

INTRODUCTION

QUESTIONS AND THOUGHTS FOR RESEARCHING CULTURAL DIVERSITY AND MATHEMATICS EDUCATION

Guida de Abreu, *Oxford Brookes University, England*

Sarah Crafter, *University at Northampton, England*

Núria Gorgorió, *Universitat Autònoma de Barcelona, Spain*

CERME 6, in Lyon 2009, was the 4th meeting of the working group “Cultural diversity and mathematics education” (in previous meetings it was WG10 and it had slightly different titles). The group is particularly interested in understanding learning and teaching mathematics in culturally diverse schools, classrooms and other educational settings. It also acknowledges the relevance of studies on culture and cognition in outside school settings linked with mathematics and, in particular, with ethno mathematics. We constitute a multi-disciplinary group that includes researchers from a variety of disciplines, such as mathematics, education, socio-cultural and developmental psychology, philosophy, anthropology, linguistics, sociology, political sciences, etc. We are in ourselves a multinational community that in Lyon included contributors from Belgium, Brazil, Canada, Cyprus, Denmark, Italy, Portugal, Rwanda, Spain, Sweden United Kingdom and USA.

QUESTIONS RAISED DURING WG8 MEETINGS

The areas covered by the presentations during our meetings were different theoretical and methodological approaches as well as different research domains. Teaching, the relationship between home-family and school, out-of-school practices, particular cultural and linguistic groups were some of the domains discussed. The perspectives that all of us brought to the discussion led, in particular, to interrogating how culture links to diversity, practices and institutions.

Conceptual clarification

The discussion of several papers claimed for clarification of different notions, such as ‘culture’, ‘diversity’ and ‘cultural diversity’. This was considered important both in relation to theoretical papers and to empirical papers. Broad conceptualisations meant that there were issues at stake for data collection. There was agreement that culture is something dynamic but it is also something which is re-interpreted for meaning. In other words, there was interest in the socio-cultural as co-constituted in the psychological. Furthermore, whilst new concepts are introduced into theoretical research others continue to be discussed over time.

Culture in practice

Whilst discussions on the conceptualisation of culture were useful to the group, many felt they needed to make sense of how this shapes and is shaped by practices in the

classroom. Questions were raised such as – how can we teach mathematics whilst respecting cultural diversity? How do teachers/parents of other cultural backgrounds explain mathematical problems? Can culture help us understand identities development in mathematical practices within and outside school?

Culture and institutions

The tensions between the school as a normalising institution and the diversity of students in society were raised. It was questioned what the dangers of bringing culture to a normalising institution may be? When one thinks of school as an institution whose goal it is to transmit culture, one has to think “whose” culture is being referred to. In other words, in which ways do educational institutions reproduce inequalities? It was suggested that this ‘tension’ or ‘gap’ between cultural diversity and the institution is as symbolic as the notion of ‘normal’. The normalised institution, an idea developed and reproduced by school, is also symbolic and can be perceived as exotic and outside the lives of most pupils. Furthermore, institutions are culturally composed by people and these people may influence the institution.

SHARED INTERESTS WITH OTHER GROUPS

During reporting sessions, it was made apparent that there are different overlaps between WG8 and papers presented in other working groups. This was mainly expressed through an interest in a socio-cultural perspective when applied to a specific domain which was covered by another group. This perspective is felt to be more relevant since, nowadays, our schools are recognized to be more and more culturally diverse, and inequity in education has become under socio-political scrutiny.

For some groups, the intersection is wide and obvious. This would be the case with the working group dealing with mathematics and language, since culture is inextricably linked to language. It seems also clear to us that there is an intersection with the group working on Early Years Mathematics, since nowadays it is becoming clearer, especially for this age group, that learning is situated on its context.

For some other groups, one has to go deeper to see the overlapping. However, one of the participants in the Applications and Modelling group explicitly contributed to the reporting session by affirming that “*modelling in mathematics can also benefit if the cultural backgrounds of learners is taken into account while modelling learning situations*”. It did not surprise us either that people that had attended the Algebraic Thinking or Geometrical Thinking groups told that the curricular issues that they have addressed could benefit from a socio-cultural perspective.

AFTERTHOUGHTS

To finish this introduction, we would like to share with the readers how we explain the overlapping with other research groups and the dilemmas that it poses to us as coordinators of the group.

The engagement of participants in WG8, *Cultural Diversity and Mathematics Education*, comes from our shared interest in and commitment to a particular empirical domain, that of multicultural settings. Other CERME working groups are organized either around the study of theoretical perspectives or the content domain of the research –language issues, teacher education, theoretical perspectives, algebraic thinking or modelling, just to name some of them. It is clear that any of the above mentioned focuses could be researched in a multicultural setting. And it is this last point where both our strengths and our weaknesses come from.

Our interest in addressing non-prototypical situations requires that we try to broaden both our theoretical perspectives and our methodological approaches. Both theories and methodologies could be of use to other researchers in mathematics education.

However, each of us as participants to WG8, has once asked him/herself questions such as: Do I want the focus of my presentation to be the fact that I am dealing with a culturally diverse situation? Do I want to stress that I am using a theoretical perspective that is new to mathematics educators? Or do I want to suggest a discussion on curricular issues or content matters? This is where our dilemmas arise. If we keep within our group, the research done in culturally diverse situations becomes closed, making it difficult for others to come to know about our developments. However, if we go to other groups, then we risk losing our primary focus and then a new question arises: who is going to foster research in culturally diverse situations and other neglected empirical domains? What we as a group, and the larger community, will lose or gain if we move from a title of WG8 that has to do with our empirical domain into a title that has to do with a theoretical perspective? How things would change if next meeting WG8 was renamed “Socio-cultural perspectives on mathematics education”?