

# Conceptual Change SIG Newsletter

*No 3 – May 2009*

Dear members of the EARLI-SIG on Conceptual Change,

A bit later than expected, we send you hereby the Spring issue of the Conceptual Change SIG Newsletter. With the biennial EARLI conference in Amsterdam upcoming, it is evident that most of the issues dealt with in this newsletter relate to that conference.

We provide – in première ! – an overview of the program highlights of Conceptual Change papers as they are known to us, and with some facts and figures regarding SIG-related submissions. And of course, there are important SIG policy issues such as: who will become our new SIG coordinator when Xenia has retired?

We hope that you enjoy reading the Newsletter, and we look forward to your comments and ideas.

Best regards

Xenia and Wim

[xenva@phs.uoa.gr](mailto:xenva@phs.uoa.gr)

[wim.vandooren@ped.kuleuven.be](mailto:wim.vandooren@ped.kuleuven.be)

## 13<sup>th</sup> EARLI Conference – General

From August 25<sup>th</sup> to August 29<sup>th</sup>, the 13<sup>th</sup> biennial EARLI Conference will take place in Amsterdam, the Netherlands. It will be preceded by a JURE preconference. More information on the conference can be found at [www.earli2009.org](http://www.earli2009.org).

### General SIG Invited Symposium

The invited symposium that will be organised on behalf of our SIG will take place on **Wednesday August 26<sup>th</sup>, between 8.30h and 10.00h**. It is entitled *Designing for conceptual change. Different research perspectives - different educational implications?* It will focus on the instructional implications of research on conceptual change learning. The key question is what nowadays' conceptual change approaches to learning have to offer in relation to instruction. Four distinguished researchers, each starting from a distinct theoretical perspective on conceptual change learning, focus on theory-based and at the same time evidence-supported instructional implications of their approach.

The following contributions are included in the symposium:

**Knowledge in Pieces and Instruction** (Andrea A. diSessa)

**Teaching for Conceptual Change - From the 'Synthetic Models' Point of View**  
(Stella Vosniadou)

**Indeterminate Evolutionary Change of Language during Concept-Mapping Tasks** (Wolff-Michael Roth)

**Conceptual change in educational context** (Erno Lehtinen)

The discussant will be Patricia Alexander

### Future and Vision session

At the last day of the conference (Saturday August 29<sup>th</sup>, at 12.00h), a special SIG-oriented session will be held, where the experiences from SIG members and interested non members can be discussed: new perspectives on future research or important developments, theoretically, methodologically and practically.

It is meant to be an open but moderated discussion, with old and new members, kicked off by some pre-appointed input by members who start off by sharing their experiences and insights. The session will be moderated by the SIG coordinators

**We are looking for members who wish to provide an input into the discussion. This implies that they would share – in 5 minutes or even less – their ideas on various issues.** Examples include:

- How conceptual change is viewed nowadays by researchers in the field?
- What is going on with respect to research in the various curricular domains? Does the SIG gain by proliferating and extending its focus to new domains? Is it desirable to actively explore this issue?
- What about the “warming trend” in conceptual change? Are there new, important developments, theoretically or methodologically?
- Are there important methodological developments that deserve our special attention?
- Are there any areas of research that are active within Earli and relate to the interests of the SIG? Is it desirable to enhance collaboration (i.e. joint meetings, special issues) between our and other SIGs in this respect?

Any issues raised may help us to develop an active policy in the future regarding the organisation of future conferences (biennial SIG meeting, the SIG invited symposium at the EARLI conference, ...) and future SIG related publications.

**Please let us know by the end of May that you are prepared to provide a little input. No matter what your status is, your effort is much appreciated!** If we have an insufficient number of foreseeable contributors, we will cancel this session.

## Submissions within SIG 3 – Facts and Figures

We thought it would be useful to provide you with some facts and figures with respect to the number of submissions to the EARLI conference within our SIG, and about the acceptance rates of these submissions.

