

The ICMI's Grammar

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Abstract

In this paper we raise the issue of the different names and terms which has taken part on the history of the International Commission of Mathematics Instruction (ICMI). We contend that ICMI history must be understood in the broader context of the reform of mathematics school proposed in the beginning of last century. The reform aimed the internationalization of educational system. We conclude that the meaning of 'international' is wider than the meaning of the mathematics universality'.

The reform of the school mathematical curriculum grammar

An essential part of the broad theme of this working group WG5 (ICMI 2008) is the impact of International Committee on Mathematics Instruction's (ICMI) on mathematics education. But we will argue firstly that there is some difficulty in addressing this broad theme. That difficulty is in dissociating mathematics education and ICMI, one from the other. This dissociation would take us to answer questions such as the following: Was ICMI a chapter of mathematics education history? Or is mathematics education a development of a history initiated by the epoch of *Commission Internationale de l'Enseignement Mathématique*?

In fact, there are positive evidences which seem to ground a historical line from the *Commission Internationale de l'Enseignement Mathématique* constituted in 1908 to the establishment of International Commission on Mathematics Instruction in 1952. What follows next is the establishment of the International Congresses on Mathematical Education (ICMEs) and the journal Educational Studies on Mathematics. Finally, there would be the impact of these processes on mathematics education.

It may be unwise to deny these evidences. However, if one looks at these evidences more closely it may confuse its own vision. Yet, the belief that ICMI is celebrating one hundred years indicates that *Commission Internationale de l'Enseignement Mathématique* and ICMI are the same in some way. We may be looked upon as a 'gatecrasher' if we highlight their differences instead of overlooks it. Does this paper abuse the limits of the centenary celebration remarking, for instance, that the language from which the names have been attributed to these institutions are different one each other. The *Commission Internationale de l'Enseignement Mathématique* 1908 comes from the French language and International Committee on Mathematics Instruction comes from the English language in the 1950's. Should we overlook this 'fact of language'? Would ICMI and mathematics education (as it is in English) have anything to do with the internationalisation of English language? What

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kind of links could be made here? The issue of translation and mathematics education has just been raised in an important ICMI studies.

Mathematics education no longer means the same as *didactique des mathématiques* (if it ever did). French *didacticiens* refuse to translate their *didactique des mathématiques* into ‘mathematics education’ (Sierpinska & Kilpatrick, p. 3)

Are those ‘differences of names’ just a *slight* difference in the *form* or in the *meaning*³ of something that existed prior to its name? As for instance suggested by Letho (1998) with respect to the word “instruction”?

‘The commission by the Rome General Assembly to continue the work of the International Commission on the Teaching of Mathematics was called by several names in the years 1952-1954. They differed slightly in *form if not in meaning*. In English version, which at that time was not yet predominant, the word “Instruction” was in more common use than “Teaching”’ (Letho, p. 108).

Would it not be important to disclose the context of the “common use” of an epoch? For instance, the word “instruction” that Letho refers to, draws our attention to a kind of psychology. That is, the cognitive orientation which according to Gates (2006) went on to direct Psychology of Mathematics Education (PME) for at least 30 years. The problem we try to address is not just an issue of the translation of different languages but rather it is an issue of naming itself.

We are drawing attention to this ‘issue of naming’ because we would like to ground a notion that could join *Commission Internationale de l’Enseignement Mathématique*, ICMI and mathematics education. That notion is what we shall call the ‘reform of the *grammar school mathematical curriculum*’.⁴

The reasons for the formation of ICMI at that particular period [1908] are not hard to perceive. The educational systems of the ‘major countries of Western Europe and North America had expanded during the early years of the century, new technologies set new demands, and innovators had attempted to carry out significant *reforms of the (grammar) school mathematical curriculum* (my own emphasis) (Howson, 1984)

In fact, it is wide recognized today that *school reforms* has been taking place along the last century. Also it is recognised that the educational system, specifically mathematics school has become more accessible world wide. That mathematics school curriculum reforms are in some way related to it. That ICMI has a deep role in it as it was the very reason for the institution of *Commission Internationale de l’Enseignement Mathématique* in 1908. That ICMI accepted new country-members first than International Mathematical Union (IMU) itself. However, this history itself risks to be told inside a language-system, a set of meanings, words, and meaning-and-

³ This dichotomy is already problematic

⁴ The meaning of grammar school is also used for a specific type of school. That is, the so called ‘grammar schools’ which trace its origins back medieval Europe. Although the quotation may be referring to this, we are building a notion of ‘grammar school’ based on the quotation as a whole and not to this specific meaning of a type of school.

it's-words established as resulted of that which we have called the reform of the *grammar school mathematical curriculum*.

