Adventures in Identity Development: The Impact of Adventure Recreation on Adolescent Identity Development

Mat D. Duerden; Mark A. Widmer; Stacy T. Taniguchi; J. Kelly McCoy

*Texas A&M University,  Brigham Young University,  Brigham Young University - Idaho,

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Adventures in Identity Development:
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Mat D. Duerden
Texas A&M University

Mark A. Widmer
Brigham Young University

Stacy T. Taniguchi
Brigham Young University

J. Kelly McCoy
Brigham Young University – Idaho

This study examined the effect of an adventure recreation program on adolescent identity development. Participants included 43 males and 45 females, ages 11 to 15 (M = 13.33, SD = .86). Twenty-two males and 23 females participated in the program, and the remaining youth served as members of a comparison group. Participants completed a two-week adventure program that included such activities as backpacking, mountain biking, white-water rafting, environmental education, and leadership training. The Erikson Psychosocial Stage Inventory was used to measure levels of identity, intimacy, and generativity, and the Identity Styles Inventory was used to assess informational, normative, and diffuse/avoidant approaches to identity formation. Results indicated that program participants experienced significant identity development when contrasted with the comparison group.
Although the bulk of research with adolescents dating back to Hall’s (1904) seminal work has focused on negative aspects of this developmental period, over the last 25 years an increasing number of researchers have changed their focus to more positive adolescence (Damon, 2004). This shift has led researchers to investigate contexts and activities that foster positive youth development. A growing body of findings suggests that organized activities that are structured, supervised by adults, and provide opportunities for skill building foster benefits for youth (Mahoney, Larson, & Eccles, 2005). For example, an analysis of developmental experiences youth reported having across a variety of contexts (e.g., organized activities, unstructured free time, classroom time, etc.) found organized activities were the most effective at promoting the development of initiative, relationships, and identity (Hanson, Larson, & Dworkin, 2003).

Identifying contexts that promote identity formation is important because a clear sense of identity is considered essential for a smooth transition from childhood to adulthood (Erikson, 1959, 1963). Research on identity development traces its roots back to Erikson and his psychosocial growth model. Erikson conceptualized human development as a journey through stages, each with unique crises, tasks, and potential outcomes. According to Erikson, the formation of a stable identity, which should occur during adolescence, represents the key developmental task in the model.

Erikson (1959, 1963) suggested that identity development is fostered by experiences that allow individuals to express their individuality and receive feedback and validation from important others. Others have suggested that opportunities for self-expression, feedback from society, new experiences, social development, skill acquisition, and self-reflection also help facilitate identity development (Kivel, 1998; Kleiber & Kirshnit, 1990). Organized activities appear to provide an ideal context for the promotion of positive identity development. To date, only a handful of studies have specifically examined the relationship between participation in such activities and identity development (Kleiber & Kirshnit, 1990; Munson & Widmer, 1997; Shaw, Kleiber, & Caldwell, 1995). Findings from these studies provide preliminary support for the efficacy of recreation contexts, with a specific focus sports and creative activities (e.g., music, thinking, etc.), as facilitators of identity development.

Within the spectrum of organized activities, adventure recreation or adventure programming represents a unique area. Adventure recreation involves challenging activities situated in the outdoors that involve risk (Ewert, 1987, 1989). The inherent qualities of adventure recreation have led to its popularity as a therapeutic setting and intervention. Challenge arises during adventure recreation as a result of the interplay between the inherent risk of a situation and an individual’s perceived competence leading to increases in individuals’ perceptions of personal competence (Priest, 1992). The literature suggests that successfully overcoming chal-
Challenges and developing competence serve as catalysts for identity development (Erikson, 1963; Mitchell, 1992).

Although the connection between adventure recreation and identity development appears theoretically sound, limited research has addressed this potential relationship (Anderson-Hanley & Ellis, 1996; Bennett, 1997; Taylor, 1990). Considering that adventure programs appear efficacious in promoting positive development, the purpose of the current study was to examine the effect of a 2-week adventure program on early adolescent development, with a specific focus on psychosocial development as conceptualized by Erikson (1959) and approaches to identity formation as operationalized by Berzonsky (1989).

