INTERSUBJECTIVE AND INTRASUBJECTIVE RATIONALITIES IN PEDAGOGICAL DEBATES: REALISING WHAT ONE THINKS

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INTRODUCTION AND THEORETICAL BACKGROUND

Contemporary research on collaborative learning (CL) lacks the deep integration between theories of learning and theories of communicative interaction that is required for understanding the contexts and processes by which knowledge is interactively elaborated.

Until quite recently, CL research has been dominated by the attempt to extend cognitivist theories of human learning, centred on the individual, to the study of learning in groups (Dillenbourg, Baker, Blaye & O'Malley 1996). However, many of the learning processes that these theories propose do not readily correspond to genuine interactive phenomena. For example, results concerning the self-explanation effect (Chi et al. 1989) were obtained with respect to individual problem-solvers (with experimenter prompting). Although it has been conjectured that this phenomenon can also occur in CL situations (e.g. Ploetzner et al. 1999), actually finding such explanations (*qua* individuals' expressions of their problem-solving processes) in communicative interactions is problematic. Explanations can rarely be analysed as discrete segments of interactions: they are usually processes underlying extended sequences. Explanation is an interactive contextual reconstruction, rather than an expression of problem-solving processes that occurred in an individual's mind (Baker 1999). A second example of lack of correspondence between postulated learning processes and interactive processes can be seen in the case of the focus of the socio-cognitive conflict paradigm (Doise & Mugny 1981) on the incidence of verbal conflicts, rather than on their interactive contexts and (possibly) associated argumentative processes (cf. Mevarech & Light 1992).

Of course, not all theories of CL are cognitivist. However, theories such as Cultural-Historical Activity Theory (e.g. Leont'ev 1981; Engeström 1987) and situated learning (Lave & Wenger 1991) suffer from a different problem in this context: the link between theory, model and (interactive) data remains to be established. Although interactive processes such as 'dialogue', 'appropriation in social interaction' and 'negotiation with the situation' are referred to by these theories, precise models (explicitly derived from these theories) of how such phenomena can be identified and analysed in interaction corpora are in their early stages of elaboration (but cf. Wells 2002).

Finally, the major theories of communicative interaction (dialogue, conversation, talk) were of course not specifically elaborated in order to understand learning in interaction. The now classical distinction introduced by Levinson (1983), between 'DA' (Discourse Analysis) and 'CA' (Conversation Analysis) is probably still useful here. DA approaches, commonly based on varieties of speech-act theory (Austin 1962), see dialogue as the expression, exchange and recognition of individuals' mental states; these theories are not primarily concerned with changes in the structure of the (propositional) objects of those states, i.e. with learning. CA approaches see interpersonal interaction as the *locus* of the enactment and re-creation of social practices. Neither is it obvious in this case to create links between the main aspects referred to (such as 'face-saving', 'turn-taking') and learning processes (but cf. the notion of learning as 'interactive meaning making', proposed by Koschmann 2002, from a CA approach).

In summary, there is a need in CL research for both integration of theories of learning and of interaction, and a need for making clear links between any such integrated theory and empirically validated models of interactive processes. Analysing interactions in detail can reveal learning processes not predicted by learning or dialogue theory (as will be described below). The analysis of such processes could in turn have implications for the elaboration of an integrated theory of CL. In other terms, case studies of interactive

learning can provide the new and precise phenomena for which theories must account. This is what I attempt to illustrate in what follows, for the case of a specific type of argumentative interaction: (computer-mediated) pedagogical debates. The problem of understanding the relation between cognitive changes in individuals in relation to interactive processes is here couched in terms of the relationship between two 'rationalities': intrasubjective (concerning individuals, before and after interaction) and intersubjective (concerning dynamic relations between individuals during interaction).

DIALECTICS, RATIONALITIES AND COLLABORATIVE PROBLEM-SOLVING

There is a growing literature on the role of argumentative interactions in CL (for syntheses, see Andriessen & Coirier 1999; Andriessen, Baker & Suthers 2003). This singling out of one type of interaction for special attention is understandable given the fact that its very *raison d'être* is to attempt to establish what should be accepted and believed, by exploring logical and conceptual foundations of views (see Asterhan & Schwarz *this volume*), reflecting on and explaining them.

