This article first appeared as Chapter Five in the 2003 Kendall / Hunt Publication
Developing Challenge Course Programs for Schools, Edited by Jeff Steffens & Scott Wurdinger

In Defense of Adventure-Based Education and Active Learning Opportunities

by Jim Cain, Ph.D.
Teamwork & Teamplay
www.teamworkandteamplay.com

"I love having my students engage in adventure-based learning opportunities. The day we spend at the challenge course is always one of the most beneficial and enjoyable days of the school year. But, my principal is going to evaluate my performance as a teacher on my student's test scores on standardized tests at the end of the year. With so many other 'essential' lessons taking my time, I haven't been able to justify the adventure-based component, even though I know it is ultimately valuable for my students and myself."

For many educators, a discussion on the merits of adventure-based education begins with something like the above commentary. An expression of the value of adventure-based learning, and yet an acknowledgment of the difficulty in persuading the decision makers within a learning institution of this value, or even the validity of using adventure-based and active learning techniques for instructing a traditional curriculum, or supplementing one.

My opinion of this all too common occurrence comes from my background in engineering. As a mechanical engineer, if you were to ask me a question that involved a concept I learned during my college years, I would no doubt return to my college textbooks, retrace my learning there, and attempt to solve the problem. Now in the years since my college days, there have certainly been changes in technology, newer textbooks, different concepts and conclusions, and yet, I would be most comfortable with those texts that were a part of my learning process. Texts that are now at least 20 years old. In a similar way, I believe that when the decision makers in our present learning institutions are confronted with limited resources, they attempt to solve problems in the manner in which they first experienced them, in their college or higher education years. For many of these decision makers, there was no active learning, no adventure-based education, and for that matter very little of even what John Dewey recognized as the value of 'experience' in their formal education years. No multiple intelligence theories, no character education in the schools, no 'alternatives' to a 'standard' education even for those students that were unreachable by the present system. As a result, when these policy and decision makers are confronted with a problematic educational situation, they are typically unfamiliar with the merits of using adventure-based education, active learning opportunities or any form of experiential education.

I was encouraged at first that there might still be hope for adventure-based learning. All that needed to happen was to graduate a generation of teachers that had experienced adventure-based learning in their formative college years, have them graduate, teach, and finally find themselves in the role of decision maker in their institution. Then, I thought, they will utilize those college concepts that have demonstrated their value when tough decisions need to be made. But alas, the number of formal teachers that presently are equipped with more than even an awareness level of adventure-based education as part of their college education, is surprisingly few. It is more likely that 'informal educators' such as recreation and leisure study majors, or students simply taking electives, are to be found in adventure-based learning classes than many primary or secondary education teachers, and even less graduate level educational administrators, principals and superintendents.

The result unfortunately, is that it is sometimes extremely difficult for an educator to convince the decision maker in their institution of the utility, validity and value of incorporating adventure-

based learning into their curriculum. What is needed then is a convincing argument, with specific documentation to illustrate the value of an education that includes challenge and adventure-based learning.

In the following paragraphs, documentation from a variety of sources is presented, to illustrate the value of adventure-based learning. For those seeking to influence the policy and decision makers within their own institutions, or for those engaged in grant writing, curriculum design, alternative educational practices or simply interested in finding another method of reaching students, I hope this material brings you the credibility you seek when utilizing adventure-based activities as a means of delivering your curriculum, unlocking the learning process, and ultimately, reaching those students that you so desperately wish to reach.

A Historical Perspective on Active Learning

While John Dewey has long been called the Father of Experiential Education, his classic 1938 text, Education as Experience, hints at only the tip of the adventure-based iceberg. For more than 50 years following this work, other authors have tried to capture the potential educational benefit of utilizing active learning, but often have fallen short because of one essential element - the ability to utilize adventure-based learning within the standard curriculum.

In the 1955 text, Education Through Physical Activities, O'Keefe and Aldrich provide a plethora of physical activities, and yet miss the opportunity to illustrate how a classroom teacher could use these activities to demonstrate principles, concepts and elements of any subject in the standard curriculum, such as mathematics, history, English or science.

Modern texts such as Project Adventure's Adventures in the Classroom, and Outward Bound's Into the Classroom are some of the first texts to propose that adventure-based learning can extend beyond the classic teamwork scenario, and into the classroom itself. For this reason, much of what is presented here will be a look at the present and the future, rather than a classic look at the past. However, for those interested in the classic writings of Dewey, Piaget and Lewin, David Kolb's work Experiential Learning - Experience as the Source of Learning and Development, is recommended reading.

Some Hard Numbers

While it can be difficult finding hard numbers to validate adventure-based learning, there is one source of information that is available in nearly all of the 50 states, and directly provides information on risk management and safety issues that any administrator should want to know. The State Department of Health in most states, collects and retains information related to the reportable accidents, injuries or health related incidents encountered in summer camps programs, including those of adventure-based and challenge course related accidents. The New York State Health Department's summary of all reported incidents for the year 2000, for example, includes not only camper sustained injuries and illnesses, but also staff related incidents as well.

With specific regard to challenge course programs here are two illustrative highlights from the year 2000 New York State summary:

Of the 1051 reported injuries, a total of 10 occurred on challenge courses. This number ranks 20th on the list, below such common camp activities as hiking, swimming, sports, sleeping and eating.

From a risk management perspective, for the year 2000 data, a camper was:

27 times more often injured in a sports program than on the challenge course

13 times more often injured in organized games than on the challenge course
6 times more often injured on playground equipment than on the challenge course
2 times more often injured simply playing than on the challenge course

From an activity vs. wellness assessment of the above data, challenge courses typically sustain higher levels of participant safety than many other common sports and games. This level is most often attributed to the frequent inspection of challenge course elements, the training required for facilitators, and the supervision level of the challenge course program in general. Simply stated, challenge course programs have statistically fewer injuries than many community athletic programs.

Contact the State Health Department in your state for specific information related to the occurrence of injuries in other types of active learning opportunities compared to challenge course settings. In most instances, challenge and adventure-based programs sustain fewer injuries than other organized programs. This type of hard data can be valuable when trying to convince decision makers with limited knowledge of the actual and perceived risks of a challenge course.

In addition to your State Health Department, Project Adventure, a Massachusetts-based program, compiles a listing of safety information related to challenge and adventure-based learning, and publishes this information approximately every five years. Contact Project Adventure at: www.pa.org.

Organizations

The following organizations are known for their knowledge and resources related to challenge and adventure-based learning.

The Association for Experiential Education (AEE) provides a wide variety of services to assist educators and members with experiential programs, including those that utilize challenge and adventure-based learning. In addition to their website (www.aee.org), AEE offers some excellent publications that are of interest to educators. These publications can be viewed at www.aee.org/pubs/books and include such offerings as Experiential Learning in Schools and Higher Education by Kraft and Kielsmeier.

