for myself" and "enjoy an activity even if I feel like I have to do it"). The initiative construct is premised on the hypothesis that adolescents who are more internally motivated will exhibit greater forms of initiation. Initiative was measured with five items, and had a Cronbach's alpha reliability coefficient of .84.

Parental knowledge refers to the adolescents' perceptions of how much their parents know about what they are doing in their free time (e.g., "I keep secrets from my parents about what I do in my free time"; "I like to tell me parents about what I do and where I go in the evening"). Theoretically, adolescents whose parents know about their whereabouts are less likely to engage in risk behavior. The *parental monitoring* construct is based on recent critique (Stattin & Kerr, 2000) that parental monitoring is actually parent solicitation (e.g., "My parents ask about what happened during my free time") or adolescent disclosure (e.g., "Without being asked, I tell my parents about my friends"). That is, to the extent that parents directly ask about their adolescent's activities or children disclose what they are doing then parents are able to monitor their children's activities. Finally, *parental control* refers to the extent to which adolescents feel they are able to do what they want in their free time (e.g., "I think my parents interfere too much in my free time activities"; "I get enough freedom from my parents to do what I want in my free time"). Students responded to a series of items for each construct, using the following response scale: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. Items were reverse coded as necessary. Alpha coefficients for these measure are as follows: *parental knowledge* (PK: $\alpha = .88$, 9 items); *parental monitoring* (PM: $\alpha = .69$, 3 items); and *parental control* (PC: $\alpha = .57$, 4 items).

Analyses: First initiative was regressed on all motivation variables and all parent variables together, without all of the interactions (see Figure 3). Extrinsic and introjected motivation did not contribute to an adolescent's level of initiative in this model, nor did parental control and parental monitoring. The next set of analyses examined how parent variables interacted with each of the motivation variables by themselves. Five sets of analyses were conducted, all with initiative as the DV and one of the forms of motivation (e.g., extrinsic), all parent variables, and all interactions (knowledge by extrinsic, control by extrinsic, monitoring by extrinsic) as independent variables. We ran a separate analysis for each motivation because (a) there were so many interactions to include in a full model that there were problems with multicollinearity and (b) each separate run would help us better understand how parent behavior interacts with the adolescent's motivation level.

Figures 8 through 14 display the results of the regression analyses. Higher levels of parental involvement predicted higher levels of initiative in adolescents who were amotivated. Parental knowledge had a moderating effect on the more intrinsic forms of

motivation (introjected, identified, and intrinsic). In each case, adolescents who reported low levels of motivation, and who also reported parents with high knowledge of what they did in their free time, reported higher levels of initiative than adolescents with low levels of intrinsic-type motivation and low levels of parental knowledge. Figure 14 displays the interaction for intrinsic motivation with parental knowledge; identified and introjected interactions were similar.

