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Pursuing the goal of sustainable action in the basic training of teachers

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Abstract

School can and should promote the development of sustainable lifestyles that lead communities to be fairer and more responsible and respectful with the environment and people. Thus, Environmental Education must focus on the development of a competence for action based on critical thinking, independent decision-making and participation. The objective of this study is to analyse if teachers in pre-service training are aware of the main purpose Environmental Education must pursue and what this implies. The research was carried out via mixed methodology, contrasting the data obtained through a Likert scale of attitudes with other qualitative data. The analysis of the data suggests the existence of future teachers' frequent predisposition to believing that the essential aim should simply be an awareness of environmental problems, perpetuating in this way the gap that separates the daily educational practice of the current environmental philosophy.

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1. Introduction

In the second half of the 20th century, unprecedented steps were made in the progress of many fields such as health benefits, food availability, material well-being and life expectancy. However, these advances have come at a

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great cost to ecosystems (Worldwatch Institute, 2015). Therefore, there are important environmental problems we must face in order to achieve a sustainable future, such as increasing and borderless pollution, or climate change. The underlying reasons are related to mankind's lifestyle and linked to political support for continuous economic growth based on the hyper-consumption and hyper-production of "developed" societies, which continue to grow as if Earth's capabilities were infinite (Bardi, 2011; Latouche, 2011)

These problems are a result of the shortcomings in the functioning of social systems and should be called socio-ecological problems, because they are environmental problems of social origin (Folch, 2011). Their perception has increased social sensitivity toward defending the environment, which has been seen within the citizenry for a few decades, although this change does not appear to have resulted in specific sustainable behaviours (Gifford, 2014)

The environmental challenge is one of the main challenges that 21st century education must address (Boff, 2011). Therefore, schools can and must promote the development of sustainable lifestyles that lead to communities becoming fairer, and more responsible and respectful with the environment and with people. So, in the last decades, numerous authors have supported a change in the main objective of Environmental Education (Mogensen and Mayer, 2005; Ferreira; 2009), far from behavioural flows. Thus, the focus must be put on the development of a competence for action based on critical analysis of environmental problems, independent decision-making and participation, forming committed and autonomous citizens able to reflect on their role in the system, make responsible and informed decisions and act in a sustainable manner (Varela Losada et al., 2016).

This approach implies a teaching and learning model based on social learning (Wals, 2007), that implies new student and teacher roles. And it is essential to use the EA models that provide a holistic view of the world and of the environment. These real-world situations should be integrative at a global or interdisciplinary level (Mogensen & Mayer, 2005), and involve student participation in the classroom and in the resolution of environmental issues (Mogensen & Schnack, 2010). All this needs to be carried out using critical thinking, embracing complexity and studying future alternatives (Kyburz-Graber, 2013), encouraging autonomous and informed decision-making through participation (Stevenson and Stirling, 2010). Consequently, it is necessary to use models that prepare students for individual and collective action. As a result, it is also necessary to create learning communities for action and establish positive interactions between the school and the community to execute actions in favour of the environment (Wals, 2007).

In this regard, Stevenson (2007) notes that there is a significant gap between the educational practice of EE, usually focused on the acquisition of environmental knowledge and awareness, and the current environmental philosophy, which defends approaches based on problem resolution and action-oriented objectives. For this author, this important problem stems from different sources: the historic purpose of schools, their structural organisation, teachers prioritising maintaining order and control, as well as their ideological assumptions on knowledge, teaching and learning.

Therefore, this research aims to analyse if teachers in initial training are aware of the main purpose or goal of Environmental Education and what it implies.

2. Methodology

The research was carried out with mixed methodology, using the data obtained via a Likert scale (see Annex A), previously built and validated ($\alpha=0.804$), with a sample of 889 students of Degrees in Early Childhood Education and Primary Education from the Universities of Vigo and A Coruña (Pérez-Rodríguez et al., 2016). This data was compared to other qualitative data obtained from a convenience sample of 25 people, who were also included in the final sample. Thus, to analyse trainee teachers' attitudes toward the main objective of EE, we used the answers to four of the scale's questions, an open-ended question on that subject and a question where the respondents had to numerically prioritise a list of objectives. These data were processed using content analysis and descriptive statistical analysis.

3. Results

The results were analysed taking into consideration all the data obtained in the research. Table 1 shows the

categories and frequencies obtained after analysing and categorising the responses to the question “In your opinion, what is EE’s main objective?”, which students had to answer freeform, with some sample answers in each category. Table 2 shows the priority trainee teachers gave each of the objectives proposed as EE’s main goals. These results were contrasted with those obtained in the four questions on the Likert scale (with 5 answer options depending on the degree of agreement), which are shown in Figure 1.

