



# Learning experiences that produce environmentally active and informed minds



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## ABSTRACT

This study provides evidence of the significant life experiences that have influenced teachers' attitudes towards the environment and present their teaching practices within environmental education. Three groups of teachers (preschool, primary school and biology), working in preschools and in nine-year long compulsory basic schools in Slovenia completed questionnaires. Findings were generalised against bodies of research discussing significant life experiences and recommendations concerning environmental education improvement. Enjoyment of the outdoors, especially in the childhood, attitudes of parents, life in the countryside, experiences with animals and plants, solitude of remote places, education and experiencing negative environmental changes, all had an influence on the teachers' care for nature. Experiences with organisms and education were more influential life experiences for biology teachers than for preschool or primary school teachers. Teachers emphasised four teaching practices important for environmental education: direct experience of nature, discussions about environmental problems, active participation of students in environmental activities and the importance of teachers as role models. The importance of student's inter-active participation in environmental activities has been under-emphasized, particularly among biology teachers. They have encouraged them to analyze and discuss environmental problems rather than to empower them in the extension of collective pro-environmental actions, which would provide them with necessary experiences in governing processes enabling them to take an active societal role.

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## 1. Introduction

Understanding the way learning occurs and what stimulates environmental behaviour is as important as environmental information [1]. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) workshop in Belgrade (1975) produced a statement of environmental education aims, which still defines the field mainstream [2]. "The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and prevention of new ones." The ultimate objective of environmental education is to encourage actions towards the resolution of environmental problems. If environmental education is meant to help children learn and care for the environment, then

those responsible for implementing these aims (e.g. teachers) must know the forms of learning experience that encourage and produce active and informed minds [3]. In order to study young people's environmental behaviour researchers compare behavioural outcomes from different types of environmental programmes. Another approach used by researchers has been a retrospective, composed of research on the significant life experiences of environmental activists and educators.

### 1.1. Types of environmental education

Research reviewed demonstrated that, in order to effectively address environmental problems, different types of environmental initiatives should be implemented. Stern [4], distinguished between private and public environmental actions. Environmental education has traditionally promoted private pro-environmental behaviour [5], where individuals consume less resources by using technological innovations (e.g., energy efficient appliances) and alternative behaviours (e.g., using public transport) or by reducing consumption of resources (e.g., reduction in purchasing) [2].

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Each individual must decide in order to change their behaviour, but changes must also occur on a broader level in order to have a significant environmental impact. Jensen and Schnack [6] emphasised that environmental action is intentional and contributes directly to solving confrontational problems (people-environment relations) or influence others to contribute to solving the problem on inter-relational questions (people-to-people relationships).

Environmental actions are most effective when people organize to pressure Government and industry in order to act for the common good [7]. Collective pro-environmental actions can force major actors, such as businesses and governments, to take responsibility for the environment and make sustainable choices available for individuals (e.g., energy efficient cars, bikeways) [5]. Environmental education should also foster young people's interest and engagement in public issues and democratic principles in order to effectively address environmental issues. Wals et al. [8] highlighted this concept by dividing environmental education into: (i) instrumental, which seeks to change pre-determined environmental behaviours, and (ii) emancipatory, which seeks to engage participants in an active dialogue in order to establish individual objectives and plans for environmental action. Similarly, Sterling [9] defined intrinsic and instrumental learning in sustainable education. In doing so, Sterling added a third educational category which focused on personal growth or competencies associated with healthy development and lifestyle success (e.g., social competence, sense of purpose, interest in learning) [9]. Schusler and Krasny [10] reported that environmental action is a valuable context for positive adolescent development.

