WP4
Communicating and argumentation in IBST

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How situating communication in classroom practice?

- Joint action theory
- Aim of communication in a classroom

Joint action theory: Classroom view

- The classroom is viewed as a community of practice where the didactic action involves *two joint actions*: *teaching and learning* (Mercier, Schubauer-Leoni & Sensevy 2002). For Sensevy (2007) this statement is taken as a *fact*:

> "Let us take any didactic act, in each teacher's action, the student has a space, even tiny, and there is the same thing for each student's action" (p.15)

Goal of communication: instruction

The two joint actions […] are based on ***communication*** oriented by the ***instructional goal*** given by society to school. In most of the countries, this goal is made explicit through official texts including standards or official curriculum. Thus **knowledge is at stake in the classroom communication**. This **view of communication as knowledge-oriented** is developed with the idea of *transactions*

IBST our perspective (1)

Seeing the material world with scientific points of view (Wittgenstein) (implies making, thinking, evaluating inquiry)

Duschl and Grandy (2008): “the role of experiments is situated in theory and model building, testing and revising, and the character of experiments is situated in how we choose to conduct observations and measurements: i.e., data collection. The danger is privileging one aspect of doing science to the exclusion of others” (p.6)

IBST our perspective (2)

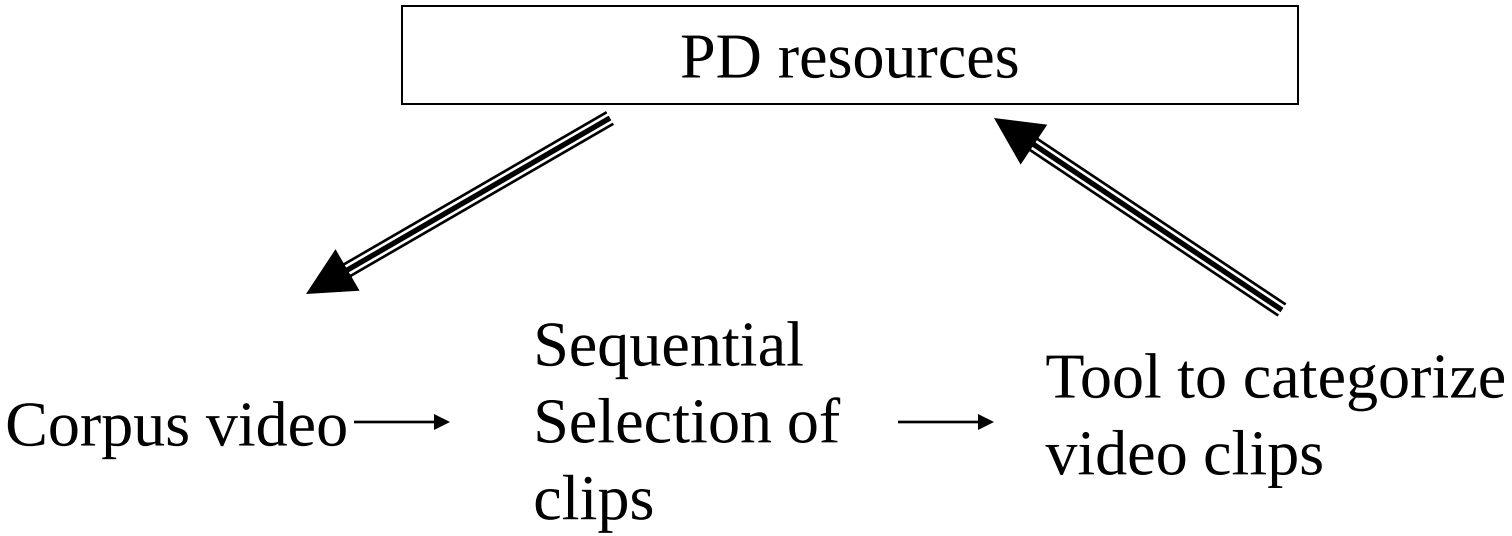
- Kelly (2008): “People are initiated into particular frames of reference through language and participation in cultural practices” (p.101)
- The Theory of joint action in didactics (Sensevy) and our choice of epistemology of science are convergent towards creating classroom as a community of scientific practice :
  - Promoting the communication of scientific ideas,
  - Developing scientific reasoning
  - Developing the ability to assess the epistemic status that can be attached to scientific claims (Duschl & Grandy, 2008 p.3)

Developing professional development resources: Pegase

Tool to help teachers in his/her own practice

http://www.inrp.fr/pegase-en/

Processes to select video clips from video corpus



Video corpus

Video of series of session of some teaching sequences (between 5 and 20 video hours for a given teaching sequence)

Tool to categorize video clips

Main categories

- Teachers' action perspective
- Students' action perspective
- Class action perspective

Teacher's action

- Guiding students when they work in small groups
- Managing debates in classroom
- Making the didactic contract explicit (social norms, normative identity)
- Managing knowledge evolution
- Institutionalizing knowledge in relation with debates
- Ways of introducing new elements of knowledge
- Making explicit how knowledge works (everyday/science /everyday knowledge, roles of theory and experiments, roles of representations).
- Language and contexts of its use

Student's action

- Cooperating in small groups
- Roles of experiment
  - Perception and description
  - Making hypothesis
  - ……
- Roles of writing in small groups
- Managing the documents
- Argumentation/discussion in the whole class

Examples

Clip 1. Roles of experiment

- Perception and description

Clip 2. Roles of experiments

- Perception and description
- Hypothesis

3. Role of writing

4. Teacher's guiding

Example 1

- Video clip associated to
  - The teaching part
  - (http://www.inrp.fr/pegase-en/activite.php?rubrique=1&id_theme=1&id_activite=99)
  - The profesional development part (http://www.inrp.fr/pegase-en/activite.php?rubrique=2&id_theme=31&id_activite=627)

Example 2

- http://www.inrp.fr/pegase-en/activite.php?rubrique=1&id_theme=1&id_activite=105

E1 and E2 write
E2: ben no **the two times we push it up**
E1: no the other time we pull it like that
P: at what phase are you?
E2: .. We would like to show in what directions they go
P: yes […]
E2: in fact the action which goes down do not go down it goes down because of the force of my hands but they push up …

E1 It is too heavy it makes 10 kilos at least...
E2: we have the biggest
E1: ok I launch it
E2: vertical ah no like that
[…]
E1 (*lauches the ball and catches it*)
P: you seem happy
E1: ok do we do again on two three […] look at it very well
E2: there you exert and there you exert another one
E1: when exerting euh
E2: **yes you push it thus we have to exert and when it goes down you slow down it therefore you should exert by pushing it up therefore**
E2 *launches the ball*
E1: because in fact no
E2: in the two directions
E1: **when it goes down it is not you hold it back but it is the ball which pushes you in fact you you are here but you cannot** because it is too heavy
E2: yes but anyway you push it back if not it would fall down […]
E1: **there are two actions** […….]
E2: the action you represent it by an arrow