One specific approach to argumentative interaction analysis, termed 'pragma-dialectics' (Barth & Krabbe 1982; van Eemeren & Grootendorst 1984), aims to bring out the pragmatic and logical dimensions of argumentative moves in dialogue games (games that have rules, legal and obligatory moves, and clear means for determining outcomes). Intersubjective rationality, in this case, bears on what must be and has been publicly accepted or conceded in the argumentative dialogue game, and as a function of it. Intrasubjective rationality concerns the changes that occur in individuals' views (arguments, values, opinions) outside the dialogue itself, as a function of its intersubjective rationality. Trognon (1993) has pointed out that learning in-and-from dialogue (cf. also Trognon & Batt 2003)[1] must be distinguished from the kinds of cooperative learning that can occur well beyond the dialogue itself. To that extent, intersubjective rationality can be seen as relating to learning in dialogue, and intrasubjective rationality seen as individual learning, although it operates within dialogue can best be analysed outside it, given that by definition, dialogue involves mutual influence and co-construction of meaning. By rationality, I just mean a coherent relationship between values, beliefs, reasons, opinions and goals, aiming for what is achievable, having reasons for opinions, attempts to avoid contradiction, not having opinions if one only has reasons against them, and so on.

As will be described, the specific dialectical analysis presented here (based on the approach presented in Baker, 1999, 2002, 2003) reveals on one hand, an inexorable intersubjective rationality in students' dialogues, and on the other hand, a quite different and surprising intrasubjective rationality.

A straightforward relation between the two types of rationality referred to previously would be where refuted proposals are no longer believed, successfully defended proposals are believed, and inconclusive argumentative outcomes lead to no change in belief: but then would anyone imagine that human beings are quite so straightforward...? Supposing that such a completely general theory of these kinds of changes in belief could be elaborated (e.g. Harman 1986), it would have to be strongly tied into to what is at stake in the situation, to individuals' characteristics and to the nature of the referent being discussed (Golder 1996). For example, claims concerning putative facts that would not make an important difference to people's lives are not discussed in the same way as claims about what should or should not be done in cases that touch upon high economic, ethical and personal stakes.

When adolescent students are trying together to solve exploratory school science problems that go beyond their present degree of understanding, in such situations, personally important ethical issues are rarely at stake, and — as a principle of pedagogical design — the students' knowledge is assumed to be in the process of elaboration. This means that such dynamically evolving knowledge can and will not usually give rise to firm conviction of the kind that underlies adversarial argument; rather, it will produce a cooperative exploration of a dialogical space (Nonnon 1996), in which 'friable' (my term) beliefs may be expressed and quite quickly dropped, where students may argue against an idea they only very recently proposed themselves (Baker 2002).

Across several situations of cooperative solving of exploratory scientific problems by secondary school students, I showed (Baker, 1996, 2002, 2003) that the relation between inter- and intrasubjective rationalities is most often characterised by *weakening of conviction*: if students were in favour of, or undecided with respect to an intermediary problem solution, the argumentative dialogue led them to become undecided or

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[1] For these authors, learning in-and-by dialogue is analysed "a process by which a speaker integrates in the set of his propositions an inference that he has constructed using a 'thesis' of his interlocutor as an hypothesis" (Trognon & Batt, 2003, p. 403). [my translation].

else to reject that solution, respectively. This was in fact expressed by one of the students in the corpus analysed in de Vries, Lund & Baker (2002): 'since we debated it, that means that it can't be right'. Once doubts are raised in a situation where 'no-one really knows', confidence is easily eroded. Furthermore, such erosion of confidence is of course associated with counter argumentation: a single counter-argument is often sufficient for students to put aside a possible solution, whereas many positive arguments may be required for a doubtful proposal to be collectively accepted (Miller 1987). Notwithstanding, in all these cases, the students' changes of attitudes were expressed during the dialogue itself (using a specially designed Computer-Mediated Communication interface); so it seems quite possible that changes in personal opinions (intrasubjective rationality), outside the dialogue itself, could be quite different from those occurring under the stringent constraints of coherence imposed by intersubjective rationality.

