Attitudes of preservice teachers: Design and validation of an attitude scale toward environmental education

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1. Introduction

Recent reports by prestigious international bodies (GEO-5, 2012; Worldwatch Institute, 2015) are warning about the rapid environmental damage that our planet is experiencing. The causes are linked to the dominant socioeconomic model and to human actions that are unsustainably based on continuous growth, all of which are increasing rapidly in a globalised, industrialised and consumeristic world (Alperovitz, 2014; Bardi, 2011; Stiglitz, 2015).

Achieving Sustainable Development (UNITED NATIONS, 1987; UNESCO, 2014) requires changes in policies, in companies’ production methods and in people’s lifestyles, especially regarding consumption (Rathzel and Uzzell, 2009). Facing this challenge, schools and universities are greatly influenced by prevailing political-educational rhetoric in such a way that promotes limited sustainability models and continually replicating established ways of life (Álvarez and Vega, 2009; Feinstein and Kirchgasler, 2015; Lozano et al., 2013; Winter, 2007). Therefore, after decades of EE, we have made advances in raising social awareness about environmental problems but no progress in achieving sustainable ways of life (Gifford, 2014). New initiatives are needed to address the interconnected challenges of economic development, ecological integrity, and social justice (Luederitz et al., 2016).

In this context, educational institutions need to undergo a transformation process as part of broader social change (Schelly et al., 2012). Thus, EE of a transformative nature and oriented to Sustainability is necessary, encouraging the training of individuals capable of analysing their lifestyles and evolving towards fairer communities that are more responsible and more environmentally friendly. The change must happen through the empowerment of people and the formation of informed and environmentally active citizens, which should lead to the behavioural transformation of entire communities and societies (Ferreira, 2013). But this requires teachers to critically and imaginatively reflect on their own lifestyles and teaching (Ferreira, 2013; Jickling and Wals, 2012).

Acronyms: EE, Environmental Education.
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http://dx.doi.org/10.1016/j.jclepro.2017.06.245
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2. Environmental education aimed at promoting sustainability

Promoting sustainable lifestyles is an enormously complex objective (Stern, 2000). After forty years of research in the field of EE, there are still unanswered questions, aspects that require further study, and notable gaps (Reid and Scott, 2013). There are, in addition, differing pedagogical tendencies and models that are sometimes even contradictory. Heimlich and Ardoin (2008), in their well-known literature review, indicate that, facing behavioural tendencies, new models have emerged based on autonomy and the development of competence.

In a world as complex and changing as ours, it is required a conceptualization of education as based on offering opportunities to teach people to adapt themselves and improve (Nussbaum, 2011). Therefore, many authors (Ferreira, 2009; Huckle, 2008; Jensen and Schnack, 2006; Mogensen and Schnack, 2010; Stables and Scott, 2002) argue that EE should be action-oriented, strengthened and qualified by critical thinking on the part of the student body, an educational ideal from a democratic perspective. For this reason, it is necessary to introduce the culture of complexity in the classroom, favouring understanding of complex problems, participation and visibility of different points of view as well as the relationships between environment-society-economy (Cornéya and Reid, 2007), paying special attention to the socio-economic framework that defines the current unsustainable trends (Álvarez and Vega, 2009). In this line, people should be encouraged to reflect on their everyday experience and to understand it. This can uncover structural relationships and ways in which they take part in the perpetuation of these relationships through their actions (Rathzel and Uzzell, 2009).

Therefore, recent studies in this field suggest that EE which would facilitate the transition towards sustainable lifestyles must:

- Be based on research into sustainability and problem solving, with approaches based on information processing, reflection on the complexity of environmental issues, and its relationship with the socioeconomic model; and making autonomous, reflective and responsible decisions towards the environment and people (Álvarez and Vega, 2009; Mogensen and Mayer, 2005; Stevenson and Stirling, 2010; UNECE, 2005).

- Encourage the development of critical thinking, especially regarding the role of people in the system and the influence of socio-cultural and economic factors on their lifestyles (Jickling and Wals, 2012; Kyburz-Graber, 2013; Varela-Losada et al., 2016).