Figure 8:
Full Regression Model –
DV Initiative

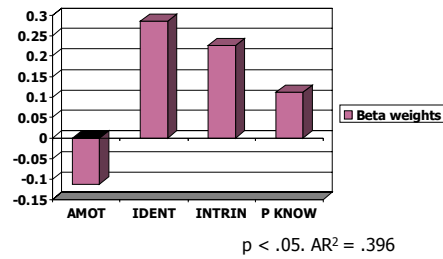


Figure 9: Reduced Model with
Amotivation - DV Initiative

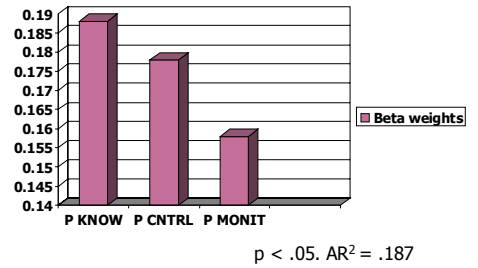


Figure 10: Reduced Model with
Identified - DV Initiative

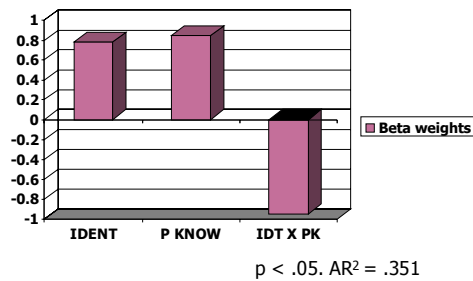


Figure 11: Reduced Model with
Introjected - DV Initiative

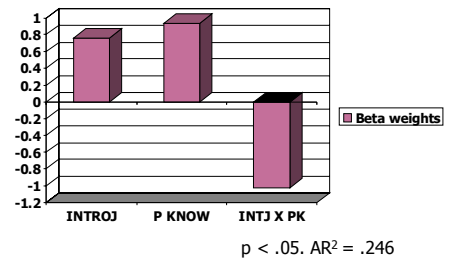


Figure 12: Reduced Model with Intrinsic
- DV Initiative

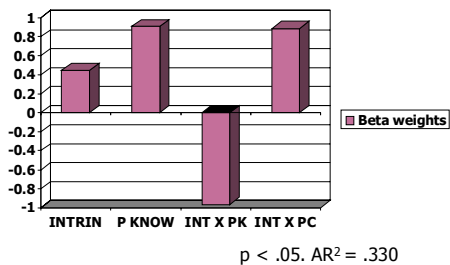


Figure 13: Parental Knowledge and
Intrinsic Motivation Interaction

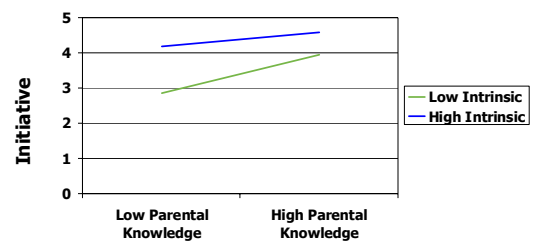
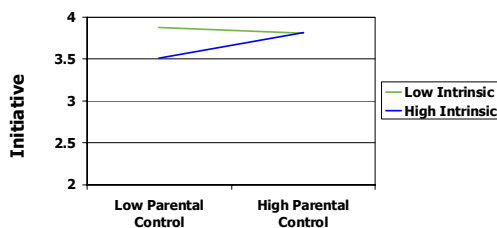


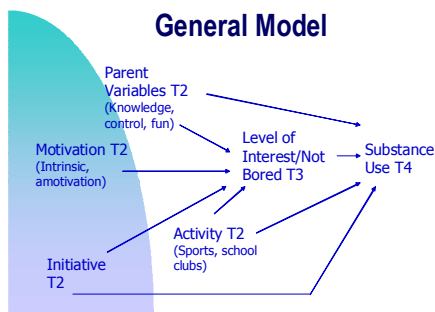
Figure 14: Parental Control and
Intrinsic Motivation Interaction



Sub-Study Three: The Role of Leisure Mediators in Preventing Substance Use: A Longitudinal Analysis (Caldwell & Smith, 2003). The purpose of this study was to examine how leisure related variables combined to predict substance use from an ecological perspective across time. The general model that guided our analysis is presented in Figure 15. As seen in Figure 15, substance use at Time 4 (2003) was regressed on boredom/interest level at Time 3 (2002) as well as parent variables at Time 2 (2001; perceived parent knowledge, control, and fun) and motivation, initiative, and activity levels at Time 2. Logistic regression predicting substance use demonstrated that increased interest (less boredom) and higher levels of perceiving that parents are knowledgeable of one's activities decreases odds of substance use. At the same time, increased sports participation increases odds of substance use.

Figure 15: General Ecological Model Predicting Substance Use

Figure 16: Logistic Regression Predicting Substance Use



Logistic Regression Substance Use = DV

	B	Sig.	Exp(B)	95.0% C.I.	
				Lower	Upper
Interest	-0.839	0.001	0.432	0.286	0.654
Pknow	-0.726	0.001	0.484	0.352	0.666
Sports	0.182	0.02	1.199	1.029	1.397
Constant	4.593	0.007	98.79		