The National Society for Experiential Education (NSEE) is another national organization that provides members with information and opportunities related to a wide range of experiential education. One publication provided by NSEE that is particularly noteworthy is entitled: Strengthening Experiential Education Within Your Institution, by Jane Kendall, John Duley, Thomal Little, Jane Permaul and Sharon Rubin. ISBN 0-937883-00-X. If you are beginning the process of creating an adventure-based learning program at your institution, this publication will prove valuable.

The Association for Challenge Course Technology (ACCT) maintains an excellent website of information related to the safety, installation, standardization and best practices of the challenge course industry. Contact ACCT at: www.acctinfo.org

The American Society for Curriculum Development (ASCD) in Arlington, Virginia USA provides curriculum based information. Visit their website at: www.ascd.org. One book of note from their publishing organization is that of Robert Sylwester, who suggests that learning does not take place unless the student can pay attention. In order to facilitate this process, some sensory input is needed to activate attention. Without a doubt, adventure-based programs provide a wide range of sensory input, often providing the activation that some students need, but seldom achieve in a traditional classroom setting.

A Celebration of Neurons - an Educator's Guide to the Human Brain, 1995, Robert Sylwester, American Society of Curriculum Development , Alexandria, VA USA ISBN 0-87120-243-3

The American Camping Association (ACA) accredits camping programs in the United States. This organization also maintains two sections on their website specifically designed to assist teachers in learning and implementing the style of active learning common to summer camps, in a more traditional, formal learning environment. Visit the ACA Camp Knowledge Center at:

www.acacamps.org/knowledge www.acacamps.org/research

The Best Documentation

Formerly a faculty member of the University of New Hampshire and most recently of Prescott College, Dan Garvey is possibly one of the most respected experiential educators in the United States. No doubt, if asked to defend the validity of experiential education and adventure-based learning in court, Dan Garvey would make an excellent expert witness. When asked about the ultimate article validating adventure-based learning, Dan recommended:

Adventure Education and Outward Bound: Out-of-Class Experiences That Make a Lasting Difference, John Hattie, H. W. Marsh, James T. Neill, and Garry E. Richards, *Review of Educational Research*, Spring 1997, Volume 67, Number 1, pages 43-87.

This article also contains an extensive bibliography with additional professional journal articles, and most importantly, some serious statistical information related to the validity of adventure-based learning, self concept growth, skill building, and self esteem.

Resources From the Internet

There are a variety of keywords which make searching the world wide web a bit easier when it comes to adventure-based learning. Try using some of the following in your favorite search engine: outdoor training, groupwork, teamwork, adventure-based, experiential learning, active learning, whole brain learning, challenge courses, leadership, experience-based training, and team building.

One of the most popular public forums with a focus on adventure-based learning and challenge courses is the "ROPES" listserve. This listserve typically covers topics ranging from where to find a specific type or brand of harness, helmet or challenge course hardware, to facilitation, grant writing and program planning. To subscribe to the ROPES listserve, send the message below to ropes-lserv@literati.com:

Subscribe your-email-address

For example Subscribe roger@myhighschool.edu

Additional websites of interest to adventure-based educators include:

The Association for Experiential Education (AEE)	www.aee.org
The National Society for Experiential Education (NSEE)	www.nsee.org
The American Society for Curriculum Development (ASCD)	www.ascd.org
The Association for Challenge Course Technology (ACCT)	www.acctinfo.org
Games for Teachers and More, from Chris Cavert	www.fundoing.com
American Camping Association (ACA)	www.aca-camps.org
Processing, Debriefing and Reviewing Website	www.reviewing.co.uk

Kendall Hunt Publishers	www.kendallhunt.com
Harvard Project Zero - Multiple Intelligence	www.pzweb.harvard.edu
The Outdoor Network	www.outdoornetwork.com
Learning Unlimited	www.learningunlimited.com
The Adventure Group	www.theadventuregroup.com
Adventure Hardware	www.adventurehardware.com
The American Camping Association Knowledge Center	www.aca-camps.org/knowledge
Teamwork & Teamplay	www.teamworkandteamplay.com

The Three Things That All Groups Need

Based on the collected works of conventional wisdom and business gurus of the 20th and 21st centuries, there seems to be three underlying components that all groups require to perform at their highest levels. This is true of corporations and institutions of all kinds, including educational institutions. It is also true for both adult and youth populations. These three components include:

1. A clearly identified, articulated and worthy task
2. The opportunity for growth, advancement and building new skills
3. The opportunity to create and maintain relationships with other members of the group. Sometimes referred to as the 'social capital' of the organization.

While traditional learning environments typically provide the first two components, it takes specific planning to create the setting, opportunity and social climate necessary to promote the development, growth and maintenance of relationships within the group. From a corporate perspective, this third component is actually one that is recognized by most management programs, but more often disregarded. In the book, Great Writings in Management & Organization Behavior, edited by Louis Boone, this concept is boldly confronted in a chapter largely related to Maslow's hierarchy of human needs as they relate to the corporate sector. It is identified that managers may in fact fear the relational development within the group. In order to counteract this disregard for the social and relational component necessary for the complete development of a group, specific attention needs to be given to the planning and delivery of training, staff development, and group learning opportunities as well as maintenance of the social capital of the group.

> *Task, growth and relationships are the three critical components to the organizational 'apple pie.' If you like the taste of my organization's pie, you might want to write down the recipe. If you don't happen to like the taste of your current organizational pie, you might want to look at the quality of your ingredients, or the amount of each you are adding to the mix.*
>
> Jim Cain, Teamwork & Teamplay

Adventure-based learning programs traditionally have been group oriented programs. There is a significant amount of preparation and attention to the needs of the group, with abundant safeguards for each member of the group, and the opportunity for each member of the group's voice to be heard. Here the social and relational components described above are not merely allowed, they are a critically integrated part of the program.

The Millennial Generation

"Come the Fourth Turning, national survival will require a level of public teamwork and self-sacrifice far higher than Americans now provide."

William Strauss and Neil Howe
Authors of The Fourth Turning, page 314.

In their book, *The Fourth Turning*, authors Strauss and Howe mention that one of the key necessities of the millennial generation is to learn to work in teams. In short, the millennial generation needs exposure to exactly the style of teamwork, collaboration and group skills provided in many adventure-based learning experiences. You can find more information relating the cycles of American history to our youth, and our future destiny at www.fourthturning.com

Maslow Hierarchy of Needs

From the standpoint of Maslow's hierarchy of human needs, there is a basic level of agreement that unless the most basic needs are met, it is difficult, and some say impossible, to achieve higher levels of fulfillment. In short, a trip up the hierarchy begins with basic physiological needs (such as sleep and shelter), next are safety needs (protection against danger), followed by social needs, ego needs and self-fulfillment needs. In the book *Great Writings in Management & Organization Behavior*, edited by Louis Boone, Maslow's concept of social needs is met with the startling reality that management often fears 'groups,' and encourages and rewards individuality rather than team effort. And yet, as illustrated in the previous section, Strauss and Howe profess that the single greatest element that our youth need, is the ability to work as a team.

