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Environmental Education: A Practical Approach

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Land Acknowledgement: We live, work, and recreate on the traditional lands of Indigenous Peoples. We recognize that many of the philosophies and values of environmental education are congruent with first nations' attitudes toward harmonious living and learning on Planet Earth.

Our intention in offering environmental education as a specific topic in *Outdoor Learning in Canada* is to foster the development of environmental literacy among readers. Priest (2023) defines outdoor learning as an “experiential process which takes place primarily through exposure to nature and the out-of-doors, where the emphasis for subject matter is placed on one or more relationships concerning humans and nature” (p. 2).

Environmental education as presented here is “a holistic approach to learning that fosters environmental literacy, awareness, and action. It emphasizes the interconnectedness of humans and nature, promoting stewardship, sustainability, and responsible citizenship. Through experiential and interdisciplinary methods, it empowers individuals to understand, appreciate and protect the natural world for present and future generations” (from ChatGPT 3.5, n.d.).

	OUTDOOR LEARNING	ENVIRONMENTAL EDUCATION
Historic Context	Since the evolution of Homo Sapiens children have learned skills for survival, and communication from their parents. Scientists are now recognizing items for play and aesthetics.	Coming out of the conservation movement in the late 1800's, and the writings of Aldo Leopold in the late forties, the term environmental education (EE) is attributed to the work of Dr. Bill Stapp (McCrae, 2006) and his students. Bill Stapp has been referred to as the "Father of Environmental Education." Many others have built upon these foundations.
Settings	Outdoors: school yards, parks, forests, sea shores, lakes, rivers, mountains, and sometimes urban environments.	Various settings including the outdoors, and built environments including classrooms, community centers, university lecture halls, council chambers, and online platforms. EE often emphasises urban environments in which the majority of humans live.
Focus and Scope	Outdoor experiences and activities often for health (mental/spiritual), teamwork, prosocial skills, fun, and physical fitness. Promotes stewardship and conservation values.	Understanding complex systems, sustainability, and developing ecological literacy (see the following on characteristics of an environmentally literate citizen who promotes stewardship and conservation values. The scope can be any issue that affects the environment.
Objectives	Survival skills, recreation, social interaction skills, loving the natural world. Awareness and knowledge of the natural (non-built) environment.	Awareness of issues, knowledge about how systems work. Problem solving strategies to develop plans to take action to address environmental issues.
Educational Methods and Approaches	Hands on, place based, inquiry based, experiential learning. Story telling, modelling and copying,	Hands on experiential learning, interdisciplinary, problem solving, action oriented (to solve problems).

Table 1: Comparison of outdoor learning and environmental education

Main Characteristics Outdoor Learning and Environmental Education

Debate continues concerning the similarities and differences among outdoor learning, sustainability education, and environmental education. Table 1 compares some characteristics of outdoor learning and environmental education.

Many students and teachers are interested in environmental topics that are often included among a variety of subject fields or learning experiences, whether outdoors or not. The major media regularly report environmental issues that are controversial within communities and that have been driven by high profile advocates or particular lobby groups. Given that the environment is a field of major significance for the future of humanity, the development of environmental lit-

eracy should form part of a contemporary education and a focus for programs offered by a range of media and organizations. The complexity and richness of the environment as a topic of interest and concern can also lend itself to creative and critical thinking and may serve as a focus for programs of outdoor learning presented by schools and educational institutions.

Effective programs of environmental education should meld experiences, processes, concepts, and skills. To do this, such programs should focus on the development of environmental literacy by considering topical local cases and examples that can be connected to general environmental concepts with added generic process skills. Audiences and users of these cases can be supported by a set of design tools that will enable them to make decisions about teaching and learning

in the context of what is known about effective learning, good instructional design, general principles of environmental education, and current knowledge about interactions among humans and the environment.

The Elements of Environmental Literacy

The development of environmental literacy entails engagement with several areas of knowledge and skill including THE ABILITIES TO....

