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WHAT HAPPENS MONDAY?: THE IMPACT GROUP INITIATIVES HAVE ON SELF-APPRAISED PROBLEM-SOLVING ABILITY

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WHAT HAPPENS MONDAY?: THE IMPACT GROUP INITIATIVES HAVE ON SELF-APPRAISED PROBLEM-SOLVING ABILITY

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ABSTRACT

Effective problem solving is an essential skill for people to possess. Effective problem-solvers have fewer troubles when dealing with their problems and adjust to society better. Effective problem-solvers take the needed steps to solving their problems (Bloom and Broder, 1950; Heppner et al., 1982). Few studies have been conducted looking at the long-term effect of programs that have problem-solving as an anticipated outcome. The few that have (Gass & Priest, 2006; Hatch & McCarthy, 2005) have not been conclusive in their results. The current study looks at the impact of group initiative involvement on problem solving using the Problem Solving Inventory (PSI) (Heppner, 1982). Data were collected from PRTM 101 students who participated in a three-hour group initiative session either early in the semester (experimental group, N=63) or later in the semester (control group, N=25). Data were collected using pre/post surveys during the respective PRTM 101 classes and immediately following the treatment on-site. Participants were measured at five- and nine-week follow-ups to determine if any elevated levels of perceived problem-solving ability after the group initiative course remained elevated. Analysis revealed that self-appraised total problem solving ability (TPS), personal control (PC), approach- avoidance style (AA), and problem solving confidence (PSC) were significantly higher than pretest scores immediately following the group initiative session; however total PSC and PC were the only two significantly higher than control group scores at the same time. At the five-week follow-up all but AA style returned to pretest levels. At nine weeks, TPS ability, PC, and AA style were significantly higher from pretest scores. However, the control group's PC also increased

significantly at nine weeks from pretest scores. Therefore, while group initiatives appear to have some impact on self-appraised problem solving ability, the findings indicate need for further study.

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CHAPTER ONE

INTRODUCTION

Adventure Education

Today, more than ever before, people are seeking opportunities for recreation in a natural setting to escape their work, schedules, and stress. Trends in adventure education show that the numbers of adventure activities and programs as well as participation in these activities are growing very quickly and a diverse group of participants are using those resources. While outdoor adventure programs started in the military, these programs now have a variety of clients. Among the groups that utilize these programs are businesses, addiction centers, alternative schools, and sport teams. (Attarian, 2002; Miner, 1990; Priest, 1990). Adventure programs now attract a plethora of different groups.

The goals and objectives of adventure education programs are widespread and the differences between the two should be noted. The goals of a program come from that individual program's purpose. Objectives are more specific and clarify each goal (Priest & Gass, 2005). Goals can include, but are not limited to, empowering individuals or teams, eliminating barriers to transfer of learning for clients, and intervening when necessary. The objectives may include improving self-concept, confidence, problem-solving ability or communication (Priest & Gass, 2005). In adventure education programs, the intended goals and objectives are often reached via a means that is nontraditional or indirect. A program may teach skills such as rock climbing, belaying, canoeing, camping, and other outdoor adventure skills to develop other attributes such as

trust, cooperation, or problem-solving. These challenge activities promote personal growth and development (Priest, 1990).

Adventure education has a long history. Adventure programs started in the United States in 1962 when Outward Bound was first introduced to North America (Attarian, 2002). It can, however, be traced back as far as Plato and Aristotle (Hunt, 1990). Participation in adventure activities has increased and continues in an upward trend as Americans increasingly value their leisure time (Attarian; Ewert, 1987). The increase in adventure activities can partially be attributed to more free time, health-consciousness, income, and education (Attarian; Ewert). As of 2002, more than an estimated 15,000 challenge courses were operating in the United States (Attarian). That is enormous growth from only 700-1000 in the early 1980's (Attarian).

While adventure education is a growing trend, the studies examining the outcomes from these programs are almost entirely anecdotal. Participants are often asked what they feel they received from the experience (Bronson, Gibson, Kicher, & Priest, 1992; Goldenberg, Klenosky, O'Leary, & Templin, 2000; Smith, Strand, & Bunting, 2002). These anecdotal studies have not empirically measured the perceived benefits nor have they followed-up with the participants after the program ended. A few studies have looked at the long-term effects of adventure courses (Breheny, 2000; Gass & Priest, 2006; Hatch & McCarthy, 2005), but these studies have yielded inconclusive results. While one study will find a return to pretest levels of group functioning at two months (Hatch & McCarthy), another will find elevated levels of teamwork still at 12 months

(Gass & Priest). Because there is little research on adventure education in general and because findings are inconclusive, more research is needed in this area.

Experiential Learning

Experiential learning is a process of learning by doing. In 1994, the Board of Directors for the Association for Experiential Education defined experiential education as "a process through which a learner constructs knowledge, skills, and value from direct experiences" (Luckmann, 1996, p. 7). After an experience, a participant reflects on the experience (Joplin, 1995; Luckner & Nadler, 1997). Reflection is essential to experiential learning because without the reflection, participants just have an experience (Joplin). The goal of experiential learning is that participants will take responsibility for their learning and behavior. Experiential educators do not tell the participants the answers to the problems with which they are faced, rather the teachers (or facilitators) allow the participants to figure out the answers themselves while guiding them through the process. It is important that participants are active in the process and see relevancy to what they are doing both now and in the future. Being able to transfer knowledge from one experience to another is the most important aspect of experiential learning. If learning in the outdoor, adventure setting cannot be transferred to everyday life, there is not much learning actually taking place (Luckner & Nadler; Nadler & Luckner, 1992).

Group Initiatives

Group initiatives are a sub-set of an adventure education course. They are problem-solving games and activities in which groups must complete a specified goal defined by the facilitator (Learning-for-Life, 2005). Group initiatives are also called low

ropes courses, meaning all elements of the course are 15 feet or lower to the ground and instead of using belay devices, participants "spot" their group mates (Attarian, 1990; Rohnke, Tiat, & Wall, 1997). In group initiatives, and ropes courses in general, participants are not told how to accomplish the goal. Participants are given a task, sometimes a time limit, and a goal. They are left to strategize on their own and overcome any obstacles (Aubrey & MacLeod, 1994). The main goals of low ropes, or group initiatives, are trust, group interaction, problem solving, communication, and decision making (Attarian).

Problem Solving

Effective problem solving is a necessary life skill. People face problems on a daily basis and few problems will resolve themselves. Problems can be as small as what to eat for breakfast and as large as what career path to choose. Heppner, Hibel, Neal, Weinstein, and Rabinowitz (1982) identified differences between perceived successful and unsuccessful problem solvers. Perceived successful problem solvers were motivated to solve problems, expected to see successful results from their efforts, saw effort and ability as important, and possessed numerous other positive qualities related to problem solving. On the other hand, perceived unsuccessful problem solvers had trouble starting the process as well as viewed luck as important when solving problems (Heppner et al.). Research has also shown that perceived successful problem solvers are more systematic and feel in control of their problems (Bloom & Broder, 1950; Heppner et al.).

Ineffective problem solving has been linked to psychological maladjustment as well as to depression. Effective problem-solvers tend to be more flexible and adaptable in

a variety of situations. They also handle stress in a more positive manner (Durlak, 1983). Problems will not just go away, so it is important people learn how to effectively solve their problems. In this study, problems were defined as personal problems that many people face such as depression or the inability to get along with friends (Heppner, Witty, & Dixon, 2004).

Summary

This review shows the importance of effective problem-solving techniques. Avoiding problems is not an option for individuals. Effective problem-solvers have fewer troubles when dealing with their problems. They adjust to society better and feel in control of the problem. Effective problem-solvers take the needed steps to solving their problems. Obviously it is important for individuals to learn these skills.

Few studies have been done looking at the long-term effects of adventure programs that have problem-solving as an anticipated outcome. The few that have (Gass & Priest, 2006; Hatch & McCarthy, 2005) have not been conclusive in their results. More studies need to identify empirical evidence as to what benefits are being derived from adventure courses and how long those benefits last.

The current study looked at problem solving using the Problem Solving Inventory (Heppner & Petersen, 1982). Study participants participated in a three-hour group initiative session with a trained facilitator. Participants were measured at five- and nine-week follow-ups to determine if any elevated levels of self-appraised problem-solving ability after the group initiative course were still elevated at those times. Past research has indicated teamwork levels have been elevated for as long as 12 months after the

experience but group functioning levels have also dropped back to pre-test levels by two months (Gass & Priest, 2006; Hatch & McCarthy, 2005). The five- and nine-week follow-ups are unique to the literature in that these periods have yet to be examined. The five-week follow-up gave a middle marker for the study and indicated if levels were elevated after the group initiative session and if they remained elevated after five weeks. Hatch and McCarthy found levels decreased to pre-test levels by two months. That study had no follow-up measurement prior to two months. The five-week follow-up in the current study gives a marker prior to two months and the nine-week follow-up shows the levels just after two months. Gass and Priest measured after one month and not again until six months. With some of the facilitation styles used, Gass and Priest found participants' levels returned to baseline by six months. It is unknown at what point between one and six months that level started to drop.

Statement of Purpose

The purpose of this study was to determine if participation in a group initiatives course among college Parks, Recreation, and Tourism Management students would result in higher total self-appraised problem solving abilities, problem-solving confidence, approach-avoidance style, and/or personal control and if increased, if it would remain elevated at five and nine week follow-ups.

Hypotheses

H_{01}: Participants in a group initiatives course will not show a significant increase on self-appraised total problem solving ability when compared to non-participants.

$H_{02:}$ Participants in a group initiatives course will not show a significant increase on self-appraised problem solving confidence when compared to non-participants.

$H_{03:}$ Participants in a group initiatives course will not show a significant increase on self-appraised approach avoidance style when compared to non-participants.

$H_{04:}$ Participants in a group initiatives course will not show a significant increase on self-appraised personal control when compared to non-participants.

Definition of Terms

Adventure Education: Using outdoor activities such as ropes courses, canoeing, and other physical challenges to build skill (Green Chimneys, 2007).

Approach Avoidance Style: Whether individuals approach or avoid problem-solving activities.

Experiential Education: "A process through which a learner constructs knowledge, skill, and value from direct experiences" (Luckmann, 1996, p. 7).

Facilitator: An individual trained in group initiatives and/or the high ropes course and hired through Clemson University's Outdoor Laboratory in Clemson, South Carolina.

Group Initiatives: Group initiatives are problem-solving games and activities in which groups must complete a specified goal defined by the facilitator. These elements must be 15 feet or lower to the ground. Group initiatives can be group activities or individual activities where the group actively supports the other members of the group such as in the trust fall.

Personal Control: Personal control is defined as "believing one is in control of one's emotions and behaviors while solving problems" (Heppner, Witty, & Dixon, 2004, p. 353).

Problems: Problems as defined on the Problem Solving Inventory are, "personal problems that many people experience, such as depression, inability to get along with friends, or deciding whether to get a divorce" (Heppner, Witty, & Dixon, 2004, p. 352).

Problem Solving: For this study, problem solving will be operationalized as problem-solving appraisal using the Problem Solving Inventory (PSI).

Problem-Solving Confidence: According to Heppner, Witty, and Dixon (2004), problem-solving confidence is defined as "an individual's self-assurance, beliefs, and trust in his or her ability to effectively cope with a wide range of problems" (p. 353).

Problem Solving Inventory (PSI): The PSI is an instrument that "assesses perceptions of one's problem solving ability as well as behaviors and attitudes associated with problem-solving style (Heppner at al.). The PSI does not measure *actual* problem-solving skills, only individuals' perceptions of their problem-solving style or belief (Heppner et al.). It consists of 32 items measured on a 6-point Likert scale. There are three dimensions within the PSI: Problem-Solving Confidence, Approach-Avoidance Style, and Personal Control. Each of the three dimensions appraises a specific area of an individual's problem-solving style whereas the overall score relates to one's general appraisal of his/her problem-solving style (Heppner et al.).

Problem-Solving Appraisal: Problem-solving appraisal is self-assessed and is "a generalized set of beliefs or expectancies about one's problem-solving abilities" (Heppner et al.).

Delimitations

This study was delimited in the following ways:

Classes—The study only used three course sections from one academic department. Each section was taught by a different instructor.

Group Initiatives at the Outdoor Laboratory with Senior Level Facilitators—The researcher chose to use one facility and two facilitators who had achieved the highest level of facilitation.

