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Participatory school experiences as facilitators for adolescents' ecological behavior

Anna Uitto [a, *, 1], Jelle Boeve-de Pauw [b, 1], Seppo Saloranta [a]

[a] Department of Teacher Education, PO Box 9, University of Helsinki, Finland
[b] Department of Educational Sciences, Prinsstraat 13, 2000 Antwerp, University of Antwerp, Belgium

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ABSTRACT

This study investigates how sustainability-related in-school experiences, through psycho-social variables, influence adolescents' out-of-school general ecological intentions and behaviors. Data from a nationally representative sample of 2361 Finnish adolescents was used to test a hypothetical model. Effects of school experiences were studied using structural equation modeling. Excellent model fit showed that in-school agency and prosocial experience enhance adolescents' pro-environmental values, personal norms and self-efficacy for general ecological behavior. Ecological and pro-environmental intentions and behaviors outside of school were strengthened by the psycho-social constructs, especially by pro-environmental value and self-efficacy. In-school agency and prosocial experiences had stronger effects on psycho-social constructs, while the effect of ecological experiences was low. The model suggests that school's sustainability education should not provide only ecological experiences, but more importantly connect pro-social and agency experiences through an approach that emphasizes pro-environmental values and self-efficacy for general ecological behavior.

1. Introduction

1.1. Modeling self-reported general ecological behavior

Drivers of ecological problems and sustainability issues are rarely the result of malicious intent, but rather the consequences of the behavior and lifestyles of billions of humans (Schulz, 2011). Much effort has gone into studying the variations in and causation of ecological behavior. A widely applied theoretical framework in the field of environmental psychology is the Theory of Planned Behavior (TPB; Ajzen, 1991). Central to the theory is that the intention to perform a behavior is regarded as the immediate precedent of that behavior. The intention is then predicted by three psychosocial variables: people's perceived control, their value to performing the particular act, and their subjective norms. Specific behavioral types are then preceded by the specific intentions to act, which in turn are preceded by the three aforementioned psychosocial variables. Psychological literature emphasizes that values, attitudes and norms are important for pro-environmental behaviors (Bamberg & Möser, 2007; Hungerford & Volk, 1990; Milfont & Duckitt, 2004; Wiseman & Bogner, 2003).

Although the TPB is widely applied when modeling pro-environmental behavior of adults (e.g. Bamberg & Möser, 2007), less in known on the factors that influence the behavior of young people (Busse & Menzel, 2014; Kaiser, Oerke, & Bogner, 2007) in general and the role of school context in particular in enhancing general ecological behavior. Adolescents differ from adults in various ways: their values and life style are developing, and in general, they are not fully able to make independent decisions for instance on their consumption. When studying young people, their possibilities to make sustainability-related choices have to be taken into account. Kaiser et al. (2007) have defined different types of general ecological behaviors (GEB), such as energy conservation, mobility, waste avoidance, consumerism, recycling, and vicarious pro-environmental behaviors. Adolescents are especially relevant to study since they are at the onset of their lives as active citizens and leaders of tomorrow (Ginwright & James, 2002), they are also at the point of consolidating habits and behavioral patterns (Moreno, Henauw, Gonzalez-Gross et al., 2008), and the formation of identity and

* Corresponding author.
E-mail addresses: anna.uitto@helsinki.fi (A. Uitto), jelle.boeve-depauw@uantwerpen.be (J. Boeve-de Pauw), seppo.saloranta@helsinki.fi (S. Saloranta).
[1] Both authors worked equally as first authors on this study.

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interpersonal relationships (Blakemore, 2008).

The school context may have a strong influence on adolescents' personal development. Adolescents spend a large part of their time in school, and formal education is seen as one of the key pathways to changing the way we interact with our environment (McKeown & Hopkins, 2007; Morgesen & Mayer, 2005). In this study the TPB was used as a leitmotif to study whether adolescents' in-school sustainability experiences have effects on their sustainability-related psychosocial variables and finally also on their out-of-school general ecological intentions and behaviors. TPB was the starting point of the study, but we made modifications to study adolescents' responses to general ecological issues especially in the school context, for instance personal norms concerning sustainability issues related to school context. Self-efficacy instead of controlled behavioral control was studied, because in educational psychology, perceived self-efficacy has been found to be important in influencing motivation, learning, and competences development (Anderson & Betz, 2001; Bandura, 1997; Usher & Parjares, 2008). Self-efficacy is defined as a belief on one's own ability to complete a task, reach a goal or exert a behavior (Bandura, 1997). According to Ajzen (2002), self-efficacy is much related to perceived behavioral control. The difference is in that perceived behavioral control is formed of two dimensions, self-efficacy and controllability (Ajzen, 2002). Because several variables are found to influence behavior, the theory of planned behavior (Ajzen, 1991) with structural equation modelling (SEM) is often applied in quantitative research (e.g. Bamberg & Möser, 2007; Kaiser, Wölfing & Fuhrer, 1999) to build general models to explain GEB.