Figure 1 provides an overview of the total number of submissions. As can be seen, our SIG situates itself in the lower range of submissions, but for a proper comparison, the number of submissions within each SIG should be related to the number of members. Our SIG currently counts 121 members, but at the moment we don't have access to the numbers of SIG members in the other SIGs.

Figure 1: Total number of submissions (papers, symposia) per SIG

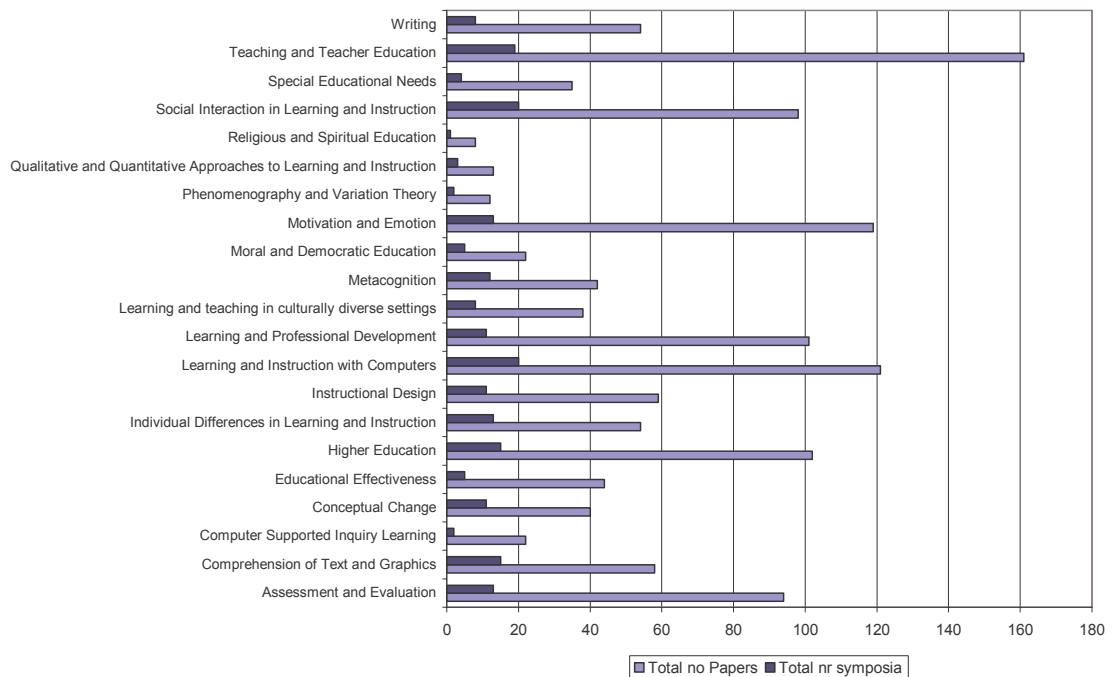
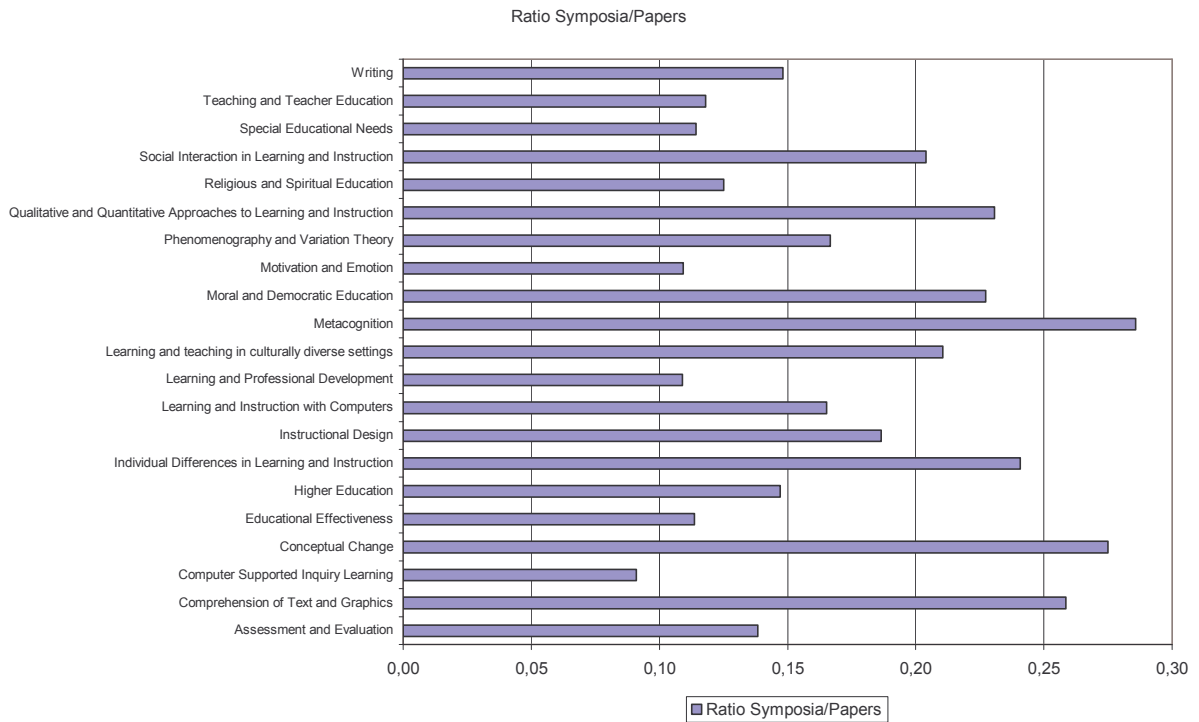


