
By Keith Russell, John C. Hendee, and Steve Cooke

Abstract: Wilderness Discovery (WD), a seven-day wilderness experience program designed to empower and strengthen the skills and motivation of youth-at-risk in the Federal Job Corps, was tested in 46 trips at four Federal Job Corps Centers (JCCs). Student journals and exit interviews showed that Job Corps students learned valuable lessons from WD: (1) that they said they would use to improve communication with other students and authority figures; (2) a more positive attitude toward Job Corps; and (3) a sense of accomplishment. WD participants were matched with control groups revealing that WD reduced early terminations 35% at Curlew JCC in 1993, and an average reduction of 23% at three centers in 1994. Steering committees at each center came to consensus on many positive benefits of WD, which were then linked to five critical variables in a benefit/cost model developed for Job Corps by Mathematica (1985). Based on all the study evidence, modest adjustments of 1%, 3%, and 5% were made in critical variables of the model to simulate potential economic benefits which exceeded costs of WD, as an adjunct to Job Corps. This analysis and framework helps document the idea that in designing a wilderness program around desired outcomes, in this case reducing early terminations and enhancing employability of JCC students, and designing analysis of these outcomes, wilderness experiences may be justified for economic reasons.

Although students can stay in Job Corps for up to two years, many leave the program early or are terminated for disciplinary reasons before completing their educational and vocational training. Those students completing Job Corps are more likely to get a job. And social benefits from participating in Job Corps are positively correlated with length of stay in the program (Navarro and Associates 1990; Mathematica 1985). Thus, reducing early termination rates, increasing education and vocational training completion rates, and otherwise enhancing student performance are Job Corps priorities.

Wilderness Discovery

A seven-day backpacking program called Wilderness Discovery (WD) was designed and implemented at four participating Job Corps centers from 1993 to 1995 to address these problems (Hendee and Russell 1996; Russell and Hendee 1997). WD was specifically designed as a low-risk, low-stress, soft-skills (in contrast to adventure-challenge) program that allowed students time for reflection on their role in Job Corps, their life, and their future (Pitstick et al., 1993; Pitstick 1995). Students shared in cooking and camping chores, frequently convened in

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community circles to share feelings and decision-making, kept a journal, and spent periods of time alone to reflect. In addition to these soft-skill activities, participants complete some trail maintenance together to show respect for the wilderness.

The theoretical notion is that by increasing the self-esteem and sense of personal control of participants, which are effects reported in studies of wilderness experience programs and especially those serving youth-at-risk (Friese et al., 1996), that students would be more likely to remain in Job Corps, complete their educational and vocational training, and secure and maintain employment upon completion of Job Corps.

Research Question and Methods

Benefit/cost analysis addresses program efficiency by systematically comparing the benefits received with the costs of the various resources invested in a program (Sassone and Schafer 1978). The very nature of wilderness experience programs such as WD are difficult to evaluate using this methodology due to many non-measurable benefits received by the participants (Latess 1988). To address this limitation, we utilized the existing benefit/cost model developed by Mathematica Policy Research Inc. (1985) to assess the economic efficiency of Job Corps. Simulating the model’s valuation methodology, we explored the potential increases in net social benefits possible from WD as an adjunct to Job Corps, particularly through WD’s ability to reduce early termination (Russell 1996).

Based on theoretical lines of reasoning, and the expert judgments of Job Corps staff serving on WD steering committees, and utilizing a benefit/cost model generated by Mathematica Policy Research Inc. (1985), the following research question was addressed: What are the projected net social benefits of WD as an adjunct to the Job Corps program? Four types of data were collected and analyzed: (1) student journals, (2) exit interviews, (3) termination rates of student participants compared with nonparticipants over a four-month period, and (4) consensus judgements of focus groups of Job Corps staff who served on WD steering committees at each center.

