Cabri as a cognitive tool - Part 2

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Process of meaning production

Amongst others, Bottino and Furinghetti (1994) investigated the ways in which teachers' belief are related with respect to two domains seen as correlate: Mathematics and Computers.

My study, however, instead of examing the perceptions in two domains, I shall concentrate on how a new domain is constitued, namely the use ofICT in mathematical education.

The proposed study takes place inside what Cooney (1994) calls a 'conception of teacher education as a work of investigation', precisely by suggesting and investigating the constitution of a domain.

Research Focus

As I am doing research on ICT in school mathematics I could take any general/educational software that has been used for teaching mathematics. For instance, spreadsheets for teaching algebra or Geometer's Sketchpad for teaching geometry. Here I will facus on Cabri-Geometre, a dynamic geometry software.

The approach taken views the designer (group) of Cabri as author, Cabri as text and the mathematics teacher as reader, with meaning production covering this complexity.

Approach and Theoretical Framework

Steve W oolgar et al. (1997) view technology as text via exploring of a metaphor: the machine as text.

The frame of software as text is being explore here.

The theoretical framework taken here is related to the epistemological model developed by Lins (1992).

Meaning production involves at least three elements: author, text and reader. These elements are widely perceived as functioning together to produce communication in the sense of meaning being conveyed from author to reader via text.

I will be working with an alternative view: an author is constituted by the reader as is a text, as much as an author makes the reader a reader.

I will highlight some of the relevant points from this perspective:

• Acknowledging that meaning is produced as to correspond to what an author meant, does not necessarily imply that it corresponds to what "the author" meant, not even that there is "the author".

The reader says it because *slhe* believes an author would have also said so, that is, the reader has a justification for that statement which *slhe* believes would be acceptable to an author.

• Whatever the author says, *slhe* will do so believing that *slhe* has a justification for saying it which is acceptable to a reader. The author does not say whatever statements because a reader demarcates enunciation.

• An author does not produce meamng, but legitimacy, 1.e., a demarcation of meaning production.

• A reader does not produce indiscrimnate meanmg. Meaning ıs produced, not truly correponding to what the author said, but by the very enunciation.

Therefore we can say that the two processes - meaning production and enunciation - are very close, in both cases demarcated by interlocutors: an author or a reader.

The key point is that we produce meaning in order to belong to a social practice, to a culture, as much we produce enunciations for the same reason. While meaning is produced from a text, enunciation generates a text: setting the two processes apart.

In my research I shall study a process of meaning production, by teachers, from ICT. Intellectual development is coming to be able to produce meanings which previously could only be produced with reference to someone else's authority: intellectual development is autonomy in the sense of an ability to anticipate acceptability, and that is achieved through the intemalisation of interlocutors.

Research Questions

(1) Can the study of meanings teachers produce from an educational software explain the way they use it?

(2) How can the study of designer (author), software (text) and teacher (reader) contribute to the use of ICT in schools and teacher education?

Hypotheses

What potencial the teacher sees in a software explains the way s/he uses it, and that is the basis for developing her/his own teaching approach.

Analysing what the teacher sees in a software is a necessary condition to properly intervene on their teaching.

Comments

This report is related to the short presentation of my early thinking on this research. I am currently designing a pilot study consisting of two mathematics teachers. I shall interview and video-taping them working with Cabri.

I have not described my research methods here as I am working on that and also I have not presented it in my talk.

Reference

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