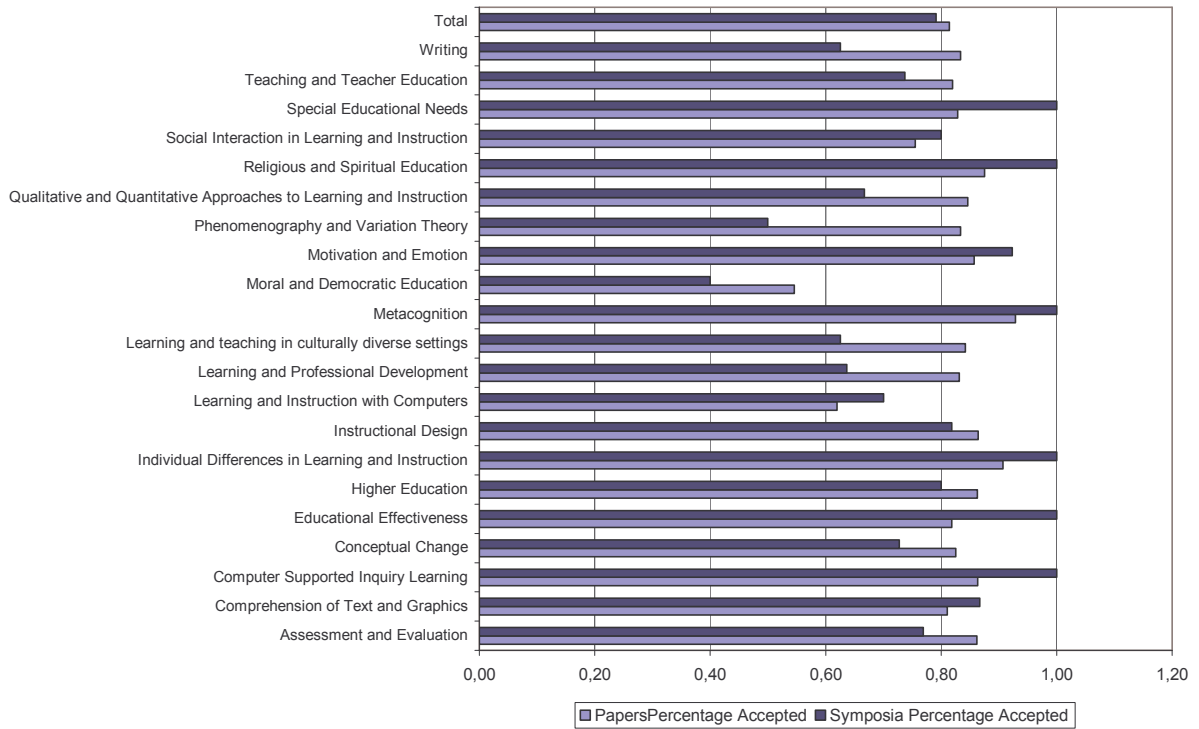
Figure 2 gives the ratio of the number of symposia vs. the number of papers submitted within each SIG. This might be useful as it gives an idea of how “coherent” a SIG is, in the sense that more symposia (vs. individual paper submissions) indicate that people tend to organize their work under common topics, and address wider topics than (merely) their own research. As can be seen in that Figure 2, our SIG here clearly is among the better pupils of the class!