Findings: Student Journals

Job Corps students participating in WD were given journals to record their experience during the seven-day backpacking trip. They were given time alone during layover days and

<table>
<thead>
<tr>
<th>Table 1-Content Themes Analyzed in Student Journals for 1994–1995 WD Participants at Four Jobs Corps Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content Theme</strong></td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td><strong>EMPOWERMENT</strong></td>
</tr>
<tr>
<td><strong>CLARITY</strong></td>
</tr>
<tr>
<td><strong>PEACEFULNESS/HARMONY</strong></td>
</tr>
<tr>
<td><strong>WILDERNESS:NATURE</strong></td>
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<tr>
<td><strong>GROUP: INTERPERSONAL SKILLS</strong></td>
</tr>
<tr>
<td><strong>METAPHOR</strong></td>
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<tr>
<td><strong>CREATIVE EXPRESSION</strong></td>
</tr>
</tbody>
</table>
Table 2: Responses to Selected Exit Interview Questions at the Conclusion of Each WD Trip at Four Job Corps Centers, 1994-1995

<table>
<thead>
<tr>
<th>Exit Interview Question</th>
<th>Yes</th>
<th>No</th>
<th>Most Frequent Reasons Given by Percent Mentioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Was the experience different than to be?</td>
<td>93%</td>
<td>7%</td>
<td>Hiking more difficult (48%), Enjoyed it more than anticipated (18%)</td>
</tr>
<tr>
<td>2. How did you feel about the group and the goals accomplished as a group?</td>
<td>96% (Good)</td>
<td>4% (Bad)</td>
<td>Became better acquainted with trip participants (53%), We became like a family (30%)</td>
</tr>
<tr>
<td>3. Will you apply something learned on WD to your daily life back at center?</td>
<td>96%</td>
<td>4%</td>
<td>More confident and motivated or felt accomplished something (36%), Communicate more openly with others (35%)</td>
</tr>
<tr>
<td>4. What benefits are there from visiting the wilderness?</td>
<td>96%</td>
<td>4%</td>
<td>Getting away from the stress of life (35%), Learning respect for other people and nature (30%), Time to reflect and know oneself better (11%), Not take things for granted (10%)</td>
</tr>
<tr>
<td>5. Is WD a good program for Job Corps?</td>
<td>100%</td>
<td>0%</td>
<td>Think about life and role in Job corps (23%), Get away from stress and think (18%), Positive effect on attitude and motivation (17%), Chance to find self (13%), Chance to see wilderness for persons previously not given the opportunity (12%)</td>
</tr>
</tbody>
</table>

Findings: Exit Interviews

At the conclusion of every WD trip, each student responded to questions about their WD experience in a privately recorded interview with a leader at the trailhead. The interview began with general items and then moved to more direct questions of what particular things had been learned on their WD trip and how they planned to apply them to their lives at Job Corps.

The interviews were later transcribed and descriptive statistics were tabulated for interview items having objective responses—such as yes or no. Responses that were narrative were content analyzed to identify consistent themes and then analyzed across JCCs using cross tabulations to search for patterns. Responses to the questions are summarized below and in Table 2.

1. WD was different than the students expected (93%). This was true despite a 2-hour pretrip meeting in which the trip was described in detail, fears and expectations were discussed, and an equipment list was distributed. The most frequent reason given was that the hiking was more difficult than expected (48%), followed by statements that they enjoyed WD more than they anticipated (18%). It appears that students were being challenged physically and mentally, yet it was much more enjoyable than they had anticipated.

2. A community ethic was established on WD trips. The students said they felt good about their group and the friends they made (96%); giving such supporting reasons as they had become better acquainted with the members of their group (53%); and many said the group had become a family and had achieved group goals (20%). WD leaders and Job Corps staff observed that WD participants were
able to communicate in a more open manner and felt comfortable discussing and sharing feelings with other students in their group.

3. WD participants felt they learned valuable lessons they would bring back to the center and apply to their daily lives (96%). Supporting reasons given included they were more confident and motivated after achieving success on WD trips or felt they had accomplished something (36%). Communicating with other students and authority figures in a more open and nonjudgmental manner (35%) was also noted as a lesson learned on WD, and one they would like to apply to their interactions in the dorm or with Job Corps staff (WD strengthened their self-esteem and confidence).

4. Getting away from the stress of the day-to-day routine of Job Corps was seen by students as the most important benefit of visiting the wilderness (35%). This was followed closely by “learning respect for nature and other people” (30%). Some students noted that the time away was needed to reflect on their lives and to get to know themselves better (11%). They also valued the time as a chance to see more clearly their role in Job Corps, to set goals for the future, and to respect and appreciate nature as well as other things—not to take things for granted (10%).

