

List of questions for plenary speakers

Kenneth Ruthven

1. Thank you for your presentation, in the presentation you talked about the comparison between experienced teacher and less experienced teacher. you said that " least experienced teacher subsequently added further worksheets to give students "practice on paper [of] what they had... seen on the computer", the most experienced teacher placed more emphasis on working within the dynamic software environment, projecting screens showing students' work to support class discussion of different strategies". I can image that in China I can find the similar phenomenons (May be some less experienced teacher will do what experienced teacher do). My question is whether less experienced teacher will change their activities with technology during their career? How they change and Which factors make them change?
2. At the beginning of your conference you spoke about a possible relationship between textbooks and documentary approach, how can this approach be used to analyze textbooks? or to analyze the relationship between curriculum and textbooks?
3. "In your lecture, you adressed the increasing responsibility of the teacher in handling the adundance of resources. In my mind, this responsibility should be divide amongst the level of researchers, designers and developers, and teachers. In your opinion, is it possible to lay down some principals for this kind of distinction, or does it completely depend on the cultural and institutonal context?
4. Also, you pointed out that the resource systems of other agents, especially that of the students, should be investigated. My presumption is that it has even more, than the teachers' , int he past decade. Would you consider the following question to be a valid research question: ""To what extent do teachers' resource systems influence sudents' resource systems (if they do at all)?"
5. (As a practicing teacher with 20 years of experience in high school, I'd like to thank you for acknowledging and taking into account the workload and high demands set for teachers.)"
6. "1. How would you define a ""functional resource system""? What makes a resource system functional?
7. 2. If you define a resource system as a set of resources with an organizing structure, this structure isn't part of the scheme of use? So, shouldn't we talk rather about a document-system (with a set of resources + the organizing structure as part of the scheme)?"
8. As we know, The United Kingdom has introduced shanghai math exercise book " one lesson one exercise" and launched the British version of this book. In your mind, when we convey good mathematical resources from one country to another country, what aspects of adaptation should we pay attention to?
9. In investigating teacher's documentational trajectory/ mapping resource system how do you decide a starting point?

10. When you mentioned in your lecture that the resource system should include (1) some "logical structures" and (2) the schemes in teachers' resource system organization, I am totally agree with this. I would like to know, for you, could everyone (every teacher) have their own "resource system"? Or it needs specific knowledge/expertise for achieving the "logical structure" and "suitable scheme" in resource system?

Ghislaine Gueudet

1. In the add approach, how consider/analyze the evolution of mathematical teachers knowledge in the resources system? What others approaches could be consider more appropriate for networking?
2. "In addition to the construction of documentation tables, which you mentioned in your lecture, what other tools do you suggest for the study of schemes and the identification of their components?"
3. "1. What is the difference between a pivotal document and a compendium?"
4. 2. Can you give some details (or an example) about how to characterize a scheme of use?"
5. What are the possible tools for investigating collective documental trajectory(ies)?
6. I have a bold idea on your DAD: In collective work, there exists the collective resources (shared in the collective), but when we involved the "system" in "resource system" (the structure of resource system and the positions of some key resources), and "scheme" in "document=resource+scheme of usage", it should consider that maybe, documentation work could have the collective aspect only because the individual teachers' resource work happened often in collectives, they can share resources, but they cannot hold a unified logical structure in organizing and schemes for using these shared resources. Do you agree with this idea?

Christine Proust

1. If variation exists in mathematics teaching four thousand years ago, is there a pattern of variation at that time? Has this pattern evolved over time?
2. Your lecture reminds me that current researches on documentation work needs to pay a specific attention on the discipline contents, not only "mathematics", but the specific teaching topics. Understanding the curriculum or education ideas is important for teachers when making decisions of working with resources (choosing some but not choosing others, how to integrate and reorganize etc.), but how do they understanding the teaching topic in mathematics level is a deeper consideration.

Janine Remillard

1. Did you examine (or is it a relevant question to investigate) whether the emergence of abundant digital resources influenced teachers' attitudes towards printed resources (teachers' guide...) or teacher training?
2. In your mind, when we convey good mathematical resources from one country to another country, what aspects of adaptation should we pay attention to?
3. Where do you think is the theoretical and methodological meeting points of the construct of "curricular material" and "resources"? or what are the possible opportunities for synergy?
4. Your broad definition/consideration on curriculum, and the classification of the resources are quite inspiring for me, I wonder (1) what is the relationship of teachers' capacity, design capacity, and pedagogy design capacity, the latter two are the subsets of the former one? (2) Do you think that capacity could be evaluated and trained? Do you have the evaluation indicators?

Michèle Artigue

1. Can you comment the methodological connections between the Investigation Reflexive and the others ethnographical methods/tools from outside of didactics?
2. Could you shed some more light on the notion 'research praxeology', with some examples?
3. You presented the networking theory, could we do a parallel with the construction of a theoretical framework during the PhD ?
4. What features of the collectives could offer opportunities for the evolution of mathematics teachers' community of practice?

Binyan Xu

1. How do you measure the impact, in terms of teachers' professional development, of the different training/research (collaborative research, lesson study, etc.) proposed in your country ?
2. How the teacher divide his time for all this activities? How many hours use for class and for the meetings in his time of work?
3. In China case, what kind of reflection do the teachers in their work groups?
4. "Could you elaborate in more detail, what are those investigated indicators in China that show collective work benefits the teachers' professional development?"
5. (Mentioned in your presentation)"
6. "Are TRG existing in the other subjects teaching?"
7. What is teaching competition? And why does it exist?
8. In your country, how and when teachers learn to prepare a lesson the first time?"
9. "Do you do a didactic analysis of the resources presented / designed in the collectives?"
10. Are you working on the question of the structure of the collective resource system?"

