

Effects of a College Adventure Orientation Program on Student Development Behaviors

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This study examined the effects of an adventure orientation program on the student development behaviors of incoming first-year students at Hartwick College in Oneonta, New York. Student development was measured by a condensed version of the Student Development Task Inventory-2 (CSDTI-2; Gass, 1986; Winston, Miller, & Prince, 1979). Data analysis showed overall positive significant gains for adventure orientation program participants on certain measures of developmental tasks (i.e., developing autonomy, developing purpose) and subtasks (i.e., emotional autonomy, instrumental autonomy, appropriate educational plans). Changes in this study differed from those found by Gass (1986) and Hansen (1982) at their respective institutions. The different outcomes highlight that adventure orientation courses' variability in curricular design may have a strong impact on student developmental task and subtask outcomes. This finding demonstrates the importance of selecting program activities and processing techniques based on a program's intent, objectives, philosophy, experiences, and focus.

Keywords: Adventure Orientation, Wilderness Orientation, First-Year Students, Outdoor Orientation Programs, Student Development

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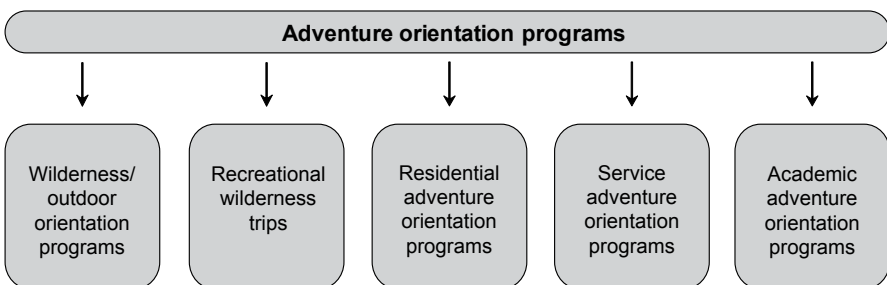
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The first year of college is often a time of immense transition for young adults in regard to their social, moral, and educational development (Gass, 1986). Although some students easily adjust to and thrive in their new environment, others struggle with both social transitions and academics (Gass, 1986). Common stressors for first-year students include increases in academic demands, losses in support system/friends, and adjustments to an often larger and more impersonal academic environment (“Coping With the Stress of College Life,” 1998). Because a large number of students attending universities encounter these stresses, it is important for these institutions to consider providing appropriate adjustment processes for incoming students. To accomplish this task, almost all universities conduct some form of an orientation program for first-year students. Orientation programs seek to help first-year students adjust both socially and academically, and they often address student adjustment into the social environment by providing an opportunity for incoming students to meet and create relationships with other incoming students, upper-class students, faculty, and staff (Robinson, Burns, & Gaw, 1996).

Orientation programs can take several forms, with one being the use of adventure experiences. This form of orientation program primarily occurs in the outdoors and involves adventure experiences combined with reflection activities (Vlamiš, 2002). The term *adventure orientation program* encompasses a number of different programs varying in the type of adventure situations (see Figure 1). Adventure orientation programs typically possess many of the same goals as more traditional programs, but they use different processes (Gass, 1999).

Figure 1

Conceptual Definition of Adventure Orientation Programs



Although 164 colleges and universities in the United States offer wilderness orientation programs (Bell, Holmes, & Williams, 2010)—defined in this paper as an important subset of adventure orientation programs (see Figure 1)—most programs do not take the time to formally evaluate their effectiveness (Davis-Berman & Berman, 1996; Galloway, 2000). Davis-Berman and Berman (1996) found that only half of the institutions surveyed in 1995 conducted the most basic form of evaluation of their wilderness orientation programs.

It is becoming increasingly important for colleges to study the effects of different types of student orientation programs in order to justify each respective program's value or to assist with marketing (Galloway, 2000). Although some studies have shown adventure orientation programs are beneficial (Bell, 2005; Gass, 1987, 1990; Gass, Garvey, & Sugerman, 2003), none of these studies have been replicated.

One large study of adventure orientation programs ($n = 1,622$) found that students develop significantly greater degrees of social support compared to other pre-orientation experiences (e.g., pre-season athletics, service programs, art programs; Bell, 2005). This is especially relevant because students may fear a lack of social integration more than their own academic incompetence. Bell and Williams (2006) found that students entering the challenging academic culture of Harvard feared failing socially more than failing academically. Other studies have determined further benefits, such as increases in GPA (Gass, 1987; Stogner, 1978), higher retention (Gass, 1987), significant increases in friendship formation (Devlin, 1996), and increased social skills development (Kafsky, 2001). These results indicate that adventure orientation programs, often designed to promote social bonds and build teamwork, may do a better job of meeting student needs than other orientation programs. Devlin (1996) reported that orientation programs taking place in the natural environment, having participants work in small groups, and presenting physical challenge help incoming students adjust to college. Such beliefs are consistent with many college impact models and theories of student change, such as Astin's (1991) input-environment-output model of student change. It is believed that students change by becoming involved through investing both psychological and physical energy into tasks, people, and/or activities (Pascarella & Terenzini, 2005). Due to their time intensity and small-group social environment, adventure orientation programs often compel students to be engaged both psychologically and physically.