Erikson’s Psychosocial Growth Model

The psychosocial stage model represents Erikson’s (1959, 1963) most lasting and influential legacy. The three stages of Erikson’s model associated with adolescence are the industry, identity, and intimacy stages. The industry stage occurs during mid to late childhood and early adolescence and focuses on the child’s desire to function productively in their expanding network of contexts (e.g., family, school, & peers; Miller, 1999). Identity development is the focus of adolescence and intimacy, which involves the development of close and enduring relationships with peers and significant others, occurs during late adolescence and early adulthood. An individual’s experiences in each stage influence subsequent development, thus the linked nature of Erikson’s model. Accordingly, although identity development is the main focus of the current study, the impact of the adventure program on participants’ industry and intimacy related development were also assessed using the Erikson Psychosocial Stage Inventory (EPSI; Rosenthal, Gurney, & Moore, 1981). The EPSI measures development across the first six stages of Erikson’s model though the current study only employed the industry, identity, and intimacy portions of the instrument.

Identity Styles

Although the influence of Erikson’s work cannot be overstated, the fact that he did not operationalize key constructs associated with his conception of identity development made testing his theory difficult (Berzonsky, 1990). In an effort to address this limitation, Berzonsky (1989, 1990) proposed that individuals employ different information-processing strategies (i.e., information, normative, and diffuse) as they engage in the task of identity development. An information style involves active exploration; characterized by introspective and open processing and evaluation of new identity-related information. Normative style individuals rely heavily on the expectations and standards of parents, peers, and significant others when
making identity-related decisions. Individuals who face identity decisions reluctantly demonstrate a diffuse/avoidant identity style. The framework also addresses the degree to which individuals feel committed to their identity choices and processes.

Research findings (Berzonsky, 1989; Schwartz, Mullis, Waterman, & Dunham, 2000; Vleioras & Bosma, 2005) suggest a positive empirical and theoretical relationship between the identity styles and other identity constructs such as Marcia’s (1966, 1980) identity statuses. For example, individuals in the achievement and moratorium statuses would most likely use an information style, with the difference between them being whether or not they are still actively forming their identity (Berzonsky, 1990). Further, foreclosed individuals tend to employ a normative identity. A diffuse/avoidant style is used by diffused individuals who are hesitant to actively engage in identity development.

Due to the short term nature of the program under investigation we chose to use Berzonksy’s identity styles rather than measures of Marcia’s identity statuses. A brief experience is more likely to affect the strategies (i.e., identity styles) whereby participants engaged in identity development as opposed to the actual end outcome of the process (i.e., identity status). This decision also seemed most appropriate considering the ages of our sample, seventh and eighth graders, and that identity development most likely concludes during the late teens or early twenties (Archer, 1982; Archer & Waterman, 1994).

Recreation and Identity Development

Kroger (1993) suggested a greater understanding is needed regarding the role of contexts in identity development to determine those contexts that have the greatest positive impact on this process. The inherent qualities of recreation make it a particularly effective context to positively influence identity development (Haggard & Williams, 1991; Mannell & Kleiber, 1997). Recreation provides opportunities for exploration, commitment, interrelatedness, and feedback; all of which serve essential identity development functions (Mannell & Kleiber, 1997).

Recreation contexts are important for adolescents because they create opportunities for intrinsic exploration of identity elements such as roles, beliefs, values, and so on (Kleiber & Kirshnit, 1990; Mannell & Kleiber, 1997). Recreation can play an especially important development role for early adolescents because it provides a context to experience a number of the antecedents to identity development identified by Waterman (1982), such as exposure to identity alternatives and positive role models. Wires, Barocas, and Hollenbeck (1994) also suggested that activities that promote independence, a by-product of many recreational activities, play an important role in identity development. These experiences may be particularly powerful because they are often accompanied by positive affect and enjoyment.
Research findings suggest a positive relationship exists between recreation and adolescent identity development (Kivel, 1998). Groff and Kleiber (2001) found that youth participating in an adapted sports program began to focus less on their disabilities and more on the identity development process. Barber and her colleagues (Barber, Stone, Hunt, & Eccles, 2005) found that participation in organized recreation activities was most beneficial for adolescents when it supported and validated their developing identities. Findings from a study examining the relationship between identity development and sports participation among high school students suggests that sports participation positively affects female identity development (Shaw et al., 1995). The authors hypothesized that sports have traditionally represented a nontraditional activity for females and thus provide them a unique context for identity exploration. Expanding upon this explanation, Shaw et al. (1995) suggested that nontraditional activities may facilitate identity development for males and females.

