Authors	**Title**	**Brief Summary**	**Comment**
Batarce & de Matos	The ICMI's Grammar	Issue raised: Is ICMI a chapter in the history of mathematics education or has ICMI set the scene for (shaped) mathematics education? Reform of the school mathematics curriculum needs a language to express its aims and new directions. ICMI and its affiliates often mirror (or anticipate?) these needs. What is needed to achieve the aims of mathematics to be both a universal and international (i.e., non political) science? Are new concepts and terminology needed to achieve this?	The evolution of ICMI and the dilemma of the internationalisation and universality of mathematics *history*
Bergsten	On home grown and borrowed theories in mathematics education research – the example of embodied cognition	Using embodied cognition [EC] as an exemplar, three broad issues are explored in this paper: the dimensions of relevance; the influence on scientific discourse, the furthering of scientific knowledge, and on educational practice; and issues of compatibility with other theoretical perspectives already applied in the field.	*New theoretical perspectives in mathematics education: the case of embodied cognition.* *The connection between borrowed theories and math educ theorizing. A good paper that shows the impact of other theories in our field.*
Biehler & Peter-Koop	The development of mathematics education as a scientific discipline – some reflections from a German perspective	The authors provide, and build on, three historical snapshots – involving Felix Klein, ICME3 in Karlsruhe, and the work of the *Institute for Didactics of Mathematics*, highlighting the link between ICMI and developments in mathematics education in Germany.	*Theoretical evolutions – historical perspectives* with a special emphasis on the role of ICMI
Brandell	Using multiple theoretical perspectives to connect, clarify and convey research results	Do different theoretical perspectives facilitate or impede insights into complex teaching situations? Similarities/overlap between apparently different theoretical approaches to	A better link should be made between the wider literature on learning theories and different

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		understanding how learning takes place can be highlighted by using the overlay of the characteristics of a "deep" and "surface" approach to learning. It is argued that diversity can be handled constructively by exploring unifying, integrating, competing, and networking notions and that the characteristics of deep and surface approaches to learning are particularly useful for considering similarities and overlap between different theories.	theoretical perspectives used in research in mathematics education *Theories of learning (psychological perspectives)*
Brown	Subjectivity: An alternative to the psychology of mathematics education	How should mathematics education research position itself? "mathematics education research needs to move away from earlier instrumentalist tendencies concerned with understanding and ímproving' mathematical performance against unproblematised social registers". The author discusses how the teachers' practice is framed by an "official" discourse and policy..	Why mathematics education research must move *beyond positivism and psychological perspectives*
DÁmore & Pinilla	Change of the meaning of mathematical objects due to the passage between their different representations	Transforming "everyday language" into algebraic expressions involves "a constant change of meaning ... within various semiotic systems". Examples are given to illustrate how disciplines outside mathematics education are already influencing our explanations of mathematical learning and activity	Beyond mathematics education – *different "external" theoretical perspectives – some emphasis on semiotics, philosophy, and sociology.*
Douek	The determination of mathematical objects of didactical	Theoretical constraints influence (limit or expand) the theoretical and practical dimensions of mathematics education. Emphasis on the work of	*Theoretical perspectives and the determination of a mathematical object. The*

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	activities	Vergnaud and Vygotsky	*contribution of other disciplines to math educ.*
Forgasz	Positioning gender and mathematics education research	Evidence is presented of diverse ways in which ICMI has broadened the research horizons of gender and mathematics The author provides an overview of developments in gender issues since the 1970s	Research perspectives, shaped by the content of key research journals, can be stretched by participation in international conferences (did ICMI help legitimize gender and mathematics as a research domain?) *Affiliate of ICMI*
Fried	History of mathematics and the future of mathematics education	The founders of ICMI (including Felix Klein and D.E. Smith) considered that the history of mathematics was important to mathematics education. Yet can the history of mathematics be readily incorporated into the school curriculum?	The *history* of mathematics, link to school mathematics and beyond. *Affiliate of ICMI*
Furinghetti	Mathematics education in the ICMI perspective	The development of mathematics education as a discipline is traced. Lively descriptions are given of cooperation, hostilities, and frictions between the communities of mathematicians and mathematics educators	*Historical* overview of the development of mathematics education with a special emphasis on ICMI
Garfunkel	"The Faffufni-Chaim Yankel effect: A cautionary tale	Reflections on "the patterns of how projects and programs are evaluated". Implicitly: how can we move beyond "accepted" recipes for the conduct of research? Or why good ideas are lost … The description is very regional, and hardly can be generalized even to neighboring countries! Despite its local character, the paper reveals some interesting	Implicitly: why we fail to popularize mathematics and make it accessible to all *Blinkered view of mathematics education research*