In this chapter I consider students' debates about a somewhat different kind of school problem, one that does in fact impinge upon students' everyday opinions about what should or should not be done on a societal level. Their debates concerned the question of whether or not the production and use of Genetically-Modified Organisms (GMOs) should be authorised (in France). This debate, on a societal and personal level, touches on fundamental issues such as health, solving problems of hunger in the third world and what is 'natural' in terms of human beings and the environment. As well as scientific, economic and environmental viewpoints on this question, students also have deep-seated personal views at stake here: how, therefore, will their intrasubjective rationalities function in this case, with respect to the intersubjective rationality of the debate?

The analysis of a specific (CMC) debate on GMOs presented below shows how one student, who initially expressed a neither-for-nor-against opinion about the question being debated, came to realise more clearly what she herself thought. In the dialogue, all her *pro* arguments were refuted, and she accepted several counter-arguments to her view. But this did not 'tip the balance' in her mind to being against, neither did she retain her initial opinion; to the contrary, the debate forced her to reflect, and realise what she in fact thought. Beyond the dialogue itself, she 'tended towards being in favour', whilst nevertheless recognising the existence of counter-arguments, whose validity was nevertheless not definitively proven (the debate concerned GMOs, whose effects on the biosphere are not yet known). This is the opposite process to the weakening of conviction mentioned earlier: this student became in favour of a view given that her arguments for it were precisely refuted. That is a rather subtle and surprising change in view to be accounted for in theoretical terms.

In what follows, I present the educational situation, the changes in views before and after debate, and then attempt to explain the latter in terms of dialectical characteristics (arguments for and against theses, together with argumentative outcomes of sequences) of the debate itself. In the penultimate section, I mention some limits of a dialectical approach to argumentation analysis: in corpus analysis, one often finds things that one was not initially looking for. The limits concern phenomena relating to discourse genres, and their roles in intrasubjective rationality, seen from a dialogical perspective (Bakhtine 1977; Wertsch 1991). The specific relation described here between intrasubjective and intersubjective realities constitutes a new datum for integration of theories of learning and of interaction; the proposal for articulating dialectical theory and dialogism concerns integration of theories of the elaboration of cognition in and by dialogue.

THE SITUATION

The CHAT interaction, together with the students' pre- and post- debate texts, that will be analysed below (translated by the author from the original French) was recorded as part of work of the EU funded SCALE project[2], by the CNRS-Lyon team (Baker, Quignard, Lund, Séjourné 2003). The learners were secondary school students (17 years old), specialising in socio-medical studies. Using a CHAT system, they were asked to debate in (friendship) pairs the following question: 'should the production of Genetically Modified Organisms (GMOs) be authorised or not?'.

The 6-hour teaching sequence, elaborated in collaboration with the teacher, was organised in four phases:

1. *Training*, on fundamentals of argumentation (arguments, opinions and theses) and on use of the DREW[3] Computer-Supported Collaborative Learning tool (Corbel & al. 2003);

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[2] SCALE : (IST-1999) (Internet-based intelligent tool to Support Collaborative Argumentation-based Learning in secondary schools (http://:www.euroscale.net ; http://drew.emse.fr).

[3] Dialogical Reasoning Educational Webtool: http://drew.emse.fr . DREW contains a large variety of CSCL tools, including argument graphs and structured CHAT; they are not our concern here.
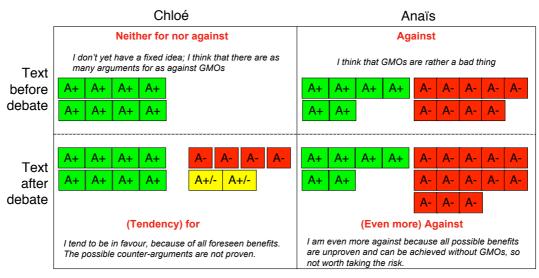
2. *Preparation* for debating: students were given information to read (around 12 pages of text) containing information and viewpoints about the GMO issue, that were carefully balanced in terms of social actors (Research Ministry, Greenpeace, grain producers, citizen organisations,) and pro/contra arguments across different epistemological viewpoints (scientific, economic, environmental, health, ethical); students were given a table to use for taking notes, containing cells for pro and contra arguments with respect to each social actor and epistemological viewpoint; they were asked individually, during 30 minutes, to write a short text (that we term a *pre-text*) of around two thirds of a page expressing and arguing for their personal opinions on the question;

3. *Debate* in dyads using a CHAT tool, at a distance (opposite ends of a large computer room, with partners separated by a curtain); the debate lasted approximately 45 minutes; students were asked to synthesise the main points of agreement and disagreement during the last 5 minutes;

4. *Consolidation* of what was learned from the debate: students were asked to take their original (computer typed) texts and update them so that they better reflected their argued opinions, 'in the light of the debate'. They had 30 minutes in which to do so.