Therefore, we claim that the history of the constitution of these meanings, that is, the history of what we have coined as the reform of grammar school mathematical curriculum, would be more primordial than the history which overlooks that *reform of meanings*. The history of the constitution of this system of meanings would tell us inclusive how the history told today comes about. It would be the historicity of the histories. This notion and what has been claimed from it and all possibilities which it may open to look at mathematics education history and especially to the issues raised at this working group would be our first and modest contribution for WG5.

For instance, the influences of '*psychology, philosophy, history, ethnography, anthropology on mathematics education*', second part of the theme of this working group, for us, are nothing but which will serve or constitute 'mathematics education' with the vocabulary necessary to carry on that reform. At the next sections we attempt to reach the heart of our notion of the reform of the *grammar school mathematical curriculum*.

The traces of a reform on the historical path of mathematics education

The call for a reform which should expand mathematical school wide word has always been echoed in the '*affiliated groups that ICMI has recognized (and in some cases incubated) and [echoed] through the ICMI studies*'. It would also in some way mark and drive the historical path of mathematics education which all of us know today. In 1969 Begle calls for a new science which could understand the 'mathematical behaviours' (what we would suggest is a neologism emerging from that time). The ultimate goal of this 'new science' would be in improving the education of *everyone's children* irrespective of their background.

I hope that my argument has been persuasive, because I am convinced that only by becoming more scientific can we achieve the humanitarian goal of improving education for our children and for everyone's children (Begle, 1969)

On the ICMI symposium of one hundred years of *l'Enseignement Mathématique* we can read Ubiratan D'Ambrosio:

IMU is sponsoring the "World Mathematical Year 2000". The Assembly General of the United Nations has proclaimed 2001 to 2010 as the "International Decade for a Culture of Peace and Non-violence for the Children of the World". The Assembly called on relevant United Nations bodies, non-governmental organizations (NGOs), religious bodies and groups, educational institutions, artists and the media to actively support the Decade for the benefit of every child of the world. How do we respond to this call? How does the IMU resolution and the UN resolution relate? Shouldn't they be intrinsic to each other? After all, mathematics is the dorsal spine of modern civilization. (D'Ambrosio, 2000)

In the book for the 30th anniversary of PME Gates (2006) pointed out:

Of course it is not coincidence that children from low socioeconomic backgrounds do less well at mathematics than children more privileged homes ... The fact that this is not a coincidence, and that is internationally relevant, has to make it of central concern to all those engaged in mathematics education. (Gates, 2006)

In this case it is interesting to remark that this discourse takes part in the justification and actual constitution of the newest international forum of mathematics education, that is, Mathematics Education and Society.

We do not have space in this paper to go any further in providing more examples of how the notion of the reform has been echoed through ICMI. However we have at least given some note to three illustrative quotes.

The internationalisation of the universal science

The greatest feature of this 'new grammar' is not to be found in any notion of democratisation of the education. Democratisation has indeed been claimed by the other sciences to have occurred in their areas. The greatest feature would be the condition which would allow the joining of two conflicting words in one term: 'mathematics' as a universal and non-ideological science and 'education' understood in the context of the ideology of internationalisation and 'education for all'. In the tradition of Greek philosophy μαθηματικά opposes to μάθημα. The first means a specification of the second. In this tradition the word 'mathematics' as a specification of the generality of the word 'lessons' means exactly the lessons which are not-for-all. This paradox has been the very subject of mathematics education notably the historical the establishment of ICMI's. The title of Olli Letho's book 'Mathematics Without Borders: a Historical of International Union Mathematical' already indicates the place where an interesting conflict or paradox is taken. That is, the internationalisation of a universal science.

Certainly a special care with the meaning of 'international' is necessary. Early in the book (p. 9) it reads 'In connection with mathematics, at the end of nineteenth century the word "international" has a limited connotation.' (Letho, 1996). On this path what seems to be built is a grammar to write a conflict, a paradox. On the one hand, the author refers to '*[t]he universality of mathematics*' (Letho, 1996, p. 9) and the '*non-ideological character of mathematics*' (p. 13). On the other hand a quick look at the book contents tells the political history of the nineteenth century:

2.1 The foundation of the IMU in the Aftermath of World War I;

2.6 Suspension of the IMU;

4.1 American Declaration of Universality;

ICM-1950 at Harvard: American Tour de Force,

5.6 ICM-1954 in Amsterdam: Comeback of the Old World;

6.1 Membership of Socialist Countries;

6.2 The Chinese problem Emerges;

11.4 Problems in the Africa

Such political contents draw attention to how a notion of *internationalisation* will overflow the non-ideological and universal character of mathematics. Therefore a faithful reading of 'Mathematics Without Boards' should not be seduced by any attempt to read there a miss-description of a phenomenon. Rather we should read that the concept of mathematics universality may have never included the concept of internationality. The international has a meaning that goes beyond the limits of mathematics universality. If today we hear educational programs referring to globalization and *universalisation* of knowledge, mathematical education would mean the universalization of the mathematics' universality. A new grammar would be necessary to have account of it, writes it.

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