11. In your opinion, what's the relationship between Moke(磨课) in China and lesson study in Japan?
12. Recent curriculum reform in the UK has deepened interactions, and mathematics teachers/pedagogical exchanges between the UK and Singapore/Shanghai, what are the possible challenges and advantages of this cross-cultural educational relations?
13. In China, through the teaching research activities, teachers could get various comments/suggestions and instructions from their colleagues, the inspectors of TRO, and the "experts"/researchers from the university (if we could consider them as evaluators), so if teachers and their lessons could be "evaluated", how could we evaluate the "evaluators"?

Takeshi Miyakawa

1. How do you measure the impact, in terms of teachers' professional development, of the different training/research (collaborative research, lesson study, etc.) proposed in your country ?
2. How the teacher divide his time for all this activities? How many hours use for class and for the meetings in his time of work?
3. In Japan case, what kind of feedback you considered is very important for the teachers in their collaborative work?
4. "In your country, how and when teachers learn to prepare a lesson the first time? Does the goal of the meeting is to improve the professional development? Yes,
5. how many teachers participate to the association (50%? 100%?) Are they voluntaries?"
6. "Do you do a didactic analysis of the resources presented / designed in the collectives?"
7. Are you working on the question of the structure of the collective resource system?"
8. How a Japanese lesson plan looks like? Is there any standard of what the teacher has to include in the plan he/she shares with colleagues?
9. In your opinion, what's the relationship between Moke(磨课) in China and lesson study in Japan?
10. What can we learn and what have we learnt from the comparative studies using DAD as framework?
11. When teachers are encouraged to make self-analysis on their teaching practices (through discussion in lesson study), the way of such reflection need to be trained in their normal university study or inservice teacher training or not? Can it be trained or not?

Luc Trouche

1. "About naming. and concept, If naming the concepts and processes of the theory and model is important, then why so much uses of acronyms, like DAD?"
2. In order to translate from one language to another, don't you think that the mapping and networking should'nt be more strongly at the level of concepts (In the sense of Vergnaud with situations, invariants and of course semiotic) and not only at the level of words/names?"

3. In a research group examining a phenomenon named 'series of problems' within the Hungarian Mathematics Education tradition, (in association with a project founded by the Hungarian Academy of Sciences, with Katalin Gosztonyi and others), I am working on an analytical tool consisting of a graph and a coding system, that in our hope can reflect teachers' underlying implicit knowledge and intent to some extent . Could this work be interpreted in the frames of your Program 6 (Stimulating reflectivity; storing and analyzing related data)?
4. At present, Prof. Bao (my supervisor in China) is leading a team to do video recording in excellent classrooms with experienced teachers and he tries to establish a video case data-base later in China. With this data-base, teachers can watch the actual classroom video to help them teaching. I wonder if this kind of resource exists in France?
5. In what ways do you think 'boundary objects/boundary resources" determine points of transitions or developmental changes in teachers' professional growth? For instance; a trainee teacher transiting along with some key resources into a qualified teacher status?
6. What is operational invariant actually, especially when compare with knowledge? If it is "knowledge in action", why do not Vergnaud involved knowledge directly?

Birgit Pepin

1. Can it be stated in general, that long-term design constitutes a greater challenge for teacher than short-term planning?
2. "Question about the assessment of resources : Which criteria to evaluate the resources? In my opinion, they are not necessarily subjective but they are linked with OI.
3. In your studies, did you distinguish the two different things: design lesson plan and design resources?"
4. Kenneth talked about the tension between the time designing needs and the desire of teachers to teach on their own way (so to engage themselves in design activity). I'm very much concerned with this dilemma of time; however, as much as I understand experienced teachers who has an autonomous and rich design activity, they have spent a lot of time on designing at the beginning of their career but became much more efficient later - and probably more efficient (in quality of teaching as well as in preparation time) as teachers who didn't engage in this work before. In the same time, Takeshi explains that the role of lesson studies has its role principally in professional development (so the time spent on the design of one lesson has not the lesson as its principal goal but teacher's development in designing, if I understand well). So, the question is: do you think that this kind of supported work of in-service teachers on design can help, on the long term, to become not only better designer but also more efficient concerning time? And do you think this aspect could help to engage teachers in professional development programs?
5. There is always a gap between the task design from teachers and from researchers as they sometimes own different resources and usually see problems from different perspectives. Teachers tend to pay more attention to the knowledge and the

evaluation, while researchers will also focus on the policy, the innovation, etc. For you, what can we do to minimize this gap?

6. In the face of the proliferation of online/digitalised resources what is the future of textbooks and related study?
7. You mentioned "design-based research" and "research-based design", that reminds me the role of design in teachers' daily work (they should not design for design). What we discussed during the panel, was based on a tacit precondition: teachers themselves are or could be the resource designer. But in practice, due to the limits of their time/energy/resource work condition, teachers have to make a "best buys" decision, namely they probably adapte the available resources from outside. In this way, how to ask for help, how express their requirements of resources to resource designers (like staffs working in education technology field), how to balance the cost performance could be part of their documentation expertise. I would like to know how do you comment my idea.