Figure 2: Ratio Symposia/papers submitted per SIG



Finally, and maybe also interesting, Figure 3 provides an overview of the percentage of accepted papers and symposia in each SIG. Care must be taken because some of the percentages relate to very small numbers (see Figure 1), but the figure seems to indicate that our SIG performs moderately well here.

Figure 3: Percentage Accepted (Papers/Symposia)



## Submissions within SIG 3 – A sneak preview

The program of the EARLI conference will appear online before the Summer holidays, but now already, we are able to provide you with information on the SIG-related contributions that were accepted. Below, you can find the titles of the various papers and symposia that were accepted. We did not receive complete and correct information on the authors of the contributions, however.

### Symposia

Transformation of knowledge through classroom interaction

Understanding and Improving Historical Reasoning in the Classroom

Barriers to the Development of Mathematical Knowledge: Just what Kind of Barriers? - Part I

Barriers to the Development of Mathematical Knowledge: Just what Kind of Barriers? - Part II

Acquiring Mathematical Competence: The Roles of Conceptual and Procedural Knowledge

Beyond natural number. Learning other categories of numbers

Methods for interpretation in qualitative research

Analogies and Metaphors as Learning Mechanisms

## Papers

- A Comparative Analysis of a Standards-Based Curriculum and Traditional Textbooks in High School Earth Science among the U.S., Korea, and Japan
- College Students' Understanding of and Reactions to Global Warming
- Learning from science text and conceptual change: The effects of interest, prior knowledge, and text type
- Preschool children's understanding of basic addition principles
- Approach Goals & Conceptual Shifts
- Young children's understanding of mathematical inversion
- The dynamic interpretation of temperature when solving a thermodynamic task - Socioscientific Issues, Argumentation and Conceptual Understanding in Year 10 Genetics
- A cautious note on the "theory of visual emissions"
- Form vs. Knowledge: An investigation of the relationship between the form of and intuitive knowledge in causal explanations
- Influence of Prior Topic Knowledge, Epistemological Understanding and In-Group Identification in Students' Reasoning about a Historical Problem
- Epistemological Understanding as a Factor in Children's Choice of an Explanation or Evidence to Support a Claim
- Teaching for conceptual development and conceptual change in grade 5 and 6 science studies
- Conceptual change and argumentation schemes
- Mastering Abstract Mathematical Symbol Systems
- Appropriating Metaphorical Construals of Energy: A Source of Conceptual Change?
- Peer-interaction in different speech genres as a means to conceptual development
- Just answering ... or thinking? The contrast between pupils' solutions and classifications of proportional and non-proportional word problems
- Primary-school children's conceptions of light and their relation to the historical progression of optics
- Effects of a representational focus on learning in middle school science
- Solving problems: Modelling in the process of conceptual change
- Cognitive processing of refutation text: Evidence from eye movements
- Complex animations: Cues foster better knowledge structures
- Investigating the process of conceptual change: Evidence from eye tracking and off-line interviews
- Uncovering conceptual change processes during reading: An eye-tracking study
- The development of multidimensional reasoning in children
- The impact on teaching practice through adopting a representational approach to teaching science
- Re-interpreting conceptual change learning from a representational perspective: Enrichment or challenge?
- Improving Science Learning Outcome by Integrating 'Language Games' into Ecosystem Teaching
- The role of moral values and knowledge satisfaction in young adult learning about HPV