Participants—The participants of the study were aware of the survey and the experiment.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The following sections discuss the history and previous literature in the following areas: (a) outdoor and adventure education, (b) group initiatives, (c) experiential education, (d) processing, (e) problem solving, and (f) transfer of learning. The following chapter also outlines the model used in the current study and details the four stages of the experiential learning cycle.

Outdoor Education/Adventure Education

Outdoor education is a broad term. Simon Priest (1990) defined it as, "an experiential method of learning with the use of all senses" (p. 113). There are two branches of outdoor education: environmental and adventure. This study is looking at adventure education specifically. Priest identified one founding idea of adventure education. The main idea of adventure education is exposure to *C*hallenge, *H*igh *A*dventure, and *N*ew *G*rowth *E*xperiences, which creates the apt acronym CHANGE (Priest). Adventure education uses such things as group initiatives to accomplish this goal. Group initiatives, as well as ropes courses, provide problem-solving tasks to accomplish, which are often very challenging. Group initiatives provide individuals with problem-solving tasks that require decision making, judgment, cooperation, and trust, all elements of problem-solving itself (Priest).

Although adventure education can be traced back as far as Plato's *Republic* and Aristotle, challenge courses have been utilized in the United States by outdoor programs

such as Outward Bound since 1962 (Attarian, 2002; Hunt, 1990). Outward Bound came to North America in 1962, but was introduced in Aberdovey, Wales, in 1941 by Kurt Hahn and Laurence Holt (James, 1995; Miner, 1990). The first goal of Outward Bound was to strengthen young men in Great Britain for World War II (James). Holt described the training at Aberdovey as, "less a training *for* the sea than *through* the sea, and so benefits all walks of life" (Miner, p. 59). This idea of "training through rather than for" has stuck with Outward Bound and has become the essence of the experience (Miner). The "through" is now not just the sea, but mountains, deserts, wild country, and other areas of the country and world.

Project Adventure was the first to integrate challenge courses into the public school physical education system. Jerry Pieh, along with his father, Bob Pieh, started the Minnesota Outward Bound School in 1962 (Prouty, 1990). As a principal he wanted to mainstream the Outward Bound process, calling the new program Project Adventure (Prouty). Pieh wanted the Outward Bound process to become part of the standard curriculum, taught by public school teachers, not Outward Bound staff (Prouty).

Bob Lentz became the first director of Project Adventure (Prouty, 1990). The curriculum was instituted in the tenth grade year when every sophomore took a year-long Project Adventure physical education class (Prouty). The class did a progression of activities including trust building exercises, initiative problems and ropes course elements (Prouty). Project Adventure had two main goals that were "constantly sought and reinforced: that the student would learn how to solve problems in a group more creatively and efficiently; and that preconceived barriers to what was possible often held

both the group and the individual from increasing achievement" (Prouty, p. 98). Attarian (2002) suggested the movement of Project Adventure was what really spurred the growth of challenge courses being used to increase personal and professional growth.

There are 15,000 plus challenge courses operating today (Attarian, 2002). That is a large growth from just 700-1000 in the early 1980s. One reason may be that challenge courses are more adaptable today than ever before. Many of the elements, such as group initiatives, can be done anywhere—at home, on the soccer field, in the conference room—with any population. This means it is possible for the challenge course experience to come to the client. While the elements are portable they still require a facilitator to guide the group through the experience. Many development programs such as Corporate Adventure Training (CAT) have been born out of this movement. Attarian suggested that it is programs like CAT, that strive to motivate employees and build a high-performing team, that have had the most significant impact on the growth of challenge courses.

Group Initiatives

The term "challenge course" encompasses high ropes, low ropes and group initiatives. High ropes are those elements more than 15 feet off the ground and that can be higher than 50 feet. Belays, techniques used to protect climbers by using ropes, carabiners, and cables, are used and the elements are suspended by steel cables or specialized hardware (Attarian, 1990; Rohnke, Tait, & Wall, 1997). Low ropes courses or group initiatives are elements 15 feet or lower to the ground. Instead of belays, these elements use individual spotters for safety (Attarian). The purposes for high and low ropes courses are somewhat different as well. High ropes courses are used to enhance

participants' self-concept and self-esteem whereas low ropes courses or group initiatives are primarily used to build trust, improve group cooperation, communication and problem solving (Attarian). Despite low ropes or group initiatives generally being more physically demanding and requiring the entire group to solve a problem, more group initiatives can be done in a session than high ropes elements (Attarian).

The labels "group initiative course" and "group initiative session" are used interchangeably. They both refer to completion of a designated length of time comprised of group initiative activities. According to Learning-for-Life, a website that gives information on preparing youth through character development and career education, group initiatives are "fun, cooperative, challenging games in which the group is confronted with a specific problem to solve" (Learning-for-Life, 2005). Each group initiative is a problem that needs solving. How well the group solves the problem reveals how well the group communicates, is able to come up with creative problem solving techniques, and works together (Rutgers, 2007). Group initiatives include numerous team activities but also some individual activities where the group shows support, such as a trust fall. Group initiatives are centered on a problem that needs solving, therefore the skill of problem solving is essential to completing these tasks.

Experiential Education

Experiential education at its very basic is learning by doing. The Board of Directors for the Association for Experiential Education endorsed a definition for experiential education in 1994. They agreed, "Experiential education is a process through which a learner constructs knowledge, skill, and value from direct experiences"

(Luckmann, 1996, p. 7). Joplin (1995) stated two conditions necessary for experiential programs to happen: an experience and reflection of that experience. Joplin pointed out that reflection is the part of the experience where the experience becomes experiential education. Without the reflection process, one does not have experiential education, just an experience. According to Luckner and Nadler (1997), "experiential learning occurs when individuals engage in some activity, reflect upon the activity critically, derive some useful insight from the analysis, and incorporate the result through a change in understanding and/or behavior" (p. 3). Experiential learning aims for participants to accept responsibility for their learning and behavior. Individuals take ownership in what is learned and are able to transfer what they learned (Luckner & Nadler). Luckner and Nadler lay out some basic principles of experiential learning. A few of these principles include: participants being active in the learning process, the participants being able to see what they are learning is relevant to them both now and in the future, and experiential learning designed so that learners have natural consequences and can learn on the spot from their mistakes and/or successes. Students of experiential education are very involved in the process and therefore construct meaning that is personal to them. Participants are learning things that are important to their lives and can carry what they learn into other parts of their lives. Transfer of learning is a significant aspect of experiential learning (Luckner & Nadler).

Experiential Learning Cycle

There are many different models of experiential education. However, there is a general agreement that the classic experiential learning model has four stages (Luckner &

Nadler, 1997). Kolb (1984) looked to Dewey (1938) to develop the "classic" experiential learning cycle, the four-stage model. The stages of Kolb's four-stage model are experience, reflection, abstraction, and experimentation. Luckner and Nadler modified Kolb's original four-stage model just slightly in wording to be more appropriate for adventure education (See Figure 1). Their stages include experiencing, reflecting, generalizing, and applying.

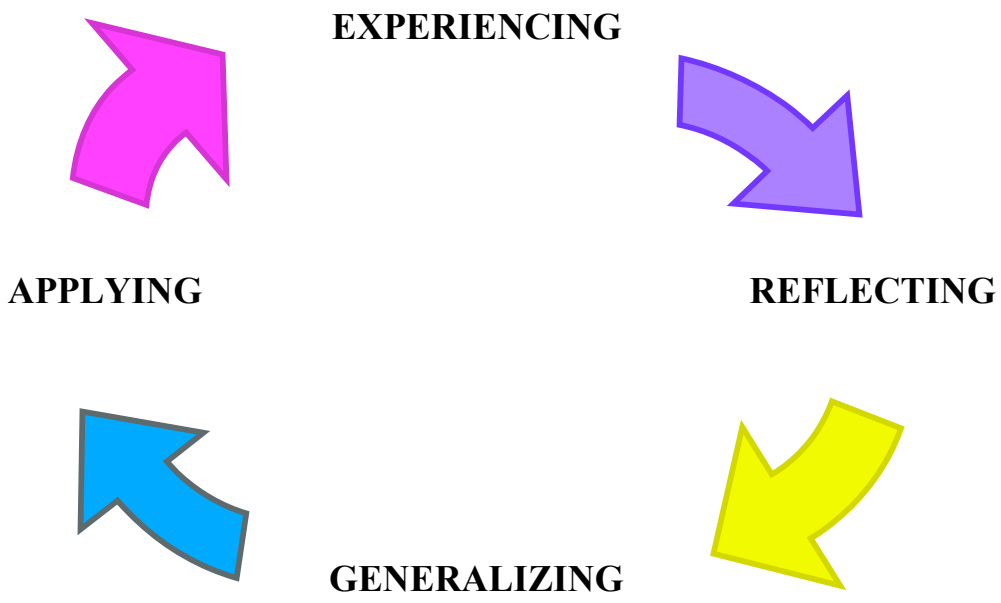

Figure 1: The Experiential Learning Cycle (Luckner & Nadler, 1997, p. 6).

The first stage in the model is experiencing. During this stage, specific learning objectives need to be identified. Once that happens, activities can be selected to meet those objectives (Luckner & Nadler, 1997). This first stage is structured and is where individuals participate in an activity designed to meet the identified objectives. Information and data for later use is generated in this stage. As mentioned earlier, experiencing alone is not enough to ensure learning takes place (Joplin, 1995). If the

cycle stops after the first stage, "all learning is left to chance, and instructors have not fulfilled their responsibilities for facilitating individuals' learning" (Luckner & Nadler, p. 5).

The second stage of the model, reflecting, is the process where both Luckner and Nadler (1997) and Joplin (1995) would say the experience turns to experiential learning. Reflection allows participants to integrate this new experience with past experiences (Kolb, 1984; Luckner & Nadler). During this time, individuals introspectively or the group as a whole makes sense of the experience. They can discuss their emotions during the activity, what they were thinking, feeling, or seeing from themselves or other participants.

The third stage of the cycle, generalizing, is extremely important to transfer of learning. It is the "So what?" in the cycle. According to Luckner and Nadler (1997), "an essential aspect of experiential learning is the search for patterns" (p. 6). This search for patterns and the ability to apply the inferences from the experience to other situations and settings is essential for the transfer of learning to take place. The patterns relate a group of isolated incidences and make sense out of them. When participants reflect on what they felt in one situation they can generalize that understanding to other situations (Luckner & Nadler). Therefore, participants can generalize about the pattern of what happens rather than what happened in their specific experience (Luckner & Nadler).

The fourth stage, applying, is the "Now what?" in the cycle. Luckner and Nadler (1997) impress the importance of this cycle by saying, "For experiential learning to be effective, it is necessary for individuals to use the learning that they acquired through

participation in the structured experience and make an inferential leap to the outside world" (p. 6). Generalizations were identified in the previous stage and here participants are asked to identify ways they will put those generalizations into action. The applying stage is vital because without it participants will only see the structured experience, not how it relates to actual situations. Therefore, without clear application, learning will likely be meaningless, short-term and shallow (Luckner & Nadler). Transfer and generalization can only occur when a participant is able to apply what was learned at the course to a new situation in a different area of life.

Processing

Processing an activity involves encouraging individuals to "plan, reflect, describe, analyze, and communicate about experiences" (Luckner & Nadler, 1997, p. 8). Processing can occur at any time during the experience. Luckner and Nadler identify how processing activities can be used:

- help individuals focus or increase their awareness on issues prior to an event or to the entire experience;
- facilitate awareness or promote change while an experience is occurring;
- reflect, analyze, describe, or discuss an experience after it is completed; and/or
- reinforce perceptions of change and promote integration in participants' lives after the experience is completed (p. 8-9).

Without processing, an activity would not stand out or be remembered. Knapp (1990) identified four underlying assumptions made regarding the theory and practice of processing experiences.

1. Skilled facilitators can assist participants in gaining understanding from human experience through the application of effective processing techniques.

2. Human relations process skills can be practiced and learned best through interactions with others in a controlled group setting.
3. Much of the group learning that takes place can be applied to situations outside the group if the participants are assisted by skilled leaders.
4. Stress-producing outdoor challenges and the accompanying processing sessions can provide the necessary stimuli for making lasting life changes (p. 190).

The third and fourth assumptions address the transfer of learning. The assumptions also show that the facilitators or adventure educators must have the needed processing skills to assist participants in attaching personal meanings to their experiences. These personal meanings are essential to attain program objectives (Knapp).