1. **Think About Systems.** This element of environmental education might be described as the ability to think ecosystematically. The central message of modern ecology is that everything is connected ultimately to everything else. The first challenge to developing environmental literacy is to reconnect selves to the planet and to understand where things come from, where they go, and how much energy and material is used along the way. For example, approximately one third of all the paper produced in North America is used in packaging. We take this for granted, but meantime the forests of the planet are vanishing at a rapid rate in order to produce things that have an actual use measured in minutes. Separating a system into components may be convenient and even necessary in order to analyse and understand that system, but it is also necessary to piece components back together again.
2. **Think in Time (to forecast and plan ahead).** This attribute of environmental literacy involves providing experiences that extend people's capacity to think beyond the here and now and to anticipate consequences. What seems to be a quick and convenient "fix" today has often turned out to be the genesis of serious environmental problems in the future. Most environmental problems will not be solved quickly and they will often require extended effort over many years. We need new modern fables and creative curricular activities that foster the capacity to predict beyond the present.
3. **Think Critically About Values Issues.** Almost all modern problems, environmental or otherwise, have an important component based in human value systems. What we value is reflected in our actions and we will have to learn to ask hard questions even when besieged by the inducements offered via mass media. We do not have a common, culturally agreed set of values. Many environmental or outdoor educators are people who value the outdoors in natural settings, if not real wilderness, while the average North American is now estimated to spend 4% of their total lifetime actually out-of-doors. What we value is reflected in our actions and if we really value a healthy environment we may have to sacrifice some of our conveniences.
4. **Separate Number, Quantity, Quality, and Worth.** Many people in the modern world are confused about the differences between these elements. We have difficulty distinguishing between the medium and its messages. Are the numbers of our possessions viewed as indicators of our successes and the quality of our lives? We confuse the possession of many material items or money and currency with having a higher moral authority. We assume that if many people do or believe certain behaviours they must be right or true. We may assign numbers to things that can really only be assigned qualities. Only the capacity to think through number, quality, quantity and worth, in the context of value issues can enable us to challenge these assumptions.
5. **Distinguish Between the Map and the Territory.** We are surrounded by high quality representations of the world. We have photos in full colour video and models or representations of our environments. Many of our notions about the environment contain elaborate stereotypes of wilderness and natural beauty. Natural environments seldom measure up to the manicured pleasure gardens we may have been taught to expect. Few North Americans have ever

seen an equatorial rain forest and many might find this important ecosystem uncomfortable or forbidding, at least on first encounter, but their reactions would be poor arguments against conservation. We need to develop the ability to think critically and challenge our stereotypes about many different types of environment, whether natural or constructed.

6. **Move From Awareness Through Knowledge to Action.** The link among awareness, knowledge and action is poorly understood by many educators and curriculum designers. Knowledge, and certainly information, carry no set of instructions that automatically convert into appropriate action. Some things can only be learned through action itself. From experience can arise powerful new learnings that are available only through actions. A popular slogan has been Think Globally, Act Locally. Thus, a class may learn about water pollution and about how to test for various aspects of water quality and become aware of problems in a local creek. However, if they actually decide to act upon the problem they may move into new territory, territory where they will confront the need for tools, and for the requirement to act politically and to learn how to interact with various community groups. From these experiences they may gain powerful new learning, most of which would not be available other than through actions: a powerful element for educational development.
7. **Learn a Basic Set of Concepts and Facts, While Relearning New and Unlearning Old Ones.** Ecological principles and concepts are important organizers for experiences in the environment and provide insights to be applied to critical thinking about environmental issues. Learners need to understand biological and geological cycles, bioenergetics, food and energy relationships and concepts such as adaptation and diversity. Equally important is a need for students to become expert in learning how to access

information and how to evaluate its accuracy. Environmental citizenship often requires the ability to find and use up to date correct information. Learning how to find this is an important aspect of environmental literacy. At the same time students must learn to expect that many of the things they learn today, especially facts and figures, may prove to be wrong in the future. This is to be expected given the rate of growth of new knowledge and the deployment of new technologies. Lifelong learning is essential to environmental education.