Figure 17: Final Ecological Model Predicting Substance Use

Figure 18: Amotivation by Parent Knowledge

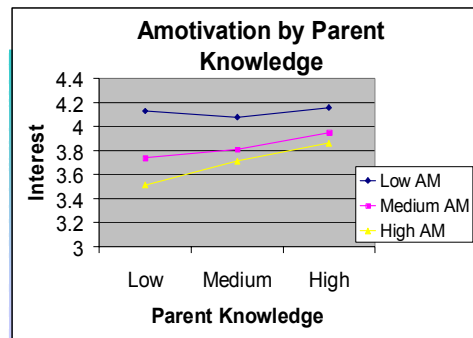
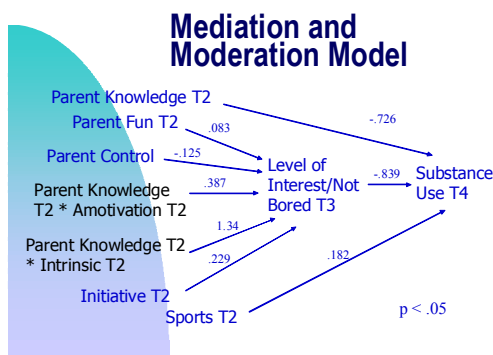
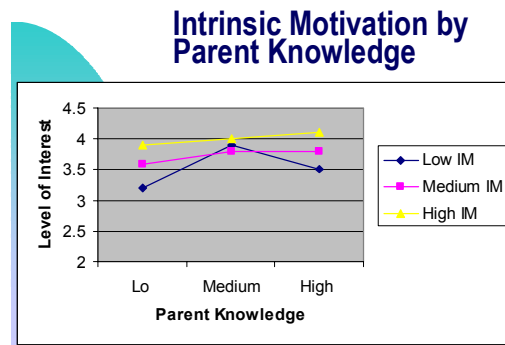


Figure 19: Intrinsic Motivation by Parent Knowledge Interaction



Taking the model as a whole (Figure 17), one sees that being bored is positively predicted by perceptions that parents have too much control over one's leisure time. Levels of boredom are negatively predicted by having fun with parents, intrinsic motivation, and higher levels of initiative. Perceptions of parental knowledge, however, are moderated by level of motivation (see Figures 18 and 19). For youth with low levels of amotivation parent knowledge does not influence level of interest. For youth with moderate and high levels of amotivation, defined here as (1.34 thru 2.00 = 2 and 2.10 thru 5.0=3), parent knowledge can raise interest level by .21 and .35. Similarly, for youth who are highly or moderately intrinsically motivated, parent knowledge does not influence how interested the child is. For youth who are not motivated (relatively), parental knowledge can be a boost to interest development. There is a hint, however, too much parental knowledge is detrimental, and this relation needs further exploration.

Diffusion

Initial indications are that *TimeWise* is a marketable product. The basic concepts of alleviating youth boredom and improving the quality of leisure time have struck a chord with most people who have heard about this innovative program, both in the U.S. and internationally. One mark of the appeal is that *TimeWise* has been published by ETR Associates (see copy provided with this report).

Currently *TimeWise* is being conducted and evaluated in the Harrisburg City School District as part of a Safe Schools Healthy Schools initiative, where the entire K-12 curriculum is being revised. *TimeWise* was selected to follow the Paths program and precede the Life Skills program, and is being given first in the sixth grade, and followed by boosters in the seventh and eighth grades.

In addition, *TimeWise* was implemented and evaluated among fourth grade students in the Millersburg School District (Pennsylvania). This was due to a request by the school guidance counselor who had heard about the program and wanted to try it. Her comments were very favorable, indicated that it was easily adaptable to that grade and the students learned something. Preliminary analyses indicated that it was effective, even among a sample of only 40 students.

Based on discussions at a working conference in South Africa that focused on risk reduction and health promotion among South African youth, *TimeWise* was used as a basis for a curriculum that focused preventing risky sexual behavior, preventing substance use, and promoting positive use of leisure time. This curriculum was developed by Caldwell, Smith, and Wegner (2004) and is called *HealthWise South Africa*. It is currently being implemented and evaluated through NIDA grant

In addition, *TimeWise* has been translated into German and we are currently involved with colleagues at the University of Jena to determine its cultural relevance as well as efficacy among a German sample. In addition, we are working with colleagues in Australia, Columbia, and Guatemala to discuss the cultural adaptation of the intervention in those countries.