The facilitators in adventure education have a critical job. Facilitators need to guide a group through the stages in the experiential learning cycle. They do not make the generalizations or applications for the group, but guide the group to their own learning. Knapp (1990) outlines the facilitator's role in processing. He describes a facilitator as one who will find opportunities for participants to learn about themselves (Knapp). The facilitator (and group) needs to know the difference between the tasks to be accomplished and the program objectives. A task can be unsuccessful yet the objectives still met. The objectives are more important than the tasks. Therefore, the facilitator must attempt to help the group reach as many objectives as possible even if the tasks do not get finished (Knapp). Participants can learn a lot from the content and process of the experience.

Raiola (2003) and Nadler and Luckner (1992) view the facilitator's role as someone who assists the group by defining the needs of the group and then encouraging them to make the choices appropriate for those needs to be met. When deciding on changes and plans to achieve goals, Railoa says the key elements are options, choice, and

responsibility. Choice is really about the number of alternative responses available. As that number increases, the awareness of more available options increases. With choice comes the responsibility of decision-making. The freedom to choose must be accompanied with the responsibility for the consequences that come with those choices. (Raiola). Processing is a liberating experience. At the end of the experience, participants should have more choices in their lives (Nadler & Luckner). Nadler and Luckner view processing as having six different levels (See Figure 2). Each level has different attributes with the end result being the choice to transfer this new learning to a different situation. A key level in this figure is level three where participants take responsibility for their learning and have the choice to experiment with this new found knowledge or continue functioning as they always have. If participants choose to experiment, another choice is ahead of them. They must choose whether to take what they have learned in this novel situation and use it in different situations such as home, school, or work, or continue to function as they were before. The key is that with the new learning, participants have a *choice*. As indicated by levels four and six, participants do not have to change but the processing liberates them to be able to have that choice. Whether they chose to change or not, participants are now aware and responsible for what they learned. Figure two shows the levels of processing as described by Nadler and Luckner.

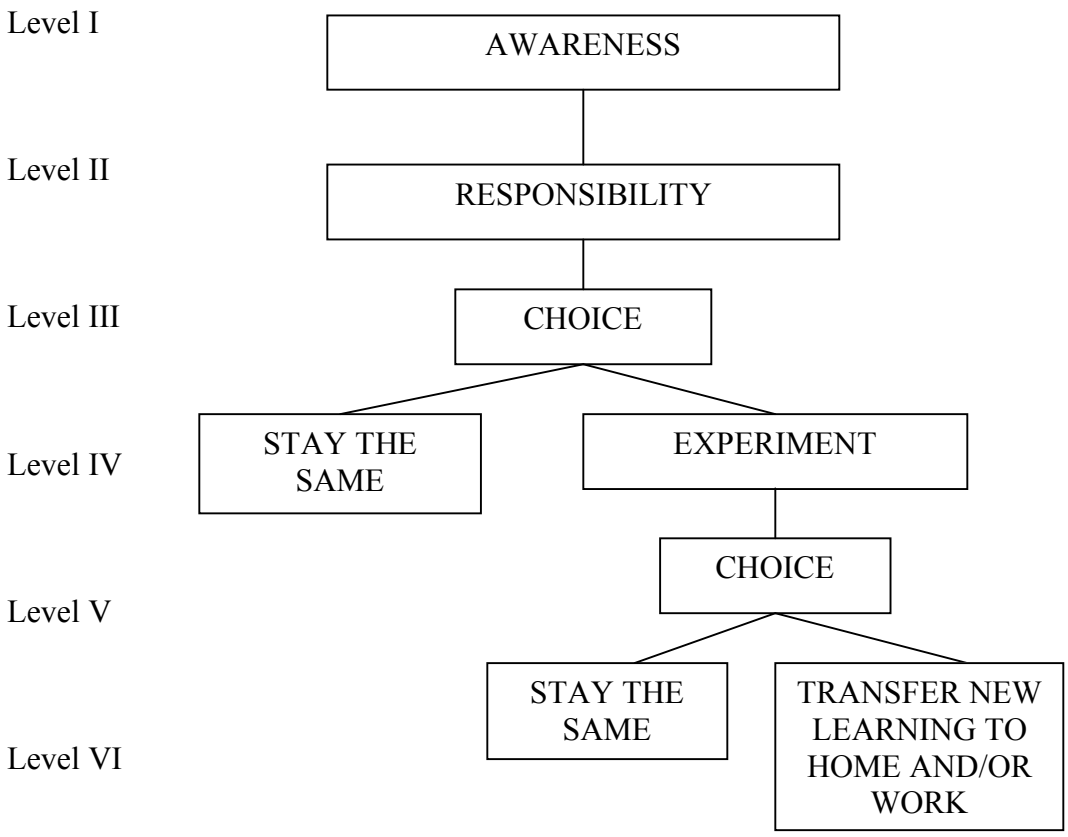

Figure 2. Levels of Processing (Nadler & Luckner, 1992, p. 40).

Nadler & Luckner (1992) also developed the "Adventure-Based Learning Process" which outlines the process a participant goes through during an adventure-based activity (See Figure 3).

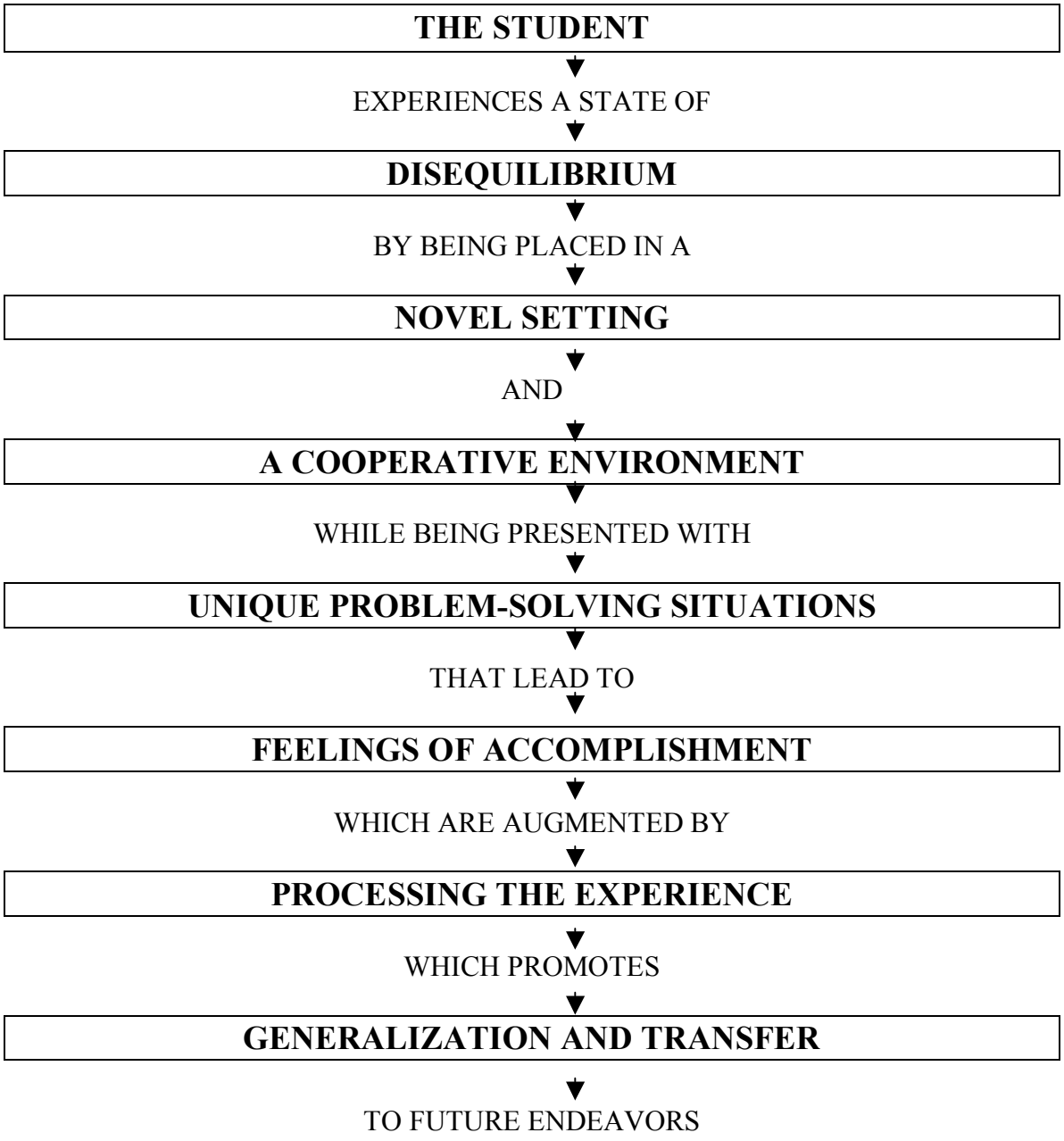

Figure 3. The Adventure-Based Learning Process (Luckner & Nadler, 1997, p. 258).

The main goal of processing adventure experiences as illustrated in Figures 2 and 3 is the generalization and transfer of the newly learned information to future problems in different settings. Nadler and Luckner (1992) argue, "An individual's *real* gain in a course should be measured by how much has been learned and if it can be sustained and applied after the experience" (Nadler & Luckner, p. 3). Processing is where that meaningful transfer can take place.

Problem Solving

Many variables go into how people solve real-life problems. Heppner et al. (1982) attempted to identify and describe differences between perceived successful problem solvers and perceived unsuccessful problem solvers as identified by "(a) a range of cognitive, affective, and behavioral self-report activities; (b) cognitive and behavioral differences within an assessment interview; and (c) the number and nature of personal problems" (p. 581). Heppner found that perceived successful problem solvers, as compared to perceived unsuccessful problem solvers:

> …rated themselves as more motivated to solve problems, expected to be more successful, perceived both their ability and amount of effort as being more important in solving problems (and luck less important), rated themselves less impulsive and avoidant in solving problems, more systematic, persistent, and serious in their problem-solving efforts, delay gratification more, and perceived problems as a normal part of life…clearer understanding of he problem, less often wished a problem would disappear, reported learning more from observing others, used drugs and alcohol less often, brainstormed more, rated themselves as more intuitive, cautious, serious, and systematic in making decisions while also being less impulsive and avoidant with decision making, and rate themselves as more trusting of the other person in an interpersonal problem (p. 583).

These results support previous research in problem-solving styles. Bloom and Broder (1950) found similar findings for perceived successful problem solvers such as

participants rating themselves as being more systematic, more understanding of the problem, approaching the problem as opposed to avoiding it and having lower impulsivity. The issue of internal versus external locus of control is interesting to note. Perceived successful problem solvers felt their abilities were more important than luck when solving problems whereas perceived unsuccessful problem solvers felt luck or chance was important when solving problems (Heppner).

Research has shown effective problem-solvers are "flexible, adaptable in different social circumstances, able to deal effectively with stress and able to develop suitable methods to attain personal goals and satisfy their needs" (Durlak, 1983, p. 31). On the other side, ineffective problem-solving has been related to psychological maladjustment (e.g., Heppner & Krauskopf, 1987; Heppner & Lee, 2002). Heppner et al. (2004) discussed the link that has been found in several studies between ineffective problem solvers and depression. Willard (1993) also found a significant relationship between problem solving appraisal and academic success.

Problem Solving in Adventure Education

Benefits of adventure education include everything from improved academics to improved self-concept, confidence to communication, and coordination to problem solving. Ewert (1989) categorized almost 30 different potential benefits from adventure education into four areas: psychological, sociological, educational, and physical. Rutgers (2007) listed similar benefits but added trust, teamwork, change and flexibility, decision-making and planning, and critical thinking. Long, Lindenmeier, and Robertson (2003) identified problem-solving as the fourth most participant-reported benefit. Although

many of these skills can be taught in a classroom, adventure programs add an element of reality (Ewert). Ewert described why the outdoors is so useful in developing problem-solving skills:

> …the components of problem solving—identifying the problem, identifying and reviewing solutions, picking and implementing a solution, and evaluating that solution—lend themselves particularly well in an outdoor adventure situation…Not only are problems encountered that need to be resolved, but they are often time-critical. Communication and cooperation, enhanced by a small-group setting, are essential to solving a problem. In addition, problem-solving in the outdoors is usually "rewarded" by seeing the immediate result of the group's decision—be it correct or incorrect (p. 53-54).

Only one empirical study has looked at problem solving appraisal in an adventure education setting. The study, performed by Breheny (2000), had a weak experimental design and the results need to be examined with caution. Using the Problem Solving Inventory, Breheny did not find a significant difference in problem-solving appraisal between ropes course instruction and classroom instruction. Those results mean neither ropes course instruction nor classroom instruction worked better for teaching problem solving. Breheny then did a separate analysis on just the ropes course participants. Breheny found a significant increase in Total PSI score, Problem-Solving Confidence, and Personal-Control from pretest to posttest when looking at the ropes course participants alone. These elevated levels were maintained at a 10-week follow-up.