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		aspects of the mechanisms of funding in the USA	
Kaiser	MEANING in mathematics education. Reflections from various perspectives	Meaning in mathematics education is influenced by diverse factors. Experimental evidence is provided that modeling examples can make mathematical learning more meaningful. Discussion about the distinction between personal and cultural meanings. This paper can be related to current work on meaning in mathematics classrooms (Roth JMB 2004; Radford, ESM 2006)	Exploring meaningful learning – illustrative evidence from two case studies *using modeling to explore meaning in mathematics*
Lerman	Theories as intellectual resources in mathematics education research	A rich overview is provided of different theoretical perspectives relevant to mathematics education research, their evolution, potential, and limitations	*Theoretical insights (and theories) for mathematics education research. Theories in math educ are seen through their relationship to other disciplinary fields (sociology, anthropology, postmodernism).*
Liu	A 4-dimensional analysis of the practice in mathematics education	Practice in mathematics education can conveniently be considered in terms of four components: global vision, local focus, mathematical knowledge, and time span. Such an analysis highlights not only tensions and contradictions but also opportunities and strategies for further developments.	Implicit argument that the *model proposed can facilitate discussions within ICMI about practices in mathematics education*
Namukasa	The contribution of multiple disciplines of influence to mathematics education: A	Different paradigms for conceptualizing mathematical thinking are described. An interesting distinction in terms of nested spaces is provided to describe complexity perspectives.	*Clusters of theories for describing and understanding mathematical thinking*

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	complexity science interpretation		
Perrin-Glorian	From producing optimal teaching to analyzing usual classroom situations…. The notion of milieu	The theory of didactic situations, its evolution, and the integral component of milieu are described in some detail. Strong reference to the work of Brousseau. The notion of mielieu theorizes in a specific way the role of social interaction.	Using the notion of *milieu to analyse classroom practice* Could the concept of milieu benefit from other views (e.g. discourse analysis; artifact use, etc.?)
Presmeg	Semiotic theoretical frameworks: creativity and imaginative rationality in mathematics education	Theories from many different disciplines are germane to mathematics education research. Emphasis on the work of Charles Pierce. Various rich examples are provided. Creativity thinking is related to the use of metaphors and other figures of speech.	*Theoretical perspectives beyond psychology: the case for semiotics*
Schlöglmann	Is cognitive neuroscience relevant to mathematics education research?	Learning is now regarded as an increasingly complex process, involving cognitive and social processes, affect, emotions and motivation. Concepts from many fields are invoked in our attempts to explore and understand how it occurs. An argument is made to focus as well on neuroscience and areas that may benefit from neuroscience based research are listed. Anew journal has been created to deal with these issues (Mind, Brain, and Education)	*Theoretical perspectives beyond psychology: the case for neuroscience*
Sinclair	Notes on the aesthetic dimension of mathematics education	Aesthetics, it is argued, contributes to "understanding the rationality of mathematics itself, and to enriching existing theories in mathematics education". Various examples are given and issues worthy of further investigation are put forward.	*Theoretical perspectives beyond psychology: the case for aesthetics*
Steinbring	Mathematical knowledge as a	Three broad areas are covered in this paper with its focus on	*Theoretical perspectives*

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	social construct of teaching / learning processes – the epistemology oriented mathematical interaction research	constructing meaning for mathematical signs: mathematics teaching as an autonomous culture; epistemological constraints of mathematical signs in the culture of teaching; and the interactive constructions of mathematical knowledge – social and epistemological conditions	*beyond psychology: an epistemological perspective Emphasis on construction of meanings in the classroom and the role of interaction and symbols. How does the mathematical knowledge "constructed" in the classroom relates to the cultural knowledge as conveyed by the curriculum? This questions still needs to be addressed.*