8. **Work Cooperatively.** Many environmental issues are complex and will require international cooperation as well as cooperation among neighbours in local communities. Effective skills in group processes and communication will be essential. Many specialists will have to work in interdisciplinary teams. Cooperative learning is as critically important to environmental planning and actions as it is in many other current fields of endeavour.
9. **Use Skills in Several Processes (Knowing, Inquiring, Acting, Judging, Opening, Connecting, and Valuing).** This set represents a collection of processes essential to effective intelligence. These are generic not only to environmental education, but to all forms of education. Not all need receive equal emphasis during some phases of learning. These need not be seen as being in any universally appropriate or logical sequence. Each can be learned through experiences in a variety of contexts and diverse teaching models. In some situations, students may begin with their awareness of a problem of opportunity, while importantly taking stock of what is known and developing strategies for finding out more. In other situations, setting out with value positions may be most useful. By encountering a variety of environmental problems and by learning in a variety of contexts and via a number of teaching models, students may develop proficiency in these processes.

10. **Develop and Aesthetic Response to the Environment.** No consideration of the environment, whether built or natural, can be complete without contemplation of its aesthetics or of the human responses they awaken. When people have a sense of loss, of quality being eroded, or of poor design and thoughtless planning, they are often responding to aesthetic dimensions of their life experiences as much as to scientific or economic facts (McClaren, 1989).

Planning for Learning in Environmental Education

Good teaching and good curriculum planning reflect clarity of purposes with a good match between purposes and the means chosen to attain those. Good planning for learning is effective, efficient, and aesthetically pleasing. When we engage in environmental education we are choosing to address some very complex fields of knowledge, as well as areas where there are conflicting views and evidence and differing values. The complexity of environmental topics makes them rich in educational potential and that may also make them interesting and engaging for many students. However, this same complexity requires that we think carefully about curriculum design and development.

The set of guideposts that follow are intended to help program designers or providers think about creating learning experiences in the domain of environmental education. They are also intended to guide the selection of teaching and learning strategies, experiences, settings, and resources. In addition, these guideposts may help you to clarify your purposes and evaluate the effectiveness of your results.

The guideposts should not be considered to be a set sequence. You may find beginning with purposes and finishing with demonstrations or assessment of results to be helpful. Our intent is that you can enter the process at any point and work in various directions during planning. When you actually design learning experiences, you will eventually need to consider the issue of se-

quence: which order is best or most appropriate for your purposes and the level of your students.

Good design doesn't add unnecessary complexity or structure. One should aim for some sort of match between form and function. Additionally, there is almost always more to do than can be done, so you need to make choices and to eliminate things that while they may appear to be essential are likely to make your program too crowded or complex. Less may often be more.

All learning is a constructive and personal act. Students can be helped to learn by other students, teachers, mentors, coaches, and demonstrators. In the final analysis, the learner must do the learning and must engage with the tasks, the material, the experiences, and the work. So, the challenge to any teacher or program designer is to find a way to invite learners into the process, to engage them in it and to foster their commitment. Learning can be fun. It can also be hard work and can require patience, persistence, and the willingness to overcome or work around failures, setbacks, and a lack of immediate success.

Finally, education is not indoctrination. We intend to help students to think for themselves rather than think like us, or like whole cultures for that matter. We need to provide students with a chance to examine conflicting views, and to explore consequences and options. Environmental education should first and foremost be EDUCATIONAL.

Guideposts for Designing Programs

1. **Purposes:** The following are some questions that are intended to help you explore your general purposes and ask: what do I want the students to learn? What attitudes, knowledge and skills do I want them to gain? What understandings do I want them to have? How do I want them to behave as people after we have finished working together?
2. **Students:** What prior knowledge do I expect the students to have about this topic? What prior experiences might they have

had? How might they feel before we begin? How can I find out more about their prior knowledge? Might it be helpful to engage in class discussions, pre-test, review previous work, demonstrations, examples of past projects or products?

3. **Key Ecological Processes:** What are the big ideas, essential understandings, and key concepts that will help students to understand experiences and transfer them to other experiences and contexts, thus allowing them to make sense out of skill learnings?
4. **Process Skills:** What skills do we want students to learn in the course of this experience or activity? What should the students DO in order to learn various and accomplish these skills? What sorts of learning skills will students need to have, or need to learn, during this experience? Will activities that involve cooperative learning, self-directed learning, learning centres, or work in teams or groups and in class meetings help students to acquire useful process skills?
5. **Support Systems:** What resources and materials are required? How long will it take to learn to use these materials? Could assistance from other staff members, parents, or community members be helpful? Is special permission or funding needed in order to use these supports?
6. **Time:** How long will it take to accomplish purposes planned for use in these learning experiences? What time formats will be most useful: short and intensive, distributed practice and experiences, or long total immersion.
7. **Demonstration:** How will the learners demonstrate their knowledge, skills and understanding? What indications of attitude change might be expected? What new behaviours might be seen? How could student competence be assessed: tests,

projects, products, performances, competitions, adjudicated performances?