Adventure orientation programs typically take one of five forms: wilderness/outdoor, recreational, residential, service, or academic (see

Figure 1). But several key components endemic to almost all adventure programs (Priest & Gass, 2005; Vlamis, 2002) are that they

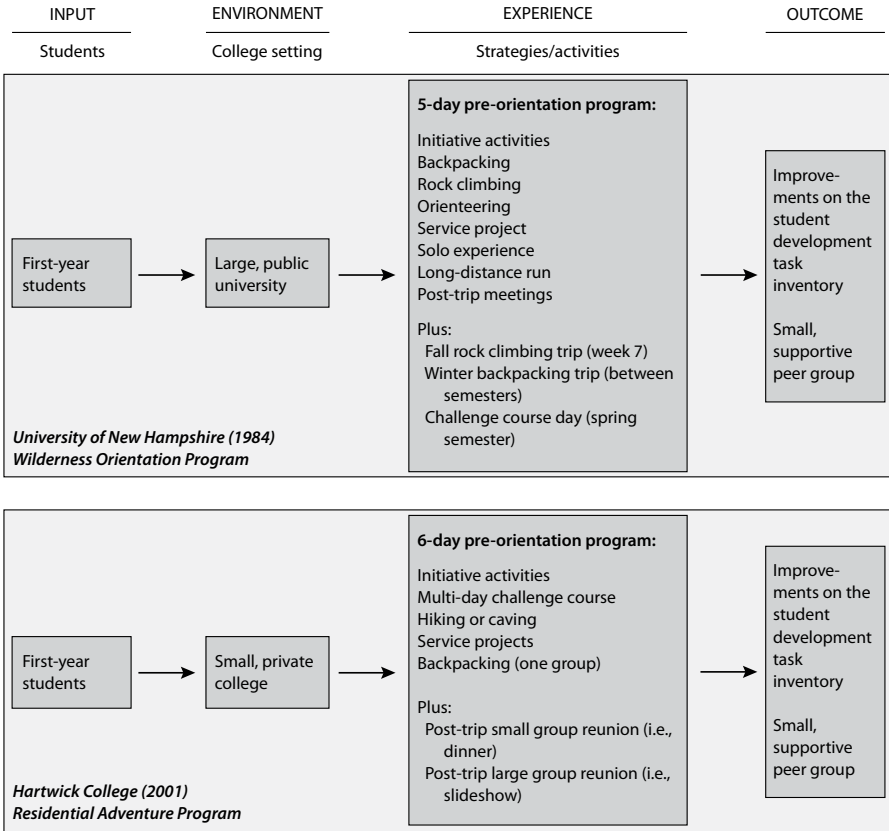
- occur in unfamiliar or novel environments;
- use small groups (seven to 12 students) led by two or three leaders;
- present challenging activities aimed at developing group support;
- have participants work toward specific and intended goal(s); and
- focus on the transfer of lessons from the adventure to the participant's life.

The purpose of this study was to replicate a portion of the study conducted by Gass (1987), which found that the wilderness orientation program Fireside created significant positive effects on specific student development behaviors for incoming first-year students at the University of New Hampshire (UNH), Durham. This study sought to compare how these results might vary with a different adventure orientation program, namely the residential adventure orientation program Awakening at Hartwick College in Oneonta, New York. This study also sought to determine if participation in the Awakening adventure orientation program influenced student development behaviors, as measured by a condensed version of the Student Development Task Inventory-2 (CSDTI-2), an instrument developed to measure student development based upon Chickering's theory (Chickering, 1969; Chickering & Reisser, 1993). This instrument was used, despite the 15-year difference between studies, because Chickering's model has "stood the test of time as conceptual lenses" (i.e., students transitioning to college continue to grapple with the same identity development issues in the time of Gass's study as they do today; Chickering & Reisser, 1993, p. 44). As Chickering and Reisser (1993) stated, "Studies seem to be turning up variations in style and sequence, but the fundamental themes reappear and continue to serve as foundations for the seven vectors" (p. 35). The desire for students to positively develop through college continues to be important, relevant, and similar to those cohorts who came before them.

The differences in these programs were based upon the year of intervention (the programs were separated by 15 years), the environment (wilderness/outdoor orientation compared to a residential adventure orientation program), and different activities (see Figure 2). The programs shared similar curricular goals but utilized different activities. Although adventure orientation is a suitable umbrella term for these programs, each program possessed unique features.

Figure 2

Adventure Orientation Logic Model



Method

Participants

This study took place at Hartwick College, a small, private liberal arts college (1,446 undergraduates). Seventy-three of the 431 first-year students voluntarily participated in a six-day residentially based adventure orientation program called Awakening. As with the Fireside program at UNH, the Awakening program is both designed and conducted in addition to the college’s mandatory orientation program.

The “Awakeners” were placed into small course sections by the Awakening Director, with the exception of a group called “Trekks” ($n = 7$) who selected a version of Awakening that included backpacking.

Selection of students into the other six groups was guided by specific parameters (e.g., balancing gender with approximately 60% women in each group, splitting up students from the same hometown/state location, and placing friends and partners into separate groups). Finally, students with majors matching their leaders' (but not to the exclusion of gender diversity) were placed together.