Transfer of Learning

Potential benefits and evidence of benefits from adventure programs, and specifically challenge courses, are encouraging; but how useful are these benefits if they do not transfer to the participants' lives after the experience is over? Few studies have examined how long these identified benefits last or if they last at all. Many studies simply

have participants identify benefits they receive immediately following the challenge course (Bronson, Gibson, Kichar, & Priest, 1992; Goldenberg, Klenosky, O'Leary & Templin, 2000; Smith, Strand, & Bunting, 2002). The studies that have looked at long-term effects have yielded inconclusive results (Gass & Priest, 2006; Hatch & McCarthy, 2005). Hatch and McCarthy found significant increases in group functioning at posttest but at the two month follow-up, levels returned to that at pretest. Gass and Priest found facilitation style had an impact on how long participants retained elevated levels. They measured teamwork levels over 12 months and found all four groups with different facilitation styles decreased from their initial posttest score at some point over the year. They found that the mixed isomorphic framing/metaphoric debriefing approach, characterized by creating metaphors that parallel work-like situations to aid transfer of learning, was the most effective for developing and maintaining teamwork in corporate adventure training (CAT) programs. At the long-term follow-up, the levels for this group were significantly lower than posttest scores, but they were still significantly higher than all other groups and from pre-training levels. Gass and Priest found that differing facilitation styles yielded very different results. Depending on the facilitation style used, participants' scores could remain elevated at 12 months or return to baseline levels after 6 months. The study did one follow-up at one month but did not do another until six months. Therefore, it is unknown at what point prior to six months that the elevation may have started to drop.

Summary

Previous literature has shown ineffective problem solvers to be, among many other things, more likely to be depressed, have a harder time dealing with intrapersonal problems, and be psychologically maladjusted (Bloom & Broder, 1950; Durlak, 1983; Heppner et al., 1982; Heppner & Krauskopf, 1987; Heppner & Lee, 2002; Heppner et al., 2004). These findings support the importance of increasing problem-solving ability in college students. The potential benefits of challenge course participation can affect emotional, academic, and social aspects of their lives.

Studies are needed that measure benefits derived from participation on challenge courses and how long those benefits last. It has been estimated that there are 15,000 or more challenge courses operating today (Attarian, 2002). These challenge courses are used to meet the development needs of diverse populations such as students, business-persons and recovering addicts. Benefits of challenge course participation have been identified from anecdotal accounts with few studies looking at benefits from an empirical standpoint. Few of those studies examining empirical outcomes look long-term into how long those benefits from the challenge courses last. Furthermore, the literature on the length of time benefits last that does exist is inconclusive and very limited.

The current study utilized a quasi-experimental design including a control group. Participants in the Parks, Recreation, and Tourism Management (PRTM) class, "Concepts of Leisure" took part in a three-hour group initiative session as part of a class requirement. Problem-solving appraisal was measured using the Problem Solving Inventory (PSI). Participants took two pretests, the first pre-test was given two class

periods before the group initiatives and the second pretest was given one class period before the group initiatives. They took a posttest immediately following the group initiative session followed by two follow-up tests: one at five weeks and another at nine weeks. There is a lack of studies examining derived benefits from adventure programs between one and six months. This study expands the current literature by utilizing follow-ups at five and nine weeks to examine if problem-solving appraisal is elevated at posttest and if it remains for those periods. Studies have included follow-ups at two months and six months and have found the benefits of adventure education, including problem solving, to diminish in that time frame. This study examined a period slightly longer than one month (five weeks) and slightly longer than two months (nine weeks). Therefore, problem-solving was measured during time frames that have not been measured previously and where there is a lack on knowledge on when exactly the benefits diminish.

CHAPTER THREE

METHODOLOGY

Introduction

This study, based on the experiential learning cycle, examined self-assessed problem solving ability for participants exposed to a group initiative session and employed an experimental as well as a control group. The null hypothesis of this study stated that participation in a group initiatives course would have no effect on self-appraised problem solving ability. The following sections discuss the methodology employed to test this hypothesis, including (a) study design (b) the selection of participants, (c) data collection procedures, (d) instrumentation, and (e) data analyses.

Experimental Design

This research employed a quasi-experimental design. The selection of participants was a convenience sample, drawing from an undergraduate university class, PRTM 101, "Concepts of Leisure." The students were pre-assigned to groups based on their class section (there were four). All other variables between the control and experimental groups were as similar as possible. For example, the teaching assistants and supervising professors in the classes kept track of how many problem-solving activities were done in class and out of class so that students in each class had similar classroom experiences. Most of the students signing up for PRTM 101 were first or second year students.

Selection of Participants

The population for this study was all PRTM students at Clemson University in Clemson, South Carolina. The sample for this study was Clemson University students

enrolled in PRTM 101, "Concepts of Leisure." There were four sections of PRTM 101, which were broken into control and experimental groups. The four sections and enrollments of PRTM 101 were as follows: section one, 31, section two, 32, section three, 33, and section four, 25. Sections one and two made up the experimental group, and were broken into smaller groups during the treatment, and sections three and four comprised the control group and were also broken into smaller groups during their session. Students were pre-assigned to experimental and control groups based on the class section in which they enrolled.

Measurement

The independent variable was the group initiative course. Subjects in the experimental groups attended a three-hour session at the Clemson University Outdoor Laboratory group initiative course. Because the group initiative session is part of the PRTM 101 course requirements, the control group participated in a group initiative session after all data were collected.

The dependent variables were total self-appraised problem-solving ability, self-appraised problem solving confidence, self-appraised approach avoidance style, and self-appraised personal control. The Problem Solving Inventory (PSI) (Heppner & Peterson, 1982) measured each of these (See Appendix A for factors and Appendix B for instrument). The total on the PSI measured the total self-appraised problem solving ability. There are three subscales in the PSI that measure self-appraised problem solving confidence, self-appraised approach avoidance style, and self-appraised personal control. Problem solving appraisal has been conceptualized as a personal resource variable and

specifically, a general set of beliefs or expectancies about one's problem-solving ability (Heppner & Lee, 2002).

Procedures

The PRTM 101 class had a required assignment of completing a group initiative session. The instructors of the four sections required a written assignment upon completion of the group initiative session in addition to participation. The initiatives took place at the Clemson University Outdoor Laboratory. Because each section of PRTM 101 was required to complete the assignment of attending the group initiative session, the control group completed the session on November 3, 2007, after all data were collected.

Data were collected at five points in time using a demographic questionnaire along with the PSI survey. The collection points were two class periods before treatment, one class before treatment (pretests), immediately after treatment (posttest), a follow-up at five weeks, and a follow-up at nine weeks. The researcher administered the PSI at all five points in time. After the nine-week follow-up, the control group participated in the group initiatives. The researcher administered the pretests to classes on their respective two class periods before group initiatives, on Tuesday and Wednesday, August 28-29, 2007 and Thursday and Friday, August 30-31, 2007. Two pretests were given to each section to ensure there was not a testing effect. The posttest was given immediately following the group initiative session for participants in the experimental group. The control group (sections three and four) took the posttest during the first class period following the experimental group's completion of the group initiative session, Tuesday and Wednesday, September 4-5, 2007. The five-week follow-up was administered in

classes October 4-5, 2007. The nine-week follow-up was given during classes November 1-2, 2007 (See Appendix C).

Participants in the experimental group were broken into smaller groups of no larger than 15 people. Two groups participated in the morning (September 1, 2007) and two groups in the afternoon. All experimental groups completed the group initiative course on Saturday, September 1, 2007. The morning group ran from 9 a.m. to 12 p.m. and the afternoon group ran from 1 p.m. to 4 p.m. The Clemson University Outdoor Laboratory facilitators remained the same for both experimental groups to control for differences in results due to facilitation styles. Both facilitators had achieved senior level status. To be a senior level facilitator, one must pass through an apprentice stage, and level one and level two training. In addition, the individual must be proficient in all courses (high ropes, group initiatives, climbing tower, etc.), have extensive experience in leading groups, demonstrate knowledge and skill necessary to achieve positive client results, and receive consistent positive evaluations from client groups. There were no apprentices accompanying the groups as would be the case for normal group initiative sessions. When a group participates in group initiatives at the Clemson University Outdoor Laboratory, the head of the group is given a sheet asking what the group's needs are and any desired outcome for the group (a needs assessment). The primary researcher filled out a needs assessment for the study asking facilitators to focus on problem solving. Both facilitators were allowed to choose initiatives they felt would best achieve the desired outcome of problem solving. The facilitators focused on problem solving during the initiatives as well as during the processing. Both sections started with whole group

warm-ups, then broke into two smaller groups to do more initiatives and ended with whole group activities and a wrap-up. The researcher was there to administer posttests to all participants following the group initiative session.

Instrumentation

Preceding the questionnaire measuring problem-solving appraisal, there were demographic questions to gain a better picture of the sample. Participants were asked their gender, year in school, age, GPA, academic major, SAT score, what subject they perceived themselves to be the best at, and if they had participated in group initiatives in the past 12 months (See Appendix B). The PSI immediately followed the demographic questions.

The problem-solving appraisal measurement tool utilized was the Problem Solving Inventory (PSI), developed by Heppner and Petersen (1982). The PSI is a self-rating questionnaire that "assesses perceptions of one's problem solving ability as well as behaviors and attitudes associated with problem-solving style" (Heppner et al. 2004, p. 352). The PSI does not measure *actual* problem-solving skills, only individuals' perceptions of problem-solving beliefs and style (Heppner, Witty & Dixon). It consists of 32 items on a 6-point Likert scale ranging from 1=strongly agree to 6=strongly disagree (See Appendix B). There are three dimensions within the PSI: Problem-Solving Confidence (PSC), Approach-Avoidance Style (AA), and Personal Control (PC). An example of a PSC statement is, "When faced with a novel situation, I have confidence that I can handle problems that may arise" (Heppner & Petersen). An example of an AA statement is, "When a solution to a problem was unsuccessful, I do not examine why it

didn't work" (Heppner & Petersen). An example of a PC statement is, "When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation" (Heppner & Petersen) (See Appendix B). Each of the three dimensions "provides an appraisal of a specific dimension of one's problem-solving style, and the total score reflects an individual's overall appraisal of his or her problem-solving style" (Heppner, Witty & Dixon, p.353). The total score for the instrument measures total self-appraised problem-solving ability. A low score on the PSI indicates a perceived effective problem solving ability. The PSI is scored such that a *decrease* in the score means that an increase in self-assessed problem solving ability occurred. Data in this study were coded so that an increase in self-assessed problem solving ability was indicated by an *increase* in the score. With the new coding, the possible ranges for the PSI are as follows: Total Problem Solving Ability, 32-192, Problem Solving Confidence, 11-66, Approach Avoidance Style, 16-96, and Personal Control, 5-30.

Heppner and Petersen (1982) established reliability estimates for the Problem Solving Inventory. They tested 150 undergraduate students enrolled in an introductory psychology class in 1980 (Heppner & Petersen). Internal consistency estimates were computed from the scores for the total inventory and each of the three factors (Heppner & Petersen). PC came out the lowest with $\alpha = .72$ and the total PSI the highest with $\alpha = .90$. Heppner and Petersen also administered the PSI to 31 undergraduate students two weeks apart to estimate test-retest reliability. The lowest again was the PC factor with $r = .83$ and the highest was the total PSI with $r = .89$. Reliability estimates established for the

PSI by Heppner and Petersen suggest the PSI is internally consistent and stable over a period of two weeks.

Additional reliability tests have been performed since the development of the Problem-Solving Inventory. In Heppner, Witty, and Dixon's (2004) 20-year review of the PSI, they found acceptable internal consistency with average alpha coefficients in the high .80s for the total PSI. PSC and AA both have average alpha coefficients in the low to mid .80s with PC the lowest, obtaining average alpha coefficients in the low .70s. The PSI has been shown to be internally consistent with different forms of the instrument and a variety of populations.

