

European Science Foundation, Exploratory Workshops: 2008 Call for Proposals  
Request for funding an ESF Exploratory Workshop  
Scientific field: Social Sciences

## ***Extract from proposal, sent in April 2008***

Title of the workshop:

**“Social, cognitive and affective dimensions of collaborative learning interactions: towards an integrated analysis”**

Proposed dates:

**25-27 May 2009**

Location of the workshop:

**Paris (F)**

Université Paris 5 (Sorbonne)

Principal applicant and organiser:

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## Workshop title

“Social, cognitive and affective dimensions of collaborative learning interactions: towards an integrated analysis”

## Proposed dates and location of the workshop

### *Proposed dates*

25 -27 May 2009

The workshop will start at 14:00 on Monday 25<sup>th</sup> May 2009, to allow participants to travel to Paris in the morning, and will end at 13:00 on Wednesday 27<sup>th</sup> May 2009, to allow participants to leave on that same afternoon, i.e. two nights' stay required, for a workshop of 2 days' duration.

### *Proposed location*

Paris (France)

University Paris 5 (Sorbonne)

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## Keywords relating to the proposed workshop topic

Cognition • collaborative learning • interaction analysis • social relations • emotion

## Abstract of the proposed workshop topic

This workshop will explore theoretical and methodological foundations for an approach to analysing communicative interactions produced in collaborative learning situations, integrating social, cognitive and affective dimensions of activity. Specialists in educational sciences, linguistics and psychology will elaborate the common approach by confronting analyses along different dimensions, partly on a common interaction corpus. The workshop will give rise to a common book publication, and response to the HERA JRP call, 2009.

## The case for an exploratory workshop

*Aim, motivation, interdisciplinarity, exploratory, innovative character*

The aim of this workshop is to bring together specialist researchers from across Europe to lay the theoretical and methodological foundations for **an integrated approach to analysing communicative interactions produced in collaborative problem-solving and learning situations**. The approach should provide precise criteria for the analysis of **social, cognitive and affective dimensions of communicative interaction**, show how the phenomena analysed relate to collaborative learning in and by interaction, and — above all — integrate these dimensions within elements of a unified theoretical-methodological framework.

In order to achieve this, it is proposed that researchers will, in addition to presenting and confronting their theoretical frameworks, present and compare analyses along different dimensions of *a single common corpus of interactions* (already collected by workshop participants). Elements of analyses will be requested before the workshop, aligned and then redistributed, as a preparatory exercise.

Studying the interrelations of cognitive, social and affective dimensions of interactions requires an **interdisciplinary approach in social sciences**, with contributions from, and collaboration between, researchers in different social science disciplines that study structures and processes of communication and learning in interaction. This workshop will bring together specialists in educational sciences (studying the socio-institutional context of learning), linguistics (linguistic interactionists, conversation analysts, working on the roles of social relations and identities in interaction structures) and (social, cognitive) psychology (working on emotion and interactive knowledge elaboration). Such an interdisciplinary approach is essential in this case, given that each dimension has been studied principally within different disciplines, with each attempting to take into account to some extent research from other fields. What is required is to bring such specialists together, in this case, to explore the problem of understanding collaborative learning across different dimensions.

Although it has long been argued that social interaction is the motor of cognitive development (Vygotsky, 1986), that cognitive and social dimensions of human activities are theoretically and empirically two sides of the same coin (e.g. Perret-Clermont, Perret & Bell, 1991), that (non-)human reality is a social construction (Berger & Luckmann, 1966; Edwards Ashmore & Potter, 1995), and that human thinking can not be effectively studied without taking emotion into account (e.g. Cosnier, 1994), attempts to integrate research on cognitive, social and affective dimensions of interactions between human beings remain to this day largely theoretical, exploratory, or programmatic (see, e.g. Andriessen, Baker & van der Puil, *in press*, on tension-relaxation in collaborative learning interactions). Although the classic work of Bales (1950) on interaction process analysis includes explicit categories for interventions that

increase and release tension in groups, this work has not been followed by precise criteria for identifying the types of communicative actions that relate to the expression and empathetic circulation of emotion in interaction.

Recent research on collaborative learning (e.g. Dillenbourg, 1999) increasingly insists on the study of the processes by which new knowledge emerges from interactions between students, in order to interpret experimental results on learning effects, develop new theories and design educational situations (particularly those involving educational technologies). In order to understand the sequential processes of collaborative learning (Gilly, Roux & Trognon, 1999), i.e. the way in which knowledge emerges as the interaction unfolds, it is essential to understand why students say what they do, when, in response to what and whom.

