7 - Discourse and Argumentation in Science Education | Empirical

SP - (15717) - ANALYSIS OF LINKING KNOWLEDGE WITHIN THE CONCEPT OF ENERGY IN STUDENT ESSAYS

Dennis Dietz (Germany)[1]; Claus Bolte (Germany)[1]

1 - Freie Universität Berlin

Short Abstract

In this study, we investigate to what extent we can identify vertical and horizontal linkage structures in essays on the basic concept of energy written by German students in grade 9. In contrast to English-speaking countries, consistent with German pedagogical tradition the natural sciences are taught in the differentiated subjects of biology, chemistry and physics. Despite the differentiation of subjects, one hopes that by teaching interdisciplinary basic concepts alone, such as the concept of energy, similar cross-linkage can be achieved virtually en passant, as one would expect from an integrated subject science. Existing structural models for analysing and describing linking knowledge focus exclusively on the aspect of vertical (i.e. intra-subject) linkage. Therefore, we have to develop our own analysis tool that considers not only vertical linkage but also the dimension of horizontal (i.e inter-subject) linkage. With this analysis tool, it is possible to examine the linkage of conceptual elements of the basic concept of energy in essays comprehensively. Our aim is to gain an empirical insight into linking knowledge of our school students in the sense of a first (normative) survey. This survey should enable future comparative studies both on a national and international level.