Table 1. Categories and frequencies obtained in the short-answer portion on EE’s objective

| Categories | % | Example Answers |
|--|----|--|
| Raise awareness; create sensitivity | 42 | Awareness of the conservation of our planet and its importance |
| Deal with environmental problems and their solutions | 25 | Awareness of environmental problems and their impact on society and the environment |
| Deal with behaviours/habits | 21 | Raise awareness and promote habits and actions that favour environmental protection |
| Educate on the environment | 8 | Provide knowledge and education to students about the environment |
| Develop skills | 8 | Develop skills that help us be aware and able to act for its conservation |
| Educate on values | 8 | Educate on values to prevent future problems |
| Reflect, understand and promote responsibility | 4 | Make people reflect and think about environmental impact and the consequences produced by our actions and lifestyles |

Note: some people’s answers are in different categories

Table 2. Priority given to the objectives proposed as EE’s purpose

| | Average | Standard deviation | Top priority | Lowest priority |
|--|---------|--------------------|--------------|-----------------|
| Development of skills like critical thinking, sensible decision-making and participation | 1,5 | 0,67 | 16 | 0 |
| Promotion of a change in people’s attitudes and behaviours | 2,29 | 0,66 | 3 | 0 |
| Awareness of environmental problems | 3,25 | 0,69 | 1 | 0 |
| Knowledge of the natural environment | 3,29 | 1,15 | 5 | 6 |
| Analysis of the current socioeconomic model | 4,67 | 0,5 | 0 | 19 |

Note: Average: 1 being the top priority and 5 the lowest. Top priority: Number of people who put it in first place. Lowest priority: number of people who placed it last.

4. Discussion

The results obtained suggest a predisposition among the teachers-in-training that the main goal of Environmental Education should simply be an awareness of environmental problems. Thus, 67% agreed with this idea (Figure 1) and most of the people who responded freely to this question showed the same opinion (Table 1). However, when asked to reorganise and reprioritise a list of already-given objectives (Table 2), only one person chose it as the most important objective, and most opted for the development of skills such as critical thinking, reflective decision-making and participation. The Likert scale also showed that 72% of future teachers claimed that EE should promote, in particular, the development of these skills.

However, the analysis of the data obtained in the short-answer question qualifies these results, since none of the respondents spontaneously used the terms participation, critical thinking or decision-making to describe the main purpose of EE, but the majority does choose awareness and sensitisation.

With regard to behaviours and environmental actions, the Likert scale results show that 21% disagree with the idea of covering them in classes, and 36% are indifferent. The responses of the short-answer question also suggest a lack of interest in working with this issue of EE. In addition, most of the people who point to this objective seem to do so with a behaviourist spin, as some responses highlight the idea of learning what we can do to prevent environmental problems or promote habits and actions favouring the environment, without referencing autonomy or sensible decision-making.