"If you're wondering why we don't have more self-actualized teenagers walking around, it is because we haven't helped them fulfill their lower needs."

John Springer, Four Winds

Another way of using Maslow's concept of a hierarchy of needs is to consider that unless we are able to provide for and meet the social needs of our students, the possibility of them achieving self esteem and fulfillment is pretty unlikely. Again, because of the nature of adventure-based learning, teamwork, and group unification, students are more likely to satisfy their need for social fulfillment and progress onto higher levels of learning, and learning retention, when this third level need is met. An ideal learning environment then, would be one which provides for the basic physiological and safety needs, and provides a community building, team or social environment before attempting to achieve the higher level task of learning (fulfilling the ego and self-fulfillment levels).

A Need for the Skills of an Adventure-based Educator

The following story was shared by Mike King, adventure director of Berry College in Georgia.

One of the students working as a challenge course facilitator for Mike was majoring in computer science. During his senior year, the opportunity came for on-campus interviews with prospective companies. This particular student academically ranked very near the bottom of his class, and yet received one of the highest financial offers, not for his computer science skills, but for his ability to create community, unity and teamwork. According to Mike, this particular company expected to hire several hundred computer programmers, and needed someone to create a sense of unity and teamwork. Beyond the normal sense of task or even growth opportunities, this company

recognized the need for creating and maintaining relationships in the workplace, and was glad to hire a recent graduate with adequate knowledge of the technical portion of the job, but superior knowledge of the relationship component.

The Levels of Knowledge Attainment

Educators have known for decades that the retention of a student's skills are highest in situations where the student has had the greatest immersion in the learning process. The higher the involvement of the student in the learning process, the greater the comprehension of the material, and ultimately the greater the retention of this information. Benjamin Bloom speaks of this phenomenon in terms of the 'levels of knowledge attainment' and presents this information in his 1956 text, *Taxonomy of Educational Objectives and Handbook 1: Cognitive Domain.*

Bloom suggests that there are six levels to understanding, starting with a basic knowledge or awareness of 'X,' followed by comprehension of this information, the ability to apply such information, the ability to analyze, followed by the higher level skill of synthesizing, and finally, the ability to evaluate such information. Some even imply that there may be a seventh (higher) level, as suggested by Madeline Hunter below.

The ability to dialog about something implies an agile, sophisticated familiarity with the topic.
Madeline Hunter, UCLA

Some forms of rote memorization fit squarely into the awareness or lowest level of understanding. The speed a which a falling body accelerates is a rote memorization until a student has had the opportunity to experience a challenge course element like the zip line or giant's swing (comprehension). Additional experimentation with this phenomenon elevates the level of understanding, and it is fair to say that a challenge course participant certainly has something to dialog about after the experience.

Sensory Input

Robert Sylwester suggests in his book, *A Celebration of Neurons - an Educator's Guide to the Human Brain*, that a student cannot learn if they are not paying attention - and that sensory input is needed to activate attention. In short, an emotional response is needed to activate the attention process, which then allows the learning process to begin. Some baseline amount of energy is necessary to jumpstart the learning process. Below this level, the learning process is asleep.

In the world of adventure-based learning, the sensory input is unique. The atmosphere is often charged with emotion as challenges, new settings, perceptions of risk, adventure and opportunity arise. This opportunity should not be missed. Once a student has achieved the baseline energy necessary to activate their attention, and their learning process, all kinds of learning can take place. This could include traditional classroom curriculum in addition to the teamwork and community building typically found during a challenge course experience.

Several amusement parks in the United States understand this process, and conduct a yearly 'physics day' onsite. Students are provided with scientific instruments which measure inclination, velocity and time, and are asked to calculate a variety of common physical parameters related to amusement park rides. Once the attention process is activated, the learning process can begin. There is certainly no reason that adventure-base d programming cannot be used to 'open the door' to this style of learning.

The Brain Gym

Movement is the door to learning.
Dr. Paul Dennison, Author of Brain Gym

For adventure-based educators, the challenge to connect the Brain Gym ideology with active learning concepts is not a difficult one. The standard classification of 'ice-breakers,' 'energizers' and 'de-inhibitizers' themselves are specifically intended to provide movement and prepare the individual and the group for the learning experience at hand. For this same reason, it is important for administrators to understand that adventure-based education programs are not simply 'students playing and climbing on ropes in the trees.' The careful sequencing of activities, the needs assessment developed prior to the program, the processing, debriefing and reviewing of experiential activities, all relates to the learning potential. If movement truly is the door to learning, as Dr. Dennison states, then adventure-based educational programs have a door the size of the Vehicle Assembly Building at the Kennedy Space Center in Florida.

For more information on this topic, use a keyword search of 'active learning,' 'brain gym,' or 'movement and education.' Also read, Smart Moves - Why learning is not all in your head, Carla Hannaford, 1995, Great Oceans Publishers, Arlington, VA USA ISBN 0-915556-27-8

The More I Know About You...

My friend and colleague Chris Cavert once mentioned with regard to his middle school students, that, "The more they know about each other, the less likely they are to hurt each other." For a middle school teacher in a rather rough district, the concept of creating a classroom where students feel a part of the whole rather than detached from the whole is paramount, especially considering the results in several schools around the country where one or two students specifically became disenfranchised, and demonstrated this impact with weapons and sufficient ammunition to illustrate their point all too well.

Chris chose to begin each school year with a carefully selected series of events and adventure-based learning activities, so that students would focus on what they had in common with their fellow students, rather than what separated them from each other. The result was that his students experienced less classroom disruptions, and were able to go farther in the required curriculum, because they had spent a few days at the beginning of the year building community in the classroom and deciding how they would act and treat each other. Chris has even written down some of his insights and activities in his book, Games for Teachers. You can contact Chris for more information at: chris@fundoing.com

The Walkertown Project

Adventure-based educators love challenge by nature, and the thought of creating an adventure-based program for middle school students, delivered by middle school students, is obviously interesting. In 1992, Clare Marie Hannon, a 4-H Youth Development Specialist in North Carolina worked collaborative with a creative middle school teacher to design a peer facilitation model for the seventh grade class. The teacher applied for and received a small incentive grant to train a group of students to provide teambuilding activities for their peers. The focus of the grant was for both student facilitators and the peers they taught to improve in the following life skills: communications, problem solving, decision making, goal setting, planning, relationship building, responsibility, leadership, trust, teambuilding and cooperation as part of the school improvement plan.

Sixteen students were selected from a pool of applicants and received three days of training in life-skills, initiative activities, low ropes activities, facilitation skills and debriefing skills. The design of the program was for students working in pairs to lead a group of 15 seventh grade students in teambuilding activities for 90 minutes each week for 10 weeks. A student videographer was also selected and trained.