Heppner and Petersen (1982) also established concurrent, discriminate, and construct validity estimates for the Problem Solving Inventory. In the study of 150 undergraduates described above, the scores from the total PSI and each factor were correlated with scores from the Level of Problem Solving Skills Estimate Form (LPSSEF). The total PSI and each scale were significantly correlated with how students self-rated their problem-solving skills and their level of satisfaction with those skills (from the LPSSEF). The PSI was also shown to not be correlated with intelligence or academic achievement as measured by correlations with the School and College Ability Test (SCAT), Series II test (an intelligence test), the Missouri College English Test (MCET) the Missouri Mathematics Placement Test (MMPT) and high school rank (Heppner & Petersen). Construct validity was established by correlating scores from the PSI with the Social Desirability Scale (SDS) (Heppner & Petersen). Correlations were

non-significant in all factors except the third, PC. In addition, the PSI is not "highly correlated with scores on a general measure of social desirability" (Heppner & Petersen).

Data Analyses

Data collected from the surveys were entered into a file and were prepared for statistical analysis. Descriptive statistics related to the demographic questions were generated to provide a picture of the sample.

Based on the research questions for the study, the most appropriate statistical analysis to use was a repeated measures analysis of variance (ANOVA). Data were run through a repeated measures ANOVA to test the equality of means. This analysis is appropriate for this study because a repeated measures ANOVA is used when all members of a sample are measured under numerous different conditions. When the sample experiences each condition, the measurement of the dependent variable is repeated. In this study, the different conditions the sample experiences were different lengths of time following the group initiative session. The lengths of time were two pretests (baseline), immediately following, and follow-ups at five weeks, and nine weeks. The dependent variable repeatedly measured was self-appraised problem solving ability. A standard ANOVA would not be appropriate because it does not measure the correlation between the repeated measures. There were five control group data sets and five treatment group data sets from the five different collection points, ten data sets total. A standard ANOVA assumes independency. This data set did not have independence because the same participants were measured repeatedly. A repeated measures ANOVA will adjust for the lack of independence.

CHAPTER FOUR

RESULTS

Introduction

The following sections in this chapter present the results of the study. The first section details data cleaning and recoding of the data. The second section presents demographic information. Lastly, the third section presents the between group analyses testing the hypotheses.

Data Cleaning/Recoding

After data were collected, they were entered into a statistical software program. After all data were entered, the statements on the PSI that were negatively worded were reverse coded to transform the data into a positive scale. The PSI is scored such that a *decrease* in the score means that an increase in self-assessed problem solving ability occurred. Data in this study were coded so that an increase in self-assessed problem solving ability was indicated by an *increase* in the score.

Data Analysis-Demographics

Demographic information was gathered during the first pre-test completed by the participants. If a participant was absent during the first pre-test, he/she answered demographic questions during the second pre-test. Demographic data were collected from all participants in the study after the two pre-tests. The demographic information collected included gender, year in school (by credits), age, major, SAT score, best subject, and prior experience with group initiatives. An analysis of the demographic information was conducted to get a picture of the sample as well as to compare the

experimental group to the control group. The “best subject” and SAT score questions were both unusable. The “best subject” question was unusable because from those who did answer the question there was too wide of a variety of subjects answered. Many students chose not to answer this question. The SAT question was unusable because there are currently two possible SAT test score in use. Table 1 provides a summary of the demographic information.

Table 1

Demographic Information

Demographic	Experimental	Control	X^2	Significance
Group Total	63	25		
Gender			3.909	p = .048
Male	60.3%	40.0%		
Female	34.9%	60.0%		
Year in School			.380	p = .944
Freshman (0-29 hours)	42.9%	52.0%		
Sophomore (30-59)	33.3%	32.0%		
Junior (60-89)	14.3%	12.0%		
Senior (90+)	4.8%	4.0%		
Other	0.0%	0.0%		
Age (mean)	19.1	19.8	t = -.818	p = .421
Major				
Parks, Recreation, and Tourism Management	82.4%	92.0%		
Other	17.6%	8.0%		
Prior Participation in Group Initiatives (past 12 months)			.585	p = .444
Yes	52.4%	64.0%		
No	42.9%	36.0%		

A cross tabulation was conducted to determine if there was a relationship in participants' gender between groups. The results showed there was a relationship between gender and which section the participant was in, control or experimental. The experimental group consisted of 60.3% males and 34.9% females while the control group consisted of 40% males and 60% females (X^2= 3.909, p=.048). Therefore, there were more males in the two experimental groups than the control group.

Because there was a relationship between gender and which section a participant was in, a repeated measures ANOVA was conducted to separate the results by gender. The repeated measures ANOVA revealed no significant differences on the PSI by gender.

A cross tabulation was also conducted to determine if there was a relationship in participant's year in school. The results showed there was not a relationship between the groups (X^2= .380, p=.944). Therefore, there were approximately the same number of freshman, sophomores, juniors, and seniors in both the experimental and control groups.

A third cross tabulation was conducted to determine if there was a relationship for participation in group initiatives in the past twelve months. The results showed there was not a relationship between the groups (X^2= .585, p=.444). Therefore, approximately the same percentage of students had participated in group initiatives in the past twelve months.

An independent samples t-test was run to determine if there was a difference in age between the two groups, experimental and control. The results showed there was not a difference in age between groups (t = -.818, p=.421). Therefore, the mean age of the experimental group and the mean age of the control group were approximately the same.

Data Analysis-Between Group

For each research question below, a repeated measures analysis of variance (ANOVA) was performed to determine the effects of time (test) and group (experimental vs. control) on self-appraised problem solving ability. In this study, the different conditions the sample experienced were different lengths of time following the group initiative session. The lengths of time were pretest one and pretest two (baselines),

immediately following, five weeks, and nine weeks. The dependent variable repeatedly measured was self-appraised problem solving ability. The different groups were control and experimental. The repeated measures ANOVA corrected for repeated measures on individuals across testing times. After the repeated measured ANOVA was run, specific time and treatment combinations were compared using Fisher's Least Significant Difference test. All analyses were performed using Statistical Analysis Software (SAS).

Research Question 1

Research Question 1: Are students who participate in a group initiatives course more likely to show an increase in their self-appraised total problem solving ability compared to those who do not?

H_{01}: Participants in a group initiatives course will not show a significant increase on self-appraised total problem solving ability when compared to non-participants.

A repeated measures ANOVA was performed to determine if participants in a group initiatives course demonstrated a difference in their self-appraised total problem solving ability compared to those who did not participate. The scores showed a statistically significant increase in self-appraised total problem solving ability immediately after group initiatives (pretests one and two to posttest). However, there was a statistically significant decrease in self-appraised total problem solving ability from posttest to follow-up one (five weeks). There was a statistically significant increase in self-appraised total problem solving ability from pretests one and two to follow-up two (nine weeks). The results showed a statistical increase in scores within the experimental group at posttest and follow-up two, but returned to pretest levels at follow-up one (five

weeks). The posttest is the only score where the control group's score was statistically lower from the experimental group. Therefore, to answer the research question, participants in a group initiative course are more likely to show an increase in self-appraised total problem solving ability compared to those who do not immediately following but not at five or nine weeks. The data reject H_{01}. The results are summarized in Table 2 and Figure 4.

Table 2

Total problem solving scores at five measurement times

Group	Pretest 1	Pretest 2	Posttest	Follow-up 1 (5 weeks)	Follow-up 2 (9 weeks)
Experimental (mean total score)	130.49	130.13	137.73*	133.06**	135.78*
Control (mean total score)	132.48	130.55	130.19 †	130.44	133.92

* Statistically significant increase from pretests ($p < .05$)
**Statistically significant decrease from posttest ($p < .05$)
† Statistically lower from experimental group at posttest ($p < .05$)
Total problem solving ability possible range, 32-192

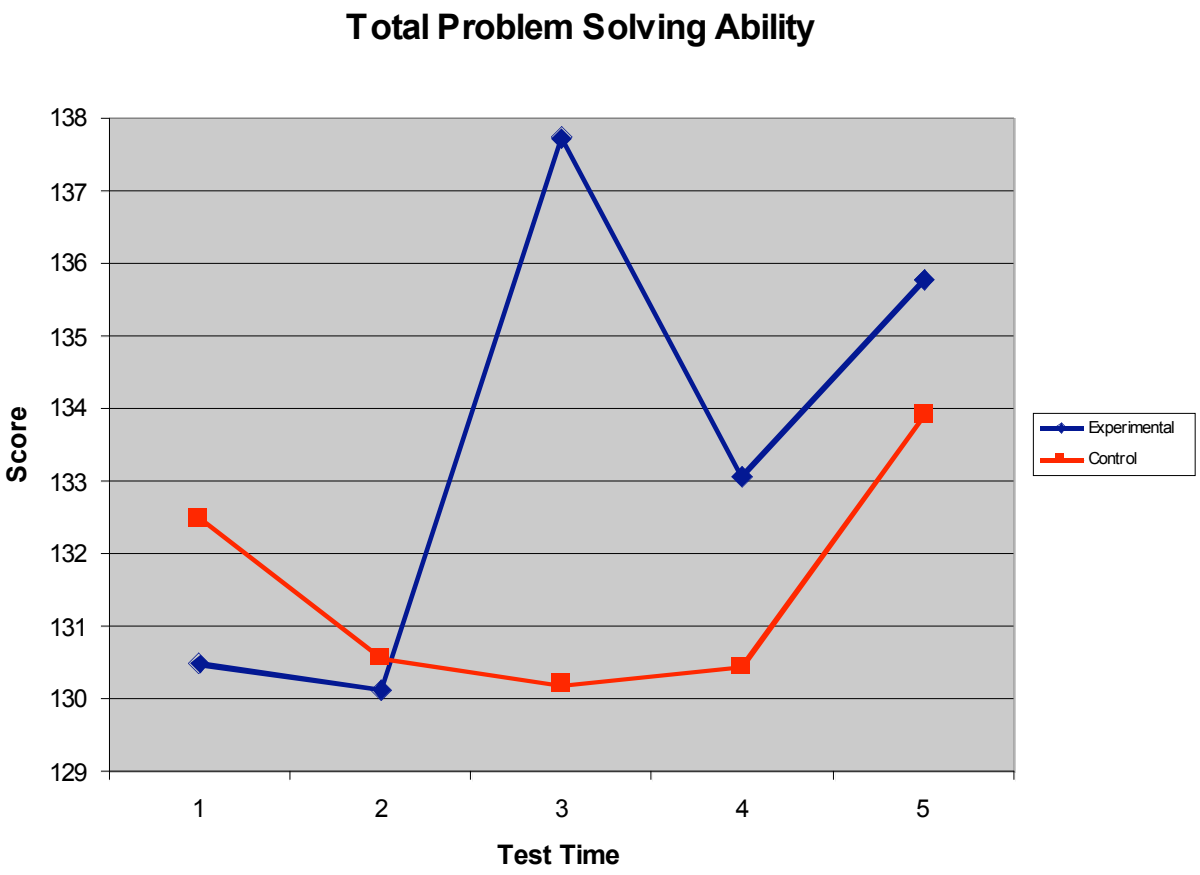

Figure 4. Graphical representation of Total Problem Solving Ability results.

Research Question 2:

Research Question 2: Are students who participate in a group initiatives course more likely to show an increase in their self-appraised problem solving confidence compared to those who do not?

H_{02}: Participants in a group initiatives course will not show a significant increase on self-appraised problem solving confidence when compared to non-participants.

A repeated measures ANOVA was performed to determine if participants in a group initiatives course showed an increase in their self-appraised problem solving confidence compared to those who did not participate. The results from the study showed

a statistically significant increase in self-appraised problem solving confidence from pretests one and two to the posttest. However, the scores in the experimental group at follow-up one (five weeks) decreased significantly from the posttest. At no time in the study did the experimental group show a statistically significant increase from the control group at the same measurement. Therefore, participants in a group initiatives course are not more likely to show an increase in self-appraised problem solving confidence compared to those who do not. The data fail to reject H_{02}. Table 3 and Figure 5 summarize the results for problem solving confidence.