For example, a student "B" who gives reasons against a problem solution proposed by student "A", not only realises an action on a cognitive dimension (e.g. invalidation), but also on a social plane (attack on A as a person whose ideas are worthy of consideration), that will necessarily be emotionally charged (A may be offended). In order to understand A's communicative action in reaction, it is essential to consider social and emotional dimensions, as well as cognitive ones. An emotionally charged response by A, having understood a "face-threatening act" (Brown & Levinson, 1987) is likely to elicit a similar or more accentuated emotional action, and so on. Such processes clearly influence the nature of knowledge that will be co-elaborated and possibly internalised (learning): social identities, interpersonal relations, emotion and affect, knowledge elaboration, are inextricably interrelated; the study of which relations constitutes the principal aim of this workshop.

The study of communicative interaction in collaborative activities becomes particularly important in contemporary society given the way in which new information and communication technologies (such as Internet CHAT, videoconference, mobile phones and other devices) have profoundly modified social relations and communicative interaction over the past ten years, and the fact that such technologies are increasingly used in education (cf. the emergence of the scientific field "CSCL: Computer-Supported Collaborative Learning", together with its learned society [<http://www.isls.org/>], journal [<http://ijcscl.org/>], and international conference [<http://www.isls.org/cscl2007/>]).

Educational psychologists studying collaborative learning, conversation analysts studying, linguists studying dialogue and psycho-linguists studying emotion, need to cooperate in exploring complementary understandings of collective human activities and the new knowledge that emerges from their realisations: this workshop is intended to be a unique forum for such collaborative research.

### *Scientific background*

Collaborative learning is the learning that takes place as a result of group work on solving problems designed to promote learning, or more precisely as a result of *collaboration*, a "coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem" (Roschelle & Teasley, 1995). Such a coordinated, synchronous activity requires (in the absence of perfect common knowledge) *communicative interaction*, in order to share and agree on ideas, strategies and solutions. Thus the emergence of the "interactions paradigm" (Dillenbourg, Baker, O'Malley & Blaye, 1996) in collaborative learning research, from the end of the 1990s, seems retrospectively hardly surprising. However, this paradigm, that aims to understand the relations between characteristics of educational situations, interactive processes and types of learning, was born from the recognition that it was difficult to understand and generalise experimental results without more local models of collaborative learning (Mandl & Renkl, 1992). From the 1980s onwards, researchers in cognitive science working in the field of education had gradually shifted their dominant object of study from the disembodied individual cognitive information-processor to the

embodied social actor, working in teams with their artefacts. Such a shift from individual to group and collectivity was motivated by so-called 'external' factors, such as globalisation's requirement for distant team work in diverse societal domains (politics, commerce, education, ...), concomitant with the rise of Internet-based communication technologies, as well as by factors 'internal' to social sciences — the "situated cognition/learning" (e.g. Lave, 1988) critique of so-called classical cognitivism, as well as the rising influence of Vygotsky's work (translated into English in the late '70s and '80s: Vygotsky, 1978, 1989). Such a clash of paradigms paved the way for the emergence of a set of theoretical approaches — cultural-historical activity theory, socially-shared cognition, distributed cognition, ... — whose family resemblances reside in the attention paid to the roles of communicative interaction in artefactually-mediated collective activities. Within research on communicative interactions ("dialogue", "conversation", "verbal interaction", "talk", ...) itself, a parallel broadening of the object of study has occurred, beyond the study of speech acts in dialogue (dialogue acts), to include consideration of emotion, affect, gesture, social identities, discourse genres (Wertsch, 1991).

The elaboration of such new theoretical approaches has presently gone largely beyond their grounding in empirical data, the 'reality' of what actually occurs in social interactions between persons. What are the precise features of communicative interactions that indicate threat to, confirmation of or change in interpersonal relations? How do such processes influence problem-solving? What exactly is the epistemological status of "socially shared" cognition?

Some progress has been made, however, in identifying "types" of interactions that favour collaborative learning, from alternative theoretical points of view. For example, following the neo-Piagetian "socio-cognitive conflict" theory (Doise, Mugny & Perret-Clermont, 1975), results are accumulating on exactly how the resolution of verbal conflicts by argumentation can promote different types of conceptual learning (e.g. Baker, 1999; Leitao, 2000). Although the mechanisms by which learning on a cognitive plan takes place in relation to such conflicts have been theorised as stimulated by socio-relational pressures (subjects will be less inclined to avoid recognising contradictory evidence in presence of others) and emotional tension (to resolve cognitive dissonance), the precise way in which such socio-cognitive-affective processes unfold in interactions remains to be elucidated. Within linguistic pragmatics, advances have been made in understanding how "facework" (Brown & Levinson, *ibid.*) relates to resolution of verbal conflicts in conversation (Muntig & Turnbull, 1998).

