NEW MATH, AN INTERNATIONAL MOVEMENT?

Geert VANPAEMEL, Dirk DE BOCK

KU Leuven, Faculty of Economics and Business, Campus Brussels, Warmoesberg 26,

1000 Brussels, Belgium

geert.vanpaemel@kuleuven.be, dirk.debock@kuleuven.be

ABSTRACT

The New Math Reform of the 1960s is commonly regarded as an international movement, in which common arguments bound together the participants of the reform. However, some authors have challenged this view, arguing instead for parallel reform movements, linked to different national school systems and different background motives. In this paper, we review some of the arguments proposed and trace the main currents which defined the New Math in Europe and the US. We conclude that European debates were mainly related to a structural Bourbakist view on mathematics. The American reform movement was stronger rooted in socio-economic and political motives and from the start driven by the Government. The European and American points of view, which originated largely independent from each other, briefly came together at the Royaumont Seminar (1959) and subsequent OECD conferences, but remained quite unrelated.

1 Introduction

One of the most striking features of the New Math Reform of the 1960s, was its widespread and international character. In many countries around the globe, from the Americas to Europe, from the Soviet Union to Nigeria and New Guinea, efforts at curriculum reform of school mathematics showed a remarkable tendency to converge on a new conception of what mathematics education should be, replacing the traditional emphasis on computational techniques and Euclidean style of reasoning with a more formal and abstract approach, based on set theory, algebraic structures and topology (Begle, 1968; Ohuche, 1978; Swetz, 1975). All of this occurred in not more than two decades. This was only possible through the orchestrated collaboration of scores of mathematicians, teachers, governments, school boards and publishers. Although comparable initiatives can be found in the reform of school physics, chemistry and biology, the revolutionary aspects of the New Math reform, its internal coherence and its public reception, including the highly mediatized controversies it raised, make it into an exceptional example of a truly international phenomenon.

This international dimension of the New Math Reform did not go unnoticed. In his book, *The "New Maths" curriculum controversy: An international story*, educationist Bob Moon observed that the New Math, "perhaps more than any other curriculum reform, caught the imagination of the world at large" (Moon, 1986, p. 8). Moon did not regard this feature of the reform as evident, and offered some explanations. Focusing on a comparison between the reform as it took shape in some selected European countries (The Netherlands, France, England & Wales, West Germany and Denmark), Moon drew attention to the role of the new information technology and the ease of international travel in furthering contacts between national educational systems. He also pointed to the influence of the media that quickly publicized the promises and successes of the New Math across national borders – reversing the trend when in the 1970s "more negative reports on the reform experience came to attract media interest" (p. 222).

More recently, Jeremy Kilpatrick has again raised the question whether the New Math reform can be regarded as an international phenomenon (Kilpatrick, 2012). Interestingly, he included in his overview the introduction of the New Math reform into non-OECD countries but this was mainly restricted to the local adoption of teaching materials imported from the US or the United Kingdom. Although the widespread dissemination of these textbooks and methods suggests some degree of international coherence in the reform movement, Kilpatrick also concedes that "the well-intentioned efforts of reformers in OECD countries to transfer their efforts to non-OECD countries did not work out as planned" (p. 567). Furthermore, he observes that "some countries seem to have missed much of the new math movement even as international contacts increased between countries" (p. 568) citing Japan and The Netherlands. The international character of the reform should therefore not hide the fact that the local appropriation of the curriculum reform could be and often was very different from the experiences in other countries. Kilpatrick even concludes his paper with the observation that "the more school mathematics is internationalized, the more clearly its national character is revealed" (p. 570). So was there indeed an international movement in the sense that it was conceived and promoted by a coherent community of scholars, following the same guidelines and discussing the same arguments at about the same time?