Limitations

A number of limitations need to be considered when interpreting the results of this study. First, while most drug prevention studies rely on self-report data, the validity of these reports can be questioned. The data collection procedures we employed attempted to maximize the students' perception of the confidentiality of the survey. Second, the requirement of active parental consent, combined with the fact that we had a fairly broad range of consents across schools, increased the probability that the highest risk students did not participate in the survey. In a recent study, a comparison of the characteristics of participants versus non-participants, using school-based data, indicated that this bias did exist (Henry, Smith, & Hopkins, 2002). A third limitation of the current study was the inability to account for school effects in the analysis. Combining student data across schools creates analytic biases (see Palmer, Graham, White, & Hansen, 1998); however, the random coefficient approach was not an appropriate choice for our analyses due to an inadequate number of schools (n=9) to appropriately assess level 2 variance. Finally, all of the analyses conducted to date have included all of the students, regardless of substance use status at pretest. This strategy results in a focus on *change* in use.

Journal Articles Related to *TimeWise*

Caldwell, L. L., Baldwin, C. K., Walls, T. & Smith, E. A. (2004). Preliminary effects of a leisure education program to promote healthy use of free time among middle school adolescents. *Journal of Leisure Research*, 36, 310-335.

Baldwin, C. K., & Caldwell, L. L. (2003). Development of the Free Time Motivation Scale for Adolescents. *Journal of Leisure Research*, 35, 129-151.

Presentations Based on *TimeWise*

Caldwell, L. L., & Smith, E. A. (2004). Preventing drug use among school-aged youth. Guatemala Drug Prevention Conference, August, 2004.

Caldwell, L. L., Smith, E. A., Ridenour, T., Maldonado-Molina, M. M. (2004). Changing levels of intrinsic and extrinsic motivation through the *TimeWise: Learning Lifelong Leisure Skills* program -- Preventing the initiation of substance use. Society for Prevention Research, Quebec City, Quebec, 28-30 May, 2004.

- Caldwell, L. L., Smith, E. A., Ridenour, T., Maldonado-Molina, M. M. (2004). Preliminary evaluation of *TimeWise: Learning Lifelong Leisure Skills* – Preventing the initiation of substance use. NRPA Leisure Research Symposium, Reno, Nevada, October, 2004.
- Caldwell, L. L., & Smith, E. A. (2004). Role of leisure mediators in preventing substance use among adolescents: A longitudinal analysis. Society for Research on Adolescents, 11-13 March, 2004.
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- Hutchinson, S., Caldwell, L. L., & Baldwin, C. K. (2002). That extra push: The moderating influence of parents on adolescent initiative. Leisure Research Symposium, National Recreation and Parks Association, Tampa, FL, October 18.
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- Caldwell, L. L., Boone, T. L., & Baldwin, C. K. (2001). “Mom, I’m bored:” Adolescent leisure motivation and substance use. Poster presented at the Society for Prevention Research conference, May 31 – June 2, Washington, D.C.

- Caldwell, L. L., & Persing, J. (2001). Applying theory in the classroom: Substance abuse prevention through a leisure education curriculum. Poster presented at the Society for Prevention Research conference, May 31 – June 2, Washington, D.C.
- Smith, E. A., & Caldwell, L. L. (2001, co-presenters). Comprehensive Life Skills: Building competencies to reduce risk. Youth Risk Reduction in South Africa, Conference supported by National Institutes of Drug Abuse, Durban, South Africa, March 29, 2001.
- Caldwell, L. L. (presenter) & Smith, E. A. (2000). Development of a theoretically based leisure education program to prevent substance abuse among middle school students. Paper presented at the World Leisure and Recreation 6th World Leisure Congress, Bilbao, Spain, July 3-7, 2000.

