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Teachers’ conceptions about nature and environment partially contradict ecofeminism theory

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Theoretical background and rationale
This study takes its starting-point in ecofeminism, a theory that links feminism with ecology. The term ecofeminism was coined by the French writer Francoise d’Eaubonne in 1974 (Merchant, 2005). The main line in ecofeminism is that dominance over women connects with exploitation of nature. Ecofeminism theory argues that there is a connection between women and nature that comes from their shared history of oppression by a patriarchal Western society. One of the claims of ecofeminism is that women have a special connection to nature, and that women are more in interplay with nature than men (Shiva, 1989). Women in subsistence economies have been experts of holistic and ecological knowledge. Thanks to this connection between women and nature, women are described as more cautious than men about nature and with nature’s resources. There are other movements and philosophies within ecofeminism, but in this study we concentrate on women’s claimed more cautious conceptions and attitudes to nature and environment.

Purpose and research questions
The purpose of this study is to compare ecofeminism theory with conceptions and attitudes about nature and environment. Pre-service and in-service female and male teachers from Sweden and France answered a questionnaire with questions about nature and environment. To our knowledge this is the first time this part of ecofeminism theory is evaluated. The research questions are: 1) Are there any differences between women’s and men’s answers concerning conceptions and attitudes about nature and environment? 2) Are there any differences in answers between participants from Sweden and France?

Methods
A questionnaire containing 173 questions was used, where answers from most questions were given on a Likert-scale (four options). 46 questions were related to teachers’ conceptions of nature or environment. In Sweden, the questionnaire was distributed by e-mail to the participants, and answers collected automatically in right category when questionnaires were sent back. In France, it was filled out by the teachers, anonymously in the presence of the researcher. Validity and reliability was piloted and tested in the original Biohead-Citizen questionnaire (Munoz et al., 2009; Castéra & Clément, 2012). Translation into Swedish was done from a reference questionnaire in English, and to check validity the questionnaire was translated back into English again.

We collected answers from six categories of teachers. Three were from in-service teachers (In) and three from teacher education (Pre). Each group was divided into primary (P), secondary school biology (B) and secondary school language (L) teachers. In Sweden each category contained about 50 individuals, while in France this number was about 100. Total number in Sweden was 377 individuals and in France 732, making totally 1109 individuals.

Different multivariate analyses were used, validated for this kind of data (Munoz et al., 2009). In the present work, we mainly use ‘Between analyses’ to discriminate between groups of individuals, e.g. between sexes or between countries, in order to analyze which teachers’ conceptions differentiated most between groups. A ‘Monte-Carlo permutation test’ was used to test
the statistical significance of the instrumental variables’ analyses, to ascertain whether the difference between groups was significant or not. To examine differences between groups we also used ‘Pearson’s Chi-square test’.

When contacting the Swedish in-service and pre-service teachers, it was told that the study followed the ethical guidelines from the Swedish Research Council throughout the project, and that it was of their own free will to participate.

Results

A between analysis (Fig. 1) discriminating four groups of teachers (women and men in Sweden and France) shows that the first component explains 85% of the variance (Fig.1a), differentiating between the two countries (Fig.1d: at right are the French teachers and at left the Swedish teachers). The second component (12% of the total variance: Fig.1a) differentiates men (at the bottom in the Fig.1d) and women (at the top in Fig. 1d). This shows that difference between the two countries is clearly higher than difference between sexes. The differences are very significant, as shown by the randomization test Monte Carlo (Fig.1b: p<0.001)

Figure 1. Between-class analysis between women and men in Sweden and France. (a) Histogram showing the respective variance of the three components: the difference between countries (arrow 1) corresponds to 85% of the total variance, while the gender difference (arrow 2) about 12%. (b) Monte-Carlo permutation test shows that the observed variance (point at right) is very different from variances obtained by random (1000 essays = the histogram at left). (c) Correlation cloud for the 46 variables, showing the meaning of each component. (d) Overview of all answers: one point for each teacher’s conceptions, relied to the center of gravity of the four classes: F SE (women Sweden), M SE (men Sweden), F FR (women France) and M FR (men France).

In the present synopsis, we have no place to analyze the differences between Swedish and French teachers’ conceptions: we mainly focus on the eventual gender differences inside each country. As shown in the Figure 1c, most of the variables are located near the horizontal axis: only few variables seem to differentiate the teachers’ conceptions along the vertical axis, showing some gender differences. In each country, we did Pearson’s Chi-squared tests for these questions.

For the main questions suspected to support the ecofeminist theory (judgement on environment: questions A69 to A76 and on nature: questions A77 to A84), only the answers to the questions A80 and A78 (illustrated by the Figure 2) show significant gender differences inside each country: more
women than men answered that nature is pleasant (A80: p=0.008 in Sweden and p=0.011 in France) and is to be preserved (A78: p<0.001 in both countries). Nevertheless, as also shown by the Figure 2, the differences are stronger among countries (more Swedish than French teachers answered that nature is pleasant and is to be preserved) and, in each country, most of female teachers answered as the male teachers.

Moreover, from other questions related to their perception of nature or of environment, there is no gender difference while the difference between the two countries is very significant: that does not support ecofeminism theory.

Conclusions and implications
Results presented here indicate that female and male teachers’ conceptions about nature and environment showed only little difference, few questions gave significant differences. Statistical differences were bigger and more frequent between the two countries than between the two sexes.

According to ecofeminist theory women have a special connection to nature, and have been described as being more in interplay with nature than men. Results from this study support only partly that statement. To our knowledge this is the first time this part of ecofeminism theory is evaluated.

References