Adventure Recreation

Adventure recreation represents a nontraditional activity for many individuals and may therefore be a prime context for identity development. Research has shown that the scope of recreation pursuits and therefore available identity elements is often constrained by youth peer groups. For example, jocks and brains are expected to participate in certain types of activities (Barber, Eccles, & Stone, 2001). Adventure recreation is a context outside of the bounds of traditional school and peer group activities and thus may be less encumbered by stereotyped peer group and identity affiliations. Qualitative research looking at the experiences of college students participating in an adventure recreation writing course suggests that the challenging nature of these activities led individuals to drop their social facades and become more open to self-reflection and feedback from others (Taniguchi, 2004). It seems theoretically reasonable to suggest the process described by Taniguchi would promote identity development through information style processing.

Adventure recreation has a long history as an intervention used to promote positive change and development starting with Kurt Hahn’s Outward Bound courses in the 1940s. Recently there has been a rapid increase in the number of adventure programs worldwide (Hattie, Marsh, Neill, & Richards, 1997). Hattie et al. (1997) identified the following features common to most adventure programs:

(a) wilderness or backcountry settings; (b) a small group (usually less than 16); (c) assignment of a variety of mentally and/or physically challenging objectives, such as mastering a river rapid or hiking to a specific point; (d) frequent and intense interactions that usually involve group problem solving and decision making; (e) nonintrusive, trained leader; and (f) a duration of 2 to 4 weeks. (p. 44)
Numerous adventure programs exist that serve a variety of populations including youth with behavior and substance abuse problems, general adolescent populations, and adults.

The research on the impact of adventure programs has produced mixed results. Much of the early research evaluating adventure programs employed weak methodology and anecdotal evidence (Hattie et al., 1997). In an effort to present a standardized representation of adventure program research a number of meta-analyses were conducted during the last 15 years (Cason & Gillis, 1994; Hanna, 1995; Hattie et al., 1997; Wilson & Lipsy, 2000). The results of these studies show that some programs positively affected participants’ self-concept, confidence, locus of control, and leadership. The programs that produce the greatest benefits involved challenging activities, lasted at least 20 days, and involved adult participants (Hattie et al., 1997; Wilson & Lipsy, 2000). Although the positive impact of effective programs was similar to that of traditional education programs, in those studies that collected follow-up data from participants results show that positive development continued after programs concluded (Hattie et al., 1997). Hattie et al. (1997) speculated that adventure programs produce positive growth because they offer immediate experiences with natural occurring consequences, involve specific tasks and goals, and provide ample verbal and environmental feedback.

It appears that adventure recreation’s ability to provide optimal experiences as well as opportunities to experience challenge, develop competence, and receive ample feedback make it a potential context to positively impact identity development. From the list of common adventure program characteristics it also seems that such an experience would promote progression along Erikson’s model, especially in regards to industry, identity and intimacy. For example, working as a team to overcome challenging activities may lead to improvements in personal efficacy (industry development), self-perceptions (identity development), and interpersonal relationships (intimacy development). Although intriguing parallels exist between adventure programs and identity development, the research in this area has lacked experimental rigor and produced inconclusive findings (Anderson-Hanley & Ellis, 1996; Bennett, 1997; Taylor, 1990). Further research is needed to more fully understand the impact participation in adventure programs may have on adolescent identity development.

Research Design and Hypotheses

Identifying programs that facilitate the promotion of identity development represents a potentially valuable contribution to the literature and practice. The current study employed a quasi-experimental design comparing participants in an adventure recreation program with a comparison group not involved in such activities. Participants in the program completed research questionnaires at the beginning and end of the 2-week program to assess changes in psychosocial functioning and
use of the various identity styles. The comparison sample was tested over a comparable period of time.

Based on identity theory, we proposed the following two hypotheses:

**H1:** A significant Group (adventure recreation participants vs. comparison sample) × Time of testing (pre- vs. posttesting) interaction would exist for the Erikson Psychosocial Stage Inventory; signifying that program participants experienced growth across the Erikson’s industry, identity, and intimacy stages whereas no changes were expected for the comparison sample.

**H2:** A significant Group (adventure recreation participants vs. comparison sample) × Time of testing (pre- vs. posttesting) × subscale interaction would exist for the Identity Styles Inventory; signifying that program participants experienced greater positive change among the informational, normative, and diffuse/avoidant styles than the comparison group. More specifically, participants would show increases in informational style scores and decreases in diffuse/avoidant style levels over the 2-week period of the adventure recreation program. No systematic changes in these measures were expected for the comparison sample. No specific hypothesis was made regarding normative style growth patterns.