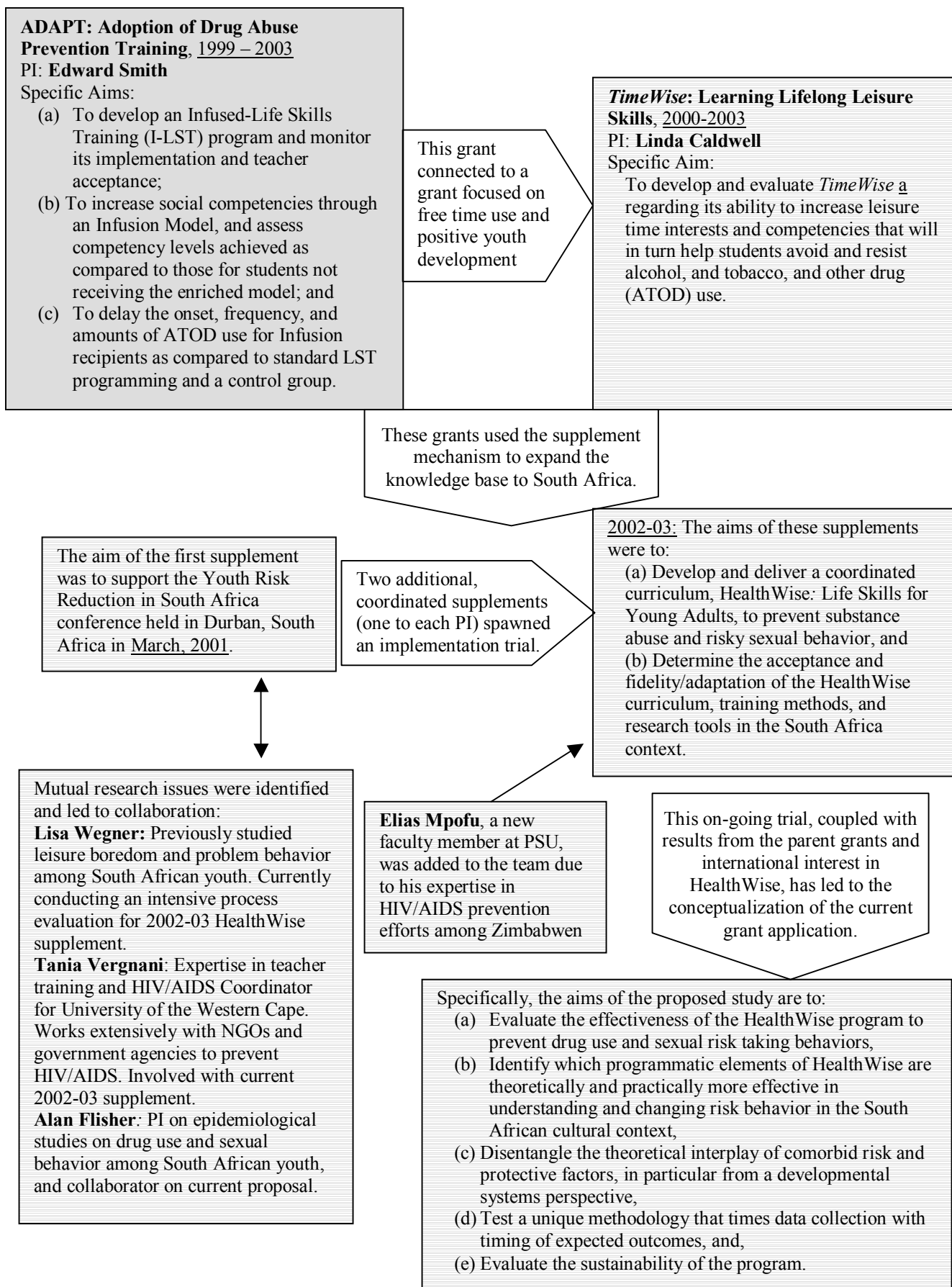
Supplement to R21 DA13193-01 and Related Grant Activity