Argumentation is closely related to explanation, to the extent that interactants may be required to explain the reasoning underlying their proposals in order to defend them, once they are criticised. Here, the "self-explanation effect" (e.g. VanLehn, Jones & Chi, 1992), according to which subjects who explain their problem-solving have superior learning to those who do not, can work in interactive contexts (Ploetzner, Dillenbourg, Preier & Traum, 1999). In this case, the relations between cognitive, social and emotional factors are apparent: request for explanation (as a cognitive process) can be experienced as a personal criticism or "attack" (socio-relational), associated with heightened emotional tension.

Emotional factors of collaborative problem-solving interactions also relate to *meta*-cognition (cognition about one's own or others' cognitions) and *motivation*, to the extent that many students may not be able to apply effective learning strategies in the face of difficulties, and may thus become dispirited and 'give up' (Winne & Jamieson-Noel, 2002). Effective "emotional regulation" in social interaction has been shown to be crucial in achieving problem-solving goals (Boekarts, Pintrich & Zeidner, 2000). More generally, there has been little research on motivation conceptualised as a dynamic *process*, and even less on how regulation of motivation is represented both as a mental state and a dynamic process. (cf. e.g., Leinonen & Järvelä, 2006).

A further, and more ubiquitous, phenomenon of social interaction that has been shown to relate to collaborative learning is “grounding”, as described by the psychologist H.H. Clark (Clark & Shaefer, 1989; Clark, 1996), designating the set of processes by which interactants attain mutual understanding, or the mutual belief that they have each understood what their partners mean, to a degree sufficient for current purposes. For example, Barron (2003) has shown that superior learning effects occurred in groups that manifested mutual understanding and uptake of each other’s proposals. Yet in order to be operational in collaborative learning contexts, the notion of grounding itself needs to be extended beyond cognitive representations of problem solutions, to embrace interactive alignment on a linguistic plane (Garrod & Pickering, 2004), emotional empathy and the influence of a (non-)shared cultural background (Baker, Hansen, Joiner & Traum, 1999). Research carried out within the framework of discursive psychology (e.g. Harré & Gillet, 1994; Edwards, 1997) in fact establishes a close link between interactive discourse and emotions, conceived as as a culturally and historically situated phenomena, to an extent that collapses the distinction between the two (emotional expressions are themselves rhetorical or discursive acts).

In sum, advancing contemporary research on collaborative learning requires exploring the possibility of integrating research on different dimensions — cognitive, social (and socio-relational) and affective — of communicative interactions, in relation to use of communication artefacts. Research on cognition, collaborative learning, social relations and emotions is carried out in relatively separate research communities, although partial overlaps exist (cf. e.g., Plantin, Doury & Traverso, 2000, in which an interactionist approach in linguistics deals with emotions, and classical work on expression of emotions in groups with different leadership styles, of Lewin, 1948). No scientific meeting (or publication) to this day has addressed the problem of understanding the roles of emotion and social relations in collaborative learning. Exploring such interrelations between areas of study requires bringing together specialists in educational sciences, linguistics and psychology.

It is proposed that discussions should be structured, in part, around confronting analyses of a common corpus of (already collected) collaborative learning interactions. Although researchers from different theoretical points of view identify different objects of study in so-called ‘common’ corpora, and have different units of analysis, the proposed common-corpus approach will at least clearly express such differences, at a deep theoretical level, and facilitate constructive cognitive, social and affective conflict.

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## Expected benefits and outcomes, follow-up research activities

The main expected benefit of the workshop is to advance scientific knowledge, and to open up new research directions, on the relations between social, (meta-)cognitive and affective dimensions of interaction, in relation to processes and products of collaborative learning.

It is anticipated that new avenues for creative theoretical integration will emerge (e.g. between discursive psychology and psychology of interaction, between socio-cultural psychology and developmental psychology, between interactionist linguistics and psychology of emotions, ...), and that way will be paved for the development of new integrated interaction analysis methods.

Participants will be asked to circulate (via workshop organisers) a five-page research summary, together with two pages outline analysis of the common corpus extract.

The research explored during (as well as before and after) the workshop will be published, in a revised and extended form, as a common book, in the “Advances in learning and instruction” series (Pergamon/Elsevier), edited by N. Bennet, E. DeCorte, S. Vosniadou and H. Mandl.

Several participants at the workshop (of which, the co-organisers) will respond to the ESF HERA Joint Research Project call (<http://www.heranet.info/>), within the theme (M. Baker attended the Paris 19 April 2008 “matchmaking” meeting) in late 2008.