Awakening and Non-Awakening students were contacted on August 25 and September 1, 2001, respectively, and asked to participate in the study without remuneration. Of the 73 Awakeners, 71 participated. Of the remaining first-year students, 140 were randomly selected and assigned to the comparison group. Out of the 140 Non-Awakeners selected for this study, 101 participated. The two groups did not show statistical differences in terms of high school class rank or SAT combined scores.

Intervention

Awakening program participants were involved in a six-day adventure orientation program comprised of outdoor experiential activities (e.g., group problem-solving tasks or initiatives, low and high challenge course elements). There were seven student groups; six groups had 11 participants and one had seven participants. On average, each group had three leaders (i.e., one faculty member and two upper-class students). These leaders selected activities designed not only to present small-group challenges where participants work toward goals specific to the Awakening program, but also to help students make positive personal changes (Root, 2001). Activities to promote "intensive involvement" were delivered by following Project Adventure's Adventure Wave and Experiential Learning Cycle, and they were sequenced using the GRABBS (Goals, Readiness, Affect, Behavior, Body, Stage) Modality Check List (Schoel, Prouty, & Radcliffe, 1988). Each leader served as a mentor for the first-year students.

Six of the seven groups of first-year students participating in the Awakening program attended a six-day session occurring at Hartwick College's Pine Lake Environmental Center. The program involved socialization activities designed to create positive interpersonal connections through games, initiatives, extensive low and high challenge course programming, group service projects, a day trip spent hiking or caving, and reflective activities. The seventh group, Trekkers, replaced the low and high challenge course activities with a backpacking trip. The Trekkers had the same goals as the "typical" Awakening participants—including participation in similar games, initiatives, and reflection activities—but the goals of this particular group were meant to be achieved through the backpacking/trekking experience.

For both the trekking and the non-trekking groups, leaders framed activities to encourage participants to think about the connections be-

tween adventure experiences and adjustment to college. Follow-up discussions asked participants to reflect upon the activities. These discussions were intended to facilitate learning, to open communication between peers and leaders (i.e., upper-class students and faculty), and to help students integrate these learnings into their lives. Additional discussions were held at other times as needed (e.g., at day's end). After the initial experience, small-group and whole-group reunions were planned. Each small Awakening group informally gathered at some time during the earlier half of the first fall semester on campus. A larger, whole-group reunion was held to bring all participants together again and to show a slideshow of pictures from the week of Awakening.

There were seven goals of the Awakening program (Root, 2001):

1. Provide challenges for students to learn how to handle such situations and transfer these newly learned coping mechanisms to their first year at Hartwick so they could better face challenges rather than avoid them.
2. Teach students how to handle stressful situations and then use these processes when encountering such situations in college.
3. Help students recognize how they approach and solve problems.
4. Teach students that seemingly impossible challenges can be overcome through persistence and creative problem solving.
5. Help students see peers and college faculty and staff as resources and, with them, build community through positive interactions.
6. Ease social transition by building community and meaningful relationships.
7. Help students resolve conflicts and handle differences in opinions when making group decisions.

The first four of the seven Awakening program goals (for both Trekkers and Non-Trekkers) centered on developing problem-solving abilities to overcome challenges or stressful situations. This programming aimed to help participants recognize their capabilities to solve problems independently from their parents. The Awakening program also attempted to help participants cope with difficult issues when they presented themselves, while learning to seek appropriate help as necessary.

Materials and Instrumentation

The researchers surveyed Awakening participants by using the CSDTI-2. The Condensed Student Development Task Inventory-2 is a 70-item inventory designed for first-year college students (Gass, 1986). The

test measures the attainment of three Task areas, each with three related Subtasks. The first Task area, Developing Autonomy, is composed of the Subtasks (a) Emotional Autonomy, (b) Instrumental Autonomy, and (c) Interdependence. The second Task, Developing Purpose, is composed of the Subtasks (a) Appropriate Educational Plans, (b) Mature Career Plans, and (c) Mature Lifestyle Plans. The third Task, Developing Mature Interpersonal Relationships, is composed of the Subtasks (a) Appropriate Relationships With Opposite Sex, (b) Mature Relationships With Peers, and (c) Tolerance. These tasks link to Chickering's (1969) "vectors of development" theory (as cited in Winston, Miller, & Prince, 1979, p. 2). The inventory provided questions in a true/false format. Correct answers were defined as responses meeting a developmental task.

Validity of the CSDTI-2 was assessed and used by Gass (1987) with the test reliability of .79 (Gass, 1986). This measure is a shortened version of the SDTI-2 created by Winston, Miller, and Prince (1979), with the number of items reduced from 140 to 70 (Gass, 1986). The original version of the SDTI-2 possessed a test-retest (test) reliability of .92 (total inventory) and an internal consistency reliability of .90 (total inventory; Winston et al., 1979).

Student Records

Access to student records provided researchers with participants' gender, high school GPA, high school class rank, and achievement test scores. These materials allowed researchers to assess demographic differences between the experimental and the comparison groups, and they were used as covariates in the analyses of change in college student development.