### 1.2. Significant life experiences and environmental education

Environmental education ascertains the platform that knowledge is socially constructed, that there are cognitive, economic, moral and philosophical aspects that must be considered although there are no certainties in theory or in practice [11]. This transformation of perception also calls for dismissal of the dominant mechanistic perception of seeing the world [12]. No science teaching can avoid communicating messages concerning human conceptual or interaction with nature [13]. These messages influence young people's attitudes toward nature [14]. Furthermore, the social learning theory recognizes that people learn from observing an external role model and following their lead, not merely from verbal interaction [15]. Teachers are aware of impressionable social pressures to act as model citizens and that their actions help establish the next generational moral compass [16].

Three decades ago, Tanner [17] conducted a study that investigated the significant life experiences (SLEs) of conservationists in the United States. His attempt was to understand what motivated them to dedicate their lives to environmental issues. Other researchers [e.g., 18,19, 20,21,22, 23, 24,25,26, 27] have carried on where Tanner left regarding SLEs research. Research then focused on the study of SLEs of environmentalist and environmental educators. Key life experiences in raising environmental awareness were considered: (a) frequent interaction with natural and rural environments; followed by (b) the influential experiences that occurred during childhood, involving events within the natural environment and countryside; (c) role models, particularly family members and teachers; and (d) educational emphasis [17,19,20,24,25]. Bajd et al. [27] compared teachers from science disciplines in Slovenia and the UK. They found similar results; however, the second strongest influence among Slovenian teachers was their view on environmental destruction and pollution. In addition, researchers also highlighted the impact of membership in organisations, friends and peer groups, literature, the media, religious beliefs, travelling abroad and parenting.

Neal and Palmer [28] emphasize that environmental education should be core orientated and implemented into fundamental school subjects and related to cross-curricular themes. In accordance with findings from the field of significant life experiences Neal and Plamer also point out that students should not be presented only with environmental information; they should build on their natural experiences—their personal interactions with the environment—and the learning they thus bring from their experience and environmental interaction. In the Tibilisi recommendations [29] it was stressed that environmental education is a lifelong process, interdisciplinary and holistic, encompassing the encouragement of young people's participation, practical activities and first-hand experiences, which should lead to the development of an environmental ethic.

Palmer et al. [25] also suggest that there is a need for establishing comprehensive programs inclusive of the formal and informal educational system. According to Palmer et al. [25], formal programs in environmental education alone are ineffective in educating children and adolescents on how to save the planet. Palmer and Birch [5] stressed the importance of informal environmental education, including communication and information, that results from living and interacting in a particular locality and community, from newspapers, television, radio, other media forms, 'events' in an individual's life and the wider world while interacting with other people and the natural world. Chawla and Flanders Cushing [30] reviewed four bodies of research that shed light on promotional active care for the environment in children and adolescents. According to their review, children and adolescents require personal ownership of the studied issues, choosing personally significant goals and integrating action for the common good according to their sense of identity. They also need opportunities for direct experience, beginning with intimately known natural areas, and extending into participation in managing projects through their school and local community where they can see for themselves how local government functions and feel that they are making meaningful contributions. In the course of these experiences, adolescents need opportunities for discussion, analyzing public issues together, determining shared goals, resolving conflicts and articulating strategies for overcoming challenges and achieving success. During this process, children and adolescents become successful role models for each other. Seeing similar others (i.e. peers) perform successfully can raise perceived self-efficiency expectations in observers and teach them effective strategies for dealing with challenging or threatening situations [15].

### 1.3. Purpose and objectives

The purpose of this study was to examine Slovenian teacher's significant life experiences that have influenced their environmental attitudes and concerns and to investigate their teaching practices in environmental education. Significant life experiences and teaching practices of three different groups of teachers, found to be the most responsible for environmental education in preschool and compulsory basic education in Slovenia, were compared. Findings were generalised against different bodies of research through discussing significant life experiences and recommendations for environmental education.

## 2. Material and methods

Teachers were given a questionnaire questioning them about their significant life experiences, teaching practices in environmental education and basic demographic questions (gender, age, teaching profession). The questionnaire format is a widely used and useful instrument for collecting survey information [31]. The

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