Facilitators committed to spend three days a week after school preparing for and debriefing the sessions. Each week the team met on Monday to review and debrief the previous weeks video,

celebrating successes and identify behaviors that were giving them problems in their groups. On Tuesday the team met to discuss what skills and activities to focus on next based on the previous weeks experience and their skill development goals. Wednesday they prepared materials for the session that week. Sessions took place on Friday on the school site. The program culminated with a trip to a low and high ropes course where the student facilitators co-facilitated their peers with the help of site staff.

The level of empathy and understanding exhibited by the student facilitators was truly impressive. Midway through the program, during a debriefing session after school there was an animated discussion about a student that had been difficult and refusing to participate. The student facilitators were able to articulate the fears and insecurities that were probably causing the behavior and developed a plan for involving the student that would be less intimidating. After this particularly challenging session and analysis, one young facilitator remarked, "You know what the problem with this program is? I'll never be able to look at someone and just hate them for the way they act, without asking myself, 'what makes them act that way' . . . and how can I make it easier for them!"

I would estimate, based upon Benjamin Bloom's hierarchy of learning, that this student was functioning near the top of Bloom's hierarchy. While it is difficult to assess whether this same level of learning could have been accomplished in a more traditional classroom setting, it is obvious that this student got the message.

In the book, The Tipping Point, author Malcolm Gladwell suggests that in to change the behavior of an individual with a message (such as an advertisement, a public service announcement, or an advisory message), the message needs to be "sticky." Adventure-based programs provide a consistent message of inclusion, empathy, skill assessment and strengthening, awareness of the environment, self and others, and because of this consistency coupled with debriefing and review, the message is certainly a "sticky" one.

A Case Study
Evolution of Adventure Education at the Betsy Jeff Penn 4-H Center in North Carolina
By Clare Marie Hannon

In 1988 the Betsy-Jeff Penn 4-H summer camp in central North Carolina took on a bold new mission: to extend their two month long summer camp program season into a year round program designed in collaboration with surrounding school systems. The goal was to create a program that would support the formal education curriculum and serve as a model for integrated learning.

The first step to creating a program of this type was to identify teachers and administrators in the surrounding school systems who were well aware of the needs within the region. After a number of meetings with curriculum coordinators, teachers and principals, it was determined that there was a need for hands-on science and environmental education experiences that utilized multidisciplinary learning. Administrators with the city school system recognized that there were a significant number of students who needed an active approach to learning in order to be successful. Access to existing equipment and resources for experimenting and active learning was limited and additional equipment was expensive. Administrators recognized the value in identifying a location where students could come and share equipment (especially a location that was willing to find the funding to purchase the necessary equipment).

As a sidenote, those individuals involved in the program design process from the 4-H Center would have been delighted to have embarked into an adventure-based challenge program for the schools at this point. It would have been easy to justify to school representatives the wonderful skills that adventure education afforded. Teambuilding and adventure-based programming was already an area for which resources existed and a program of significant value was established. But at the start of this particular collaboration, school officials didn't request this style of program and instead focused on the formal curriculum as the ideal starting point.

With this mandate, funding was applied for and received, a curriculum was developed, learning experiences were designed, and in February of 1989 experts in the field of hands-on learning in science and the environment were brought together to provide an orientation training for teachers and administrators. The primary focus of the training was to help teachers gain the skills to design learning experiences in and out of the classroom that focused on educational outcomes and included hands on learning, science and environmental concepts. We shared our program and identified how it tied to the standardized curriculum, but also provided a wide variety of other learning experiences for hands on science and environmental education.

A three-day residential learning experiences for students was launched in April. One component of these learning experiences was a 90 minute class that used initiatives and low ropes elements to teach students the skills to work together to solve environmental problems. A series of traditional initiatives and low ropes elements were front loaded with environmental issue related metaphors and then debriefed for both the standard interpersonal skills and for the broader environmental context. The response from teachers was immediate and amazing, as suggested by the comments on the next page.

I'm going to put the steps to the problem solving process up on my wall so my students use them in the classroom. I had no idea how to get that across to them and now they've got it.
I'd have never thought of that solution. These kids are more creative than I am!
This is what my students need to learn. The rest is nice, but this is critical.
Next year, can we get a double session of the Cooperation Adventure?
These activities teach the skills my students lack and that keep them from learning effectively in the classroom.

And of course the answer to this final comment was a resounding yes! By the second year the environmental education program offered three hour blocks for initiatives and ropes course activities and teachers were beginning to say, "how about half our time in environmental education and half our time on cooperation adventures?"

By the fall of 1990, the interest and understanding of the values of adventure/challenge education existed to the point where a stand alone program was developed that used initiatives, low ropes, high ropes and simulations to teach life-skills to school groups. Once again funding was secured, this time for an extended low and high ropes course, equipment, marketing, teacher training and curriculum design. Once again an extensive needs assessment with teachers, administrators and curriculum coordinators was conducted to learn what they saw as important to the formal classroom.

One of the most critical parts of this process is learning the language that makes sense to the decision makers within the school systems. 4-H staff members found that they could talk until they were blue in the face about the value of adventure-based learning and while school personnel would politely agree with them about the value of these experiences, they didn't have time for that in their curriculum. Luckily, the standardized curriculum put high value on reinforcing life-skills like problem solving, listening, communicating, generating alternatives and decision making. These skills created the necessary opportunity. With this skill set, the 4-H staff members and the school administrators shared a common language and a common set of values.

By the fall of 1991, the "Soaring Thru Spaces" program was designed and ready to explore:

Inner Spaces - Knowing myself, setting goals, overcoming fears, coping with change and decision making

Shared Spaces - Group dynamics, problem solving, communication, cooperation, teamwork, and leadership

Outer Spaces - Creating new options, facing the unknown, envisioning a positive future, creative thinking, and applying what we have learned to new situations.

Again, this program began by offering teachers a series of learning experiences that allowed them to understand the approach and provided them with training in integrating the learning experiences back into the classroom. This was especially important with adventure programs since there is an element of perceived risk that teachers and administrators need to experience and understand and be able to rationalize to concerned parents. Programs were offered in one, two and three day formats with a clear communication of what could be taught in each time frame. Schools that had previously participated in the environmental education program sometimes switched to the Soaring Thru Spaces Program. More often, they chose to add the new program at a different grade (doubling their involvement with the Center's programs). An added advantage of the development of the Soaring Through Spaces Program was that it tended to be a program teachers used in the fall to teach life skills students could use all year long in the classroom. Environmental Education was in higher demand in the spring as a way of integrating the learning experiences earlier in the school year. Although both programs were offered throughout the school year, they complemented each other well. Currently the programs serve relatively equal audiences, totaling 7,000 students a year. For Betsy-Jeff Penn that equals capacity. It should be noted that this 4-H Center was the first resident facility to offer either of these programs in the state of North Carolina. Interest created in part by the Center's programs spun off a number of similar programs in a variety of locations in the state.