Once one starts to question the international coherence of the New Math reform, it also becomes possible to wonder how any form of international alignment between national reform movements could emerge. Any widespread cultural phenomenon of the extent of the New Math reform movement begs for further explanation. How did it happen that so many communities in so different political and cultural environments almost at the same moment and apparently almost in unison (or at least in close harmony) proposed similar ideas and similar actions? How did the movement spread from one place to another? And what can the New Math teach us about the identity, the structure and the politics of the mathematics community at large? Christopher Phillips has examined the New Math reform in the United States as a reflection both of the political and social environment generated by the Cold War as well as of the different views on the nature of mathematics and mathematics education among leading mathematicians (Phillips, 2015). This approach is very illuminating for understanding the strategies and ambitions of the New Math in the US, but it also tends to isolate the American reform movement from a more global understanding of what the New Math represented in other countries. Similarly, in her dissertation on precollege mathematics education reform in the United States, Emily Redman has shown that the swift and determined actions of the American mathematical community in preparing a new curriculum, can only be understood by looking at the strong "coagulation" of that community in the previous decades and at "the conscious relationship between a small, determined, and relatively coherent community of reformers with the federal structures and resources that support reform"(Redman, 2013, p. 3).Implementing a successful reform was more than engaging in intellectual debate and writing up curriculum proposals. Reformers needed funding, professional authority, government support and commercial connections in order to be able to bring their ideas into practice. But if such opportunities can be expected to exist within national communities, it is not obvious that similar resources and networks are available and effective in other countries or on an international level. Again, as it becomes clear that the American reform has to be firmly situated in the local context of American society, the

analysis of the reform in other countries cannot be expected to fit into that same framework.

In this paper, we will first focus on the early development of the reform movement when contemporary curriculum drawbacks were discussed and new goals were being set. We will show that American and European debates were fundamentally different and that there was almost no contact between the two communities of reformers. Then we pay attention to the actual implementation of the reform, the dissemination of teaching plans and textbooks around the world. Here also, the available historical material suggests that each country produced material adapted to its local needs, and that there was little correlation between what happened in different countries. Finally, we will propose our own understanding of the international character of the New Math reform and its implications for its local implementation.

2 Two parallel reform movements

According to many popular accounts, the New Math reform started early in 1958, when in the wake of the Sputnik scare that captivated the American public, a School Mathematics Study Group was created that set out to produce a new mathematics curriculum for American students. The story is, however, more complicated. The New Math that emerged at the end of the decade cannot be understood without taking into account the ongoing reform efforts that had already prepared the mindset of mathematicians and teachers. Debates about the sorry state of mathematics education in the United States had started much earlier. Already in 1952, the University of Illinois Committee on School Mathematics had started to work out a new school mathematics curriculum, and in 1955 the US College Entrance Examination Board appointed a special Committee on Mathematics, headed by Albert Tucker, to propose new standards for the school mathematics curriculum in order to prepare high school graduates for university. In these early years, New Math as it came to be understood after 1960, was not on the agenda. There was a general concern for the lack of rigor in high school mathematics, and more generally for the "low levels of mathematical understanding and poor attitudes toward mathematics" among high school graduates (Kilpatrick, 2012, p. 564). One of the causes for this situation, according to some reformers, was the lack of attention for the mathematically gifted student, a concern that fitted well with the preoccupation of the American government during the Cold War with a possible shortage in scientific manpower. The aim of the early reform proposals was to make sure that high schools would be stimulated to offer high quality mathematical education that would increase student enrollments in university mathematics courses.

When in 1958 Edward Begle was appointed as director of the School Mathematics Study Group (SMSG), he conceded that "there is little agreement about what should be done" (Phillips, 2015, p. 44). With the support from massive funding from the National Science Foundation, Begle organized a nation-wide network of authors to write textbooks for each grade of high school. According to Christopher Phillips, SMSG took the occasion to redirect not only the rigor and scope of the mathematics curriculum, but also its general approach.

SMSG's mathematicians took the charge to make the intellectual habits of American students more rigorous as an opportunity to introduce "modern" mathematics into

the curriculum. They argued that developments over the first half of the century had fundamentally reformulated what it meant to do mathematics. [...] The curriculum project was their opportunity to inscribe this view of mathematics in millions of textbooks.(Phillips, 2015, p. 47)

This new image of mathematics, one that would lead towards the New Math, was inspired by the work of the Bourbaki group in France, advocated in the US by such mathematicians as Albert Tucker from Princeton, and Marshall Stone from Chicago. To the mathematicians in SMSG, "structure, not technique, characterized the discipline" (p. 59). It was emphasized that mathematicians did not calculate, they rather pondered on logic puzzles, "that required not counting, nor measuring, but careful reasoning about particular sets of information" (p. 54). The most telling example was the "modern" treatment of arithmetic, not as a tool for calculation, but as an object to investigate the properties of numbers and operations, where the choice of notation or representation was of secondary importance.