- Be based on a socio-constructivist approach, to encourage self-construction of knowledge in a social setting and the students’ actual participation in the process (Disterheft et al., 2015; Lave and Wenger, 1991; Mogensen and Schnack, 2010; Wals, 2007).

- Be inclusive, so that it involves the community, encourages participation and enables the creation of learning networks that facilitate the transfer of learning to the lives of individuals and their communities (Hart, 1997; Vosniadou, 2001; Wals, 2007).

Thus, we need to look for educational models based on these findings that allow us to contribute to the development of an autonomous citizenry, capable of understanding the world, making mindful decisions and acting in a sustainable and democratic way.

3. Teachers’ role

Consequently, forward-looking EE requires teaching staff that are committed to sustainability, who understand the interdisciplinary and globalised nature of environmental issues and share the goal of action using non-traditional teaching methods. The role of the university in the achievement of this target, as the figure responsible for the proper training of teachers, is quite significant. Teacher training should become a means of information and communication for Sustainable Development, also making it possible to implement. However, the effect of higher education on student environmental literacy shows that it is normally very limited (Rideout, 2005; Yavetz et al., 2009). Consequently, most of the members of the university community (including future teachers) are not trained and involved in the principles that Sustainable Development preaches, and therefore, they are neither aware nor prepared to act sustainably (Tilbury, 2012). More initiatives are necessary in universities to overcome the problems encountered by the students and graduates in the implementation of pro-environmental strategies and lifestyles (Fernández-Manzanal et al., 2015; Hesselbarth and Schaltegger, 2014; Lozano, 2006).

In order to improve teacher training and change the teachers’ role, we should consider attitudes as important factors. In fact, attitudes are a crucial construct in environmental psychology, and a large proportion of research literature focuses on them (Ajzen, 2001; Milfont, 2007; Milfont et al., 2010). They can be defined as “a summary evaluation of a psychological object captured in such attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant, and likable-dislikeable (Ajzen, 2001, p. 28).”, which has its roots in the development of cognitive, affective, and behavioural components (Albarracín et al., 2014; Eagly and Chaiken, 1993).

Studying attitudes is relevant, above all, because of the possible influence they have on human conduct (Ajzen, 2001; Stern and Deitz, 1994). It may help us understand the way people see the world (Dunlap, 2008; Dunlap and Van Liere, 1978) and they can provide a good understanding of the set of beliefs, interests, feelings or rules that influence pro-environmental action (Ajzen, 2001; Fernández-Manzanal et al., 2007; Hawcroft and Milfont, 2010). However, it needs to be taken into account that attitudes are complex entities that can change depending on the context, and their influence on behaviour is dependent on the obstacles and difficulties associated with implementing environmental behaviour (Ajzen, 2001; Gardner and Stern, 2002). Thus, one cannot say that this is a cause-and-effect relationship, since environmentally significant behaviour is dauntingly complicated, both in its variety and in its causal influences (Álvarez and Vega, 2009; Stern, 2000). Therefore, researching this requires a complex approach that takes into account these aspects.

Among the tools that are used to assess attitudes, the Likert-type scales are the most common because they allow us to obtain information quickly with a large number of people, are easy to assess and, if they are made with the established requirements, they can play the role for which they were designed (DeVellis, 1991). In the field of EE, there are already some valuable scales, like the New Ecological Paradigm (NEP) Scale (Dunlap, 2008), which has been used in a variety of contexts and with different kinds of participants, the Environmental (2-MEV) Scale questionnaire (Bogner and Wiseman, 2006) or the Motivation Toward the Environment Scale (METS) (Pelletier et al., 1998). In connection with the teaching staff, there is also an important line of research that uses this type of tools for the assessment of their environmental attitudes, beliefs, and their self-efficacy in teaching (Biasutti and Frate, 2016; Boubonari et al., 2013; Moseley and Utley, 2008; Yavetz et al., 2010; Yavetz et al., 2009).

However, there is a lack of research focused on teaching staff and their teaching style as seen from a critical approach (Varela-Losada et al., 2016). There needs to be further research on teachers’ stances or opinions, their compressive cultural models of social
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