Table 3

Problem Solving Confidence scores at five measurement times

Group	Pretest 1	Pretest 2	Posttest	Follow-up 1 (5 weeks)	Follow-up 2 (9 weeks)
Experimental (mean total score)	51.92	51.78	54.04*	51.89**	53.27
Control (mean total score)	51.24	52.50	51.54	50.60	52.88

*Statistically significant increase from pretests ($p < .05$)
**Follow up 1 (experimental) significant decrease from posttest ($p < .05$)
Problem Solving Confidence possible range, 11-66

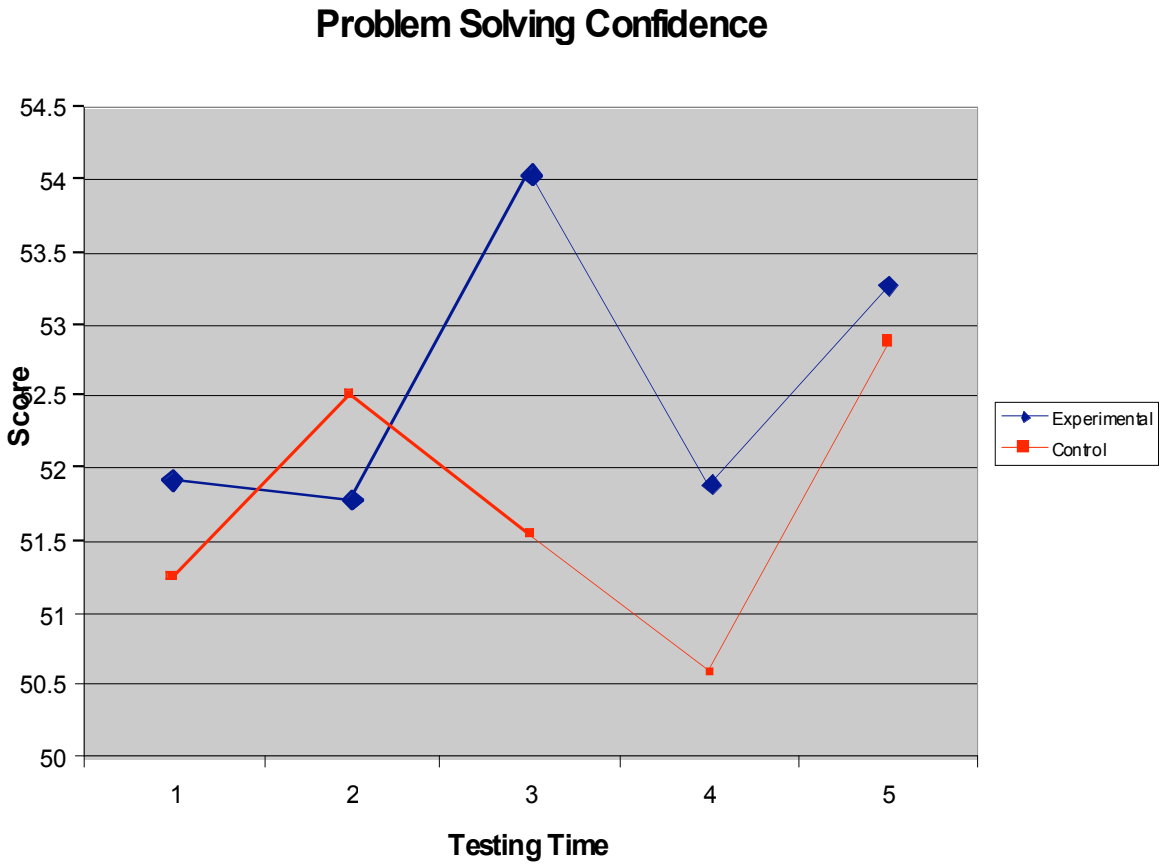

Figure 5. Graphical representation of Problem Solving Confidence results.

Research Question 3

Research Question 3: Are students who participate in a group initiatives course more likely to show an increase in their self-appraised approach avoidance style when compared to those who do not?

H_{03}: Participants in a group initiatives course will not show a significant increase on self-appraised approach avoidance style when compared to non-participants.

A repeated measures ANOVA was performed to determine if participants in a group initiatives course showed an increase in their approach avoidance style compared

to those who did not participate. The study results showed a statistically significant increase in self-appraised approach avoidance style from pretests one and two to posttest, follow-up one and follow-up two. The control group's pretest two score decreased significantly from pretest one. At no time were the scores of the experimental group significantly higher than the control group scores. Therefore, participants in a group initiatives course are not more likely to show an increase in self-appraised approach avoidance style compared to those who do not. The data fail to reject H_{03}. Table 4 and Figure 5 summarize the results for approach avoidance style.

Table 4

Approach Avoidance Style at five measurement times

Group	Pretest 1	Pretest 2	Posttest	Follow-up 1 (5 weeks)	Follow-up 2 (9 weeks)
Experimental (mean total score)	59.91	59.62	63.59*	62.00*	62.71*
Control (mean total score)	63.32	59.79**	60.78	61.72	60.96

*Statistically significant increase from pretests ($p < .05$)
** Statistically significant decrease from pretest 1 ($p < .05$)
Approach Avoidance Style possible range, 16-96

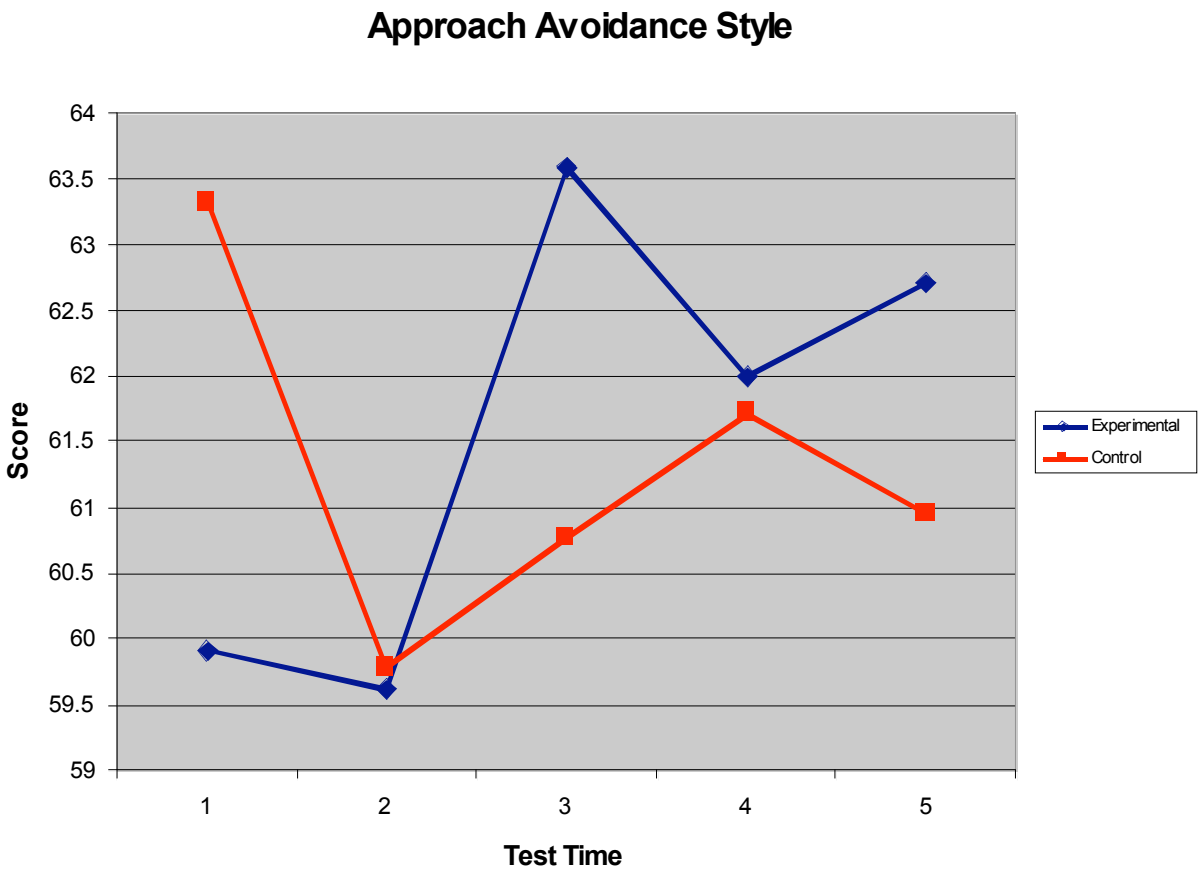

Figure 6. Graphical representation of Approach Avoidance Style results.

Research Question 4

Research Question 4: Are students who participate in a group initiatives course more likely to show an increase in their self-appraised personal control compared to those who do not?

H_{04}: Participants in a group initiatives course will not show a significant increase on self-appraised personal control when compared to non-participants.

A repeated measures ANOVA was performed to determine if participants in a group initiatives course showed an increase in their personal control compared to those who did not participate. The study results showed a statistically significant increase in

self-appraised personal control from pretests one and two to posttest and follow-up two (nine weeks). There was also a statistically significant decrease from posttest to follow-up one (five weeks). To summarize, the experimental group showed an increase at posttest and follow-up two (nine weeks) but returned to pretest levels at follow-up one. The control group showed a statistically significant increase at follow-up two from pretests one and two, posttest, and follow-up one. The control group was statistically significantly lower than the experimental group at one point, the posttest. Therefore, participants in a group initiatives course are more likely to show an increase in self-appraised personal control compared to those who do not immediately following group initiatives but at no other time. The data reject H_{04}. Table 5 and Figure 7 summarize the personal control results.

Table 5

Personal Control at five measurement times

Group	Pretest 1	Pretest 2	Posttest	Follow-up 1 (5 weeks)	Follow-up 2 (9 weeks)
Experimental (mean total score)	18.65	18.80	20.16*	19.23‡	19.96*
Control (mean total score)	17.92 †	18.17	17.82 †	18.14	20.08**

*Statistically significant increase from pretests ($p < .05$)
‡ Statistically significant decrease from posttest ($p < .05$)
**Statistically significant increase from pretests, posttest, and follow-up 1 ($p < .05$)
† Statistically lower from experimental group posttest ($p < .05$)
Personal Control possible range, 5-30

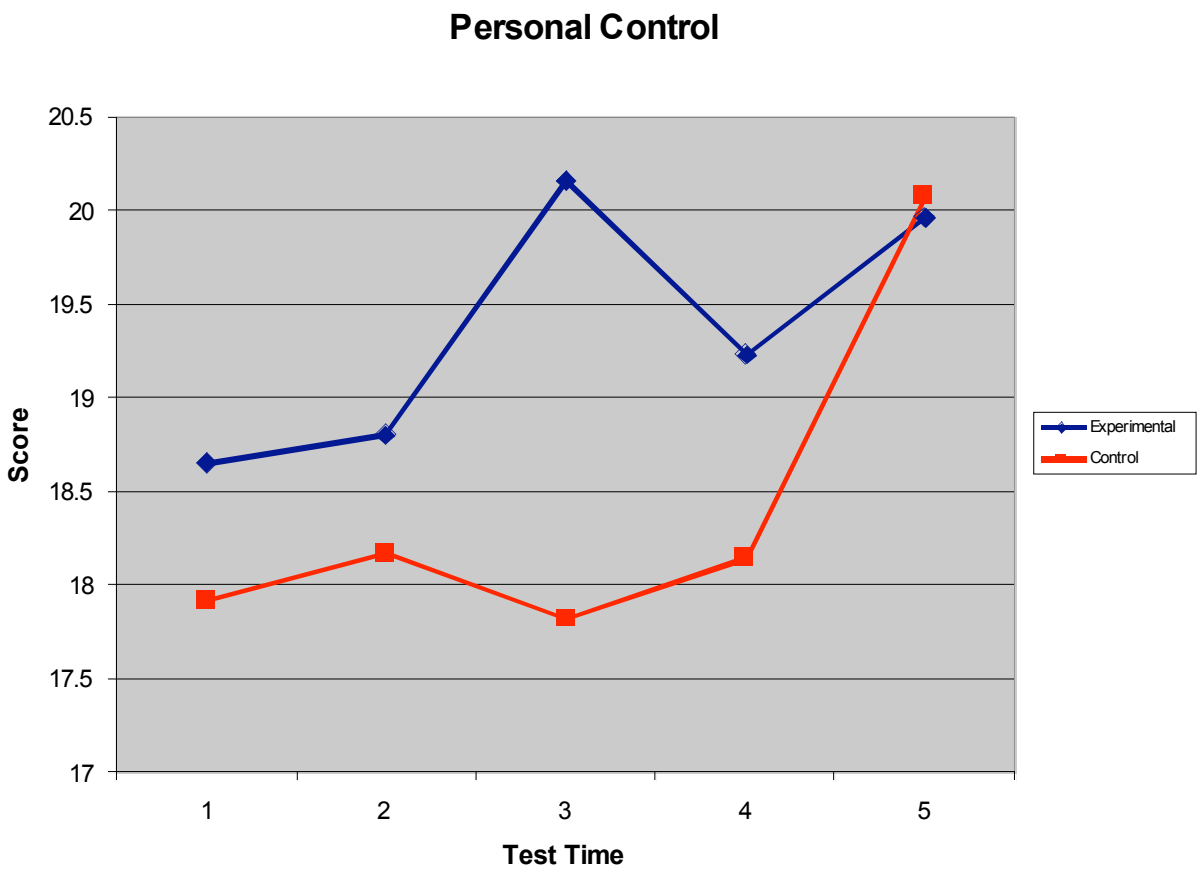

Figure 7. Graphical representation of Personal Control results.

