

Abstracts

Introduction

Teaching mathematics: from issues to student learning

p. 57

Jean-François Chesné and Johan Yebbou

The teaching of mathematics is a major concern for all education systems. This issue brings together ten case studies from four continents in a comparative perspective in order to consider what mathematics is taught around the world, and for what purposes. The articles present and analyse issues, content, implementation, the role of teachers and the evaluation of maths teaching from a historical perspective, highlighting the need to mobilise all resources to meet the complexity of the educational challenges of the day.

In China, a will to develop mathematical skills to meet the country's changing needs

p. 91

XU Binyan

Since the 21st century, the Chinese Ministry of Education has issued successive mathematics curricula for primary and secondary schools in response to rapid social, economic, scientific, and technological developments in China. The newest curricula for primary and secondary schools include a requirement to promote mathematical competencies in the four following fields: numbers and algebra, figures and geometry, statistics and probability, integrated applications and practices. Learning mathematics at school aims to equip students with basic mathematical knowledge, skills, the ability to think and act enabling them to adapt to the requirements of modern life and further learning.

The exclusion of marginalised communities from mathematics teaching in India

p. 81

Meghna Nag Chowdhuri

Mathematics education in India is a complex landscape where the key issue is the exclusion of marginalised communities from mainstream school mathematics. By exploring the national curriculum frameworks across the years, this paper unpacks the key discourses around inequalities dominating the field of mathematics education in India. These include the justice-oriented, Hindu nationalist as well as global outcomes-oriented discourses. While we see reflections of all these ideas in different national curricula, this paper argues that to challenge structural inequalities within mathematics education, there is a need to turn our attention towards everyday pedagogical processes.

Current and future mathematics teaching in Chile – a research perspective

p. 91

Ivonne González San Martín, María José Aravena Vásquez and Carlos Pérez Wilson

This article presents the context and conceptual foundations of mathematics teaching in Chile, as well as experiments carried out in the education system. These aspects provide the basis for a reflection on the current and future state of mathematics teaching and the perception of this discipline in Chilean society. In the light of the changes observed in the education system over the last few decades, these observations are an invitation to consider the reality of mathematics teaching in the classroom.

Teaching of maths in schools, didactic research and teacher training in Argentina: achievements and tensions

p. 99

Claudia Broitman and Andrea Novembre

This article presents some characteristics of mathematics teaching in Argentina at primary level (from 6 to 11/12 years) and at secondary level (from 12/13 to 17). After an overview of the education system and current curricula, it describes the tradition of mathematics didactics in this country. It then considers primary and secondary teachers' initial training, before analysing the results of international and national assessments.

An analysis of mathematics results in French-speaking sub-Saharan African countries in the PASEC 2019 study

p. 111

Abdel Rahamane Baba-Moussa, Hilaire Hounkpodoté, Labass Lamine Diallo, Guy-Roger Kaba

This article is based on data from the PASEC 2019 assessment and sheds new light on the teaching and learning of mathematics in the French-speaking countries of sub-Saharan Africa. It highlights not only the low levels of achievement of primary school pupils, but also the fragility of teachers' knowledge of content and didactics. It considers explanatory factors such as differences between schools, urban/rural and public/private divide.

A number of factors are explored to explain these findings, such as differences between schools, urban/rural areas and public/private sectors. Finally, the article shows how the Conference of Ministers of Education of French-speaking countries (Confemem) is helping countries to improve the teaching and learning of mathematics.

The autonomy of Icelandic schools in teaching mathematics: striving to find a balance p. 121
Freyja Hreinsdóttir and Ragnar F. Ólafsson

Icelandic schools and teacher have great flexibility in how they conduct their mathematics teaching and how study programs are organized and there are no standardized examinations. This flexibility is due both to a system made up of many small schools in a sparsely populated country, and to curricula providing limited detail which places considerable demands on teachers. There is emphasis on schools being inclusive and on equal opportunities for pupils. There are both advantages and disadvantages to this system. There is a large discrepancy in the mathematical knowledge of students entering university and in reality pupils do not have equal opportunities to study mathematics.

Towards more autonomous and flexible mathematics learning in Portugal p. 133
Ana Barbosa and Isabel Vale

This article discusses various aspects of teaching and learning mathematics in Portugal, focusing on the last 20 years of education reforms. It considers the nature and basis for curricular changes in the country, in particular those that specifically concern mathematics and their effects on students' results. This landscape has been influenced by social and political changes affecting the curriculum, school dynamics and as well as teachers' practices. We also discuss an ongoing curricular change in basic and secondary education aiming to improve mathematics education in this country.

Comparing evolutions and trends in mathematics teaching in English and Scottish schools p. 143
Kenneth Ruthven

This paper examines the case of school mathematics teaching by contrasting England and Scotland. Referring primarily to the English system, it examines the way in which wider socio-political trends – rising educational entitlement and expectations, and increasing government direction and regulation – have shaped the evolution of school mathematics teaching. It identifies competing visions for reform, conflicting conceptions of numeracy, controversy over the ends and means of school mathematics teaching, and the growing influence of international comparisons. Finally, it analyses mathematics curriculum documents current in England and Scotland, highlighting contrasting representations of school mathematics teaching as regards the process of learning mathematics, the strength of cross-curricular relationships, the recognition of mathematics as a cultural-historical phenomenon, and the importance of standard written methods of calculation.

Mathematics teaching in France: characteristics, recent developments and results p. 155
Pierre Arnoux, Michèle Artigue and Nadine Grapin

This article describes and analyses the teaching of mathematics at primary and secondary level in France. Following an overview of the French education system, the analysis is organised around three themes: the social representation of mathematics; the objectives, content and methods of mathematics teaching; results and how they are taken into account. The authors underline ambivalence in social representations of mathematics, describe the main characteristics of mathematics teaching and its major recent developments, and highlight unsatisfactory overall results which they link to systemic weaknesses.

How mathematics curricula have evolved: pragmatism and continuity p. 165
Claudia Corriveau

Against a backdrop of educational reform in Quebec, this article examines the performance of young Quebecers in international mathematics assessments (TIMSS and PISA). The enviable results and the consistency of these results provide food for thought with a view to gaining a better understanding of the culture of mathematics in Quebec schools. A study of evolving mathematics curricula since the 1950s reveals elements that are constant and inherent to the discipline, spanning the decades and different trends in education.