Table 1

Data Collection Plan by Group and Date Sampling Dates

		Date					
		Aug. 25	Aug. 25-30	Aug. 30-Sep. 3	Nov.	Feb.	Apr.
Group	Awakeners	X(1)	O	M	X(2)	R(1)	X(3)
	Non-Awakeners			X(1) M	X(2)	R(1)	X(3)

Note. X = CSDTI-2 administered; O = Awakening program; M = mandatory college orientation program; R = retention information and GPAs collected.

Survey Procedures

Participants completed the CSDTI-2 on three occasions. Each student was provided with a CSDTI-2 packet on either the first day of the Awakening program or at regular campus orientation. The inventory took approximately 15 minutes to complete. All student information was kept private in compliance with Public Law 91-513 (Privacy Act).

For the second data collection, students received letters asking them to complete the CSDTI-2 near the end of the fall semester in November. Follow-up phone calls were made to students who did not return the packet within two weeks' time and a second packet was mailed to students who indicated that they either had not received or had discarded the first packet. A response rate of 60% was obtained ($n = 103$) during the second data collection. A third sampling was repeated in the middle of the spring semester during the month of April. This time follow-up phone calls were made, twice if a response was not received after the first call. The third data sampling received a response rate of 55% (89 of 162 students responded; 10 envelopes were returned due to students who were on leave or had withdrawn).

Data Analysis

All data were downloaded into the Statistical Package for Social Sciences, version 10, for analysis. All data entries were screened and a subset was recoded to measure accuracy, resulting in a small (.058%) coding error for the first data set. No errors were found in either the second or the third data set.

Scores from the CSDTI-2 were analyzed using a three-factor analysis of covariance to determine if there were any significant differences between both the two groups and the participants' gender, and to determine if time played a factor. MANOVA's were conducted to determine if significant interactions occurred with the multiple outcome variables in the study.

Based on significant findings in Subtasks, additional post-hoc analyses were conducted to determine specific significant variables.

To reduce Type II errors (false negatives), prior to the analysis a p value $< .10$ was established as the level of an acceptable statistical significance based on past research findings (Neill, 2002). Although $p < .05$ has commonly found acceptance in all types of scientific research, the use of a high level of significance may hide differences that truly exist. Because this research involved people taking a survey, which is different from a controlled environment of a laboratory, a decision was made to increase the p value to be more sensitive to differences. Effect sizes were also calculated.

Results

Student Development

Student development pretest scores between experimental and comparison groups were compared to determine if differences in means on Tasks and Subtasks between Awakeners and Non-Awakeners were statistically significant. See Table 2 for a summary of the results of preexisting differences between the two groups.

Table 2

Significance of Mean Differences Between Awakeners and Non-Awakeners at Time 1

CSDTI-2 Task and Subtask areas	Preexisting differences
Tolerance	Awakeners had significantly higher scores compared to Non-Awakeners.
Developing Autonomy Developing Purpose Instrumental Autonomy Appropriate Educational Plans Mature Career Plans Mature Lifestyle Plans Mature Relationships With Peers	Non-Awakeners had significantly higher scores than Awakeners.
Developing Mature Interpersonal Relationships Emotional Autonomy Interdependence Appropriate Relationships With Opposite Sex	There was no difference between groups.

These results only represent those students who answered the CSDTI-2 all three times ($n = 77$). Note that although a larger number of students ($n = 103$) answered the CSDTI-2 for Time 1 and Time 2, short-term results from this larger group ($n = 103$) were similar to the smaller group ($n = 77$) and did not demonstrate a selection bias.

Multivariate Analysis of Short- and Long-Term Effects Between Group, Time, and CSDTI-2 Tasks and Subtasks

Analyses indicated significant interactions between time and group ($F(2, 150) = 3.32, p = .04$) with the overall scores over time different for Awakeners and Non-Awakeners. Further analysis also indicated significant interactions between time, group, and CSDTI-2 Subtasks

($F(16, 1200) = 1.95, p = .01$), showing the pattern of Subtask scores over time varied between Awakeners and Non-Awakeners.

Analysis of Effects Between Group and Time on Individual CSDTI-2 Subtasks

Significant results were found in five of the nine Subtasks: Emotional Autonomy ($F(2, 150) = 5.11, p = .01$), Appropriate Educational Plans ($F(2, 150) = 2.48, p = .09$), Appropriate Relationships With Opposite Sex ($F(2, 150) = 2.38, p = .096$), Mature Relationships With Peers ($F(2, 150) = 3.77, p = .03$), and Tolerance ($F(2, 150) = 4.13, p = .02$). For a comprehensive list showing all significant testing results, see Table 3.

Table 3

Results from Nine 2 (Group) by 3 (Time) Repeated Measures ANOVAs Conducted on CSDTI-2 Subtasks

Subtask	<i>F</i>	<i>df</i>	<i>p</i>
Emotional Autonomy	5.11	2, 150	0.01
Instrumental Autonomy	1.81	2, 150	0.17
Interdependence	0.17	2, 150	0.85
Appropriate Educational Plans	2.48	2, 150	0.09
Mature Career Plans	0.70	2, 150	0.50
Mature Lifestyle Plans	0.43	2, 150	0.65
Appropriate Relations With Opposite Sex	2.38	2, 150	0.10
Mature Relationships With Peers	3.77	2, 150	0.03
Tolerance	4.13	2, 150	0.02

At Times 2 and 3, the majority of Non-Awakeners' mean CSDTI-2 Task and Subtask scores were higher than Awakeners' scores. In general, Awakeners' Task and Subtask scores were closer to Non-Awakeners' scores at Time 3 than they had been at Time 1. This trend occurred from Time 1 to Time 2 and from Time 2 to Time 3 (see Figures 3 and 4).