Some of the key points in successfully involving schools in adventure/challenge course experiences include:

- Take time to understand the standardized curriculum and what teachers are required to do.
- Develop key relationships with school teachers and administrators during the design process, then let school teachers and administrators tell you what they need.
- Design programs based on schools articulated needs that reflected their language and their outcomes (for instance, life skills may not be your buzzword, it could be school to work skills or character education).
- Introduce new ideas in small pieces so teachers and administrators can see their value to formal education and guide you in how to use them effectively for school outcomes
- Stay close to your teachers and they'll tell you where the program needs to grow next.
- Give teachers a chance to experience the program before they attend with their students, so they feel knowledgeable .
- Teach teachers how to integrate what students learn in an adventure program back into the classroom, so it is not a stand-alone experience.

The Stages of Group Formation

While adventure-based learning traditionally has been used to promote concepts of teamwork, collaboration, creative problem solving, relationship building, self esteem and more, there is the opportunity to extend this valuable learning tool into even more complex situations. As an example, the stages by which groups form is presented here.

Based upon the original work of Tuckman, and later with Jenson (see the suggested reading section of this paper), all groups experience a progression of group formation stages. In the academic setting, this is true of students in a classroom, as well as faculty members (as a group) in the school system. Since all groups experience these stages, exploration of this phenomena is an ideal way for a new group to understand what lies ahead, and for an existing group to analyze where they are, where they ultimately want to be, and what lies in between.

Beginning with the first stage, known as the forming stage, adventure-based learning opportunities includes ice breakers, get acquainted activities, and other socially interactive and relationship building activities. Participants within the group have the need for safety (both emotional

and physical), wish to avoid controversy, desire acceptance, and follow the guidance and direction of the leader.

The second stage, called the storming stage, is typified by some conflict within the group. Many groups feel that 'something must be wrong - we're storming!' when in fact, they are merely on the road to higher level group skills. In addition to conflict, this level often encounters competition, and requires coaching from the leader. Challenge course elements with a higher level of challenge or skill can be used to explore this second level of group formation.

The third stage, the norming stage, is characterized by cohesion within the group, the creation of trust and sharing, skill acquisition, and the support of the leader or facilitator. Adventure activities which require group involvement and a team effort are best for this level.

The fourth stage of group formation is known as the performing stage. This stage goes beyond cohesion, and demonstrates real unity within the group. A sense of group identity emerges. At this level, the group is typically highly productive and motivated, and the leadership needs only to delegate for the job to be accomplished.

The fifth and final stage of group formation, the transforming stage, is characterized by a conclusion and followed by a disengagement of the group. The leader's role is one of recognition for the members of the group.

From the perspective of the faculty of a school, one of the key elements in the progress of their group through these stages, is to understand each stage, learning the skills necessary to navigate through that stage, and ultimately reach the highest level possible. It is not a mistake for a group to find themselves in the storming stage - they just do not have to live there forever!

From the view of the principal or superintendent, understanding that adventure-based learning opportunities can be used to explore each of these stages, and that these same tools can be used to shorten the amount of time that a group spends in the storming stage, has a direct economic outcome. If the social and relationship building portions of an adventure-based learning program can help the faculty move through he storming stage more quickly, arriving at the performing stage earlier, then precious time and dollars will be saved. Less time storming, sooner to performing. QED!

For more information, and a curriculum planning guide to exploring the stages of group formation with adventure-based activities, visit: www.teamworkandteamplay.com/activities.html

Multiple Intelligences

The work of Martin Gardner, Thomas Armstrong and others has suggested that there are a variety of styles by which individuals come to grasp information, and in fact, learn. At present, 8 styles or talents have been identified, and these include: Logical Mathematical, Bodily Kinesthetic, Visual Spatial, Linguistic, Musical, Interpersonal - Knowledge of Others, Intrapersonal - Knowledge of Self and Natural Environmental . For many educators, investigating these 8 styles, although interesting, is difficult given a standardized curriculum, and impossible given the time provided to explore such techniques. Luckily, adventure-based learning is easily accessible to all of these styles, as can be seen from the following examples:

Intelligence or Talent	**Adventure-Based Learning Opportunity**
Logical-Mathematical	Problem solving skills, analysis, planning
Bodily-Kinesthetic	Hands-on learning, physical activities, movement
Visual-Spatial	Map reading, visualizing multiple solutions
Linguistic	Clear expression, reading instructions, debriefing
Musical	Rhythm, timing, sounds of nature

Interpersonal - Knowledge of Others	Understanding, empathy, coaching, teamwork
Intrapersonal - Knowledge of Self	Self analysis, relating, journaling, self reflection
Natural-Environmental	Connection to the outdoor setting, exploring

Suggested readings in the field of multiple intelligence include:

Multiple Intelligences in the Classroom, Thomas Armstrong, 2000, ASCD Alexandria, Virginia USA ISBN 0-87120-376-6 This is an excellent 'template' for designing your own curriculum with multiple possibilities for learning in different ways.

In Their Own Way - Discovering and Encouraging Your Child's Multiple Intelligences, Thomas Armstrong, 2000, Jeremy Tarcher/Putnam Publishing, New York, NY USA ISBN 1-58542-051-4

Roundtable Learning - Building Understanding Through Enhanced MI Strategies, Ellen Weber, 1997, Zephyr Press, Tucson, AZ USA ISBN 1-56976-061-6

Money - The Bottom Line

While the value of an adventure-based learning opportunity can be high, the cost for students to participate in one doesn't have to be. In addition to climbing walls, indoor rope courses, fixed ground level and high challenge course elements, there is a tremendous growth in adventure-based learning activities that can be conducted at ground level, with various size groups, without special safety equipment., using portable props. For some institutions with limited budgets, but a strong desire to incorporate active learning into the curriculum, these portable activities may provide the right mix of value for each programming dollar.

In addition to allowing a teacher to bring the adventure experience into their classroom setting, portable challenge elements can mean the difference between an adventure program, and the lack of one. For example, in 2001, some European challenge course programs experienced a dramatic reduction in participation from schools, when quarantines were established to halt the potential spread of Mad Cow disease. Many challenge courses are located in remote areas, where wildlife and/or agricultural animals roam. Those programs that had only resident or fixed location activities, such as high and low challenge courses installed in outdoor settings, were temporarily interrupted during the quarantine period, while those programs with portable elements were able to continue programming.

While challenge courses and climbing walls can be expensive items, it is possible to incorporate challenge and adventure-based learning activities made from simple and common building materials. At present, there are several texts that describe how to make your own adventure-based learning props from simple materials. Some students have even made their own classroom equipment from these texts, providing them with valuable, and marketable skills. Further, many of the materials necessary for portable challenge activities can be readily found or even donated by the local hardware store. For more information on creating your own adventure-based learning equipment, read:

Teamwork & Teamplay by Jim Cain and Barry Jolliff, 1998, Kendall Hunt Publishers (1-800-228-0810) Dubuque, IA USA ISBN 0-7872-4532-1. Some of the finest ground level portable challenge and adventure activities ever collected, with building instructions and an extensive resource lists for this field.