One supplement was awarded to this grant (and two to Dr. Edward Smith's NIDA grant) to conduct risk reduction research in South Africa that was based on our combined work to decrease substance use and increase positive use of leisure time among youth. The resultant collaboration among researchers at Penn State, the University of the Western Cape, and the University of Cape Town is the direct product of these two NIDA-sponsored efforts (see Figure 20). First, a NIDA-sponsored conference on adolescent substance use and HIV risk was held in Durban, South Africa in March 2001. This grant was supplemental to Smith's NIDA grant R01 DA11254-03S1. One outcome of the conference was the recognition that many of the issues inherent in prevention research were common across the two countries. Equally apparent, however, was the lack of (a) systematic knowledge on issues of youth risk behaviors and (b) theoretically based and systematically applied interventions to reduce risk and promote positive competencies among South African youth. One of the key imperatives identified was the need to develop culturally appropriate and theoretically based models for youth risk reduction and competence promotion. Attendees expressed a great deal of support for the skill development models presented at the conference by Caldwell and Smith.

Second, the development and piloting of the HealthWise program was the product of those meetings and subsequent interaction between Penn State and the South African team. The HealthWise program, and many of the proposed research protocols, were piloted in 8th grade in four schools serving very low-income, black and colored youth in Cape Town, South Africa (February 2003–September 2003). This pilot study was funded by NIDA as supplements to grants of Drs. Smith and Caldwell. The primary purposes of this pilot were to test the acceptability of the program, the data collection protocol, and the ability of the research team to work together effectively. Extensive process evaluation information was collected from both teachers and youth as part of this pilot. Youth were randomized by classroom within school to either treatment or comparison groups. In addition, a post-test only survey was administered to 345 youth (226 experimental; 119 comparison) in November 2003. Timing considerations did not allow for a pretest to be administered. For the purposes of this pilot the decision was made to randomize classrooms to reduce costs.

In January 2003, ten teachers and two principals from four of the high schools in the Mitchell's Plain region (a former township established during apartheid) participated in a two-day training on the HealthWise program. All of the teachers were experienced with teaching the existing Life Orientation program, which is a requirement of the Provincial Education Department. Most of these teachers received their Bachelors (or Masters) degrees from the University of the Western Cape and had, on average, 12 years of teaching experience. The teachers' responses and interaction during this training indicated that this program was well received and was perceived to fill a needed gap in the lives of the adolescents with whom they work.

Figure 20: Evolution of Grant Activity



Focus groups were held with the teachers periodically throughout the implementation of HealthWise (March-November, 2003). The results indicated that the program was well received by the students and that the teacher training prepared the teachers to be able to implement the curriculum with confidence. The primary concern expressed by teachers was the need to spend more time with each of the lessons. In addition, teachers were concerned about the need to work with the community to develop free-time alternatives for youth.

As a product of these supplements, and the success of the pilot implementation, Drs. Smith and Caldwell applied to NIDA to conduct an experimental trial of HealthWise. This proposal was funded (R01 DA 017491) and the first round of pre-test data has been collected. Implementation of the program began in May 2004.

Summary and Future Directions

TimeWise is a promising approach to substance use prevention. While the effects on substance use were not overwhelming, they were in the desired direction. A larger sample size and/or a longer follow-up period would be needed to determine if these results would reach statistical significance. Of particular note is the low onset of use within this rural population; effects did begin to emerge at the end of the study as substance use began to escalate among the comparison males.

Of particular note is the hypothesized influence of the program on the mediators under study. These mediators have often been tied to problem behaviors, including substance use.

The popular appeal of *TimeWise* among a variety of audiences, both domestic and international, bodes well for the eventual diffusion of this curriculum. From a scientific perspective, however, we remain cautious about this diffusion and feel the need to replicate the results and, importantly, determine the effects on substance use. External validity to other environments remains an obvious concern. In addition, there are six potential issues to consider in future evaluations of *TimeWise*:

1. There is a need to evaluate *TimeWise* with regard to more urban and/or suburban contexts, particularly paying attention to its cultural relevance.
2. This was an efficacy trial, and the ability of regular classroom teachers to implement this with fidelity needs to be determined.
3. Upon reflection of the results, it appears that the booster sessions, and possibly the core curriculum, were not of sufficient dose to maintain effects. In addition, process evaluation data suggest that each of the six core sessions could be better addressed in two classroom periods each. (In fact, that is the way it has now been set up in the published version of *TimeWise*).
4. Based on the results of this study, we believe that *TimeWise* is potentially an effective universal program. But it is possible that the effectiveness could be strengthened by providing the intervention to a targeted group of students who are identified as being at more risk for low levels of intrinsic motivation and increased risk of being bored in their leisure time.
5. It would be beneficial to design and implement a companion after school component to *TimeWise* to allow students the opportunity to actively engage in healthy activity choices.
6. As some additional results of this study have suggested, the role of parents in promoting and supporting healthy leisure time activities is important. Thus, a parent *TimeWise* companion program would be possibly effective in promoting healthy activity and decreasing substance use.