It appears that wilderness excursions in granting peace and quiet allowed students to return to Job Corps feeling renewed and refreshed. They learned a metaphor of respect and caring for other people as well as the wilderness.

5. All students said WD was a good program for Job Corps (100%). Supporting reasons included: a chance to think about their role in Job Corps and their future (25%); to get away from the stress of Job Corps and provide time to think (18%); positive help for students’ attitudes and motivation (17%); a chance to find themselves (13%); and a chance to see the wilderness for those people who would not otherwise have had the opportunity (12%).

Findings: Termination Data

To address the question “What are the effects of participation in WD on length of stay in Job Corps?” we compared the termination rates of WD participants with a control group of Job Corps students who did not participate in WD. The idea was to see whether participating in WD would result in students staying in Job Corps longer and/or completing their educational and vocational training. We compiled a control group resembling WD participants in gender, age, and length of stay in Job Corps and then used a random number table (Montgomery 1976) to select the nonparticipant control group. This matched list of students (WD participants and their matched pairs) was then checked for termination status at the end of December, four months after the last WD trip ended.

The 1993 analysis of termination data revealed that at least 4 months post WD there was a 36% reduction in termination rates among WD participants compared to control groups, and an average reduction in early termination rates for Wilderness Discovery participants of 23.2% when 1994 students at Curlew, Timberlake, and Trapper Creek Job Corps centers were added (see Table 3). This collective reduction in early termination rates is lessened by a “no difference” findings at Timberlake Job Corps center which is partially explained by factors unique to that center (see Table 3 footnote).

Furthermore, based on theoretical, empirical (our study results), and practical reasoning, we believe that greater reductions than those demonstrated would be possible if students that were known to be at risk for early termination were selected to participate in WD, and refinements were made in the WD program aimed directly at reducing termination rates. For example, students with a 30-60 day tenure at Job Corps are known to have a high dropout rate. These dropouts cost the federal government $100 million dollars in Job Corps expenses annually, with no measurable benefits returned to society from this investment (Navarro and Associates 1990).

Findings: Consensus Expert Opinions from Focus Groups of Job Corps Staff

At the end of the Summer of 1995, the WD steering committees at each Job Corps Center participated in a focus group exercise to evaluate the success of Wilderness Discovery at their respective
### Table 4

<table>
<thead>
<tr>
<th>Benefit Variable</th>
<th>Mathematica Policy Research Inc. (1985) Definition</th>
<th>Multiple Scenario 1</th>
<th>Multiple Scenario 2</th>
<th>Multiple Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable 1</td>
<td>Employability</td>
<td>2%</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Variable 2</td>
<td>Welfare Dependency</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Variable 3</td>
<td>Criminal Behavior</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Variable 4</td>
<td>Drug/Alcohol Abuse</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Variable 5</td>
<td>Retention Rate</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Multiple Scenario 1 assumes a more conservative increase in the value of the benefit variables, and Multiple Scenarios 2 and 3 increase the benefit variables slightly higher to explore the sensitivity of variables to net social benefits.

The following benefit categories emerged in the consensus expert opinions by WD steering committee focus groups conducted at Atlanta, Georgia; Curlew JC in Washington; Trapper Creek in Montana; and Timberlake in Oregon: JCCs at the conclusion of the WD program in 1995, as to perceived benefits to students who participated in WD:

- Accomplishment
- Appreciation/Exposure to New Experiences
- Communication
- Challenge
- Healthy Environment
- Reflection and Introspection
- Self-Confidence
- Self-Esteem
- Teamwork/Cooperation
- Trust and Respect for Others and Authority Figures
- Wilderness and Environmental Awareness

These categories document benefits to students from participation in WD and support the positive effects we already identified in analysis of student journals, exit interviews, and reduced termination rates. The focus group also identified key social skills learned and practiced on WD trips that are related to future job possibilities, including: (1) communications (both listening and speaking), (2) problem solving, interpersonal, negotiation skills, and teamwork skills. (3) self-esteem, (4) goal setting, and (5) leadership. Collectively, these data reinforce the notion that a wilderness experience program enhanced performance by students in Job Corps, and could potentially affect Job Corps’ ability to prepare young people for a more productive life after Job Corps, when they enter the job market.

