

## EDITORIAL

# MATEMÁTICA EDUCATIVA: UNA DISCIPLINA DE MÚLTIPLES PERSPECTIVAS

MATHEMATICS EDUCATION: A DISCIPLINE OF MULTIPLES PERSPECTIVES

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La noción de visibilidad de un campo disciplinar en el dominio de las ciencias está asociada a factores tan diversos e interrelacionados como comunidad, capital cultural, procesos de institucionalización, habitus, saber, prácticas y tradición. Esto puede ser abordado desde diferentes perspectivas teóricas, como la historia y filosofía de las ciencias, la arqueología del saber, la economía de las instituciones, la gestión del conocimiento, la sociología de las profesiones o simplemente en el seno de las dinámicas propias de los sistemas complejos. Cada enfoque ofrece una mirada sobre el mismo fenómeno: la constitución disciplinar.

Cien años atrás no existía la Matemática Educativa. No había, por ende, sistemas de formación de investigadores, congresos ni revistas especializadas en este campo. Pero se contaba con una problemática localizada, o quizá deba decir localizable: *la formación matemática del nuevo ciudadano*. Es decir, aunque había plena conciencia sobre los retos y problemas que planteaba la enseñanza de las matemáticas en el ámbito de la educación general, básica y obligatoria, y se sabía de las dificultades que tenían los alumnos para aprehender las ideas matemáticas, no se contaba en sentido estricto con una red de programas de posgrado, revistas especializadas, comunidad internacional de investigadores ni tradición. Las señales más elocuentes de la falta de tradición eran las ausencias, ya que no había premios internacionales en Matemática Educativa ni una jerga especializada que abandonara el lugar común para dar pie a la explicación científica. Las publicaciones incipientes aparecían en revistas de otras áreas del conocimiento.

En México, por citar el caso que más conozco, hace apenas diez años ingresó el primer matemático educativo a la Academia Mexicana de Ciencias. La prestigiosa beca Guggenheim sólo ha sido otorgada una vez para la realización de

investigaciones en Matemática Educativa. El primer doctor de este campo en los Estados Unidos surgió en la segunda mitad del siglo XX; por ende, la mayoría de los fundadores de la Matemática Educativa siguen entre nosotros. Esto habla, sin duda alguna, de su juventud disciplinar.

Actualmente, en el año 2010, tres revistas científicas especializadas en el campo de la Matemática Educativa están incluidas en la base de publicaciones indexadas más importante del campo científico, el ISI Web of Knowledge: *Journal for Research in Mathematics Education (JRME)*, la Revista Latinoamericana de Investigación en Matemática Educativa (*Relime*) y Boletim de Educação Matemática (*BOLEMA*). Otras más están en curso de ser admitidas y algunas también forman parte del ISI Web of Knowledge porque publican artículos sobre enseñanza, historia y filosofía de las ciencias y las matemáticas, o bien sobre procesos educativos, sociológicos y psicológicos más amplios. La tradición en Matemática Educativa se ha ido escribiendo con el paso de los años.

El año pasado fueron otorgados dos premios internacionales, la medalla Hans Freudenthal y la medalla Felix Klein, a dos distinguidos colegas, Yves Chevallard y Gilah C. Leder. Transcribo a continuación las semblanzas de cada uno, que me hizo llegar nuestra amiga y colega, la profesora Michèle Artigue. Consideramos que de este modo contribuiremos a la visibilidad internacional de nuestra disciplina:

The *Hans Freudenthal Medal* for 2009 goes to Yves Chevallard, IUFM d'Aix-Marseille, France.