The first SMSG textbooks were ready by September 1960. The following years SMSG would prepare similar course materials for elementary schools (1962) and kindergarten (1964). Apart from that, SMSG would write monographs to supplement the usual high school curriculum and to awaken interest in gifted students. It also prepared teacher-training materials, a series of thirty educational films, and revised texts for the "less able students". In 1968, Begle estimated that about four million texts of SMSG had been sold, although it was impossible to say how many students and teachers actually had used the textbooks (Begle, 1968).

This chronology of events suggests an early and dynamic start for the New Math in the United States. In reality, New Math was less well defined and less influential than it appears from the writings of some participants. From the start, the SMSG curriculum was contested by leading members of the academic mathematical community. Furthermore, apart from the SMSG group, other initiatives formulated different approaches. It led Robert Davis, a collaborator in the Madison Project of Syracuse University (one of many alternative reform groups), to conclude that: "There was no single thing, no single alternative to existing school programs, no agreement on how things needed to change. Indeed, the only thing these diverse projects shared in common was the firm conviction that the 'traditional' mathematics curriculum needed to be replaced by something different. Any claim that there was a well-defined 'new math' is entirely unfounded" (Davis, 2003, p. 625). Davis also contended that most schools in the US were hardly affected by the New Math reform. The fact that New Math was perceived as the major thrust of the reform may have been caused more by the public controversies it raised among mathematicians, than by its real impact on mathematics teaching in US schools.

At the same time, a similar reform movement was underway in Europe. As in the US, early initiatives dated back to the beginning of the 1950s. In April 1950 Caleb Gattegno (1911-1988), an Egyptian born mathematician and psychologist, organized the first of a series of international meetings with leading scholars in the fields of mathematics, psychology, philosophy and education (as well as teachers) to discuss the state of mathematical education. At the fourth meeting, in April 1952 the *Commission Internationale pour l'Étude et l'Amélioration de l'Enseignement des Mathématiques* (CIEAEM) / International Commission for the Study and Improvement of Mathematics Teaching was officially founded with an executive committee consisting of the

mathematician Gustave Choquet (University of Paris) as president, the cognitive psychologist Jean Piaget (Universities of Genève and Paris) as vice-president and Gattegno (University of London) as secretary (Bernet & Jaquet, 1998). From the outset, the CIEAEM meetings had an international character with participants from eight European countries. The main goal of CIEAEM was not the actual preparation of a curriculum reform, but rather the study of learning processes, as a necessary step before any improvement in teaching methods or curriculum could be proposed. A recurrent topic of debate and investigation within the CIEAEM community during the 1950s was the use of concrete models, teaching materials and teaching aids. The work of CIEAEM did not originate in a concern for the bad state of mathematics education. Rather it focused on the improvement of the content of mathematics education, and to bring it more in line with current mathematical thinking as applied in many ways in modern science. The proposals were made with the most gifted mathematics students in mind. In this perspective the CIEAEM sought the collaboration from members of the Bourbaki group (Dieudonné, Choquet and Lichnerowicz) who directed their attention to the world of school mathematics. During the 1952 meeting at La Rochette par Melun, the Bourbakists set forth their views on the origin, meaning and "utility for discovery" of structures in modern mathematical science. Piaget, who participated in the meeting, explicitly related these mathematical structures to the mental operations through which a child interacts with the world. It is therefore within the CIEAEM community that the first conceptions of "modern mathematics" were thought through and formulated. The theoretical debates also led to practical reform strategies. In August 1958, in the margin of the 12th CIEAEM meeting in Saint Andrews (Scotland, UK), the Belgians Frédérique Lenger and Willy Servais compiled the draft of a concrete program for the teaching of modern mathematics, that was subsequently tested in two schools during the following school year, arguably the first attempt to teach "modern mathematics" in Europe (De Bock & Vanpaemel, 2018).

Compared to the American SMSG, CIEAEM was active on a much smaller scale, was not funded and not linked to any official body or government, and had no interest in implementing a grand scale reform. In spite of its impressive name, CIEAEM was and always remained a small informal group, an inside group with little outreach. Some of its members would take on leading roles in the subsequent New Math reform, but before 1958 this was not visible to outside observers. It is not likely that many American reformers were aware of CIEAEM during the 1950s. When in 1954 Howard Fehr and his colleague Myron F. Rosskopf, both from Teachers College, Columbia University New York, attended the International Congress of Mathematicians in Amsterdam, they urged their American colleagues to take notice of the reform movements going on in Europe. But at the same time they noticed the large differences in school systems.