Together, the testing of these two hypotheses provided insights regarding the impact of the program on psychological development and the cognitive strategies participants use to process identity-related information. In other words, information about where they are developmentally and how they got there. In addition to evaluating these issues we were also interested in examining whether or not the adventure program experience would be different for males and females. No predictions were made regarding the influence of gender on the relationship between program participation and developmental outcomes.

**METHOD**

**Participants**

Participants included 43 males and 45 females, ages 11 to 15 ($M = 13.33$, $SD = .86$), from three western states. Seventy-two percent were White, 22% were Hispanic, and the remaining 6% represented other ethnicities. Twenty-two males and 23 females participated in the adventure recreation group, and the remaining 21 males and 22 females served as the comparison sample (see Table 1). The Wilderness Instruction and Leadership Development (W.I.L.D.) Foundation recruited
participants through newspaper articles, flyers, and middle-school newsletters and assemblies.

As no randomization occurred during participant and comparison group assignment, the comparison sample represents a nonequivalent control group (Babbie, 2004). The comparison and participant groups were drawn from similar, but not identical, populations. For the current study, the control group was recruited from the same middle school that most of the participant group attended.

Instruments

Psychosocial development was measured using the Erikson Psychosocial Stage Inventory (EPSI; Rosenthal et al., 1981), and the sixth-grade reading level version of the Identity Styles Inventory (ISI-6G; White, Wampler, & Winn, 1998). The EPSI consists of subscales measuring progression through the first six stages of Erikson’s developmental model (Marcia, 1993). The subscales for industry and identity from the EPSI each consist of 12 5-point Likert-type scale items (1 = strongly disagree, 2 = somewhat disagree, 3 = unsure, 4 = somewhat agree, 5 = strongly agree), and the intimacy subscale consists of 11 questions on the same 5-point Likert-type scale. Reliability analyses with this study’s sample indicated acceptable levels of internal consistency across all EPSI and ISI subscales. Cronbach alphas for the EPSI were .80 for industry, .81 for identity, and .57 for intimacy.

The ISI-6G was employed to assess identity styles. It is a revision of the original ISI (Berzonsky, 1989) designed to be more accessible to early and middle adolescents (White et al., 1998). The ISI-6G consists of 40 items using the same 5-point Likert-type scale as described for the EPSI. Scores from the ISI-6G indicate the individual’s cognitive identity style: (1) informational, (2) normative, or (3) diffuse/avoidant (White et al., 1998). The ISI-6G subscales produced Cronbach alphas of .70 for informational, .68 for normative, and .70 for diffuse/avoidant styles.

<table>
<thead>
<tr>
<th>Group</th>
<th>Gender</th>
<th>N</th>
<th>Mean Age</th>
<th>SD</th>
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<th>Hispanic</th>
<th>Other</th>
</tr>
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<tbody>
<tr>
<td>Participant</td>
<td>Female</td>
<td>23</td>
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<td>.15</td>
<td>82.6</td>
<td>13.0</td>
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<tr>
<td></td>
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<td>22</td>
<td>13.23</td>
<td>.23</td>
<td>86.4</td>
<td>13.6</td>
<td>.0</td>
</tr>
<tr>
<td>Control</td>
<td>Female</td>
<td>22</td>
<td>13.32</td>
<td>.20</td>
<td>68.2</td>
<td>27.3</td>
<td>4.5</td>
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<tr>
<td></td>
<td>Male</td>
<td>21</td>
<td>13.65</td>
<td>.17</td>
<td>47.6</td>
<td>33.3</td>
<td>19.0</td>
</tr>
</tbody>
</table>
Procedures

The participant group completed a 2-week adventure program, Camp WILD. The program was a collaborative venture between university researchers and the W.I.L.D. Foundation. The W.I.L.D. Foundation seeks to provide low- or no-cost wilderness experiences for youth who would otherwise not be financially able to participate in such high-cost programs. The estimated per-person cost of this program was approximately $2,400. Funds to implement the program were provided by private anonymous donors and internal university grants. Young adolescent females ($n = 23$) attended the program from July 11 to 23, 2005 and young adolescent males ($n = 23$) attended program from July 25 to August 6, 2005. The base camp was located in Idaho’s Salmon-Challis National Forest. Backpacking trips took place within the national forest and rafting trips occurred on Idaho’s Main Salmon River.