Awakeners demonstrated positive significant changes in the Tasks of Developing Autonomy ($ES = .31$) and Developing Purpose ($ES = .38$) from Time 1 to Time 2. The Awakeners' Developing Autonomy Task score increased from Time 1 ($M = .56, SD = .14$) to Time 2 ($M = .61, SD = .15$) ($ES = .31, CI = .09 : .52$) as did their Developing Purpose Task score between Time 1 ($M = .53, SD = .18$) and Time 2 ($M = .61, SD = .16$) ($ES = .38, CI = .14 : .62$),

as shown in Tables 4 and 5, respectively. Neither group experienced any significant Task changes from Time 2 to Time 3. This indicates the positive gains made by the Awakening group in the Developing Autonomy and Developing Purpose Tasks from Time 1 to Time 2 were maintained.

Figure 3

CSDTI-2 Subtask Emotional Autonomy Means for Awakeners and Non-Awakeners for Times 1, 2, and 3

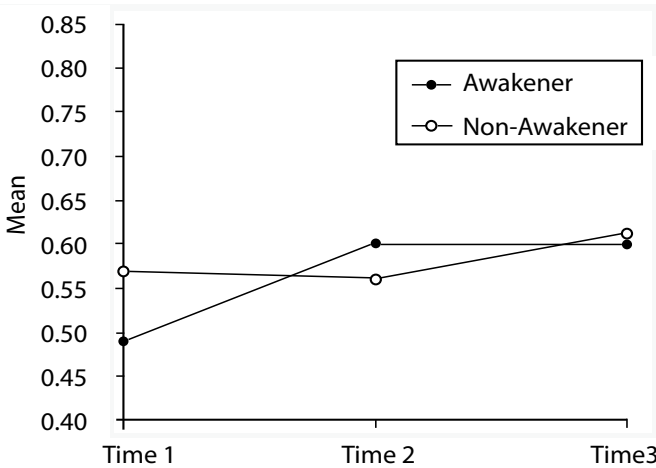
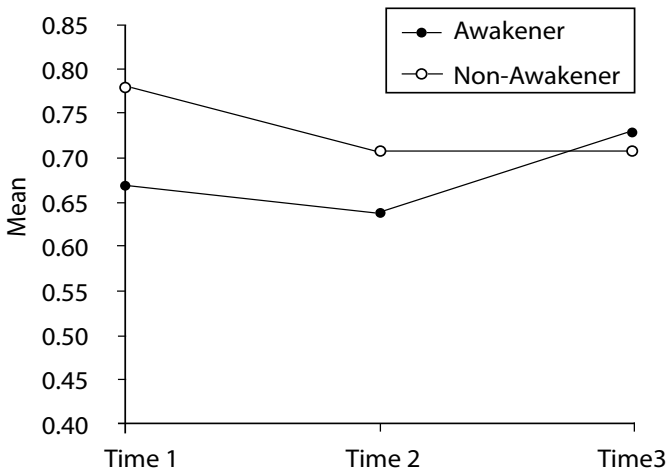


Figure 4

CSDTI-2 Subtask Appropriate Relationships With Opposite Sex Means for Awakeners and Non-Awakeners for Times 1, 2, and 3



Awakeners displayed positive significant changes from Time 1 to Time 2 in three Subtasks—Emotional Autonomy (ES = .60), Appropriate Educational Plans (ES = .75), and Mature Relationships with Peers (ES = .43)—and from Time 2 to Time 3 in the Subtask Appropriate Relationships With Opposite Sex (ES = .40). Awakeners’ scores significantly decreased from Time 1 to Time 2 in the Subtask Tolerance (ES = -.25; see Tables 4, 5, 6, and 7).

Table 4

Means, Standard Deviations, Effect Sizes, and Confidence Intervals for Times 1, 2, and 3 for CSDTI-2 Task Developing Autonomy and Subtasks

CSDTI-2 Task and Subtasks	Type	Time 1 (T1)		Time 2 (T2)		Time 3 (T3)		ES T1–2			ES T2–3		
		M	SD	M	SD	M	SD	Low CI	ES	High CI	Low CI	ES	High CI
Developing Autonomy	Awakeners	.56	.14	.61	.15	.63	.15	.09	.31	.52	-.08	.16	.40
	Non-Awakeners	.65	.15	.65	.13	.67	.13	-.22	-.03	.16	-.03	.14	.31
Emotional Autonomy	Awakeners	.49	.21	.60	.18	.60	.17	.34	.60	.86	-.28	-.01	.26
	Non-Awakeners	.57	.21	.56	.19	.61	.18	-.22	-.03	.15	.08	.26	.44
Instr. Autonomy	Awakeners	.47	.21	.50	.27	.56	.27	-.15	.12	.38	-.01	.25	.50
	Non-Awakeners	.62	.24	.59	.22	.62	.23	-.31	-.10	.11	-.11	.09	.29
Interdependence	Awakeners	.73	.22	.73	.21	.74	.21	-.32	-.02	.28	-.22	.07	.35
	Non-Awakeners	.76	.21	.78	.20	.77	.17	-.15	.09	.32	-.24	-.04	.17

Note. Bolded values indicate significant change ($p < .10$) based on the 90% confidence interval (CI) for the effect sizes (ES), low CI = 5%, high CI = 95%, Awakener ($n = 32$), Non-Awakener ($n = 45$).

