Thank you for participating in the Environmental Games workshop. This workshop isn't just about fun and games, although we will play some games and have lots of fun. It is about how people learn and how important it is for them to enjoy interacting with each other in the process.

Our activities will include some combination of:

- Hi, Hello, Gotta Go (an interactive getting acquainted activity that "grows your heart")
- We Must Evolve! (a simple but effective game of evolution which "feeds your mind)
- Interactions (the New Game of Knots, in which we do group problem solving as a community)
- Weakest Link (a physical challenge that requires collaborative participation of all and "cultivates community")
- Vocabulary Synergy (a writing challenge that begins with individual effort and multiplies it with group synergy).

Here is the justification for what we will be doing this hour. You know who else needs to read this, so feel free to share it widely.

GROWNUPS AND CHILDREN: WHAT'S THE DIFFERENCE?

Healthy discussion continues among educators about the most effective and appropriate education programs, age-appropriate curricula or experiences for adults and children. This is an important discussion, as we want to communicate well with everyone.

I believe, however, that this daunting challenge arises as much from the limited learning abilities of our species as it does from our educational techniques. As DeAlton Partridge pointed out over a half century ago, "It is now known on the basis of countless experiments…that it is practically impossible to convey to a child exact or adequate meanings in many areas except by actual experience. Indeed, (those) who have studied the matter say even if you talk yourself blue in the face it is quite impossible to carry meaning to a child, but rather the child must develop it himself out of his own experience." (Partridge, E.D. *Camping magazine* 1943)

THE IMPORTANCE OF EXPERIENCE

So how do we overcome this gaping chasm between what we want students to learn and experience, what they actually want to learn, and whether they're able to learn it the way we teach it? If we simply try more effective talking, we are likely to be rescued by someone eager to perform CPR as we "turn blue in the face." Margaret Kelley emphasizes the importance of experience-as-teacher: "(Educators) must nurture the creative urge in students by allowing for plenty of experiential learning, for the enjoyment and subsequent knowledge gained from an activity is proportional to the amount of involvement in that given activity." (Kelley, M.S. *A guide to quantifying experiential learning in outdoor education* 1979)

"Learning best takes place through active involvement of the student. What he does, he learns." --Bill Stapp

Most of us agree on the effectiveness of experiential learning for young people. William Lewis gives many examples of how to do this effectively in the National Park District's *Interpreting for Park Visitors:* "Giving someone the opportunity to pound acorns; to write with a quill pen; to smell and taste various plants; to experience the foods of another era; to handle replicas of historic objects; to tactily explore the stress lines on a rock outcropping; to try fly fishing; to sketch one's surroundings; to paddle a canoe; to be temporarily locked in an isolation cell; to run one's hands through various soils; to lie on one's back experiencing the sun; to wade through marshes; to feel the spray from a waterfall or an ocean breaker; all of these things—and more—will encourage involvement." (Lewis, W.J. *Interpreting for Park Visitors* 1981)

Interestingly, this training booklet does not distinguish between adult and child learning in these examples. However, most educators consider adult learners very different from children. We often feel that adults have already had the requisite experiences, and now only need and prefer lots of facts and knowledge. We often believe that since adults have probably already experienced the spray of a waterfall, we can skip the experiential learning and get right down to the aquatic ecology or watershed hydrology lesson. And since adults have already experienced American history repeatedly in classrooms, we can skip the exciting interactive learning and move right into the more advanced and cerebral memorization of history. I don't think so.

Facts that are unconnected to shared experiences are most often irrelevant, inapplicable or unintelligible to children and adults alike. Human beings are social creatures who learn by interacting with each other and with the environment. Non-experiential, information-based learning does not usually capture the imagination or awaken the senses of either child or adult learners. And even clear, concise information does not often ring a bell if it is disconnected from first-hand experience. The following are some examples of how learning-challenged we actually are as a species, and how that impacts our ability as professionals to educate adults effectively.

THE CHALLENGE IN A NUTSHELL

The first example is from the writings of a thoughtful, perceptive college student. She comments on how the National Park's saying (about how we move from awareness to understanding to action) doesn't seem to be working for her: "It is said that we can make a difference in the world, personally and ecologically, by increasing awareness, which leads to a change in attitude, which leads to a change in behavior, which leads to changing the world. The missing link in this chain is the mechanism between awareness and what follows. I know many people, including myself, who are aware that smoking is dangerous for our health. But the awareness alone doesn't lead to an attitude or behavior change that encourages us to quit." (Hakala, P. *Habitat protection* 2003)

What do *you* think is the missing link here? Would a more experiential technique work better than just the knowledge that smoking is unhealthy? In fact, don't most programs that help

people quit smoking involve active behavior modification supported by social interactions? Isn't it the same with successful diet programs? If so, then why do we often expect adults to learn in our education programs without similar active participation, interaction and social support? This may be a significant oversight on our part.