Camp WILD participants were assigned to teams of four youth, for a total of six teams per session each under the supervision of one male and one female staff member. The program consisted of three different activity rotations: (1) backpacking, (2) white-water rafting, and (3) exploration. Each rotation lasted 3 days and involved two teams. The exploration rotation occurred at camp whereas the backpacking and rafting rotations involved overnight trips away from camp. During the backpacking rotation the youth learned and implemented outdoor skills such as backcountry cooking, first aid, and fly fishing while on a self-supported wilderness trip. The rafting rotation involved navigating an approximately 30-mile stretch of the Main Salmon River. Youth learned about river safety, equipment, and guiding. Each participant had opportunities to guide his or her team’s raft down the river and through rapids. The exploration rotation involved mountain biking, team-building activities, and environmental education. Rotations concluded on the afternoon of the third day and started again the following day after lunch. Between each rotation participants took part in service projects (e.g., stream restoration, painting buildings, and brush removal) at camp and a variety of group activities (e.g., kickball, camp fire programs, talent shows, etc.). Participants completed the EPSI and the ISI-6G the first and last day of the program.

To collect a sufficiently large enough comparison group sample, three separate data collection periods occurred during the summer and fall of 2005. Recruitment took place at the school where most of the adventure program participants attended. Recruitment included flyers promising either free pizza or a small monetary incentive to students willing to complete two questionnaires that included the EPSI and ISI-6 G subscales over a 2-week period. Flyers were distributed by research assistants at the middle school as well as to homes in a neighborhood that fed this school. Interested students either completed the questionnaires at school or in their homes. Comparison group members did not participate in any aspects of the adventure program.
Plan of Analysis

Data from the pre- and posttest questionnaires were scored and analyzed. For each subscale, mean scores rather than summed scores were calculated to deal more effectively with missing values. A mixed classification MANOVA was employed to test the first hypothesis that a significant Group (adventure recreation participants vs. comparison sample) × Time of testing interaction would exist for the EPSI subscales. The between-subject factors included Gender and Group (adventure recreation participants vs. comparison sample). The same analysis was used to test the second hypothesis, which stated that a significant Group (adventure recreation participants vs. comparison sample) × Time of testing × subscale interaction would exist for the ISI-6G.

RESULTS

Preliminary Analyses

In an effort to address concerns associated with external validity, due to the lack of randomization, Levene’s tests were conducted to test the assumption regarding homogeneity of variance between the participants and comparisons on all pre-program subscale scores and for age and gender. Results from these tests revealed no significant differences between the groups on any pretest EPSI, ISI-6G, or demographic variables, thus providing empirical support for sample homogeneity. Additionally, no significant differences existed between male and female participants. A chi-square test was used to check for difference between the groups in terms of ethnicity. A significant difference was shown to exist between the participants and comparisons for ethnicity, \( \chi^2(2, 88) = 7.89, p = .02 \), due to a greater number of minority respondents in the comparison group. Means and standard deviations for the participants’ and comparisons’ EPSI and ISI-6G subscale scores are reported in Table 2.

Analyses for the EPSI Scales

The first hypothesis was supported by the findings of the EPSI scales analyses. Mauchly’s test indicated that the sphericity assumption had been violated for the main effect of EPSI, \( \chi^2(2) = 6.89, p < .03 \), and the interaction effect of Time of testing × EPSI, \( \chi^2(2) = 8.00, p < .02 \). Accordingly, Huynh-Feldt estimates of sphericity were used to correct the degrees of freedom (\( \varepsilon = .98 \) for the main effect of EPSI and .97 for the interaction effect of Time of testing × EPSI). For the EPSI analysis (see Table 3), results revealed a significant main effect for Time of testing, \( F(1, 84) = 8.18, p = .01 \), partial \( \eta^2 = .10 \), and for EPSI, \( F(1.96, 164.65) = 36.75, p < .01 \), partial \( \eta^2 = .30 \). Results also revealed a significant Time of testing × Group interac-
### TABLE 2
Treatment and Control Identity Subscale Descriptive Statistics