1.2. School as learning environment for ecological behavior

In school education, learning on GEB is connected with sustainability education, which is recommended to be implemented as a whole-school approach (Henderson & Tilbury, 2004; Tilbury & Wortman, 2005). Nowadays Education of Sustainable Development (ESD) is widely included the school curriculum around the world (UNESCO, 2014). ESD include multiple viewpoints of sustainability, and emphasize participation and the interactions between learners and their surroundings. ESD also strives to involve more student-centered and collaborative, inquiry-based approaches to teaching and learning. The aim is that learners critically and positively consider sustainability issues, participate in informed decisions for a sustainable future, and engage in action (McKeown & Hopkins, 2007; Tilbury & Wortman, 2005). In addition to awareness and skills, students should embrace sustainability values and the willingness to choose a responsible way to live in terms of sustainability (Henderson & Tilbury, 2004).

In ESD, learning should be holistic, considering the ecological, social and economic aspects of sustainability. However, environmental knowledge has often been emphasized in school education (McKeown & Hopkins, 2007; Morgesen & Mayer, 2005). Although the goals of, for instance, eco-schools emphasize students' values and an active role in learning responsible behavior, the education often increases only knowledge but fails to achieve the most important goal, which is to enhance the students' responsible way of life (Boeve-de Pauw & Van Petegem, 2011; Krnel & Naglič, 2009). The reason for this mismatch between goals and outcomes may be that formal education has focused on activities such as teacher-managed actions by the students, which do not remarkably change pupils' attitudes and behaviors since they ignore pupils' critical thinking, decision-making and action competences (Krnel & Naglič, 2009).

Although there is an agreement on the quality and goals of ESD, there is not much evaluative research on the success of sustainability education (Boeve-de Pauw, 2014; UNESCO, 2014). For instance, it is not known how students experience ESD at school and if these experiences have any influence on their values, skills and intentions to act in a sustainable way in their own life. Thus, an important question is the ultimate outcome of ESD efforts: Do adolescents believe that they have the skills and opportunities to live in a sustainable way in their own life and work actively for SD at school or in society?

Although there is an agreement on the quality and goals of ESD, there are not much research how well the final goals of ESD have been reached (UNESCO, 2014). To acquire nuanced information on the effects of implemented sustainability activities at school, structural equation modeling (SEM) would provide a useful tool for evaluation purposes, because it allows the study of complex interactions between different experiences and psychosocial variables which precede specific behaviors. However, modeling of the effects of ESD efforts has not been carried out because of several difficulties. First, the goals of ESD are based on the UNESCO agenda, meaning that the theoretical background and methodology of ESD research cannot be defined at the empirical level, but the framework of behavioral sciences has to be applied. Second, the processes of ESD vary in different contexts, learning organizations and countries. Finally, in organizations many groups of acting individuals have to be considered, which makes the planning and conducting of ESD research demanding and non-straightforward.

Finland has an egalitarian educational system, which steady improvement in student learning has been attained through the Finnish education policies based on equity, flexibility, creativity, professionalism and trust to schools' and teachers' pedagogical expertise (Sahlberg, 2007). In the Finnish basic education ESD is a cross-curricular theme. To provide information on the effects of Finnish schools' ESD efforts, we stated a hypothesis on the relationship between adolescents' school experiences, psycho-social factors and self-reported general ecological intentions and behaviors, the final goal of ESD. TPB was applied and SEM used in testing the hypothetical model (Fig. 1).

1.3. Participation and agency experiences at school

Studies from different areas such as environmental education, youth development and experiential learning (e.g. Kolb, 1984) illustrate the importance of experiences in learning and in the adoption of behaviors. Schools' action culture is largely directed by the curriculum, which makes the school a learning environment that provides adolescents with specific experiences of sustainability. A basic question that arises is the ultimate outcome of ESD efforts: Do adolescents believe that they have skills and possibilities to live in a sustainable way in their own life and work actively for SD at school or within society? Only a few studies have focused on this question. In an earlier study, we conducted a multilevel analysis based on a large survey of Finnish grade nine students (Uitto, Boeve-de Pauw & Saloranta, 2014). We found that, despite the large variance of adolescents' personal socio-psychological characteristics within the schools, ESD management and implementation in subject teachers' teaching methods and headmasters' decisions had an effect on adolescents' self-efficacy for GEB at the school level (Uitto et al., 2014). This suggests that the efforts of ESD are not lost, because schools that invest in ESD influence adolescents' self-efficacy beliefs.

According to recent studies, participation in sustainability (Reid, Bruun Jensen, Nikel & Simovska, 2009) plays a crucial role in reaching the goals of ESD. In general, the level of student's participation can be described in terms of five different levels, 1) students listen to the teacher, 2) they are supported in expressing