THE CASE STUDY AND ITS ANALYSIS

Comparative analysis of pre- and post-texts

We asked students to revise their initial texts after the debate because asking them to write a new text would not have been acceptable from the teacher's point of view: why ask the students to write a completely new text on a topic when they have already written one? It is of course questionable as to whether the students' texts 'truly' reflect 'what they really think' (cf. Edwards 2003), and of course they do not, entirely (supposing that the question of what they 'really thought' is meaningful). We viewed them simply as authentic productions in a genuine pedagogical setting (with their teacher present, of course, who would mark their work), and as such as providing ecologically valid yet necessary fragmentary indications of what students thought.

The two 17-year-old girl students whose work is analysed here have been renamed 'Chloé' and 'Anaïs'. Figure 1 presents a comparative analysis of opinions and arguments expressed in of students' texts, written individually before the debate and subsequently revised (again individually) in the light of that debate.

In the boxes, 'A+' represents an argument, 'A-' represents a counter-argument, 'A+/-' represents a statement that is partly both a pro and a contra argument.

Figure 1 Comparative analysis of arguments and opinions expressed in students' texts written before the debate and subsequently revised in the light of it.

In her text written before the debate, Chloé only wrote arguments in favour of GMOs: for example, that they could improve nutritional quality of foods, enable production of new vaccinations, solve problems of famine in

the third world, reduce use of polluting pesticides and enable more stable supply of commodities in economic terms. In her post-text, she basically added counter-arguments against GMOs, for example, that they could penalise macrobiological agriculture, lead to new allergies, that there was a risk of unpredictable damaging effects on the biosphere, and that it was not a good thing to tamper with 'Nature'.

Anaïs argued mostly against GMOs, before and after the debate, whilst conceding certain possible positive effects of them. For example, she wrote that whilst quality of some foods could be improved, they would lose their taste; Nature should not be tampered with given that positive effects had not been proven; nearly all supposedly beneficial effects could be obtained without GMOs, so why take the risk of using them?

In her final text, Anaïs added more counter-arguments, some of which were refined versions of her previous ones.

From Figure 1 it can be seen that:

- *Chloé* expresses a neutral opinion about GMOs in her pre-text ('I don't yet have a fixed idea, I think that there are as many arguments for as against GMOs'), whilst expressing only arguments in favour of them (N = 8). In her post-text, her opinion is a concessive 'for': 'the few arguments against must nevertheless be taken seriously, but my opinion tends towards accepting them [GMOs]'. This change of expressed opinion is associated with addition of four counter-arguments to her text, and two conditional arguments ('in favour, provided that …').

- *Anaïs* was against GMOs from the start — 'I think that GMOs are a bad thing' — and remained so after the debate, whilst conceding the existence of pro arguments: 'I'm still against GMOs, even though there could be some progress for medicine'. She adds more counter arguments to her text at the end.

Explaining changes by analysing the interaction

To what extent and in what way is the intersubjective logic of the interaction (a debate) between the students responsible for the intrasubjective changes discussed above (shown diagrammatically in Figure 1)?

Explaining why students acquired certain arguments appears relatively simple. As the first dialogue extract, shown in Table 1 illustrates, the reason why Chloé added counter-arguments to her text was simply that she conceded them all.