It is with great pleasure that the ICMI Awards Committee hereby announces that the Hans Freudenthal Medal for 2009 is given to Professor Yves Chevallard, IUFM d'Aix-Marseille, France, in recognition of his foundation and development over the last two and a half decades of a very original, fruitful and influential research programme in mathematics education. The first part of the programme, developed in the 1980s, was focused on the notion of didactical transposition of mathematical knowledge from outside school to inside the mathematics classroom, a transposition which also transforms the very nature of mathematical knowledge. This idea has been further developed, in the 1990s and beyond, into a more general study of the varying institutional characteristics and cultures within which mathematics is being practised in terms of different praxeologies (combining praxis and logos). This gave rise to the so-called anthropological theory of the didactic (ATD) which offers a tool for modelling and analysing a diversity of human activities in relation to mathematics. On that basis Yves Chevallard has developed an entirely new approach to teacher training focusing on the needs and problems of the profession operating in what he calls "clinics for training" which are also cumulatively establishing "archives for training".

Yves Chevallard graduated from l’Ecole Normale Supérieure in Paris (rue d’Ulm) in 1967 and earned agrégation in mathematics in 1970. After having taught mathematics at a lycée (high school) in Marseille, he moved –in 1972– to Université d’Aix-Marseille II, first as an assistant and then, from 1986, as a 1st class maître de conférences (Associate Professor), working at the Department of Mathematics. With a background as a researcher in mathematical logic he turned his attention towards issues of mathematics education, greatly stimulated by the work of Guy Brousseau, whom he calls his mentor. During the years 1984-1991 Yves Chevallard was the director of IREM d’Aix-Marseille (IREM, Institut de Recherches sur l’enseignement des Mathématiques). After having been declared qualified for directing research in 1990 Yves Chevallard was appointed full university professor in 1991 at the newly created IUFM d’Aix-Marseille (IUFM, Institut Universitaire de Formation des Maîtres), and promoted to the 1st class in 1999, where he was also chair of the Scientific and Pedagogical Council, 1991-2006. He is still working at this institution.

Yves Chevallard has served on a number of posts in the academic community in general and in the community of researchers in mathematics education in particular, mainly in France. Thus he was a member of national council of universities in France (CNU) 1982-1990. He has been member of the administrative council of IUFM d’Aix-Marseille since 1991, and is currently a member of the joint laboratory council UMR ADEF which gathers researchers from three scientific institutions in France. Yves Chevallard founded and directed (1994-2000) the journal *Skholē* published at IUFM d’Aix-Marseille. He was the editor-in-chief of *Recherches en Didactique des Mathématiques*, 2000-2002 and currently is a member of its scientific committee as well as of the editorial committee of *Éducation et Didactique*. He was also for a number of years a member of the scientific committee of the book series *Raisons Éducatives*, published by the University of Geneva. He was responsible for the units of education and didactics and for initiation of research in mathematics education at the University of Provence 2007-09 and has been a visiting professor at universities in Germany and Spain.

La *Transposition didactique*, du savoir savant au savoir enseigné (1985, extended edition in 1991, spanish translation in 1997) is his internationally most well-known work. A joint book in spanish with Marianna Bosch and Josep Gascón, *Estudiar matemáticas. El eslabón perdido entre la enseñanza y el aprendizaje* (1997) provides what Yves Chevallard calls “a midway summary” of ATD. Moreover, several of his more than a hundred publications

in journals and anthologies have reached an international audience, even though the far majority of them are written in french.

In summary, Yves Chevallard, who continues to be very prolific in his academic work, is an eminently worthy recipient of the Hans Freudenthal Medal 2009.

The *Felix Klein Medal* for 2009 goes to Gilah C. Leder, La Trobe University, Bundoora, Victoria, Australia

It is with great pleasure that the ICMI Awards Committee hereby announces that the Felix Klein Medal for 2009 is given to IAS Distinguished Professor and Professor Emerita Gilah C. Leder, La Trobe University, Bundoora, Victoria, Australia, in recognition of her more than thirty years of sustained, consistent and outstanding lifetime achievements in mathematics education research and development. With a background as a highly recognised secondary teacher of mathematics, Gilah Leder moved, through a number of steps, into research in mathematics education, with a particular emphasis –from the very beginning of her research career– on gender success and equity in mathematics education, but also more broadly on student's affects, attitudes, beliefs and self-concepts in relation to mathematics education, at educational levels ranging from school to university. To a very high degree her work has contributed to shaping these areas and made a seminal impact on all subsequent research. Moreover, Gilah Leder has done significant work with regard to assessment in mathematics education, mathematically able students, research methodology, supervision of graduate students and teacher education. A characteristic feature of Gilah Leder's work –published in almost two hundred scholarly publications– is its application of perspectives and theories from sociology and psychology along with mathematical perspectives.