Table 5

Means, Standard Deviations, Effect Sizes, and Confidence Intervals for Times 1, 2, and 3 for CSDTI-2 Task Developing Purpose and Subtasks

CSDTI-2 Task and Subtasks	Type	Time 1 (T1)		Time 2 (T2)		Time 3 (T3)		ES T1-2			ES T2-3		
		M	SD	M	SD	M	SD	Low CI	ES	High CI	Low CI	ES	High CI
Developing Purpose	Awakeners	.53	.18	.61	.16	.61	.22	.14	.38	.62	-.24	-.01	.22
	Non-Awakeners	.67	.20	.69	.17	.69	.18	-.06	.10	.27	-.13	.02	.18
Appropriate Educational Plans	Awakeners	.43	.29	.64	.19	.57	.25	.41	.75	1.09	-.48	-.22	.04
	Non-Awakeners	.62	.25	.72	.20	.65	.23	.14	.36	.58	-.47	-.26	-.04
Mature Career Plans	Awakeners	.57	.24	.57	.22	.59	.28	-.24	.03	.31	-.19	.07	.32
	Non-Awakeners	.66	.24	.62	.24	.70	.23	-.42	-.16	.10	.11	.33	.54
Mature Life-style Plans	Awakeners	.61	.20	.61	.21	.65	.23	-.17	.03	.23	-.06	.16	.39
	Non-Awakeners	.72	.25	.72	.22	.73	.20	-.19	.00	.19	-.14	.04	.22

Note. Bolded values indicate significant change ($p < .10$) based on the 90% confidence interval (CI) for the effect sizes (ES), low CI = 5%, high CI = 95%, Awakener ($n = 32$), Non-Awakener ($n = 45$).

Table 6

Means, Standard Deviations, Effect Sizes, and Confidence Intervals for Times 1, 2, and 3 for CSDTI-2 Task Developing Mature Interpersonal Relationships and Subtasks

CSDTI-2 Task and Subtasks	Type	Time 1 (T1)		Time 2 (T2)		Time 3 (T3)		ES T1-2			ES T2-3		
		M	SD	M	SD	M	SD	Low CI	ES	High CI	Low CI	ES	High CI
Developing Mature Interpersonal Relationships	Awakeners	.74	.15	.73	.16	.75	.09	-.36	-.03	.29	-.12	.14	.41
	Non-Awakeners	.76	.12	.74	.17	.75	.14	-.40	-.15	.09	-.10	.12	.35
With Opposite Sex	Awakeners	.67	.29	.64	.28	.73	.18	-.55	-.13	.29	.08	.40	.72
	Non-Awakeners	.78	.20	.71	.27	.71	.24	-.61	-.32	-.04	-.24	.04	.32
With Peers	Awakeners	.74	.17	.80	.17	.77	.17	.12	.43	.73	-.55	-.25	.06
	Non-Awakeners	.82	.15	.79	.18	.81	.16	-.42	-.17	.07	-.14	.11	.36
Tolerance	Awakeners	.81	.18	.76	.19	.77	.18	-.48	-.25	-.01	-.21	.03	.27
	Non-Awakeners	.68	.20	.72	.21	.74	.20	-.04	.18	.41	-.12	.10	.32

Note. Bolded values indicate significant change ($p < .10$) based on the 90% confidence interval (CI) for the effect sizes (ES), low CI = 5%, high CI = 95%, Awakener ($n = 32$), Non-Awakener ($n = 45$).

Non-Awakeners displayed significant gains from Time 1 to Time 2 in the Subtask Appropriate Educational Plans (ES = .36) and from Time 2 to Time 3 in the Subtasks Emotional Autonomy (ES = .26) and Mature Career Plans (ES = .33). Non-Awakeners experienced significant losses from Time 1 to Time 2 in the Subtask Appropriate Relationships With Opposite Sex (ES = -.32) and from Time 2 to Time 3 in Appropriate Educational Plans (ES = -.26), a trend also exhibited by the Awakeners, though it was not significant (see Tables 4, 5, 6, and 7).

Table 7

Summary of Subtasks With Significance for Time 1–2, Time 2–3, and/or Time 1–3

Subtask	Short-term change (T 1–2)	Long-term change (T 2–3)	Overall change (T 1–3)
Emotional Autonomy	∫	*	∫
Instrumental Autonomy			∫
Appropriate Educational Plans	∫ *	*decrease	∫
Mature Career Plans		*	
Appropriate Relations With Opposite Sex	*decrease	∫	*decrease
Mature Relationships With Peers	∫		
Tolerance	∫decrease		*

Note. ∫ = significant ES change by Awakeners; * = significant ES change by Non-Awakeners; all changes are significant increases unless otherwise indicated by the word “decrease” beside the group’s symbol.