"I hear and I forget; I see and I remember; I do and I understand." --Chinese Proverb

The second example of the challenges to adult learning comes from Melissa Joan Hart, better known on TV as Sabrina the Teenage Witch. She was about to tie the knot in real life. Since her bewitching TV series has ended, she planned a new reality series in which she would document all the preparations, decisions and challenges leading up to her real wedding. Then her fans would get to watch the entire wedding on TV. You would think that while spending so much time producing her marriage as a TV series, she would have thought long and hard about her choice of marriage partner. You would have thought wrong. She bumped into him at the horse races where he was playing in the band. In her own words, she chose him because "I love his music. He's so talented…and he played football."

If this is the type of person you are trying to reach in your higher education programs, you have a serious challenge on your hands…unless you played football. Now I know what you are probably thinking: if I have to illustrate my point with a ditsy Hollywood starlet, it is a very feeble point indeed. So for you skeptical learners, here are a few more concrete, everyday examples of how adult learners are no different in many respects from children…or teenage witches.

FURTHER EXAMPLES OF A LEARNING-CHALLENGED SPECIES

First example: In an outdoor education experiment conducted over a decade ago, summer visitors took an information-rich, experience poor standardized interpretive hike focusing on the trees of the area (a national park). Immediately after the 90-minute hike, visitors were asked if they would take a survey about what they had learned. Those who volunteered could only answer 5% of the questions correctly. This seems like a pretty good indication that the less active learning, the less learning period—and this learning took place while moving through a forest, not sitting inertly in a classroom.

Second example: Jean Piaget, renowned for his studies on early childhood development, found that children's thinking ability takes one of its qualitative leaps when they reach 9-12 years old. Their reasoning and perception then allow them to understand more abstract concepts than they could when younger. U.C. Berkeley illustrated this leap experimentally and filmed 9-12 year old youngsters who had been given this challenge: A tall, thin vase was filled to the top with water. The students were asked to predict whether a wider, shorter vase (that they didn't know was of equal volume) could hold the same amount of water.

Students made their hypotheses. Those whose learning abilities had not yet made the big leap, universally predicted that the tall, thin vase would hold more than the short, wide one. They then poured the water out of the tall, thin vase into the short, wide one. They were shocked to see that

both vases held the same amount. When asked to explain how it was possible for a short vase to hold as much water as a tall one…well, you have to see the documentary to hear their incredibly inventive and off-the-wall answers yourself. They really had no clue how a vase that *looked* smaller could possibly hold as much water as one that *looked* bigger.

Now you are probably thinking, "O.K. So U.C. did a science experiment with kids. So what?" Here's what. Picture yourself in the local supermarket shopping for breakfast cereal. Look up and down the aisle at the shape of the boxes. They're tall and thin, just like the tall vase in the experiment, right? Now go to the shampoo aisle. What shape are these bottles? Tall and thin, right? You can save yourself the walk to the soap box, hair dye and ketchup aisles, because it is the same there too. Ever think about why so many types of containers are tall and thin? Here's why: they sell. When adult shoppers look at tall, thin containers, we also think they hold more than shorter containers with the same volume—just like the young students whose learning had not yet matured.

So what happened to the quantum leap in learning ability that we were supposed to experience before puberty? It didn't happen for most of us. This is a big educational bummer. It means that when educators look at most adults, we often assume that they are more mature learners than children because they come in a "taller container." Our bad.

I bet the example of Sabrina the Teenage Witch doesn't seem so far-fetched anymore. She simply looked around and chose the best looking tall container she could find for a husband—just like most people choose their cereal or shampoo. This is, in fact, how most people in their twenties choose mates. And this is also why half of these couples are divorced before their thirties. The truth is that 1) the best things don't always come in the biggest packages, 2) you can't judge a book by its cover, and 3) beauty is only skin deep, but ugly is to the bone.

AND THE POINT IS?

This knowledge calls for a drastic reassessment of our educational efforts. When educating adults before reading this article, I bet you used to be sure that you were in a "big box store," while in reality you were still often in Toys 'R Us. Therefore, if we expect to be effective in the classroom, we had better offer adults and children alike as many concrete, interactive and hands-on learning experiences as possible.

As Rachel Carson reminds us, "If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow. It is more important to pave the way for the child to want to know than to put him on a diet of facts he is not ready to assimilate." The same is apparently true for most adults.

Jean Piaget explains how to educate more effectively based on this need to use the senses and emotions: "The goal of education is not just to increase the amount of knowledge but to create the possibilities for a child to invent and discover. When we teach too fast, we keep the child from inventing and discovering for himself. Teaching really means creating situations where discovery can occur." Adults, despite our additional years of experience, apparently still need similar opportunities to discover as well.

Since the most effective way to learn is for each of us to really experience and discover for ourselves, the effective educator's challenge is then to provide a variety of experiential learning opportunities. Luther Burbank summarizes this need the best: "Every child should have mud pies, grasshoppers, waterbugs, tadpoles, frogs and mud turtles, elderberries, wild strawberries, acorns and chestnuts, trees to climb, brooks to wade in, and any children who have been deprived of these have been deprived of the best part of their education."

So talk less; do more. Life is short; don't forget to experience it and to create as many opportunities for others—children *and* adults--to do likewise. They will enjoy more and learn more in the process.