Summary

This study attempted to determine if participation in a group initiatives course would increase self-appraised total problem solving ability, problem solving confidence, approach avoidance style and personal control immediately after treatment and if increased, if it would stay elevated at five and nine-week follow-ups. All four hypotheses examined whether there was a difference between control and experimental groups. A repeated measures ANOVA was run for each of the four components. The test found immediately following group initiatives, the experimental group increased significantly in self-appraised total problem solving ability, problem solving confidence, personal control, and approach avoidance style.

Total problem solving ability went back down to pretest levels at five weeks but went up significantly again at nine weeks. Immediately following treatment was the only time total problem solving ability was significantly higher than the control group.

Problem solving confidence decreased to pretest levels by five weeks and did not significantly increase at nine weeks. No experimental measurement was significantly different than the control group.

Personal control deceased to pretest levels by five weeks but increased significantly at nine weeks. The control group also increased significantly at nine weeks from all previous scores.

Approach avoidance style remained elevated at five and nine weeks. The control group decreased significantly from pretest one to pretest two. The results are summarized in Table 6.

Table 6

Summary of Results

Research Questions & Hypotheses	Findings
RQ1. Are students who participate in a group initiatives course more likely to show an increase in their self-appraised total problem solving ability compared to those who do not?	
H_{01}: Participants in a group initiatives course will not show a significant increase on self-appraised total problem solving ability.	Reject H_{01}—Participants in a group initiative course are more likely to show an increase in self-appraised total probably solving ability compared to those who do not immediately following group initiatives but not at five or nine week follow-ups.
RQ2. Are students who participate in a group initiatives course more likely to show an increase in their self-appraised problem solving confidence compared to those who do not?	
H_{02}: Participants in a group initiatives course will not show a significant increase on self-appraised problem solving confidence.	Fail to Reject H_{02}—At no point was the experimental group's score significantly higher than the control group's score.
RQ3. Are students who participate in a group initiatives course more likely to show an increase in their self-appraised approach avoidance style compared to those who do not?	
H_{03}: Participants in a group initiatives course will not show a significant increase on self-appraised approach avoidance style.	Fail to Reject H_{03}—At no point was the experimental group's score significantly higher than the control group's score.

RQ4. Are students who participate in a group initiatives course more likely to show an increase in their self-appraised personal control compared to those who do not?		
	H_{04}: Participants in a group initiatives course will not show a significant increase on self-appraised personal control.	Reject H_{04}—Participants in a group initiatives course are more likely to show an increase in self-appraised personal control compared to those who do not immediately following group initiatives but not at five or nine week follow-ups.

CHAPTER FIVE

DISCUSSION

Introduction

The purpose of this study was to determine if participation in a group initiatives course would result in higher total self-appraised problem solving ability, problem-solving confidence, approach-avoidance style, and/or personal control and if increased, if it would remain elevated at five- and nine-week follow-ups. This chapter summarizes the study and its findings as well as draws conclusions and makes recommendations for future research.

Summary of the Study

Current literature on challenge courses indicates problem solving is a potential benefit derived from participation (Attarian, 1990; Breheny, 2000; Ewert, 1989; Long, Lindenmeir & Robertson, 2003; Luckner & Nadler, 1997; Rutgers, 2007). Benefits of challenge course participation have been identified from anecdotal accounts with few studies looking at benefits from an empirical standpoint. Few of those studies examining empirical outcomes look long-term into how long those benefits from the challenge courses last. Furthermore, the literature on the length of time benefits last that does exist is inconclusive and very limited.

Previous literature has shown ineffective problem solvers, among many other things, to be more likely to be depressed, to have a harder time dealing with intrapersonal problems, and to be psychologically maladjusted (Bloom & Broder, 1950; Durlak, 1983; Heppner et al., 1982; Heppner & Krauskopf, 1987; Heppner & Lee, 2002; Heppner et al.,

2004). The purpose of this study was to determine if participation in a group initiative session would increase self-appraised problem solving ability and if increased, if it would remain elevated five and nine weeks after the session.

The Parks, Recreation, and Tourism Management (PRTM) 101 course, "Concepts of Leisure," was selected as a convenience sample and each section was randomly assigned as an experimental or control group. The study measured self-appraised problem solving by utilizing the Problem Solving Inventory (PSI). Participants took two pretests; the first pretest was given two class periods before the group initiatives and the second pretest was given one class period before the group initiatives. Participants took a posttest immediately following the group initiative session followed by two follow-up tests: one at five weeks and another at nine weeks.

The facilitators for the study had both achieved senior level status, meaning they had been promoted to the last of four levels for facilitators. Both facilitators were employed at the Clemson University Outdoor Laboratory. The facilitators were given a needs assessment asking to focus on problem solving. Both facilitators were allowed to choose initiatives they felt would best achieve the desired outcome of problem solving. The facilitators focused on problem solving during the initiatives as well as during the processing. Both sections started with whole group warm-ups, then broke into two smaller groups for additional initiatives and ended with whole group activities and a wrap-up.

Limitations

A few problems arose during the course of the study. The first appeared during the second pretest. Testing started the first full week of classes and during that week students were tested either every day they had class (Tuesday/Thursday classes) or two of their three meetings (Monday/Wednesday/Friday classes). Students in all sections questioned why they had to fill out the same survey again. This testing fatigue continued throughout the study. Besides the group initiative session being a required assignment, there was no incentive for the students to fill out the survey so many asked, "Why do I have to do this again?"

The addition of group initiatives to the PRTM 101 course curriculum started in the fall semester of 2007. The instructors of the four sections of PRTM 101 did not view this new addition to the course the same way. As a result, three of the four classes had negative attitudes about doing the assignment. Section three had an experienced instructor who approached the assignment as just that, an assignment. The other three sections approached it as part of the study, not a required assignment, which it was. Therefore, the results of section three greatly skewed the data and had to be thrown out, leaving section four as the only control group.

The last two problems were encountered during the group initiative sessions. The negative attitudes followed the students to the Outdoor Laboratory and all sections expressed unhappiness about the time of day they were required to be at the session. Both experimental groups, regardless of the session time, expressed unhappiness that they were required to be at the Outdoor Lab; it was too early for them to get up and have to be

somewhere. All groups were given the same rules which included leaving all cell phones, keys, and personal belongings in vehicles or the main office during the group initiative session. Section two (experimental) challenged the facilitators, which resulted in two students being asked to leave near the end of the session. The researcher observed part of the disturbances the students were causing and the facilitator did not remove the students as quickly as they would have normally because it was a research study. Other students in this section were likely affected by the behavior of the two misbehaving students as they were not really part of the group at all and did not participate unless it was their turn in an activity.

There were a few other limitations to the study. Participants were aware of the survey and experiment, and therefore not viewing the group initiatives as an assignment. A large part of the sample, 57.6 percent, self-reported participating in group initiatives in the past year. Class environment also had an affect on the study. Each section had a distinct class environment and culture. Each instructor was different in how he/she approached the assignment and the way the class was run. Lastly, the timing of the tests limited the study. The five-week follow-up occurred during the week the instructors gave midterms. The time each class took the survey compared to the test in the class varied from section to section.

Results

Four research questions and hypotheses were used to address the purpose of the study. All four hypotheses examined whether there was a difference between control and experimental groups. A repeated measures ANOVA was run to test for differences in

each of the four components—self-appraised total problem solving ability, problem solving confidence, personal control and approach avoidance style.

The tests found that immediately following group initiatives, the experimental group increased significantly in self-appraised total problem solving ability, problem solving confidence, personal control, and approach avoidance style. Total problem solving ability returned to pretest levels at five weeks but went up significantly again at nine weeks. Immediately following treatment was the only time total problem solving ability was significantly different than the control group. Problem solving confidence decreased to pretest levels by five weeks and, unlike total problem solving ability, did not significantly increase again at nine weeks. No experimental measurement for problem solving confidence was significantly different than the control group. Personal control returned to pretest levels by five weeks but increased significantly at nine weeks. The control group scores also increased significantly at nine weeks compared to all previous scores. Approach avoidance style remained elevated at five and nine weeks. The control group decreased significantly from pretest one to pretest two.

Conclusions

The data revealed that after participation in a group initiative session, participants' self-appraised total problem solving ability increased significantly compared to those who did not participate. However, total problem solving ability was not significantly different at the five- or nine-week follow-ups. Participation in a group initiative session did not cause either self-appraised problem solving confidence or approach avoidance style to increase significantly from the control group at any point in the study. Lastly,

data revealed that after participation in a group initiative session participants' self-appraised personal control increased significantly compared to those who did not participate. However, this increase did not remain significant at five or nine weeks. The study failed to reject null hypotheses H_{02} and H_{03} while rejecting null hypotheses H_{01} and H_{04}.

Discussion

This study found a significant difference in the experimental groups' self-appraised total problem solving ability and personal control immediately following a group initiative session compared to the control group. This study did not, however, find that those increases remained at five- or nine-week follow-ups. The study found no significant differences in self-appraised problem solving confidence or approach avoidance style between the experimental and control groups.

There was an instructor effect in this study. Section three's data had to be thrown out because the data were skewed. Section three was a control group whose scores continued to increase throughout the study. This section was the only one that had an experienced professor and not a graduate teaching assistant teaching. It is well known that the experienced instructor, an award winning teacher, naturally encourages critical thinking and daily problem solving through his teaching style.

The characteristics of the study sample may also have affected the results of the study. Over half of the experimental group (52.4%) had participated in group initiatives in the past 12 months. It is possible that recent participation in group initiatives may have

resulted in a higher starting self-appraised problem solving ability or a lack of interest in the class group initiative session.

Certainly there were some interesting results from this study that should be addressed. First, at five weeks all scores decreased from posttest levels except those measuring approach avoidance style. A possible explanation to this is that at the five-week follow-up, all three usable sections had a test in their classes. The time during class that students took the survey in comparison to the time the students took the exams varied by instructor. Two sections took the survey before the test and one section took the survey after they had already taken the test. Many of the students who took the survey before the test were hurrying through the survey and frantically studying their notes. The students who took the test first could have been upset by how they did on the test or happy with their performance. Either way, survey data may have been affected.

All experimental scores increased from five to nine weeks. Of these, self-appraised total problem solving ability, personal control and approach avoidance style were all significant increases from the pretests. However, none of these were significantly different from the control group. A possible explanation as to why these scores went back up at the five-week follow-up is that the survey was not given during a test week. In addition, freshmen made up a large part of the sample (47%). At this point in the semester (almost three months in), freshmen have adjusted to college living and are learning to solve problems on their own. Freshmen have become acquainted with school and the workload. Many undergraduate classes, both PRTM 101 and others, include a lot of group activities at this point in the semester, which include problem-solving activities

such as class projects. Therefore, students could have opportunities to increase their problem solving ability beyond what the group initiatives offered.

The experimental posttest scores of self-appraised approach avoidance style were elevated from pretest scores and remained that way at five- and nine-week follow-ups. At no time was this increase significantly different from the control group. However, the control group's second pretest was significantly lower than the first pretest. One possible explanation for this decrease in the control group's score is day-to-day variance. There was a large amount of within-group variance and that alone could have accounted for the significant decrease in the score. This would suggest the treatment did not really have an effect because the experimental groups' scores went up about the same amount as the control group's score went down. Another possible explanation is testing fatigue. Because the second pretest was given the very next class period after the first pretest, testing fatigue could have played a part in the decrease. Many students made the comment, "Why do I have to do this again?" and approached the survey with negative attitudes. A third possible explanation is the trend from the second pretest. Looking at the control group's scores from the second pretest and after, the line follows an upward trend that never gets close to where it started originally (the first pretest). This suggests the treatment did have an effect and it was mere coincidence that the first pretest was that high.

Recommendations

During the study, the instructors did not participate in the group initiatives with their classes nor did they meet their classes out at the site. In the future, it might be

helpful for instructors to participate in the group initiatives with their classes. For this to be effective, instructors need to be willing to be wrong. When an instructor participates, students often look to that instructor for the answers but instead he/she needs to be viewed as any other member of the group, not someone who knows the answers. Having an instructor present can bring a class together when an instructor shows vulnerability and participates alongside the students. Regardless if the instructor participates or is simply present, there may be a positive impact on group behavior.