<table>
<thead>
<tr>
<th>Scale</th>
<th>Group</th>
<th>N</th>
<th>Pretest</th>
<th>SD</th>
<th>Posttest</th>
<th>SD</th>
<th>Change in Means</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Means</td>
<td></td>
<td>Means</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>EPSI-Industry</td>
<td>Participant</td>
<td>45</td>
<td>3.83</td>
<td>.65</td>
<td>4.17</td>
<td>.51</td>
<td>0.34</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>46</td>
<td>3.94</td>
<td>.55</td>
<td>3.93</td>
<td>.66</td>
<td>–0.01</td>
<td>.06</td>
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<tr>
<td>EPSI-Identity</td>
<td>Participant</td>
<td>45</td>
<td>3.74</td>
<td>.74</td>
<td>4.05</td>
<td>.58</td>
<td>0.31</td>
<td>.10</td>
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<tr>
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<td>Control</td>
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<td>4.00</td>
<td>.53</td>
<td>3.21</td>
<td>.67</td>
<td>–0.79</td>
<td>.08</td>
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<tr>
<td>EPSI-Intimacy</td>
<td>Participant</td>
<td>45</td>
<td>3.49</td>
<td>.60</td>
<td>3.72</td>
<td>.52</td>
<td>0.23</td>
<td>.09</td>
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<tr>
<td></td>
<td>Control</td>
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<td>3.50</td>
<td>.51</td>
<td>3.46</td>
<td>.65</td>
<td>–0.04</td>
<td>.08</td>
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<tr>
<td>ISI-6G-Information</td>
<td>Participant</td>
<td>45</td>
<td>3.28</td>
<td>.57</td>
<td>3.44</td>
<td>.52</td>
<td>0.16</td>
<td>.07</td>
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<tr>
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<td>Control</td>
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<td>.57</td>
<td>3.37</td>
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<td>0.03</td>
<td>.08</td>
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<tr>
<td>ISI-6G-Normative</td>
<td>Participant</td>
<td>45</td>
<td>3.31</td>
<td>.61</td>
<td>3.43</td>
<td>.58</td>
<td>0.12</td>
<td>.08</td>
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<td>3.55</td>
<td>.54</td>
<td>–0.01</td>
<td>.06</td>
</tr>
<tr>
<td>ISI-6G-Diffuse</td>
<td>Participant</td>
<td>45</td>
<td>2.80</td>
<td>.64</td>
<td>2.52</td>
<td>.67</td>
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<td>.08</td>
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<tr>
<td></td>
<td>Control</td>
<td>46</td>
<td>2.70</td>
<td>.61</td>
<td>2.64</td>
<td>.54</td>
<td>–0.06</td>
<td>.08</td>
</tr>
<tr>
<td>ISI-6G-Commitment</td>
<td>Participant</td>
<td>45</td>
<td>3.55</td>
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<td>3.75</td>
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<td>.07</td>
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<td>Control</td>
<td>46</td>
<td>3.74</td>
<td>.52</td>
<td>3.79</td>
<td>.55</td>
<td>0.05</td>
<td>.06</td>
</tr>
</tbody>
</table>

EPSI = Erikson Psychosocial Stage Inventory; ISI-6G = Identity Styles Inventory – sixth-grade level.

### TABLE 3
Summary of Erikson Psychosocial Stage Inventory (EPSI) MANOVA

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>df</th>
<th>F</th>
<th>p value</th>
<th>Partial $\eta^2$</th>
</tr>
</thead>
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<tr>
<td>Time</td>
<td>2.08</td>
<td>1</td>
<td>8.18</td>
<td>&lt; .01</td>
<td>.09</td>
</tr>
<tr>
<td>Time × Group</td>
<td>3.93</td>
<td>1</td>
<td>15.48</td>
<td>&lt; .01</td>
<td>.16</td>
</tr>
<tr>
<td>Time × Gender</td>
<td>.34</td>
<td>1</td>
<td>1.32</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Time × Group × Gender</td>
<td>.33</td>
<td>1</td>
<td>1.30</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Error (Time)</td>
<td>21.35</td>
<td>84</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>EPSI Scale</td>
<td>19.53</td>
<td>1.96a</td>
<td>36.75</td>
<td>&lt; .01</td>
<td>.30</td>
</tr>
<tr>
<td>EPSI Scale × Group</td>
<td>.69</td>
<td>1.96a</td>
<td>1.30</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>EPSI Scale × Gender</td>
<td>1.14</td>
<td>1.96a</td>
<td>2.15</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>EPSI Scale × Group × Gender</td>
<td>.05</td>
<td>1.96a</td>
<td>.09</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Error (EPSI Scale)</td>
<td>44.63</td>
<td>164.65a</td>
<td>—</td>
<td>—</td>
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</tr>
<tr>
<td>Time × EPSI Scale</td>
<td>.07</td>
<td>1.94a</td>
<td>.34</td>
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<tr>
<td>Time × EPSI Scale × Group</td>
<td>.11</td>
<td>1.94a</td>
<td>.52</td>
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<tr>
<td>Time × EPSI Scale × Gender</td>
<td>.16</td>
<td>1.94a</td>
<td>.74</td>
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<tr>
<td>Time × EPSI Scale × Group × Gender</td>
<td>.32</td>
<td>1.94a</td>
<td>1.50</td>
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<tr>
<td>Error (Time × EPSI Scale)</td>
<td>17.64</td>
<td>162.74a</td>
<td>—</td>
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</tbody>
</table>

SS = Sum of squares.