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Appendix A

Process Evaluation Forms

EVALUATION OF STUDENT WORK

Lesson # _____

Date _____

School _____

Please rate the following items on the following scale:

1	2	3	4	5	6	7
Poor			Fair			Excellent

Worksheet # _____

Worksheet # _____

Homework _____

Completion

1 2 3 4 5 6 7 1 2 3 4 5 6 7 1 2 3 4 5 6 7

Comments:

Apparent effort:

1 2 3 4 5 6 7 1 2 3 4 5 6 7 1 2 3 4 5 6 7

Comments:

Comprehension of worksheet:

1 2 3 4 5 6 7 1 2 3 4 5 6 7 1 2 3 4 5 6 7

Comments:

Were there any unexpected responses or remarks noted? Yes No

Please comment:

Instructor: _____

INSTRUCTOR DEBRIEFING

Lesson# _____ Date: _____ School: _____ Time: _____

Class Name: _____ # of students present: _____ # of students absent: _____

CURRICULUM

Objectives: Did you feel rushed teaching the lesson? ____Y ____N

How much of the lesson did you cover? _____%

What, specifically, **did not** get covered?

Activity: Did you feel rushed completing the activities? ____Y ____N

Were any activities not completed? ____Y ____N (Please specify)

Was the discussion for these activities successful/effective? ____Y ____N

Comments:

Homework: Was there enough time to explain it? ____Yes ____No

What percent of homework from last week came back? _____%

Comments:

STUDENT INVOLVEMENT

Please rate the following based on your observations:

1) Interest _____%High _____%Med _____%Low

2) Effort (e.g. worksheets) _____%High _____%Med _____%Low

3) Participation _____%High _____%Med _____%Low

4) Rapport _____%High _____%Med _____%Low

Names of absent students

Comments

TimeWise

Process Evaluation

Classroom Observation Form

School: _____ Class Name: _____ Date: _____

Observer: _____ Time of class: _____ Weather: _____

Lesson 1

Introduction:

	<i>Low</i>	<i>Average</i>	<i>High</i>
Student Involvement	_____ %	_____ %	_____ %
Student Effort	_____ %	_____ %	_____ %
Student Participation	_____ %	_____ %	_____ %

	Strongly Disagree				Strongly Agree			
The activity met the stated objectives.	1	2	3	4	5	6	7	
The concepts were presented at an understandable level for the students.	1	2	3	4	5	6	7	
The concepts related to the activities.	1	2	3	4	5	6	7	

Name Game:

	<i>Low</i>	<i>Average</i>	<i>High</i>
Student Involvement	_____ %	_____ %	_____ %
Student Effort	_____ %	_____ %	_____ %
Student Participation	_____ %	_____ %	_____ %

	Strongly Disagree				Strongly Agree			
The activity met the stated objectives.	1	2	3	4	5	6	7	
The concepts were presented at an understandable level for the students.	1	2	3	4	5	6	7	
The concepts related to the activities.	1	2	3	4	5	6	7	

Benefits Activity:

	<i>Low</i>	<i>Average</i>	<i>High</i>
Student Involvement	_____ %	_____ %	_____ %
Student Effort	_____ %	_____ %	_____ %
Student Participation	_____ %	_____ %	_____ %

	Strongly Disagree				Strongly Agree		
The activity met the stated objectives.	1	2	3	4	5	6	7
The concepts were presented at an understandable level for the students.	1	2	3	4	5	6	7
The concepts related to the activities.	1	2	3	4	5	6	7

Exploring Free Time:

