

Knowledge modeling in didactical analyzes of teaching and learning situations

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The analysis of knowledge contents in teaching and learning situations can be considered as a true "marker" of didactic research. The modeling undertaken by the researchers takes various forms which can be linked to the problems tackled, the theoretical framework used and the knowledge involved. However, these modelings are not always thematised and studied for themselves. The aim of this issue is to explore the epistemological and methodological foundations that support the didactic analysis of teaching and learning situations in school contexts about different subject (French / language arts, history, physical and artistic education, mathematics and physics) and, more broadly, in educational and training settings.

Summary of articles

■ JEAN-LOUIS DUFAYS

Analysing the teaching-learning practices of reading literary texts: what modeling for what issues?

Conceived as an essay of theoretical discussion, the article starts from the observation that the analysis of teaching-learning practices in the reading of literary texts is torn between two types of competing modeling: one centered on the expected activity of the teacher and / or students, the other centered on observing actual practices. A similar opposition can be established in the way the teachers model their own activity and that of their students. It appears, however, that, regardless of the analysis plan considered, the tension between these two models is not sufficient to account for the complexity of the teaching-learning activities and the relation to the literary texts. The article argues, therefore, with supporting examples, in favor of a median position based on two notions that make one think of the relation to literary texts in a dialectical way: the notion of interpretative community and the notion of literary reading.

■ SYLVAIN DOUSSOT

Modelization of historical problematizations in the classroom and among historians

Modelling reality is a key activity of any scientific inquiry. Modelling in didactics can play an intermediary role between school subject mater and its scientific reference. This is the way we intend to deal with modelling as in the problematization theoretical framework. One of the specificity of the modelling of problematizations lies in the fact that they hold together text of knowledge and text layout practices. There is however an inherent risk in modelling which is to ignore the historicity of the activity to be modelled. Such objectivist leeway would pay no attention to uncertainty attached to any social practice. This paper aims at puzzling out what it takes to manage this risk though the study of a course designed with the teacher about the French Revolution in end of primary school. It turns out that case study can be considered as a model for historical problematization at two different temporal levels.

■ MONIQUE LOQUET

The notion of epistemic kinship: a way of modelling knowledge between practices of students and savants, the example of dance in college.

The modelling of knowledge proposed in this paper is based on the theoretical framework of joint action in didactics (JATD). The question is that of meaning: how does knowledge make sense for those who learn it and who teach it? We assume that knowledge takes meaning when it is part of a cultural practice, an oeuvre, a history, a comprehension of the world. The study chooses as an

example the teaching of dance in a college which aims the "meeting of oeuvres and artists" in accordance with French school programs. It focuses on the activity of students prompted by the teaching practice, when teaching tries to approach the expert activity. The notion of epistemic kinship between activities of student and artists is central to this study. It revisits the concept of didactic transposition. It raises the question of the proximity (and the distance) between the epistemic capacities developed by students and those evidenced by savants in cultural practices to which the school refers. The conclusions are extended to comparative analyses in didactics.

■ **SERGE QUILIO**

Characterising the students' problems to understand the teacher's decision-making space in the context of teaching numbers and their uses in primary school

In this article we implement a form of didactic analysis, the bottom-up analysis of the transposition and the a priori analysis of the situation, in the particular context of a cooperative didactic engineering in which researchers and teachers cooperate in the development, implementation and collective analysis of primary school mathematics education. We show by means of episodes observed in class how the development of this type of analysis can give access to the meaning of the practices for the students but also their meaning for the teachers. We claim that the bottom up analysis of the didactic transposition provides an insight on the decisions that the teacher may take to set up alternative teaching paths

■ **ANDRÉE TIBERGHIE**

Modelization of the knowledges in the class in didactics of the physics

In this paper, we account for a way of modeling classroom practices from a didactic point of view in the case of the teaching of physics. Then we draw certain proposals for a comparative analysis of school practices. Our modeling is based on a pragmatic approach of classroom practices. In a first step, the Theory of joint action in didactics is succinctly introduced in connection with several other theoretical choices concerning learning, knowledge and the necessity of different temporal scales. In a second step, the methodological tools of modeling are introduced with some examples of analyzes that illustrate the links between theoretical framework and methodological tools. These tools are aligned with certain research questions related to classroom practices. Two types of tools are proposed : one, at the mesoscopic level, allows to structure a series of sessions of a teaching sequence; the other, at the microscopic level, allows to analyze the pieces of knowledge at stake in the classroom discourses. In the conclusion, we draw some proposals for a comparative analysis based on the theoretical and methodological framework presented, in particular the comparison of time scales and units of analysis at the meso and microscopic level.

Varia

■ **AUDREY BOULIN & MARIE-SYLVIE CLAUDE**

Act teaching seen by students : between doxas and expertise

This article is based on a survey of thirty students of "quatrième" who were asked to analyze the teachers' performance after watching two video sequences showing the teachers working with different success in the same class of « troisième ». An analysis of the students' interviews in relation to the "multi-agenda" of the teachers (as defined by Dominique Bucheton and his team), revealed three types of teaching analysis whether or not the surveyed students were working in the four categories of Bucheton's model and whether or not they took into account what the filmed students learned with the teachers. The study suggests that while college students are adept at analyzing teachers' filmed performance, the forms of assessment they use to do so are clearly differentiated.

■ **ALAIN FIRODE**

Epistemology and education in G. Bachelard and K. Popper

Although they have many things in common, Bachelard's epistemology and Popper's epistemology show distinct conceptions of science and scientific culture, which lead to different and sometimes opposite didactic implications. While Bachelard's philosophy is consistent with the main trends of the currently prevailing doctrine in education (due to the educational role Bachelard gives to scientific culture), Popper's philosophy, because of its objectivistic and logical implications, leads to a conception of science education that deeply departs from it.

■ **LAETITIA GERARD & MARC NAGELS**

PhD students' stress and dysfunctional coping strategies

PhD students encounter many difficulties and obstacles during their doctorate that are stress generators. How do they manage their stress? In our exploratory study, we wondered if the PhD students viewed their doctorate as a stressful experience and if they adopted behaviors that could be similar to dysfunctional coping strategies. We passed an online questionnaire with 357 PhD students. The results show that half of the PhD students assesses how high stress levels or very high. Behaviors that could be similar to dysfunctional coping strategies were observed.

■ **ISABELLE NOCUS, PHILIPPE GUIMARD & AGNÈS FLORIN**

Effects of a bilingual writing program (ELAN-Africa initiative) in elementary school in French-speaking sub-Saharan Africa

This study assessed the impact of the program's teaching methods ELAN-Africa for reading and writing in national languages (L1) and French (L2), at the first two years of elementary school (Grade 1 year 1 and Grade 1 year 2) in eight Sub-Saharan African countries. The cross-lingual effects between L1 and L2 was also investigated. 2 700 pupils were assessed at 3 times of measure during the 2 years (at the beginning of Grade 1 year 1, at the end of Grade 1 year 1 and at the end of Grade 1 year 2). Approximately the half of the pupils was enrolled in experimental classrooms implied in the program (10 by country) and the other in control classrooms. At the beginning of Grade 1 year 1, the protocol of assessment included 5 tests: print concepts and letters knowledge, vocabulary, phonological awareness and oral comprehension. At the end of Grade 1 year 1, two reading tests were added: reading words and a one-minute reading. At the end of Grade 1 year 2, several tests of the last assessment were preserved and 2 others were added: written comprehension and spelling. The positive effect of the program was found in 7 of the 8 countries, but with a varying efficacy according to writing skills, the contexts and the countries. Recommendations were proposed to improve the program and to think its extension into other countries.