Naturally, European countries face in education many of the problems that we face. However, their attempted solutions are different. The problem of differences in ability and objective is met by having several types of schools rather than by having several programs in the same school, particularly at the secondary school level. At sessions of Section VII, on philosophy, history, and education, there were presented a series of papers on trends in mathematics education for students from age sixteen to twenty. It was apparent from these reports that the mathematics curriculum in the United States and the organization of the courses is quite different from any that exists in Europe. Part of the difference is due to a difference in philosophy concerning education. We try to carry as many students as we can and as far as possible into mathematics. The Europeans try to separate by application of rigorous standards those who can do mathematics from those who cannot. (Rosskopf, 1955, p. 114)

In 1960 Fehr again observed that although "the subject matter covered [in European schools] is not vastly different from that in our schools", it is "in no case [...] modern in the sense of the fine materials written by the School Mathematics Study Group and the University of Illinois School Mathematics Committee, or the program advocated by the Commission on Mathematics" (Fehr, 1960, p. 799). To Fehr, the European program of school mathematics appeared "relatively static". In all probability, Fehr did not know about CIEAEM or at least considered it of no importance. Conversely, there are little or no indications that European reformers were aware of what happened in the United States. Probably, CIEAEM did not feel the need to inquire about American developments, as they could build directly on the personal involvement of several Bourbaki mathematicians and representatives of so many European states. Georges Papy later wrote that the Lenger-Servais program "was certainly influenced by the work of the International Commission for the Improvement of Mathematical Instruction and by the work of Northrop and others at the University of Chicago" (Papy, 1966, p. 180). The statement is misleading. Papy probably hints at the Chicago mathematician Eugene Northrop, but in a later article (in which the same sentence is included) Frédérique Lenger - then Mrs. Papy - refers in a footnote to the Yale philosopher F. R. S. Northrop and his book The logic of the sciences and the humanities (New York, 1948) (Papy, 1968, p. 26). As the statement is published in papers by both Georges Papy and Frédérique Lenger, there may have been some truth in pointing to the American influence. On the other hand, Papyand Lenger may well have exaggerated the influence of the Americans. In 1966 Papy had taken a leading position in the European New Math reform and he may have wished to emphasize the international nature of the reform. As it stands, Papy'sand Lenger's statement is about the only evidence we found on any American influence on the European mathematicians and teachers working out the New Math curriculum in CIEAEM. We tend to believe that the interaction between American and European actors in the field of school mathematics was limited before the famous Royaumont Seminar of 1959.

3 International dissemination

The first real contact between European and American reformers was the Royaumont Seminar on New Thinking in School Mathematics, organized from November 23 to December 5, 1959 by the OEEC, as part of a larger series of similar seminars for all the sciences. The Seminar was attended by 46 participants from 18 countries, including the United States and Canada. The American delegation, consisting of Marshall Stone, Albert Tucker, Howard Fehr and Edward Begle – all of them actively involved in the ongoing New Math reform in the US –, did make a great impression on the European audience. Europeans noted the differences of the American school system with the situation in their own country, which made the American experience less relevant to their own concerns, but they were also impressed by the strong financial support of the reform movement, the widespread media campaign and even the choice of a catchy slogan, the "New Math", to further the case of reform. To underscore this point symbolically, the proceedings of the Seminar with the official title *New thinking in school mathematics*, were translated in French with the "American" title *Mathématiques nouvelles*. But in general, the differences between the European and American reform efforts were often more obvious than the similarities.

After Royaumont, Americans, in particular Stone and Fehr, with the support from organizations as OECD, UNESCO and ICMI, started to dominate international conferences on school mathematics. It is doubtful, however, whether this had any influence on the New Math reform in terms of bringing the two traditions closer together. For all their international exposure, Stone and Fehr seem to have played only minor roles in the American New Math reform. Fehr repeatedly reported on international developments to his American fellowmen, as he was aware that American teachers had little idea of what was going on in Europe. "It is the hope of the writer", he wrote in 1965, "that the survey presented herein will serve to make the teachers in the US aware of the fact that their colleagues in foreign lands are just as concerned as they are with modernizing the mathematics curriculum" (Fehr, 1965, p. 44). None of the standard monographs on the history of New Math in the US make more than passing mention of events in Europe. Some minor reform programs may have been influenced by European ideas, such as the Secondary School Mathematics Study Group of Howard Fehr, who always remained critical towards the SMSG approach, the Madison Project of Robert Davis, which focused on the use of concrete teaching materials, and the Comprehensive School Mathematics Program of Burt Kaufman, who solicited the assistance of several European experts (Choquet, Steiner, Råde), and also convinced Frédérique Lenger to join his team in 1974 (Hayden, 1981; Phillips, 2015). For both Davis and Kaufman it can be said that they came to know European colleagues through Howard Fehr's network. Outside of this network the US-Europe connection seems to have been weak.