Affordable Portables by Chris Cavert, 1999, Wood n Barnes Publishing (800-942-6812) Oklahoma City, OK USA ISBN 1-885473-40-0 Simple to make and use adventure-based learning activities.

The Book on Raccoon Circles by Jim Cain and Tom Smith, 2002, Learning Unlimited (888-622-4203) Tulsa, OK, USA www.learningunlimited.com History, Ritual, Ceremony and plenty of adventure-based activities using only a simple piece of tubular webbing.

Silver Bullets by Karl Rohnke, 1984, Kendall Hunt Publishers (1-800-228-0810), Dubuque, IA USA ISBN 0-8403-5682-X A classic collections of portable challenge activities.

Suggested Reading

In the past few years, I've had the opportunity to write two adventure-based teambuilding book, and during the research for these books, I discovered quite a few articles, books and publications on the significance of adventure-based learning techniques. I thought I would share these articles and resources with you, for two reasons. First, we live in a world where what we do, and how we perform is constantly evaluated and scrutinized. Few educational programs, leadership and sport programs have the luxury of funding curriculums which do not produce the measurable and desirable results mandated in our present educational systems. It is my hope that a few of these resources may prove valuable to you as you attempt to justify or obtain academic credibility for utilizing adventure-based programs. Secondly, in the interest of sharing best practices, increasing the knowledge base and generally familiarizing both faculty and administration about adventure and experienced-based learning, I hope these references will find their way onto your desks and bulletin boards and into your lesson plans and curriculum projects.

I've managed to place some of the top references in this article, with five significant resources first. More than 2000 can be found in the book, Teamwork & Teamplay, ISBN 0-7872-4532-1. Many significant articles on adventure-based education and learning can also be found in journals, periodicals, microfilms, magazines, books, websites and newspaper articles. This information can be located using search keywords such as: teamwork, teambuilding, outdoor education, ropes course, challenge education, adventure-based education, experiential education, active learning, whole brain learning, recreation, groupwork and outdoor training.

Basic Training

If you don't have the time or resources to manage the entire list, try these five resources first.

Adventure Education and Outward Bound: Out-of-Class Experiences That Make a Lasting Difference, John Hattie, H. W. Marsh, James T. Neill, and Garry E. Richards, *Review of Educational Research*, Spring 1997, Volume 67, Number 1, pages 43-87. Recommended by Dan Garvey of Prescott College, and includes even more resources and references.

Strengthening Experiential Education within Your Institution - A Sourcebook by the National Society for Experiential Education, Jane C. Kendall, John S. Duley, Thomas C. Little, Jane S. Permaul, Sharon Rubin, 1986, Arlington, VA. (www.nsee.org) An older, but interesting text, filled with ideas about gathering support for experiential programs in your school.

The American Camping Association (ACA) now includes on their website research and information related to education and camping programs, at the Camp Knowledge Center:

www.acacamps.org/knowledge www.acacamps.org/research

The following texts can provide a historical perspective, excellent programming techniques, and a wide variety of activities and additional resources for adventure and experienced-based learning programs.

Adventure Programming, by John C. Miles and Simon Priest, 1999, Venture Publishing, Inc. State College, PA Fax (814) 234-1651 ISBN 1-892132-09-5.
Teamwork & Teamplay, by Jim Cain and Barry Jolliff, 1998, Kendall Hunt Publishers, Dubuque, IA Phone (800) 228-0810 ISBN 0-7872-4532-1

Periodical and Journal Articles

Anonymous, "Outdoor Education Directory: Organizations Involved in Outdoor Experiential Education," March 1993, ERIC Document ED 357944
Argyris, C. "Teaching Smart People How To Learn," *Harvard Business Review,* May 1991, p99-109
Bales, K.B., "Experiential Learning: A Review and Annotated Bibliography," *Journal of Cooperative Education*, Volume 16, Fall 1979, pages 70-90.
Bennet, D.B., "Four Steps to Evaluating Environmental Education Learning Experiences," *Journal of Experiential Education,* Volume 20, Number 2, 1988, pages 14-21.
Braun, Joseph A. and Brown, Max H., "Challenging Student Teachers," *Phi Delta Kappan,* Volume 65, Number 9, May 1984, pages 601-602.
Carver, R., "Theory for Practice: A Framework for Thinking About Experiential Education," *Journal of Experiential Education*, Volume 19, Number 1, 1996, pages 8-13.
Clements, Christine, et. al., "The Ins and Outs of Experiential Training," *Training and Development,* Volume 49, Number 2, February 1995, pages 52-56.
Cross, P.K., "The Coming of Age of Experiential Education," *National Society for Experiential Education Quarterly,* Volume 19, Number 3, 1994, pages 22-24.
Dickey, H.L., "Outdoor Adventure Training," *Journal of Physical Education and Recreation*, Volume 49, Number 4, April 1978, pages 34-35.
Evans, M., "Experiential Learning in Higher Education: Peripheral or Central?" *The CAEL Forum and News*, Volume 17, Number 2, 1994, pages 31-34.
Ewert, Alan, "Theoretical Foundations of Outdoor Adventure Activities," *Outdoor Recreation Research Journal*, Volume 2, 1987, pages 3-16.
Frant, R.D., "Learning Through Outdoor Adventure Education," *Teaching Exceptional Children*, Volume 14, Number 4, February 1982, pages 146-151.
Froiland, Paul, "Action Learning - Taming Real Problems in Real Time," *Training*, Volume 31, Number 1, January 1994, pages 27-34.
Gray, T. and Patterson, J., "Effective Research into Experiential Education: A Critical Resource in its Own Right," *Proceedings of the 22nd Annual AEE Conference,* Austin, Texas, Nov 1994, p138-145.
Hanna, Glenda, "Overcoming Barriers to Implementing Outdoor and Environmental Education," *Pathways,* Volume 6, Number 1, December 1993, pages 24-28.