Overall (Time 1 to Time 3) Summary on Student Development Scores

When examining overall changes in groups’ scores from Time 1 to Time 3, Awakeners demonstrated positive significant gains in the Tasks of Developing Autonomy (ES = .47) and Developing Purpose (ES = .37) and in the Subtasks of Emotional Autonomy (ES = .59), Instrumental Autonomy (ES = .36), and Appropriate Educational Plans (ES = .53). In contrast, Non-Awakeners experienced a positive significant gain in the Subtask of Tolerance (ES = .28) but a significant loss in the Subtask of Appropriate Relationships With Opposite Sex (ES = -.28; see Table 8).

Table 8

Effect Sizes and Confidence Intervals for Time 1 to Time 3 for CSDTI-2 Tasks and Subtasks

		ES T1-3		
CSDTI-2 Tasks and Subtasks	Type	Low CI	ES	High CI
Developing Autonomy	Awakeners	.23	.47	.71
	Non-Awakeners	-.08	.11	.31
Emotional Autonomy	Awakeners	.28	.59	.90
	Non-Awakeners	-.02	.22	.46
Instrumental Autonomy	Awakeners	.11	.36	.62
	Non-Awakeners	-.23	-.01	.21
Interdependence	Awakeners	-.23	.04	.32
	Non-Awakeners	-.16	.05	.26
Developing Purpose	Awakeners	.13	.37	.61
	Non-Awakeners	-.06	.13	.32
Appropriate Educational Plans	Awakeners	.24	.53	.82
	Non-Awakeners	-.13	.10	.33
Mature Career Plans	Awakeners	-.27	.10	.47
	Non-Awakeners	-.07	.17	.41
Mature Lifestyle Plans	Awakeners	-.03	.19	.41
	Non-Awakeners	-.20	.04	.27
Developing Mature Interpersonal Relationships	Awakeners	-.16	.11	.38
	Non-Awakeners	-.20	-.03	.14
Appropriate Relationships With Opposite Sex	Awakeners	-.10	.27	.64
	Non-Awakeners	-.47	-.28	-.10
Mature Relationships With Peers	Awakeners	-.02	.18	.39
	Non-Awakeners	-.29	-.06	.17
Tolerance	Awakeners	-.22	-.45	.01
	Non-Awakeners	.10	.28	.47

Note. Bolded values indicate significant change ($p < .10$) based on the 90% confidence interval (CI) for the effect sizes (ES), low CI = 5%, high CI = 95%, Awakener ($n = 32$), Non-Awakener ($n = 45$).

Effect of Gender on Student Development

All findings were found to be consistent for males and females when running the MANOVA using CSDTI-2 Tasks on the entire Time 1 sample ($N = 172$).

Discussion

When comparing the two groups in terms of high school academic performance and pretest student development scores, there were no statistically significant differences between the groups in high school academic performance. Awakeners were significantly lower in several of the student development Task and Subtask areas (Table 2). This partially supports the research of Bonner and Maxwell (1971) and Gass (1986), who found that self-selected participants in adventure orientation programs possessed lower social or academic scores when compared to other incoming first-year students. In this study, only the Awakeners' CSDTI-2 scores were significantly lower.

Although Awakeners were significantly lower in student development scores than Non-Awakeners at the start of the academic year, positive significant gains during the first six months of their academic experience suggest the Awakening program helped students "catch up" to their peers in certain areas of student development. This study found significant increases in Awakening participant scores in the Task Developing Autonomy and two of its associated Subtasks of Emotional Autonomy and Instrumental Autonomy. The Awakeners were also found to have a significant positive increase in the Task Developing Purpose and in one of its associated Subtasks, Appropriate Educational Plans (Table 8).

Two researchers previously measured the effects of wilderness adventure orientation programs on student development behaviors. Hansen (1982) found participants were positively influenced in the Subtasks of Interdependence, Mature Career Plans, and Tolerance. Gass (1987) found participants possessed significant gains in the Tasks of Developing Autonomy and Developing Mature Interpersonal Relationships and in the Subtasks of Interdependence, Appropriate Relationships With Opposite Sex, and Tolerance. Both former studies' findings are somewhat different than this study's. It is worth noting that Gass (1987) and Hansen (1982) determined significance to be at $p < .05$, while this researcher used effect sizes and confidence intervals with $p < .10$. Furthermore, the Gass and Hansen studies were conducted in the 1980s, whereas this group was from 2001. There may have been historical or cultural differences given the 20-year time difference between the studies.

Table 9

Comparison of Positive Significant Task and Subtask Findings in Three Studies Using the CSDTI-2

CSDTI-2 Task and Subtasks	Hansen (1982)	Gass (1987)	Vlamis (2002)
Developing Autonomy		X	X
Emotional Autonomy			X
Instrumental Autonomy			X
Interdependence	X	X	
Developing Purpose			X
Appropriate Educational Plans			X
Mature Career Plans	X		
Mature Lifestyle Plans			
Developing Mature Interpersonal Relationships		X	
Appropriate Relationships With Opposite Sex		X	
Mature Relationships With Peers			
Tolerance	X	X	

Note. X refers to a statistical significance. Hansen and Gass used ($p < .05$), whereas Vlamis used ($p < .10$) to reduce potential for Type II errors.