Table 1 First dialogue extract

L	T (hh:mm:ss)	Loc	CHAT message
46	09:44:03	Chloé	but tell me i think you're against so explain why to me will you?
47	09:44:26	Anaïs	because it's bad for the human organisms
48	09:44:55	Chloé	answer me
49	09:45:11	Anaïs	and if we start with plants in 10 years at least it will be human beings' turn
50	09:45:38	Chloé	to be modified?
51	09:46:02	Anaïs	yeah sure maybe we'll even be cloned
52	09:46:19	Chloé	yes it's true but ya know i am totally against cloning any individual
53	09:46:33	Anaïs	so am i of course

For example, Chloé added the counter argument 'could lead to cloning humans' to her text at the end of the debate because she conceded it in the dialogue. In these cases of conceding counter-arguments, the link between inter- and intra-subjective rationalities seems direct: a conceded counter-argument is added to the individual's view. This does not necessarily imply that the argument is genuinely or deeply believed.

Furthermore, all of Chloé's own *pro* arguments were refuted by Anaïs, as the dialogue extract shown in Table 2 illustrates.

Table 2 Second dialogue extract

L	T (hh:mm:ss)	Loc	CHAT message
41	09:41:04	Chloé	there'll be a better production thus less famine
42	09:41:35	Anaïs	yeah but if it's bad for the organism, then it comes down to the same thing
43	09:42:13	Chloé	it will maybe permit us to create vaccinations against mucovicidose and i think that that is maybe a good thing
44	09:42:58	Chloé	there'll be - pollution and this is essential if we don't want to die
45	09:43:00	Anaïs	yeah but they can create it without making all food and the rest genetically modified

As for Anaïs, as we have seen, however briefly, she has refuted all of her partner's *pro* arguments, so there is no reason for her to accept them, and she does not.

Later on in the dialogue, the students agree on an 'argument from ignorance', or 'argument from precaution': nothing has been proven either way that the good or bad effects of GMOs will actually occur (see the third dialogue extract in Table 3).

Table 3 Third dialogue extract

L	T (hh:mm:ss)	Loc	CHAT message
54	09:48:07	Chloé	why are you against GMOs? Isn't there a single positive argument in your opinion?
55	09:48:33	Anaïs	phhh maybe but nothing has been proved
56	09:48:46	Anaïs	for the vaccinations nothing has been proved
57	09:50:08	Chloé	it's obvious that these are nothing but hypotheses at the moment but imagine just one instant if it worked don't you think that it would be a great step for mankind?
57	09:50:08	Chloé	yeah but they can succeed otherwise until now how have we done

This is crucial in explaining Chloé's concessions of counter arguments in her final text, since thanks to this global 'who knows?' argument, she was able to minimise the importance of such counter arguments. In the case of Anaïs, *mutatis mutandis*, supposed benefits are not proven, so this gave her a further confirmation of her refutation of pro arguments.

In summary, Anaïs' change in opinion seems quite straightforward: she refuted the *pro* arguments, and agreed that they were not proven anyway. She was against before the debate, and so has no reason to change her own view as a function of the dialogue, other than to consider it to have been reinforced.

The most interesting change takes place in Chloé's view. Before the debate she said she had no firm opinion either way, yet only expressed *pro* arguments: it appears that she was really *pro* GMOs but did not realise or recognise it. After the debate she took counter arguments into account, and in some sense ignored the refutation of her *pro* arguments. She was able to do this because she had a general defense of the type 'no one really knows'. The debate, however, made her stop 'sitting on the fence' and recognise that she was in fact in favour of GMOs: refutation of her view did not make her *against it*, but rather made her recognise that she was *in favour* of it.

This seems intriguing, and worth exploring. Suppose that the opinion of a person, X concerning an important question is not clear (for example, the question debated in schools, cited in Tozzi, 2000: 'supposing medical research made it possible, should men be allowed to bear and give birth to children or not?'). Suppose X states that she has no firm opinion on the matter and debates the question with Y; yet X proposes only arguments in favour (here, allowing men to give birth to children), and concedes that Y has refuted all of them. One might expect the undecided X to therefore become against the issue discussed. But suppose — as we saw here — X therefore becomes in favour? What does that say about the possible relationships between intra and intersubjective rationalities, about the influence of others' arguments on what we think? Does argumentation make any difference to what people think about questions that are important to them? If it does not, then, … why argue? I shall not try to answer these far-reaching questions here. Simply, I would like to propose that any answers to these fundamental issues put at stake the very idea, in CL research, that discussions between students can change what they fundamentally think in relation to the specific characteristics of interactions themselves.