From the perspective of Europe, the situation looks different. Without the benefit of well-established international collaborations, the conferences sponsored by OECD, UNESCO and ICMI retained all their importance. The presence of some American researchers on these occasions added credibility and authority to the meetings. But even then, specific references to American researchers or reform groups remained vague. The main ideas of New Math in Europe were either borrowed from the Bourbaki program, or based on the Klein paradigm of transformation geometries. All of this had been convincingly prepared and disseminated by members of CIEAEM. European reformers had no need for American ideas. Possibly, the US had a lead over Europe in the early production of textbooks but European textbooks were not lagging far behind. As most European countries only implemented the reform in the second half of the 1960s, there was enough time to write textbooks adapted to the local school system. In her dissertation, Nadimi Amiri (2017) has argued that New Math was imported to Luxembourg from the US, but the textbook made available to Luxembourg schools was the French manual published already in 1960 by Camille Bréard, with a preface by Lichnerowicz. In Belgium, Georges Papy and Frédérique Lenger started their series Mathématique moderne in 1963. Also in Spain, original Spanish manuals were published from 1962 onwards by a Commission for the Experiments on Teaching Modern Mathematics appointed by the Ministry of Education (Ausejo, 2010). In Iceland, an American textbook was used for a pilot project in the leading school of Reykjavik, but in 1966 an Icelandic textbook was written and adopted for the whole education system (Bjarnadóttir, 2006). Begle (1968)

states that SMSG materials were translated and/or adapted in many countries, including Sweden, Turkey, Taiwan, Australia, Brazil and India. But on the whole, American textbooks were not very successful on the European market, and conversely, as far as we have been able to find out, there are no examples of European textbooks introduced on the American market.

The dissemination of the New Math on other continents calls for a different interpretation. Here many local reform movements took inspiration from either the US or the United Kingdom. Best known is the African Mathematics Program (AMP), commonly known as the Entebbe Project. Headed by W. T. Martin, chairman of the Department of Mathematics at M.I.T., the AMP organized in 1962 a mathematics workshop at Entebbe, Uganda, which hosted 54 participants representing 13 countries, including 24 educators from 11 English speaking African nations. The ensuing project, financed by the Ford Foundation and the US Agency for International Development, produced over 60 volumes, which were tried in Ethiopia, Ghana, Kenya, Liberia, Malawi, Nigeria, Sierra Leone, Tanzania, Uganda, and Zambia. According to Frank Swetz (1975), the whole project "was American dominated with the writing strongly influenced by advocates of SMSG. [...] The result was a black faced version of SMSG mathematics" (p. 6). Yet, he continues, "to challenge the American 'menace,' two competing British-oriented writing groups were formed. The Joint Mathematics Project was begun in West Africa and the East African School Mathematics Project in East Africa; both projects emulated the British counterpart of SMSG, i.e., the School Mathematics Project (SMP)" (pp. 6–7). In a footnote, he adds, "Unfortunately, such an argument is common between British and American educators. Much to my later embarrassment, I found myself engulfed in such a controversy while teaching in Malaysia" (p. 6).

In 1978, Hans Freudenthal edited two issues of Educations Studies in Mathematics on the changes in mathematics education since the 1950s. Contributions to these issues included not only papers on countries like the Netherlands, France, Great Britain and the US, but also on less publicized countries such as Sri Lanka, the West Indies, Iran and Nigeria. No countries from South America were represented. The picture that emerges from these contributions is one of local appropriations of American or European (mostly British) examples, adapted to the national school systems and to the demand for mathematically trained professionals. Local mathematicians not only studied the New Math; they were also very aware of the criticism that the New Math reform had generated in the United States and Europe. In the case of India, the criticism led to a nuanced evaluation of the advantages and disadvantages of the New Math, e.g. the "fetish of set theory". The Association of Mathematics Teachers of India adopted the position that "there is no one New Mathematics but there are many versions of it. Some features of these are desirable e.g. emphasis on concepts, discovery approach, transformation geometry approach, programming, matrices etc. and use of modern teaching aids. These must be retained. Some other feature[s] of New Mathematics are undesirable. [...] These must be given up" (Kapur, 1978).