As with Awakening, the five-day wilderness adventure orientation program known as Fireside had seven major goals. Three of Fireside's program goals targeted the Task area of Developing Autonomy through providing first-year students with challenges (Gass, 1986). Both programs created a significant positive outcome in the Task Developing Autonomy. In contrast to Awakening program findings, Fireside's change in this Task area was due to a significant increase by participants in the Subtask Inter-

dependence. Perhaps this difference is due to the fact that one of the Fireside's program goals in this area focused on presenting challenges that required students to work together, thus helping them notice the relationship between their own behavior and the greater community's welfare. In short, Fireside program goals in the Task Developing Autonomy were more focused on helping students recognize the benefits of group problem solving, while Awakening program goals in this area focused more on individual development. Therefore Awakeners increased significantly in the other Subtasks of Emotional Autonomy and Instrumental Autonomy.

Gass (1987) found no significant changes in participants' scores in the Task Developing Purpose or in any of its Subtasks during the Fireside program (see Table 9). In contrast to Gass's findings, Awakening produced a positive significant outcome in the Task Developing Purpose, due to a significant positive change in the Subtask Appropriate Educational Plans.

Finally, Gass (1987) found Fireside participants' mean scores to significantly increase in the Task Developing Mature Interpersonal Relationships and in two of its associated Subtasks, Appropriate Relationships With Opposite Sex and Tolerance. Similarly, Awakening program participants had significant positive gains in the Subtask Appropriate Relationships With Opposite Sex. This increase, however, only occurred from Time 2 to Time 3 and was not large enough to create significant overall change (Time 1 to Time 3).

By comparing the Fireside and Awakening orientation programs' goals and outcomes, it can be seen that their program goals, experiences, and processes associated with achieving their respective goals created specific changes. As a result, the generalizability of each study is limited, and differences in results may simply be a consequence of an adventure orientation program that is relatively similar in its use of adventure, but with different program goals at the different institutions of higher learning.

Limitations

This research is limited by numerous differences between this study and the Gass (1986) study it was meant to replicate. These differences may contribute to differing outcomes. The researchers of this study presented an argument that differences are probably due to intent, objectives, program philosophy, and focus, but other differences are worthy of consideration. Differences in the students choosing a mid-size university versus a small, private college, and differences in the program length, training, and management could have contributed to the results. Because such research cannot reasonably control all variables or effectively match programs, replication of outdoor education research studies is encouraged. It is through repetition of research studies that variables will be identified and understood.

Implications for Orientation, Adventure Education, and Student Development Staff

Although adventure processes have been used at colleges and universities since 1935 in an effort to help first-year students transition to college, a limited amount of research has evaluated the effectiveness of such programs. This study has helped demonstrate the influence that adventure experiences can have in helping first-year students develop certain positive behaviors, as deemed by student development experts and college personnel. Comparing Hartwick's Awakening program goals and outcomes to those of the University of New Hampshire's Fireside program (Gass, 1986) suggests that changes in areas such as student development are dependent on program differences. In this study (and the Gass 1986 study it replicates), students had significant educational gains, but different gains were found in the different programs. This is a function of curriculum and is consistent with findings in other research studies of outdoor orientation programs, such as Oliver (2010) and Bell and Holmes (2011). Even though all outdoor orientation programs may share some common outcomes (e.g., bonding, personal growth), there are specific program outcomes due to curriculum. These outcomes can vary by student development tasks, as demonstrated in this study, or by other factors, such as the rates of pluralistic ignorance regarding campus alcohol use (Oliver, 2010). These results support the influence a curriculum has on the intended outcomes of an adventure orientation program.

Once a curriculum is established, it is important to train leaders in the curriculum, while including the use of adventure processing skills and techniques so leaders are capable of appropriately framing and debriefing activities around issues relevant to first-year students (Gass, 1999).

Recommendations for Future Research

Additional studies are needed on first-year adventure orientation programs to further investigate the effectiveness of using adventure processes for this particular purpose. Other areas for future research include a need to conduct similar studies, at least one year in length, at various institutions of higher learning, in order to increase the strength and generalizability of results. Without these attempts at generalizability, developing programs are left to reinvent and reconfigure adventure orientation programs without an adequate understanding of potential programmatic impacts. Studies investigating the essential program components for an effective adventure orientation program (e.g., type of activity) are also needed. In addition, longitudinal studies are needed to determine (a) what effect time has on the ability of an adventure orientation program to positively impact students and (b) what is an adequate program length in order for an adventure orientation program to positively impact stu-

dents. Further studies should investigate instruments used to evaluate adventure orientation programs to determine those most appropriate, and should examine other variables besides those currently used (e.g., student development), as they might provide a more accurate representation or picture of how adventure orientation programs positively impact participants and/or have more appropriate statistical analyses (e.g., student satisfaction with the college or university).

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