	<i>Low</i>	<i>Average</i>	<i>High</i>
Student Involvement	_____ %	_____ %	_____ %
Student Effort	_____ %	_____ %	_____ %
Student Participation	_____ %	_____ %	_____ %

	Strongly Disagree				Strongly Agree		
The activity met the stated objectives.	1	2	3	4	5	6	7
The concepts were presented at an understandable level for the students.	1	2	3	4	5	6	7
The concepts related to the activities.	1	2	3	4	5	6	7

Free Time Profile:

	<i>Low</i>	<i>Average</i>	<i>High</i>
Student Involvement	_____ %	_____ %	_____ %
Student Effort	_____ %	_____ %	_____ %
Student Participation	_____ %	_____ %	_____ %

	Strongly Disagree				Strongly Agree		
The activity met the stated objectives.	1	2	3	4	5	6	7
The concepts were presented at an understandable level for the students.	1	2	3	4	5	6	7
The concepts related to the activities.	1	2	3	4	5	6	7

Time Diary Assignment:

	<i>Low</i>	Average	High
Student Involvement	_____ %	_____ %	_____ %
Student Effort	_____ %	_____ %	_____ %
Student Participation	_____ %	_____ %	_____ %

	Strongly Disagree				Strongly Agree		
The activity met the stated objectives.	1	2	3	4	5	6	7
The concepts were presented at an understandable level for the students.	1	2	3	4	5	6	7
The concepts related to the activities.	1	2	3	4	5	6	7

Comments:

Involvement:

- Eye contact with instructor
- Leaning forward
- Nodding
- Not looking around at other things and/or people
- Watching the instructor
- Not fidgeting, tapping pencils, etc.

Effort:

- Completing work sheets thoroughly, not too quickly

Participation:

- Raising hands
- Contributing to discussion
- Contributing to group activities

Appendix B
Student Interview Guide
Summary of Student Responses

TimeWise
Student Interviews

What did you like best about the program?

What did you like least?

Was the program interesting to you?
Why? or Why not?

Did they talk about things that fit in with your life?

Was the program boring to you?
Why? or Why not?

Can you tell me something you learned from the program?

Have you used any of this material?

For example, have you started planning your activities?
Do you think about whether your activities are good for you?

Bellwood-Antis
Student Interviews (N = 20)
Themes

What did you like best?

Group discussions and conversation (4)

Got in circle and talked about what we like to do.

Activities (models; time diary) (7)

Got to keep schedule of stuff—Time Diary—and see what we do.

Identifying new free time activities (5)

Finding new activities to do.

What did you like least?

Nothing (8)

Was the program interesting? (mostly yes; only 1 No—because of too much review)

Relaxed discussion (5)

Told about self and how you spend your time.

Paper activities (2)

Game stuff to take home.

Exploring new free time activities (2)

You got to find out what activities you are interested in that you didn't know about before.

Time management→gaining free time (2)

*Helped me manage time better because usually I'm doing only one thing all day.
Taught me how to give myself more free time.*

Did they talk about things that fit in with your life?

Yes (16)

Sort of (2)

Identified new activities (2)

Thinking about what we could do in our extra time; things to do instead of watching TV.

I'm too busy (2)

Sometimes things didn't apply—I don't have a lot of free time.

Was the program boring to you?

No (13)

Sometimes (4)

Needs more depth (2)

Kind of—need to get more into the material.

Too much review (2)

Sometimes—when reviewing things we'd already talked about (the week before).

What have you learned?

How to organize & spend my time wisely (6)

How to get more organized.

How to spend time wisely.

To avoid the wrong people (2)

How to not hang out with the wrong people.

Identified new activities (6)

New activities that I am getting into now.

Problem solving (3)

Never problem solved before—helpful.

How I spend my time (5)

What my day is really made of.

Decision making (3)

That when you have free time, you should do something that's good instead of getting bored.

Have you used the material?

Not yet (5)

Identified new activities (3)

When I have nothing to do, instead of watching TV, think of things that are active.

Able to plan/planning my activities (2)

Planning a week or two ahead.

Appendix C
Journal Articles based on *TimeWise*