Gilah Leder's achievements include a remarkable amount of work for national, regional and international mathematics education communities in a leadership role, as well as a committee or board member, an editorial board member for several journals and book series, as a mentor and supervisor of graduate students, as a visiting scholar in several countries, and as an invited key note speaker at numerous conferences in all continents.

Gilah Leder's first degree was a B.A. (Hons) in mathematics earned at the University of Adelaide, South Australia (1963), where she also earned

a Dip. Ed. (1965). She then moved to Monash University, Victoria, to do a M.Ed. (1973), and later on a Ph.D. (1979) on fear of success and sex differences in participation and performance in mathematics. Prior to that, she was a high school teacher in South Australia and Victoria (1963-1965), and then a research assistant, part time lecturer and tutor at Monash University. She served as a Lecturer (1978-1982), a Senior Lecturer (1982-1987) and an Associate Professor of Education (1988-1993) at Monash University, before taking up, in 1994, a position as full Professor at the Graduate School of Education at La Trobe University, Victoria, where she remained until her retirement. During the years 2000-2007 she also served as director of the Institute for Advanced Study and Director of Graduate Studies at La Trobe University. Having retired formally in 2007, Gilah Leder is currently an IAS Distinguished Professor and Professor Emerita at La Trobe, as well as an Adjunct Professor at Monash University.

Gilah Leder has received several honours and awards. She was president of the Mathematics Education Research Group of Australasia (MERGA), 1994-1998, of which she was awarded a Life Membership in 2002, President of the International Group for the Psychology of Mathematics Education (PME), 1999-2001, and a member of the Executive Committee of the International Commission on Mathematical Instruction (ICMI), 1995-2002. In 2001 she was elected Fellow of the Academy of the Social Sciences in Australia. She was a Guest Professor in Sweden, 2002-2004. Her biography is included in *Notable Women in Mathematics*. Gilah Leder has had numerous editorial roles in first rank national and international journals and book series.

Another characteristic feature of Gilah Leder's work is her close collaboration with other researchers in several countries. In particular she is renowned for her highly significant supervision and mentoring of young researchers. Thus she was named "Supervisor of the Year" at Monash University in 1993 and supervisor of the "2002 Exemplary Doctoral Thesis" at La Trobe University. She has supervised more than 60 research students, many of whom have earned international renown.

It is, of course, impossible to mention more than a few of Gilah Leder's publications, many of which are highly recognised internationally. Suffice it to mention the following books that she has co-edited, *Assessment and learning of mathematics* (1992), *Mathematics and gender* (with Elizabeth Fennema, 1990), *Beliefs: a hidden variable in mathematics?* (with Erkki Pehkonen and Günter Törner, 2002) and *Affect and mathematics education* (with Peter Grootenboer, special issue of MERJ, 2005). She is also the

author of prominent state-of the-art chapters and papers in special issues of journals (including *Educational Studies in Mathematics* and *ZDM*) and handbooks (including *Handbook on Research on Mathematics Teaching and Learning*).

In summary, Gilah C. Leder is an eminently worthy recipient of the Felix Klein Medal 2009.

La Matemática Educativa, como disciplina científica, aún tiene problemas abiertos y retos sociales y científicos por abordar. Sabemos muy bien desde *Relime* que la literatura científica de nuestro campo está adquiriendo una mayor visibilidad internacional. Así lo testifica la diversidad de países e instituciones de procedencia de los artículos que publicamos en este número... *La nao va.*