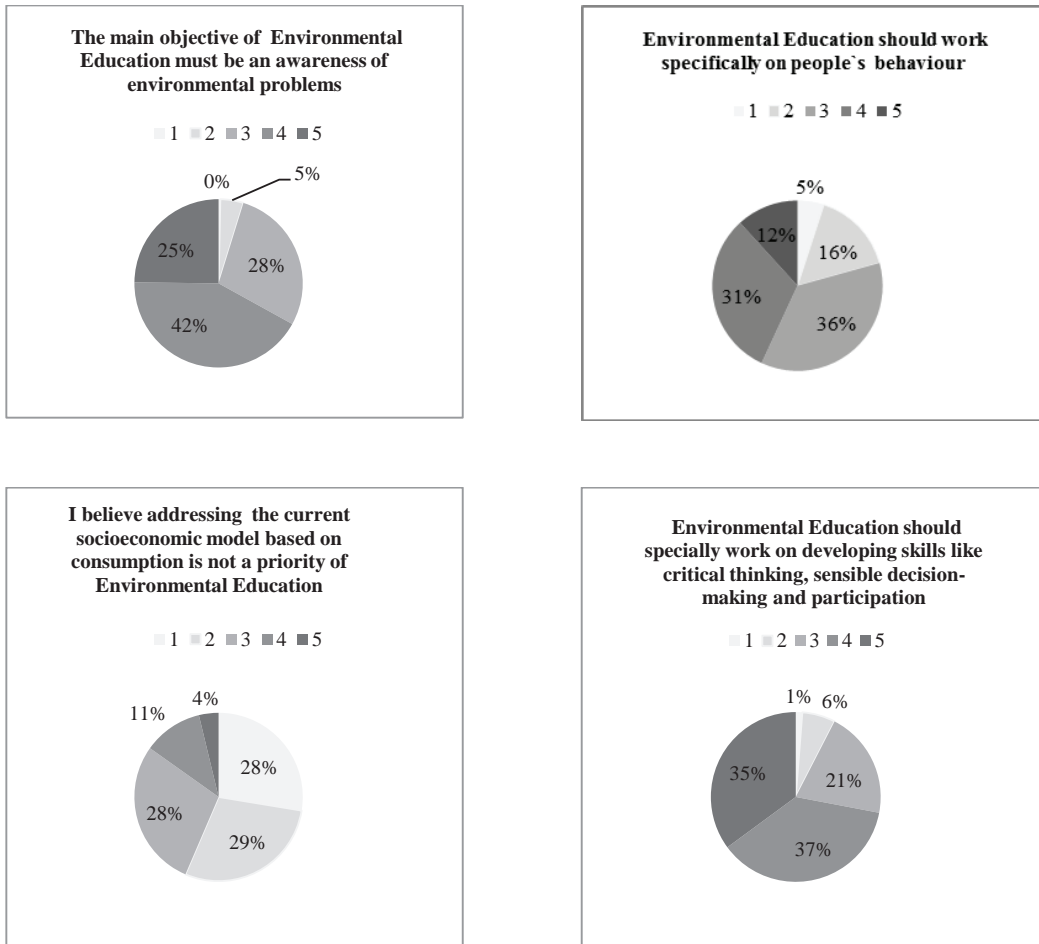


Fig. 1. Likert scale answers (1. I completely disagree 2. I disagree 3. Indifferent 4. I agree 5. I completely agree).

It is also interesting to note that although the scale results show that for 57% it is important to cover the consumption-based socioeconomic model at school (Figure 1), almost all the trainees would put it last on the list of priorities (see Table 2). This suggests that teachers in training do not actually consider this issue a crucial element for lifestyle change. As Gonzalez-Gaudio and Meira (2007) note, in the education framework, Environmental Education has been dominated by a biologist-naturalist emphasis. He was probably referring to the fact that, traditionally, the prescriptive curricula of natural sciences and biology are handed the responsibility of covering this

topic, which also happens in our country. This has routinely led Environmental Education to gloss over its social and political dimensions, which are so very important for change.

5. Conclusions

In summary, the data analysis suggests the existence of trainee teachers' frequent predisposition to believing that the main goal should simply be an awareness of environmental problems. This perpetuates the gap separating the daily educational practice of current environmental philosophy, which champions EE based on problem resolution and action-oriented objectives. There is also a lack of interest in specifically covering in the classroom the implementation of decisions that lead to sustainable actions, and addressing social and economic issues as well as environmental ones.

The key to facing this problem must be in their training. We need new ways of training teachers to create sensible and innovative teachers, committed to sustainability, and able to train citizens who can face current and future problems. This requires educational models in basic teacher training that give value to new ways of teaching, far from transmissive models and based on skills development through the autonomous performance of tasks and the analysis of real issues in a participatory manner (Vega-Marcote Varela-Losada, & Álvarez-Suárez, 2015).

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Appendix A. Items of Attitudes Scale toward Environmental Education (ASEE)

1. Facing the environmental problems of our time it is a priority to integrate environmental education at school
2. I consider that it is not a priority for environmental education to address the current socio-economic model based on consumption
3. Environmental education should especially work on the development of skills such as critical thinking, reflexive decision-making and participation
4. I believe that analysing environmental problems and finding solutions is too complex for primary school students
5. Students waste too much time searching and analysing information, it is much more useful to provide them with already selected and analysed information
6. For environmental education to be as effective as possible there should be a commitment from the entire educational community
7. I do not think that teachers' behaviour is a very important factor in the learning of environmental values
8. I believe that including environmental education at school can contribute to changing the environmental behaviour of the whole community
9. I think it is important that all teachers receive environmental training
10. I think that individually I have no power in solving environmental problems
11. The best indicator of a country's prosperity is its economic growth
12. I think the factor that most determines people's welfare is their income
13. I prefer not to know how the goods I consume have been produced
14. I prefer a cheaper product although I think that it has been produced in an irresponsible manner
15. The seriousness of climate change has been exaggerated
16. I believe that the effect of climate change on life on this planet is very important
17. Pollution due to energy production is a lesser evil compared to the benefits it generates
18. It seems to me that using a car for private travel does not mean a large increase in the gases causing climate change

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