P1.27 Partnering with Youth Groups on Meteorological and Environmental Education Issues

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Introduction

Connecting with youth organizations provide the opportunity to educate young people on issues and careers, including meteorology and related sciences or environmental topics. One such organization is the World Scouting Movement -- in Canada –this is *Scouts Canada*. Canadian Scout Jamborees are held every 4 years and Environment Canada has actively participated since 1993 with interactive, educational and fun learning programs using an experiential learning approach. Environment Canada has identified this venue as a unique opportunity to engage a segment of our population that is young, enthusiastic and has an invested interest in conserving, respecting and protecting our environment and to partner with an organization that has similar values on youth and the environment.

This paper will highlight the experiential learning approach used in the application of 13 "real world" programs delivered by Environment Canada to scouting youth and adult leaders at the 10th Canadian Scout Jamboree. This Jamboree was held on Prince Edward Island in July 2001 and was attended by over 15,000 participants from Canada, the United States, Europe, Australia and New Zealand.

Environment Canada and Scouts Canada

Scouts Canada is a member of the World Scouting movement. Part of Scouts Canada's mission is to contribute to the education of young people to help build a better world where people are self fulfilled as individuals and play a constructive role in society. This is achieved by involving youth throughout his or her formative years in a non-formal educational process and using a specific method that makes each individual the principal agent in his or her development as a self-reliant, supportive, responsible and committed person. In Scouting learning by doing is emphasized. This is achieved by such practices as membership in small groups, progressive and stimulating programs, commitment to the values of doing one's best, contributing to the community, respecting and caring for others, contributing as a family member, and use of outdoor activities as a key learning resource. In recent years, there has been an increase in the number of environmental and nature related activities and badge programs within Scouts Canada's programs.

Environment Canada views its involvement in Scout Canada's Jamborees as an opportunity to provide youth and adult leaders with a high-impact learning experience on a number of environmental topics and issues. Lessons and skills they would take back to their communities or ideas and activities they would use in their programs at home. Our goal was not only to teach the content, the facts, techniques and methods, but the process of applying critical thinking skills that allow one to make informed decisions. The Jamboree was an opportunity our staff and volunteers to act as facilitators and use activities to teach both the content and the process about making informed choices about our environment.

Experiential Learning

The methods used to teach new skills or ideas are important. The content and process are important components in any learning experience. The content portion to learning can be significant and can be learned relatively simply. The other

component is the process of applying the critical thinking skills that allow you to make an informed decision about which facts are important, which technique you should use in a specific situation and which method would be appropriate.

Learning experiences that consist of the three elements – Action - Reaction – Reflection – are very powerful. Experiential learning contains these elements and provides both forward and backward links – linking to past experiences and to those in the future – and to the visual, auditory, and kinesthetic models of information storage.

Experiential education is a process through which a learner constructs knowledge, skills, and value from direct experiences. Experiential education is learning by doing but goes further by talking about it. Experiential learning takes place when a person is involved in an activity, looks back and evaluates it, determines what is useful or important to remember and uses this information to perform another activity. The learning occurs when carefully chosen exercises are used which provide a meaningful experience that support reflection, critical analysis and synthesis or extrapolation. There are several models for experiential learning that incorporate the action-reaction-reflection cycle (e.g. Kolb, 1976; Joplin, 1981; Knapp, 1992).

The model of experiential education that we have adopted is shown in Figure 1. The model divides the experiential cycle into two portions: Action and Reflection. During the "action" portion the directions for the activity are provided [Set-up]. Clear simple and short directions allow the participants to immediately grasp what they are going to do and foster quick engagement. During the "activity" the group will carry out the actions that follow from the directions. Engaging activities appeal to all learners and contain physical action, noise and sounds, and visuals. This portion of the action portion should dominate the time allocation. The action portion is considered complete when the learners are "engaged." This may or may not include successful completion of the task. The challenge of the task provides the connection to the desired learning creating engagement. During the "reflection" portion of the activity the group discusses the experience in which they just participated. This debriefing portion of the activity uses open questions and follows a progression from "here and now" to "review past" to "future application." This series starts with questions and discussion about what happened during the action portion of the activity. The questions then focus more on thinking about how the experience affects how we thought about things in the past and how we might alter those views because of the experience. Finally, we shift to questions about how we might apply our learning in the future and how our behaviours might change as a result of the experience.

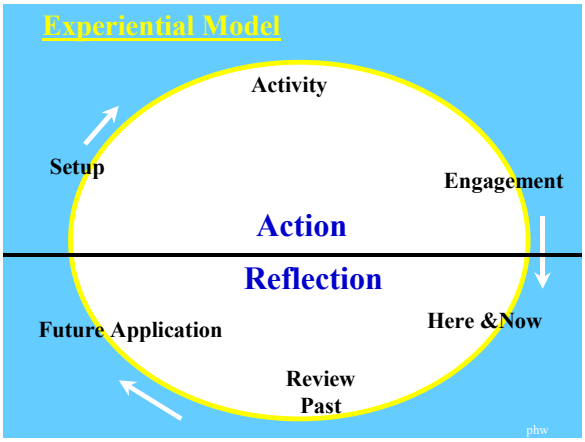

Figure 1. Experiential Education Model.