LIMITS OF THE ANALYSIS: FROM THE DIALECTICAL TO THE DIALOGICAL

There is something missing from the dialectical analysis that has just been presented[4], however operational it might appear to be in explaining intersubjective rationality. That 'something missing' concerns what was said in the debate but was *not* added to the texts at the end; it concerns the dialogical dimension of *discourse genres* (Bakhtine ibid.; Wertsch ibid.) relating to school and to adolescents' everyday speech and experience, rather than the content and logic of arguments, the outcomes of debates.

In the early part of the debate, the students appeared to be largely repeating arguments they had read in the previous text providing information on social actors' views on GMOs: in Bakhtinian terms, this is 'ventriloquating' the school discourse genre. This can be seen from the second dialogue extract (Table 2), where one student seems to be simply listing such arguments.

Once these had been refuted, then the debate got off the ground and the students moved on to discussing the topic in terms of a more personal discourse genre (se the fourth dialogue extract in Table 4), mentioning body piercing and makeup (these are two adolescent girls of 17 years of age).

Table 4 Fourth dialogue extract

L	T (hh:mm:ss)	Loc	CHAT message
94	10:08:12	Chloé	look it's like body piercing in the beginning everybody was against it but then people changed their minds
95	10:09:16	Anaïs	yes that's a fashion it's not the same this is nature that's on the line and the human organism
96	10:09:48	Chloé	i am for j300% in the only case that it doesn't cause any problems but they have to be sure 600%
97	10:10:21	Anaïs	no i'm against 1000
98	10:10:32	Anaïs	%
99	10:10:51	Chloé	you put make-up on though so that's not natural it's more or less the same
100	10:10:56	Anaïs	i am for
101	10:11:11	Anaïs	no it doesn't go into the organism*
102	10:11:34	Chloé	we gotta stop so see ya big kisses bye

Whilst discussion of body piercing and makeup might not at first sight appear to be relevant to learning about GMOs in school, this change of discourse genre is in fact important for conceptually-based learning. What the girls are touching upon here, but are not discussing in any depth, is the whole pedagogical aim of the teaching sequence: arriving at a better understanding of the concept of *Nature*.

It is possible that the girls did not take this discussion into account in their final texts precisely because they thought it was not part of the school discourse genre. Yet, this was a 'missed opportunity' (Baker & Bielaczyc 1995) for deepening conceptual understanding that a teacher could possibly have built on.

Cooperative learning, in these terms, can be theorised as a problem of achieving a new coherent discourse genre that integrates yet distinguishes the nature and situational relevance of two others: school and personal everyday life.

CONCLUDING DISCUSSION

Although it is of course not possible to generalise from a single case study, the analysis presented here provides an opportunity for discussing the extent to which alternative theories of learning and interaction can account for its results. This is what I shall discuss in conclusion.

Clearly, people do not drop their beliefs just because their arguments in favour of them have been refuted. When they are not clear about what they think, refutation of their *pro* arguments can in fact make them understand that they are really *in favour* of their intersubjectively refuted standpoints.

This suggests a three-fold relationship between inter- and intra- subjective logics in argumentative interaction:

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[4] For our purposes here, the fact that this is spoken French written down in a quasi-sms or MSN style will not be discussed.

1. In the first instance, the intersubjective logic of dialogue and acceptance (Hamblin 1971; Cohen 1992) requires that individuals at least *concede the hypothetical validity* of arguments contrary to their own views.

2. In the second, it is usually possible, in any domain that is by hypothesis debatable, to find *strategies for minimising the import* of views that are contrary to one's own.

3. In the third, the two previously mentioned processes could lead to a *zoom into awareness* of one's own view. This can be seen as a type of *knowledge restructuring from collective reflexive activity*.