This set of guideposts is intended to help you think about creating learning experiences for students in the domain of environmental education. In discussing environmental education, we have also given consideration to how learners may behave and plan action projects to address and possibly correct environmental problems.

Principles for Taking Effective, Ethical, Environmental Action

The following points are intended to offer advice to people who want to take actions to address environmental problems or to act for effective solutions. Environmental issues are often controversial in communities and “scary” to take on. The “Six Commandments” listed here reflect intensive and extensive experience by Hammond and McClaren (1997) McClaren, Fulton, and McMahan (1995), and Herrin each of whom have extensive experience in managing environmental action projects or with activist groups and have worked in a variety of environments in Canada.

1. **Express positions in Positive Terms.** If you are opposed to something, you are likely to be for something. It is your responsibility to express what you stand for, and what your proposed solution is, in positive and concrete terms.
2. **Avoid Stereotyping Others.** Treat everyone as a person of high moral worth whether they are in support or opposition to your project. Stereotypes: (developer, environmentalist, liberal, teacher, conservative, politician, bureaucrat, or tree hugger) may get in the way of establishing positive relationships and communications, because they lump individuals into categories.
3. **Follow the Force Field.** Investigate the viewpoints of all the people who have a stake in the problem or opportunity. Keep an open mind to the views of others. Try to consider the impact that proposed actions

will have on the lives of the various stakeholders, both in the short and long term. Formulate an action plan by selecting the strategies and tactics you believe will be most appropriate to the situation.

4. **Avoid Scapegoating.** If you fail to attain your goal for any reason, avoid the temptation to blame your lack of success on someone else or on some other set of circumstances. If you did not attain your desired goal, it may be because you did not do something as well as was needed. You may have not done your homework, lobbied, or communicated to all the concerned people effectively enough.
5. **Recycle Your Efforts.** If you do not reach your intended goal, recycle your efforts or start the process all over again. You will know far more the second or third time through the process than you did the first time. You may know key resource people and understand what worked and didn't work in your initial approach. Act again and again and again until you succeed.
6. **Be Persistent: Stick with it.** People don't always recognize the potential that local people have to accomplish community changes, particularly on environmental problems and issues. Long term planning, commitment, and a tenacious approach are most important to the success of significant environmental action projects. The action process tends to be a spiralling pattern of action-research-action-research-action. This is why recycling your efforts is critical to success.

Closing Thoughts

Our focus in this chapter has been on environmental education as a topic discussed in the larger context of outdoor learning in Canada. For many readers environmental education might be seen as applying mainly to outdoor or natural locations involving a variety of field studies such as those found at a local stream, forest, pond or

seashore. Other terms such as sustainable development or sustainability education are also used to describe formats for addressing environmental issues. However, this is not a time for word-smithing or arguing about semantics; this is a time for ethical, equitable, well reasoned action!

In this chapter, we have included a number of activities such as those that focus on systems thinking, and value issues, well as the guideposts listed in regard to planning for learning, and the principles for taking effective and ethical environmental action that can certainly be applied in the context of outdoor learning or other settings.

Remember that 80% or more of students will live or are being raised in urban surroundings and that many school programs may neglect constructed, human-made environments. We hope that the examples provided as a means to understand and apply to environmental education are also capable of being applied to a diverse range of settings and activities. Since most school or university classes are commonly held in non-natural settings, our focus on environmental education includes both constructed, human-made settings and those that largely exist within natural and non-artificial settings.

We believe, the skills, knowledge, and attitudes we have presented in this chapter, if implemented, will lead to a citizenry that is able to tackle and solve the "wicked" problems of our times.

Below are two relevant quotes that we hope will inspire everyone to enable this through environmental education:

In the end, we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught (attributed to Baba Dioum).

Never doubt that a small group of thoughtful, committed citizens can change the world; in fact, it's the only thing that ever has (attributed to Margaret Mead).

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