$^a$degrees of freedom were corrected using Huynh-Feldt estimates of sphericity.
tion effect, $F(1, 84) = 15.477, p < .01$, partial $\eta^2 = .16$. This finding indicates that the participant group experienced a significant pre- to posttest increase across the EPSI subscales in relationship to the comparisons (see Figure 1). No other meaningful effects appeared in the data.

Analyses for the ISI-6G Scales

For the ISI-6G analyses, Mauchly’s test indicated that the sphericity assumption had been violated for the main effect of ISI-6G, $\chi^2(2) = 23.51, p < .01$, and the interaction effect of Time of testing × ISI-6G, $\chi^2(2) = 10.41, p < .01$. Accordingly, Huynh-Feldt estimates of sphericity were used to correct the degrees of freedom ($\varepsilon = .85$ for the main effect of ISI-6G and .95 for the interaction effect of Time of testing × ISI-6G). Results revealed a significant main effect for ISI-6G, $F(1.689, 141.89) = 59.67, p < .001$, partial $\eta^2 = .42$. Results also supported the second hypothesis by revealing a significant Group × Time of testing × ISI-6G subscale interaction effect, $F(1.89, 158.82) = 3.157, p = .048$, partial $\eta^2 = .036$. This interaction indicates that significant pre- to posttest growth differences among the ISI-6G subscale scores existed between the participant and comparison samples. An examination of the estimated marginal means suggests that the participant scores showed a greater increase pre- to posttest on the informational and normative subscales and decrease on the diffuse/avoidant subscales than the comparisons.

![Figure 1: Adventure Recreation Participants vs. Comparison Sample for EPSI Total Subscale Score across Time of Testing.](image)

*Figure 1* Adventure Recreation Participants vs. Comparison Sample for EPSI Total Subscale Score across Time of Testing.  
*EPSI scores were summed across scales for this figure.*
whose scores remained relatively stable between administrations of the measure (see Figure 2). After this interaction was identified post hoc ANOVAs for each ISI-6G subscale testing for Group × Time of testing interactions were conducted but revealed no significant findings. Additionally, no other meaningful, significant effects were found from the MANOVA analysis.

### DISCUSSION

The purpose of the current study was to examine the effect of a wilderness adventure recreation program on adolescent development with a specific focus on identity development. Findings from MANOVA analyses supported both hypotheses as tested. Hypothesis 1 predicted participants would experience positive psychosocial growth across the industry, identity, and intimacy stages in comparison to the controls. A significant Time of testing × Group interaction confirmed this prediction. Hypothesis 2 suggested that participants would show increased levels of informational-style processing and decreased levels of diffuse-style processing. Results revealed a significant Group × Time of testing × ISI-6G subscale interaction. This suggests that participants’ awareness of, and potentially their active engagement in, their identity development processes increased significantly in contrast to the comparison group. Post hoc, one-way ANOVAs revealed no significant

<table>
<thead>
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<tr>
<td>Summary of Identity Styles Inventory (ISI) MANOVA</td>
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<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>F</th>
<th>P value</th>
<th>Partial ( \eta^2 )</th>
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<tr>
<td>Time</td>
<td>.01</td>
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<td>.06</td>
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<tr>
<td>Time × Group</td>
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<td>1</td>
<td>.02</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Time × Gender</td>
<td>.07</td>
<td>1</td>
<td>.44</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Time × Group × Gender</td>
<td>.02</td>
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<td>.14</td>
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<tr>
<td>Error (Time)</td>
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<td>84</td>
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<td>ISI scale</td>
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<td>1.6a</td>
<td>59.67</td>
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<td>.42</td>
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<td>ISI scale × Group</td>
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<td>1.6a</td>
<td>1.04</td>
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<tr>
<td>ISI scale × Gender</td>
<td>.79</td>
<td>1.6a</td>
<td>.71</td>
<td>ns</td>
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<tr>
<td>ISI scale × Group × Gender</td>
<td>.33</td>
<td>1.6a</td>
<td>.30</td>
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<tr>
<td>Error (ISI scale)</td>
<td>94.36</td>
<td>141.89</td>
<td>—</td>
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<td>Time × ISI scale × Gender</td>
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<td>ns</td>
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<tr>
<td>Time × ISI scale × Group × Gender</td>
<td>.23</td>
<td>1.89a</td>
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SS = Sum of squares.