Whether argumentative interaction involves refutation or defense does not always appear to be what is most important. What does seem to be important is that — almost irrespective of the dialectical characteristics of the argumentative interaction — the interaction is *intensive* and *stimulates reflexion*. Such reflexion can enable students to *realise what they think*. We should also be wary of simplistic and bipolar analyses of attitudes as either for or against. For example, we have seen more subtle and complex attitudes, such as 'tending towards acceptance whilst recognising contrary views that are nevertheless not yet completely proven.' With respect to pedagogical objectives, overcoming entrenched for/against positions, gaining understanding of opponents' views that are nevertheless relativised, knowing what one really thinks, achieving greater argumentative coherence and an opinion with more *nuance*, can all be seen as certain degrees of 'progress', or collaborative learning.

But the point of argumentation-based cooperative learning is not necessarily to change students' beliefs or other attitudes, but rather to get them to broaden and deepen their views, to make them more reasoned and reasonable, to enable students to know of and understand others' views, to reflect upon them and (sometimes but not always) respect them as worthy of debate. We have seen that is not necessarily (counter-)argument that makes beliefs change: so what does or might? Probably, we need to get beyond arguments, opinions and theses in order to address this question, and consider underlying *value systems*. For instance, in the case-study analysed here, we can discern a general "ecological save-the-Earth" ideology (I mean the term 'ideology' in a non-pejorative, purely literal sense of a *logos*, or rational system of ideas and values), as well as a 'scientific progress is intrinsically a good thing' ideology. Value systems do not change because of a few exchanged arguments, but for other reasons relating to forms of life, that will not be discussed here. Even in this case, the point of dialectical educational situations is perhaps not necessarily to change values and ideologies at all, but precisely, to encourage students to understand, respect and take others' views, values and feelings into account, to accord each other *ethical consideration* (Allwood, Traum & Jokinen 2000), from a more clear and coherent personal viewpoint.

It also seems necessary to go beyond analysis of arguments in another way, looking at discourse genres and the social settings in which they are anchored. We have also seen that adolescents' everyday life discourse genres can contain potential for deepening conceptual understanding. To that extent, argumentation-based pedagogy is not only for a *bourgeois* intellectual elite, but rather for all students from all *milieux*, whose everyday-genre communication in school can be taken as providing potential for scaffolded learning.

In introduction, I stated that CL research requires deeper theoretical integration. I have presented a datum for such theoretical development, and discussed why a cognitive-linguistic theory (pragma-dialectics and revision of cognitive attitudes) needs to be extended to integrate a dialogical theory of discourse genres. Detailed analysis of further case studies is required, within an inductive approach, in order to establish the right experimental field for theorisation.

But the explanations and interpretations of interactive phenomena I have proposed here, turning on the essentially cognitive notion of *reflexion* leading to realisation of what one thinks, are certainly not the only possibilities in this case. It would also be possible to explain Chloé's position of being in favour of GMOs in terms of research in social psychology on the phenomenon of *polarisation of attitudes* in groups[5] (Moscovici & Zavalloni 1969): Chloé's attitude could have moved to 'for' because the attitude of her interlocutor, Anaïs, was (almost dogmatically) that of 'against'. Essentially the same phenomenon has been described in linguistic theories of communicative interaction (e.g. Vion 1992), but in terms of *reciprocity of interactive roles*: speakers who occupy certain roles in interactions (such as 'opponent', in a debate) implicitly constrain their interlocutors to adopting the 'remaining' or 'corresponding' roles (such as 'proponent'). Thus, Chloé was in some sense 'forced' into defending GMOs simply because Anaïs so adamantly opposed them. And yet, I do not think that these two latter explanations are alone sufficient: if Chloé had been genuinely against GMOs, she could have said so, she was not *a priori* forced to be in favour of them, unless she in fact was,

unless, in the literal sense of the term, she was simply playing a (dialogical, educational) 'game' that had no genuine relation to what she thought (c.f. the role of devil's advocate). Social dynamics may constrain people to adopt certain roles and attitudes, but this does not obviate the intra- and inter- subjective requirements and obligations for reflexion, justification and … argumentation.

Rather than deciding to choose between these alternative theoretical approaches to explaining how attitudes and ideas are transformed in communicative interactions, another possibility is to search for integrating them into a new theoretical approach: that is what I have at least argued for in this chapter. Such a research programme represents a major and stimulating challenge for CL research; and yet it can not be carried through successfully whilst attempting to bypass some of the most fundamental problems in social sciences, concerning the relations between language and thinking, the cognitive and the social, the individual and the collective.

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