

How Primary School Teachers Understand Adaptations and Relevant Biological Concepts

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According to Clough & Wood-Robinson (1985) it is preferable to teach evolution to pupils aged ten and over, rather than living it until later, so that the knowledge they have acquired outside the classroom can be incorporated into the lesson.

The 'adaptation-s' are included in the Primary Education Curriculum of our country (aged 10-11). According to instructions given to them, teachers are requested to "introduce the concept of adaptation and to explain it to pupils".

An important factor in the teaching of science is teachers' use of discourse (Bartholomew et al.2004) but it is obvious that the usefulness of the discourse is determined by the teachers' knowledge and understanding of the subject.

With this study we attempt to answer the following research questions:

1. What is the Primary School teachers' knowledge of the concept adaptation-s?
2. What is their understanding for the evolutionary theory and relevant concepts?

The sample of the research consisted of 153 Primary School teachers. The research instrument was a questionnaire constructed of open and closed questions.

The study of teachers' answers in the open questions showed that many of them explain adaptations using the meaning of the concept of adaptation in terms of the familiar definition used in everyday conversation.

Other results are the following:

- 92.8% of the teachers have the alternative conception that "New traits originate in living organisms because they need them to survive".
- 87.0% have the conception that "Natural selection happens to organisms which try to adapt to environmental needs".
- 39.8% think that "The available evidence is insufficient to support the Darwinian theory of evolution" and 19% do not know /answer.
- 39.8% disagree and 9.8% do not know / answer whether "All species of organisms are descendants of a common distant ancestor".

From the data of our research it is concluded that Primary School teachers have conceptions similar to those, recorded in the literature for pupils and students and they appear not to have adequate knowledge to teach issues relevant to the evolutionary theory. But, as long as issues relevant to the evolutionary theory had begun to be taught and discussed in Primary Schools, our research suggests that teachers should be supported in dealing with them. Otherwise they will not only be prevented from helping their pupils develop conceptual frameworks to explain biological phenomena, but they will also hinder the educational process as well.