°adegrees of freedom were corrected using Huynh-Feldt estimates of sphericity.
FIGURE 2 Adventure Recreation Participants vs. Comparison Sample for ISI Subscale Scores across Time of Testing.
Time of testing × Group interactions for the individual subscales. It appears that although the program was having a progressively positive impact on identity processing for the participants, increases on the normative and informational scales and decreases on the diffuse scales, the short duration of the program, and individual differences in growth patterns may have masked any significant subscale net growth effects.

A number of points deserve consideration in terms of the potential importance of these findings. First, the study employed a rather modest sample size that reduces the statistical power of the analyses, meaning that the interactions that were identified as significant are fairly strong. Second, the fact that a short-term, albeit intense, experience influenced key variables (e.g., industry, identity, intimacy and identity styles) that are conceptualized as changing slowly over the course of adolescence, also supports the presence of a strong underlying developmental process. Third, the EPSI identity scale measures individuals’ perceptions of who they are whereas the ISI-6G assesses the processes individuals use in constructing their identities. It may be easier for someone to have a clear idea of who they are while at the same time not clearly recognize the processes (i.e., identity style) they used to develop that perception (A. S. Waterman, personal communication, July 8, 2008). This perspective makes the fact that the program apparently affected participants’ identity processing style even more meaningful.

Although some researchers (Shaw et al., 1995) have hypothesized that sports and other activities viewed as nontraditional for females would have a greater impact on girls’ identity development, boys and girls in this program experienced similar levels of growth. Post hoc ANOVAs comparing males and females participants’ change scores on all EPSI and ISI-6G subscales revealed only one significant gender difference, on the EPSI-intimacy scale, with males reporting a higher mean-change score, $F(1, 44) = 4.53, p = .04$. It could be argued that a ceiling effect might have accounted for low female intimacy change scores, meaning that females entered the program with higher intimacy scores than the males and thus could not experience as dramatic changes as the males. However one-way ANOVA tests showed no significant differences between male and female pretest intimacy scores. It appears the adventure recreation program may have provided males with a unique opportunity to develop close friendships with peers and adult role models. Many of the activities required participants to work together in teams (e.g., river rafting, building a rope bridge, etc.). Additionally, participants associated with the same group of individuals for a 2-week period. The experience of working together as a team over a long period of time may have contributed to this finding.

Limitations

Although analyses revealed a number of significant interactions, the associated effect sizes were all relatively small. That being noted, a short-term program, even
one that appears to affect participants’ identity development, should not be ex-
pected to exert a disproportionately large influence on a developmental process
that may last more than a decade. Another significant limitation relates to the over-
all design of this research. Because the study employed a quasi-experimental de-
sign and nonequivalent control group, the external validity of these findings is not
as strong as it would be had a true randomized control design be used. Addition-
ally, a follow-up questionnaire after the program’s completion may have
strengthened the study’s design because it could be determined if significant
growth observed at the end of the program was maintained after participants re-
turned home.

The high cost associated with adventure programs and logistical issues related
to conducting field research limits the control associated with laboratory experi-
ments. We believe the design of the current study presents an acceptable middle
ground between researcher and practitioner realities (Jensen, Hoagwood, &
Trickett, 1999). These limitations notwithstanding, no other research to date deal-
ing with adventure recreation and identity development has employed as method-
ologically and logistically rigorous an approach as the current study.

SUMMARY

The findings from the current study are in harmony with identity theory and lend
support to previous research regarding the developmental benefits associated with
adventure recreation (Cason & Gillis, 1994; Hans, 2000; Hattie et al., 1997; Neill
& Richards, 1998). From the results of the analyses it appears that a short-term wil-
derness adventure recreation program positively affected participants’ psycho-
social and identity development. Results also suggest that development was in
harmony with the chronology of Erikson’s stages (1963). Male and female partici-
pants appear to have benefited from the program in a similar manner, except that
males experienced greater intimacy stage growth. Although additional research
may provide greater understanding about the relationship between adventure rec-
reation and identity development, the current study’s findings present a case for the
positive developmental influence of adventure programming.

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REFERENCES