Because no dimension of the experimental group's Problem Solving Inventory remained significantly higher than the control group, it is possible there needs to be a follow-up activity before five weeks to retain what is gained from participating in group initiatives. All scores but problem solving confidence were higher than pretest scores at five weeks, but only approach avoidance style was significantly higher than pretest scores. However, none were significantly higher than control group scores at five weeks.

Further study is needed in the area of problem solving and group initiatives. For future research, it is recommended to repeat the study using the same study design with a random sample of young adults (both college and non-college adults), corporate groups, a different age group, or using a sample of participants with no experience in group initiatives. Using a random sample of young adults gives the study more generalizability. When a university class is used for a study, all the students are currently on the same track—college. The random sample using both college and no-college adults would broaden the participants. Corporate groups should be used because previous literature addressed problem solving with this population or measured the specific measurement

lengths used in this study. A study using different age groups is recommended because elementary, middle and high schools as well as church groups and older adults use ropes courses and have not been studied. It is possible retention levels will vary by age of participant. Lastly, a study using participants with no previous experience in group initiatives should be examined because elevated levels of problem solving may differ if this is the participant's first exposure to this type of unique problem solving. The same study design should also be used with and without specific Corporate Adventure Training (CAT) programs. Previous literature using CAT programs have not measured problem solving. Future research should also include studies examining repeated exposure to adventure education. The current study asked participants if they had exposure to group initiatives in the past twelve months. However, the number of times in the past twelve months they participated was not asked. It is recommended a study is done using repeated exposure to group initiatives or another adventure education program to test for elevated levels of problem solving.

It is also recommended to use a larger sample size that includes more instructors and more sections. This change would reduce the instructor effect the current study experienced. There would be an array of instructor effects in both the experimental and control groups thus reducing instructor effects between the groups. Additional studies should also look into the effect of group initiatives on other variables such as communication and trust.

Summary

The current study looked at the impact of group initiative involvement on problem solving using the Problem Solving Inventory (PSI) (Heppner, 1982). Data were collected from PRTM 101 students who participated in a three-hour group initiative session either early in the semester (experimental group, N=63) or later in the semester (control group, N=25). Data were collected using pre/post surveys during the respective PRTM 101 classes and immediately following the treatment on-site. Participants were measured at five- and nine-week follow-ups to determine if any elevated levels of perceived problem-solving ability after the group initiative course remained elevated. Analysis revealed that self-appraised total problem solving ability, personal control, approach- avoidance style, and problem solving confidence were significantly higher than pretest scores immediately following the group initiative session; however total Problem Solving Confidence and Personal Control were the only two significantly higher than control group scores at the same time. At the five-week follow-up all but Approach Avoidance style returned to pretest levels. At nine weeks, Total Problem Solving ability, Personal Control, and Approach Avoidance style were significantly higher from pretest scores. However, the control group's Personal Control also increased significantly at nine weeks from pretest scores. Therefore, while group initiatives appear to have some impact on self-appraised problem solving ability, the findings indicate need for further study.

APPENDICES

Appendix A: Problem Solving Inventory by dimension

According to Heppner & Petersen (1982), who developed the PSI, "low scores indicate behaviors and attitudes typically associated with successful problem solving" (p. 67).

Measured on a 6-point Likert Scale

1 = Strongly Agree	2 = Moderately Agree	3 = Slightly Agree	4 = Slightly Disagree	5 = Moderately Disagree	6 = Strongly Disagree

---

Problem Solving Confidence:

5. I am usually able to think up creative and effective alternatives to solve a problem.
9. I have the ability to solve most problems even though initially no solution is immediately apparent.
*10. Many problems I face are too complex for me to solve.
11. I make decisions and am happy with them later.
18. When I make plans to solve a problem, I am almost certain that I can make them work.
21. Given enough time and effort, I believe I can solve most problems that confront me.
22. When faced with a novel situation I have confidence that I can handle problems that may arise.
25. I trust my ability to solve new and difficult problems.
30. After making a decision, the outcome I expected usually matches the actual outcome.
*31. When confronted with a problem, I am unsure of whether I can handle the situation.
32. When I become aware of a problem, one of the first things I do is try to find out exactly what the problem is.

Approach Avoidance Style:

*1. When a solution to a problem was unsuccessful, I do not examine why it didn't work.
*2. When I am confronted with a complex problem, I do not bother to develop a strategy to collect information so I can define exactly what the problem is.
*4. After I have solved a problem, I do not analyze what went right or what went wrong.
6. After I have tried to solve a problem with a certain course of action, I take time and compare the actual outcome to what I thought should have happened.
7. When I have a problem, I think up as many possible ways to handle it as I can until I can't come up with any more ideas.
8. When confronted with a problem, I consistently examine my feelings to find out what is going on in a problem situation.
*12. When confronted with a problem, I tend to do the first thing that I can think of to solve it.

*14. When deciding on an idea or possible solution to a problem, I do not take time to consider the chances of each alternative being successful.
15. When confronted with a problem, I stop and think about it before deciding on a next step.
*16. I generally go with the first good idea that comes to mind.
17. When making a decision, I weigh the consequences of each alternative and compare them against each other.
19. I try to predict the overall result of carrying out a particular course of action.
*20. When I try to think up possible solutions to a problem, I do not come up with very many alternatives.
26. I have a systematic method for comparing alternatives and making decisions.
*27. When confronted with a problem, I do not usually examine what sort of external things my environment may be contributing to my problem.
28. When I am confused by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.

Personal Control:
*3. When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation.
*13. Sometimes I do not stop and take time to deal with my problems, but just kind of muddle ahead.
*23. Even though I work on a problem, sometimes I feel like I am groping or wandering, and am not getting down to the real issue.
*24. I make snap judgments and later regret them.
*29. Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problems.

* indicates negative responses (reverse coding)

Appendix B: Survey Instrument

QUESTIONNAIRE WITH DEMOGRAPHIC QUESTIONS

Please put an X in the appropriate box.

What is your gender?

1 Male
1 Female

What year are you in school (as defined by credit hours completed)?

1 Freshman (0-29 hours)
1 Sophomore (30-59)
1 Junior (60-89)
1 Senior (90 +)
1 Other Please explain_____

Please complete the following questions

How old are you? _____

Please list the major you are pursuing at Clemson.

_____

What was your score on the SAT? _____

In what subject do you perceive yourself to be the best at? This subject does not necessarily have to be one you enjoy or want to pursue or even get the best grade in.

_____

Please put an X in the appropriate box.

Have you participated in group initiatives in the past twelve months?

1 Yes
1 No

For the following 32 questions, please use the scale ranging from 1-6. Circle the number that best represents how strongly you agree or disagree with the stated item.

Item	Strongly Agree	Moderately Agree	Slightly Agree	Slightly Disagree	Moderately Disagree	Strongly Disagree
1. When a solution to a problem was unsuccessful, I do not examine why it didn't work.	1	2	3	4	5	6
2. When I am confronted with a complex problem, I do not bother to develop a strategy to collect information so I can define exactly what the problem is.	1	2	3	4	5	6
3. When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation.	1	2	3	4	5	6
4. After I have solved a problem, I do not analyze what went right or what went wrong.	1	2	3	4	5	6
5. I am usually able to think up creative and effective alternatives to solve a problem.	1	2	3	4	5	6
6. After I have tried to solve a problem with a certain course of action, I take time and compare the actual outcome to what I thought should have happened.	1	2	3	4	5	6
7. When I have a problem, I think up as many possible ways to handle it as I can until I can't come up with any more ideas.	1	2	3	4	5	6
8. When confronted with a problem, I consistently examine my feelings to find out what is going on in a problem situation.	1	2	3	4	5	6
9. I have the ability to solve most problems even though initially no solution is immediately apparent.	1	2	3	4	5	6
10. Many problems I face are too complex for me to solve.	1	2	3	4	5	6
11. I make decisions and am happy with them later.	1	2	3	4	5	6
12. When confronted with a problem, I tend to do the first thing that I can think of to solve it.	1	2	3	4	5	6
13. Sometimes I do not stop and take time to deal with my problems, but just kind of muddle ahead.	1	2	3	4	5	6
14. When deciding on an idea or possible solution to a problem, I do						

not take time to consider the chances of each alternative being successful.	1	2	3	4	5	6
15. When confronted with a problem, I stop and think about it before deciding on a next step.	1	2	3	4	5	6
16. I generally go with the first good idea that comes to mind.	1	2	3	4	5	6
17. When making a decision, I weigh the consequences of each alternative and compare them against each other.	1	2	3	4	5	6
18. When I make plans to solve a problem, I am almost certain that I can make them work.	1	2	3	4	5	6
19. I try to predict the overall result of carrying out a particular course of action.	1	2	3	4	5	6
20. When I try to think up possible solutions to a problem, I do not come up with very many alternatives.	1	2	3	4	5	6
21. Given enough time and effort, I believe I can solve most problems that confront me.	1	2	3	4	5	6
22. When faced with a novel situation I have confidence that I can handle problems that may arise.	1	2	3	4	5	6
23. Even though I work on a problem, sometimes I feel like I am groping or wandering, and am not getting down to the real issue.	1	2	3	4	5	6
24. I make snap judgments and later regret them.	1	2	3	4	5	6
25. I trust my ability to solve new and difficult problems.	1	2	3	4	5	6
26. I have a systematic method for comparing alternatives and making decisions.	1	2	3	4	5	6
27. When confronted with a problem, I do not usually examine what sort of external things my environment may be contributing to my problem.	1	2	3	4	5	6
28. When I am confused by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.	1	2	3	4	5	6
29. Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problems.	1	2	3	4	5	6
30. After making a decision, the outcome I expected usually matches						

the actual outcome.	1	2	3	4	5	6
31. When confronted with a problem, I am unsure of whether I can handle the situation.	1	2	3	4	5	6
32. When I become aware of a problem, one of the first things I do is try to find out exactly what the problem is.	1	2	3	4	5	6

Appendix C: Calendar of Events

Below is the calendar of events outlining the timeline of treatment and data collection, and includes other relevant information.

August 2007

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22 School starts	23	24	25	26
27	28 Pre-test 2 for sections 2 & 4	29 Pre-test 2 for sections 1 & 3	30 Pre-test 2 for sections 2 & 4	31 Pre-test 2 for sections 1 & 3		

September 2007

Mon	Tue	Wed	Thu	Fri	Sat	Sun
					1 GI sessions am/pm Post-test for sections 1 & 2	2
3 NO SCHOOL	4 Post-test for sections 3 & 4 (control group)	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October 2007

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4 5 week follow-up for sections 2 & 4	5 5 week follow-up for sections 1 & 3	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November 2007

Mon	Tue	Wed	Thu	Fri	Sat	Sun
			1 9 week follow-up for sections 2 & 4	2 9 week follow-up for sections 1 & 3	3 GI Control Group am/pm sessions	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21 Thanksgiving Break	22 Thanksgiving Break	23 Thanksgiving Break	24 Thanksgiving Break	25 Thanksgiving Break
26	27	28	29	30		

Appendix D: IRB Approval Letter

CLEMSON
UNIVERSITY

July 31, 2007

Dr. Denise Anderson
Department of Parks, Recreation
and Tourism Management
263 Lehotsky Hall
Clemson University
Clemson, SC 29634

SUBJECT: Human Subjects Protocol **# IRB2007-215, entitled "What Happens Monday?: The Impact Group Initiatives Have on Self-Assessed Problem Solving Ability"**

Dear Dr. Anderson:

The Chair of the Clemson University IRB (Institutional Review Board) validated the protocol identified above using Exempt review procedures and a determination was made on **July 31, 2007** that the proposed activities involving human participants qualify as Exempt from continuing review under **Category B2** based on the Federal Regulations. You may begin this study.

Please remember that no change in this research proposal can be initiated without prior review by the IRB. Any unanticipated problems involving risks to subjects, complications, and/or any adverse events must be reported to the IRB immediately. The Principal Investigator is also responsible for maintaining all signed consent forms (if applicable) for at least three (3) years after completion of the study. You are requested to notify the Office of Research Compliance (ORC) if your study is completed or terminated.

Attached are documents developed by Clemson University regarding the responsibilities of Principal Investigators and Research Team Members. Please be sure these are distributed to all appropriate parties.

Good luck with your study and please feel free to contact us if you have any questions. Please use the IRB number and title in all communications regarding this study.

Sincerely,

Laura A. Moll

Laura A. Moll, M.A., CIP
IRB Administrator

OFFICE OF RESEARCH COMPLIANCE
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Institutional Animal Care and Use Committee: 864.656.4538 Institutional Biosafety Committee: 864.656.0118 Institutional Review Board: 864.656.6460

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