Harvey, Judy, "Challenge Education at New Garden Friends School," *Phi Delta Kappan,* Volume 65, Number 9, May 1984, pages 604-605.
Herdman, Paul, "Adventure in the Classroom," *Journal of Experiential Education,* Volume 17, Number 2, August 1994, pages 18-25.
Hollandsworth, J.G., "A School-Based Outdoor Adventure Program," *North Carolina Journal of Outdoor Education*, Volume 2, Number 1, Fall 1980, pages 24-26.
Huberstone, Barbara and Lynch, Pip, "Girls Concepts of Themselves and Their Experiences in Outdoor Education Programmes," *Journal of Adventure Education and Outdoor Leadership,* Volume 8, Number 3, Fall 1991, pages 27-31.
Kesselheim, A.D., "A Rationale for Outdoor Activity as Experiential Education: The Reason for Freezin'," paper presented to the Conference on Outdoor Pursuits in Higher Education, Boone, North Carolina, ERIC Document Number ED 148 530.
Knapp, Clifford E., "Lasting Lessons: A Teacher's Guide to Reflecting on Experience," 1992, ERIC Document ED 348204.
Metzger, Devon J., "Practicing What We Preach: Involving Student Teachers in Their Own Learning," *Action in Teacher Education,* Volume 10, Number 4, Winter 1989, pages 15-18.
Miles, J.C., "The Value of High Adventure Activities," *Journal of Physical Education and Recreation*, Volume 49, Number 4, April 1978, pages 27-28.
Ongena, J., "Adventure Education: An Opportunity to Teach Youth Self Confidence and Respect," *NASSP Bulletin*, Volume 66, Number 454, May 1982, pages 71-78.
Ongena, J., "Should our Schools Offer Adventure Education ?," *Canadian Association for Health, Physical Education and Recreation*, Journal, May/June, 1984, pages 4-7.
Petrus, E.F., "Teaching Group Dynamics in an Intensive Small Group Laboratory in a Wilderness Setting," 1977, ERIC Document ED 152-604.
Priest, Simon and Gass, Michael, "Five Generations of Facilitated Learning From Adventure Experiences," Journal of Adventure Education and Outdoor Education, Volume 10, Number 3, 1995, pages 23-25.
Riggins, R.D., "Effective Learning in Adventure-Based Education: Setting Directions for Future Research," *Journal of Environmental Education*, Volume 18, Number 1, 1986, pages 1-6.
Riley, Cheryl L., "Ideas that Work for Outdoor Teachers and Leaders," *Proceedings of the National Outdoor Education Conference,* October 1985, Potosi, Missouri, ERIC Document ED 259863.
Roland, Christopher; Summers, S.; Friedman, M.; Barton, G. and McCarthy, K., "Creation of an Experiential Challenge Program", *Therapeutic Recreation Journal*, Vol 21, Number 2, 1987, p54-63.
Sills, Robert, et. al., "When Teachers Are the Students," *Vocational Education Journal,* Volume 70, Number 2, February 1995, pages 24-29.
Smith, Kemper D. III, "Beyond Wilderness Skills: Education for Individual and Group Development," April 1984, ERIC Document ED 252368.
Sorohan, E.,"We Do: Therefore We Learn," *Training & Development,* Vol.47, No.10, 1993, p55.
Sproul, Susan and Priest, Simon, "The Ropes Course as an Educational Tool," *Pathways: The Ontario Journal of Outdoor Education,* Volume 4, Number 2, February 1992, pages 9-12.
Stahl, A., "Bridging the Gap Between Research and Teacher Education," *Journal of Education for Teaching,* Volume 17, number 30, 1991, pages 293-299.
Stevens, Peggy Walker and Richards, Anthony, "Changing Schools Through Experiential Education," March 1992, ERIC Digest EDO-RC-91-13.
Stutz, J.P. and Knapp, J., "Experiential Learning: An Annotated Literature Guide," CAEL Project Report, ERIC Document Number ED 148 859.
Teaff, Joseph and Kablach, John, "Psychological Benefits of Outdoor Adventure Activities," *Journal of Experiential Education,* Volume 10, Number 2, Summer 1987, pages 43-46.

Washbourn, P., "Experiential Learning: Is Experience the Best Teacher?" *Liberal Education,* Volume 82, Number 3, 1996, pages 10-15.
West, June, "Team Building through Wilderness Activities in Eighth Grade Special Education," *Conference Paper presented at Western States Communication Association Annual Meeting,* February 1993, ERIC Document ED 371514, 35 pages.
Whittaker, Tom, "Danger, Adventure Education and Schools," *Journal of Physical Education, Recreation and Dance,* Volume 52, Number 9, November/December 1981, pages 53-54.
Wood, D., "Analyzing Adventure Education: Behavior Patterns, Relativing Objectives, Sequencing Activities, and Discovering Student Perceptives," Unpublished Dissertation, Boston University, 1978.
Wurdinger, Scott, "Examining the Learning Process Used in Adventure Education," *Journal of Adventure Education and Outdoor Leadership,* Volume 11, Number 3, Fall 1994, pages 25-27.
Yaffey, David, "The Value Base of Activity Experience in the Outdoors," *Journal of Adventure Education and Outdoor Leadership,* Volume 10, Number 3, Fall 1993, pages 9-11.

Websites and Information Available on the Internet

The Association for Experiential Education (AEE)	www.aee.org
The National Society for Experiential Education (NSEE)	www.nsee.org
The American Society for Curriculum Development (ASCD)	www.ascd.org
The Association for Challenge Course Technology (ACCT)	www.acctinfo.org
Games for Teachers and More, from Chris Cavert	www.fundoing.com
American Camping Association (ACA)	www.aca-camps.org
Processing, Debriefing and Reviewing Website	www.reviewing.co.uk
Kendall Hunt Publishers	www.kendallhunt.com
Harvard Project Zero - Multiple Intelligence	www.pzweb.harvard.edu
The Outdoor Network	www.outdoornetwork.com
Learning Unlimited	www.learningunlimited.com
The Adventure Group	www.theadventuregroup.com
Adventure Hardware	www.adventurehardware.com
The American Camping Association Knowledge Center	www.aca-camps.org/knowledge
Teamwork & Teamplay	www.teamworkandteamplay.com

Books, Manuals, Texts and Guides

Strengthening Experiential Education Within Your Institution by Jane Kendall, John Duley, Thomal Little, Jane Permaul and Sharon Rubin, National Society for Experiential Education, Raleigh, NC. ISBN 0-937883-00-X. One of the most academic specific manuals ever published, with some useful ideas for instituting an experiential program.

The Book on Raccoon Circles, by Jim Cain and Tom Smith, 2002, Learning Unlimited, Tulsa, OK, USA Phone (888) 622-4203 www.learningunlimited.com History, Ritual, Ceremony and plenty of activities using only a simple piece of tubular webbing.

Teamwork & Teamplay by Jim Cain and Barry Jolliff, 1998, Kendall Hunt Publishers (1-800-228-0810) ISBN 0-7872-4532-1. Some of the finest ground level portable challenge and adventure activities ever collected, with building instructions and the best resource lists ever compiled for this field.

Experiential Learning - Experience as the Source of Learning and Development, David A. Kolb, 1984, Prentice Hall, Englewood Cliffs, New Jersey USA ISBN 0-13-295261-0 A classic text beginning with the work of Dewey, Lewin and Piaget, and moving forward to the present.

Just Beyond the Classroom by Clifford E. Knapp, 1996, Clearinghouse on Rural Education and Small Schools, Charleston, WV ISBN 1-880785-15-3

Experience and Education by John Dewey, 1938, MacMillian Publishing, NY. A classic.

The Conscious Use of Metaphor in Outward Bound by Stephen Bacon, 1983, Colorado Outward Bound School, Denver, CO

The Theory of Experiential Education by Karen Warren, Jasper Hunt and Mitch Sakofs, 1995, Third Edition, Association for Experiential Education, Kendall/Hunt, Dubuque, IA ISBN 0-7872-0262-2

The Well-Played Game - A Player's Philosophy by Bernard DeKoven, 1978, Anchor Books, Anchor Press/Doubleday, Garden City, NY ISBN 0-385-13268-9. Read it and understand.