### Applying a Benefit/Cost Model to Wilderness Discovery

The foregoing evidence, including an average 23% reduction in termination rates by WD participants, combined with positive student journal and exit-interview findings, and the post trip enhanced performance of WD participants perceived by Job Corps staff, all suggest positive results from participating in WD. This positive evidence is linked to the Mathematica Policy Research Inc. (1985) benefit/cost model by expert judgments of the WD steering committees of Job Corps staff, supporting the notion that WD is enhancing the mission of Job Corps to prepare eligible young people for meaningful employment WD directly targets and develops necessary skills that are needed in the job market, thus enhancing a student’s employability. These factors form the theoretical basis for potential additions to net social benefits derived from investing in WD as an adjunct to the Job Corps. The theoretical model and its projections are presented in Figure 1.

### Simulating Benefits of Wilderness Discovery

Under the assumption that the foregoing study findings support the idea that participation in WD will enhance benefits as outlined in Figure 1, we developed three benefit/cost scenarios with very conservative increases in five benefit variables (1–5%) in the Mathematica Policy Research Inc. benefit/cost model to simulate the effect WD could have on the overall effectiveness of Job Corps (see Table 4). The resulting sensitivity analysis generated new benefit/cost ratios suggesting that slight increases in benefit variables...
can lead to increased net social benefits attributable to WD as an adjunct to Job Corps (see Figure 2). That is, Job Corps has a documented baseline benefit-to-cost ratio of $1.16 of benefits returned to society for every dollar invested in the program (Navarro and Associates 1990). Adding WD as an adjunct to Job Corps increases the benefit/cost ratio.

The sensitivity analysis leads to the additional question: Do the total estimated benefits of WD as an adjunct to Job Corps exceed the additional costs of operating the wilderness experience program? To determine if the marginal cost of adding WD to Job Corps ($367 per student per trip) was less than the additional benefits returned, we utilized the dollar values of benefits used by Mathematica Policy Research Inc. (1985) in their benefit/cost model. After adjusting the benefit/cost model to reflect 1996 dollars, and based on our findings, we simulated benefit variable increases of 1% to 5% to reflect enhanced Job Corps effectiveness in training young people to enter the workforce. These conservative adjustments yielded an increase of $767 in net social benefits attributable to WD as an adjunct to Job Corps. This means that for every dollar invested in WD, $1.52 would be returned, based on this simulation and assumptions derived from our study findings.

**Discussion:**

**Job Skills for the Future**

Social skills developed through participation in WD help students in a variety of social interactions and will make them more employable upon completion of their training-based on findings from exit interviews and consensus opinions of Job Corps staff participating in this study. To further support the theory that WD can enhance Job Corps, and to reinforce our findings, an examination showed how WD is targeting complex social skills required by employers (Law 1994). Following is a list of job skills noted by the Committee for Economic Development (1990) that will be required for young workers entering the labor market in the future: reading, writing and computation; learning to learn; commu-
communication-listening and oral; creative thinking and problem solving; interpersonal, negotiation, and teamwork skills; self-esteem and goal-setting; motivation and personal career development; organizational effectiveness and leadership.

The highlighted skills were identified as being enhanced by Wilderness Discovery through the analysis of journals, exit interviews and by Job Corps staff. Thus, based on the evidence presented in this study, participation in WD could increase students' employability by helping them acquire skills needed for a changing labor market.

Summary and Conclusions
Positive impacts on self-esteem and sense of personal control are documented as benefits from participation in wilderness experience programs (Friese et al., 1996). Programs for disadvantaged youth, such as Job Corps, might utilize this empowerment provided by wilderness experience programs to facilitate the education, job training, and rehabilitation of youth-at-risk. To support such proposals new studies and new approaches to outcome-based wilderness program design and evaluation are needed.

While the benefit/cost analysis applied to this study is not a new method, its applications to simulate and evaluate the effects of a wilderness experience program as an adjunct to Job Corps is unique. This evaluative framework helps document the idea that in designing a wilderness program around desired outcomes, in this case enhanced employability and designing an evaluation to address these desired outcomes, wilderness experiences may be justified for economic reasons not just the enhanced self-esteem of participants. Wilderness experience programs can be strategically deployed to help prepare economically and socially disadvantaged youth for enhanced life prospects by developing their social, problem-solving, and goal-setting skills, as well as enhancing self-esteem and confidence to help them get and keep a meaningful job.

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REFERENCES