This experiential education model was used in developing all the activities that we used to provide high-impact environmental education during the Jamboree. As an example, we provide the details for one of these activities, The Leaky Barrel, to illustrate how this conceptual model is translated into a real activity.

The Leaky Barrel

In this activity the participants work as a team to fill a leaking barrel. Through this action the participants will:

- develop an awareness for water conservation as a team effort
- relate how wasting water affects conservation

The materials needed for a group of 10 to 20 individuals are: one 45 gal (200 litre) barrel (preferably plastic) with approximately 10 holes drilled for every square foot of barrel surface area (100 / square metre), and ten 2.5 gal (10 litre) buckets, and a water source.

The leaky barrel is placed in a shallow pond or pool so that the bottom of the barrel is above the surface of the water. It may be set up on land but water runoff and the effect of water on the ground should be considered. If the activity is done in a pool or pond, an area should be designated as the

water source. If it is done on land the barrel should be placed a suitable distance away from the water source.

Action

The action portion of the activity consists of:

Set-up

Water in our society is readily available - just a simple turn of the tap. Pipes carry water from reservoirs. Faucets and valves control the flow of water into sinks, toilets and tanks.

What would happen to the water flow if these fixtures were not properly maintained? Pipes would leak, faucets would drip, tanks would leak - all of this would result in valuable water going down the drain, being absorbed into the ground and generally being wasted. This exercise will show the importance of water control and conservation and demonstrate that water conservation is a shared effort.

Activity

Participants are told that the object is to fill the barrel to the top and are instructed to form 3 groups: The largest group make up the hole pluggers. This group is to assemble around the barrel ready to plug the holes with all available body parts. The second largest group forms a line to act as a bucket brigade taking water from the specified water source to the barrel. The smallest group forms a line to return the empty buckets back to be filled from the water source. Participants will get wet so they should be clothed appropriately and the activity is better done in favourable weather conditions. A time limit of anywhere between 5 and 10 minutes can be established depending on the number and age level of participants. The activity can be done as a competition between groups, however, the teamwork approach has a greater impact as a lesson.

Engagement

The challenge of successfully filling the barrel creates the "hook" that links the experience of working together to the awareness of the importance of cooperation in water conservation.

Reflection

The reflection is based upon a series of key questions that are asked:

Here and Now

What was the only way to make this activity work?
Typical answers: Teamwork, cooperation, everyone pitching in

When the hole "pluggers" let go, whose job got harder?
Typical answer: The bucket brigade.

Review Past

What items in your house leak or drip?
Typical answers: faucets, toilets, hoses...etc. .

Future Application

What are you going to do when you go home to be a better water conserver?
Answer: Change washers in leaking taps; tighten valves in running toilets ...

Finally, we close the activity with a simple idea – here we demonstrate that potable water in the world only represents about .00003 % of all of the water on the planet. If a 4500 gal pond represented all of the water in the world; water which is locked up in the ice caps, in the saltwater oceans, in the air, soil, plants - everywhere – the amount that humans could actually drink would only fill a coffee cup 1/4 full!

Summary

The activities we provided to Jamboree participants were all unique in the specific actions used, but similar in concept - experiential learning. Environment Canada enhanced the experiential learning concept by using an enthusiastic team of staff and volunteers and linking the delivery method to the partnering youth organization. In this case participation was encouraged by the use of a Scouting tradition, collecting badges!. Jamboree participates were issued a postcard which they were required to complete by participating in Environment Canada's activities, and to make an environmental pledge. After completing the postcard participants could "trade" the postcard for a special crest. The postcards were then returned to the participant three to four months later to re-enforce what they had learned and remind them of their environmental pledge. This was a true recycling message – the postcard introduced the program, provided a record of participation, was traded for a badge, and ultimately was returned to the youth as a memento and reminder of their participation.

The use of the experiential model proved effective in designing and delivering a high quality environmental education program that leads people to “making informed choices about the environment”. This was demonstrated by the fact that more than one third of the 14000 participants returned postcards, and comments from adult leaders such as “If it wasn’t for Environment Canada my Scouts would not have learned as much!” However, the most significant indicator is the fact that after more than one and a half years after this event requests continue to be received for information on the programs and activities provided so that participants can apply the learned concepts in their own communities.

References

Joplin, L. 1981. On Defining Experiential Education. Journal of Experiential Education. 4:17-20.

Kolb, D.A., 1976. Management and the Learning Process. California Management Review. Spring

Knapp, C.E. 1992. *Lasting Lessons: A Teacher’s Guide to Reflecting on Experience*. ERIC 118pp.