Outdoor Adventure Pursuits: Foundations, Models and Theories by Alan W. Ewert, 1989, Publishing Horizons, Inc., Scottsdale, AZ ISBN 0-942280-50-4 An in-depth text for understanding the components of adventure activities.

Joining Together - Group Theory and Group Skills by David W. Johnson and Frank P. Johnson, 1994, Allyn and Bacon, Boston, MA ISBN 0-205-15846-3. Although set for the business world, applicable to the academic field as well. Newer editions are available.

No Contest, The Case Against Competition - Why We Lose in Our Race To Win by Alfie Kohn, 1986, Houghton Mifflin Co. Boston, MA 02108 ISBN 0-395-39387-6 A fascinating tutorial on our infatuation with competition and the opportunities that exist for cooperative adventures.

Lasting Lessons: a teacher's guide to reflecting on experience by Clifford E. Knapp, 1992, ERIC/CRESS Clearninghouse, Charleston, WV ERIC Document Number ED 348204.

Adventure Programming, by John C. Miles and Simon Priest, 1999, Venture Publishing, Inc. State College, PA Fax (814) 234-1651 ISBN 1-892132-09-5.

Affordable Portables, Chris Cavert, 1998, Wood n Barnes Publishing (800-942-6812) Oklahoma City, OK USA ISBN 1-885473-40-0

Games for Teachers - Classroom Activities that Promote Pro-Social Learning, Chris Cavert, Laurie Frank and Friends, 1999, Wood n Barnes Publishing (800-942-6812) Oklahoma City, OK USA ISBN 1-885473-22-2

Activities That Teach, Tom Jackson, 1993, Red RockPublishing, Cedar City, UT USA
ISBN 0-916095-49-5

More Activities That Teach, Tom Jackson, 1995, Red RockPublishing, Cedar City, UT USA
ISBN 0-916095-75-4

Bowling Alone - The Collapse and Revival of American Community, Robert Putnam, 2000, Simon & Schuster, New York, NY USA ISBN 0-684-83283-6

Shouting At The Sky - Troubled Teens and the Promise of the Wild, Gary Ferguson, 1999, St. Martin's Press, New York, NY USA ISBN 0-312-20008-0

Integrated Outdoor Education and Adventure Program, Stuart Schleien, Leo McAvoy, Gregory Lais and John Tynders, 1993, Sagamore Publishing, Champaign, IL USA ISBN 0-915611-59-7

Experiential Learning - Experience as the Source of Learning and Development, David Kolb, 1984, Prentice Hall, Englewood Cliffs, NJ USA ISBN 0-13-295261-0

Developing Challenge Course Programs for Schools, Edited by Jeff Steffens & Scott Wurdinger, 2003, Kendall / Hunt Publishers, Dubuque, IA USA

Bibliography

Multiple Intelligences in the Classroom, Thomas Armstrong, 2000, ASCD Alexandria, Virginia USA ISBN 0-87120-376-6

In Their Own Way - Discovering and Encouraging Your Child's Multiple Intelligences, Thomas Armstrong, 2000, Jeremy Tarcher/Putnam Publishing, New York, NY USA ISBN 1-58542-051-4

Intelligence: Multiple Perspectives, Howard Gardner, Mindy L. Kornhaber, Warren K. Wake, 1996, Harcourt Brace College Publishers, Fort Worth, TX USA ISBN 0-03-072629-8

Intelligence Reframed - Multiple Intelligences for the 21st Century, Howard Gardner, 1999, Basic Books, New York, NY USA ISBN 0-465-02610-9

Developmental Sequence of Small Groups, by B. Tuckman, 1965, Phychological Bulletin, Number 63, pages 384-399. The 'original' article on the stages of group formation.

Stages of Small Group Development Revisited, B. Tuckman and M. Jensen, 1977, Group and Organizational Studies, Number 2, pages 419-427. The revised and updated article.

The Tipping Point, Malcolm Gladwell, 2002, Back Bay Books ISBN 0-316-346-624

Adventure Education and Outward Bound: Out-of-Class Experiences That Make a Lasting Difference, John Hattie, H. W. Marsh, James T. Neill, and Garry E. Richards, *Review of Educational Research*, Spring 1997, Volume 67, Number 1, pages 43-87. Regarded by some as "the" article on Adventure-Based Education.

Exploring the Five Stages of Group Formation Using Adventure-Based Activities, by Jim Cain, 2003, PDF document from the website at: www.teamworkandteamplay.com/activities.html

Taxonomy of Educational Objectives and Handbook1: Cognitive Domain, 1956, Benjamin S. Bloom

The Fourth Turning, William Strauss and Neil Howe, 1998, Broadway Books, New York, NY USA ISBN 0-767900-46-4

A Celebration of Neurons - an Educator's Guide to the Human Brain, 1995, Robert Sylwester, American Socity of Curriculum Development , Alexandria, VA USA ISBN 0-87120-243-3

Smart Moves - Why learning is not all in your head, Carla Hannaford, 1995, Great Oceans Publishers, Arlington, VA USA ISBN 0-915556-27-8

Great Writings in Management & Organization Behavior, Louis E. Boone, Consulting Editor, 1984, Macmillan Publishing, NY, NY USA Library of Congress Catalog Card Number 78-771-60

The chapter related to Maslow's Hierarchy is entitled The Human Side of the Enterprise by Douglas M. McGregor

Education Through Physical Activities, 1955, Pattric Ruth O'Keefe and Anita Aldrich, C.V.Mosby Company, St. Louis, MO USA

Educating for Character - How Our Schools Can Teach Respect and Responsibility, 1991, Thomas Lickona, Bantam Book, New York, NY USA ISBN 0-553-37052-9

Some Information about the Author

Dr. Jim Cain is the author of the teambuilding texts, Teamwork & Teamplay, The Book on Raccoon Circles, A Teachable Moment and Teambuilding Puzzles. He is a former Executive Director of the Association for Challenge Course Technology, Senior Consultant to the Cornell University Corporate Teambuilding Program and the Director and creative force behind the adventure-based training company, Teamwork & Teamplay. Dr. Cain makes his home in Brockport, New York and frequently serves as a visiting professor and staff development specialist on subjects ranging from experiential education to challenge and adventure-based activities, and from creating connections to leadership, structural engineering, chaos and powder mechanics. Dr. Cain has presented teambuilding and active learning sessions in 43 states and 10 countries in the past 5 years, and generally has more equipment and adventure-based books in his library than most developing nations. His most recent project is the new book "The Value of Connection - In the Workplace."

Jim Cain, Ph.D. Teamwork & Teamplay 468 Salmon Creek Road Brockport, NY 14420
Phone (585) 705-2741
jimcain@teamworkandteamplay.com www.teamworkandteamplay.com