Evaluating Psychological Data: Misconceptions and Conceptual Change in College Students' Understanding of Scientific Psychology  
Learning to Evaluate the Methodology of Scientific Studies in Middle School Classrooms  
Generalization in children's science explanations

## SIG business

### *New coordinator for 2009-2013*

After 4 years of service, two years together with Gunilla Peterson and two years with Wim Van Dooren, Xenia's term as SIG coordinator is soon to be over.

A new coordinator will be in function next to Wim, after the EARLI conference in Amsterdam. The new coordinator will be elected at the SIG policy meeting in Amsterdam on **Wednesday 25<sup>th</sup> or Thursday 26<sup>th</sup> at 12.00h.**

Currently, we have one candidate for this position: Dr. Michael Schneider. Below, you can find some information regarding his work and research interests.

Michael Schneider worked as a PhD student with Elsbeth Stern at the Max Planck Institute for Human Development in Berlin and received his PhD in 2006. In 2007 he spent a postdoc year in Robert S. Siegler's lab for Developmental Psychology in the United States.

For the next years, he will work as research scientist and lecturer in Elsbeth Stern's new group for research on learning and instruction at the ETH Zurich in Switzerland. In their classes, this group introduces the results of research on learning and instruction to future math and science teachers. The group's research is aiming at investigating psychological processes relevant for real-life teaching and learning situations.

Michael's area of specialization within this group is the question how we can capture the content, structure and characteristics of children's knowledge in the fields of mathematics and sciences. He investigates several approaches to this problem in cooperation projects with groups in Germany, Belgium and the United States.

Michael's research reflects his conviction that the richness of children's knowledge structures cannot be captured by one method alone. Observations, interview techniques, questionnaires, quantitative tests, and neuropsychological measures all capture different and important aspects of children's developing knowledge. Michael sees conceptual change theories as central to understanding and integrating the multitude of empirical findings in this field.

If there are still other candidates, we would appreciate to know about this as soon as possible. People still considering their application might find it useful to look back at the previous Newsletter (that can be found at the EARLI website), where more information about requirements and duties can be found.

### *Policy meeting in Amsterdam*

At the EARLI conference in Amsterdam, we will again have a SIG meeting, which allows us to discuss a variety of policy issues. You are all cordially invited to attend this session.

Below, you can find already a provisional agenda. If you wish to add any new agenda points, or want to share your thoughts on any of the agenda points already (e.g., if you are unable to come to Amsterdam), you can always contact us.

- New SIG coordinator 2009 - 2013
- Next CC-SIG meeting (2010)
  - o Location, dates
  - o Conference theme, suggested keynotes
- EARLI biennial conferences
  - o Desirability to have a Future and Vision session
  - o Other suggestions for the organisation, scientific program, reviewing procedure, ...
- Plans for forthcoming SIG publications

**At the start of the EARLI conference, we are also invited to a SIG coordinators' meeting where we can address issues with the EARLI Executive Committee. If you want us to discuss certain things there, we would be glad to do so.**

## Call for contributions to the Newsletter

We invite you to support this new initiative, and to send us any feedback on this newsletter. Also, submissions for the next SIG Newsletter (which will appear somewhere in the beginning of November) is more than welcome.

Please, [send us any information](#) you wish to share with the SIG members, such as

- New publications (books, journal articles) related to our SIG
- Other announcements (conferences, meetings, workshops etc)
- Calls for submissions to special issues, books etc.
- Job announcements, calls for collaboration that may be of interest to SIG members

We are open to any new items in this newsletter.