Criticism of the Western New Math had surfaced already in the early years of the reform. M. A. B. Deakin from the Papua and New Guinea Institute of Technology wrote a scathing critique of the New Math reform in his country.

American mathematics syllabuses are exported, particularly to developing countries. In some cases this is a conscious process, in that American consultants are called in, or in that a university in a developing country may enter a formal relationship with an American college or university. In other cases, the export is unconscious. An overworked and underqualified administrator in an emerging nation feels impelled to "keep up with modern developments overseas", and copies almost verbatim a course designed for (say) high schools in upper New York State. [...] It is therefore disconcerting to administrators of tertiary mathematics here to find that the secondary schools have adopted a rather faddish "New Math" syllabus, loaded with set theory and its associated jargon. (Deakin, 1971, pp. 1017–1018)

In general, it is difficult to find a united, coherent view of New Math. D'Ambrosio (1991) observed that "the basis of the movement in Brazil can be described as a concoction of ideas from around the world, a synthesis of which was done by Brazilian mathematics educators themselves. [...] The ideas having most impact on the Brazilian curriculum were those of the School Mathematics Study Group, George and Frédérique Papy, Zoltan Dienes, Lucienne Félix and Caleb Gattegno. Each of the programs developed by them were based on different premises and assumptions as well as having very different focuses. The fact that these programs were combined, with little or no critical analysis, was quite detrimental to the Brazilian curriculum, for it generated a curriculum based on inconsistencies of various kinds" (p. 71). De Carvalho (2014) suggests that the strong investment of the United States in Latin America for political reasons, was responsible for a preponderant American influence in mathematics education reform.

The fear that Latin America would "go communist" had, as a result, considerable American investments in the region. As part of the "Alliance for Progress" (launched by President John F. Kennedy in 1961) or direct foreign aid programs, several cooperation agreements in the educational area were signed between the United States and specific Latin American countries. This helps to explain why, in Latin America, even though the European contribution to the new math movement was known, the major influence was American. For example, many publications of the School Mathematics Study Group (SMSG) were translated into Portuguese, including its complete secondary school mathematics textbooks, while non-American teaching materials were much less used. Exceptions were the use of Papy's textbooks in a very prestigious school in Rio de Janeiro and the translation of a textbook of the School Mathematics Project – from England – into Spanish in Venezuela. This textbook did not follow Venezuela's official mathematics curriculum, however, and had scant influence. (de Carvalho, 2014, p. 353)

From the examples to be found in the literature, it becomes clear that, although many countries indicate the great influence of the American textbooks and teaching material, the New Math movement was not regarded as unified or unequivocal. There was a healthy amount of criticism and a large measure of freedom to adapt the New Math message to local requirements. Many features were held in common between the main protagonists, but most of the actors were well aware of the differences between the various reform traditions. So to what extent can the New Math reform be regarded as an international phenomenon?

4 An international phenomenon?

The foregoing analysis testifies to the conclusion made by J. Kilpatrick (1997) that "all educational reform is local" (n.p.). On a more sophisticated analysis, however, the international dimension of the reform movement, which established itself after Royaumont, had important and perhaps unanticipated consequences for the implementation of the reform, and in particular for the actors involved. According to Bob Moon, the many conferences implementing, discussing and criticizing the Royaumont Seminar produced a professionalization of experts on school mathematics. This in turn, legitimized and strengthened the position of reformers in their own country. "Being international" had a positive impact on the status of national experts. Although Moon based his analysis on the implementation of New Math in primary education, his observations may have a more general validity. In the face of an international consensus (or so it was construed), governments left the details of the reform and its critical evaluation to the new group of experts, who could boast international experience. This resulted in a rapid institutional development of research institutes, teacher training programs and mathematics education centers, fostered by a general feeling in many countries "not to be left behind". From the middle of the 1960s, Bob Moon concludes, "reform became, and was initiated through, an international rather than national debate" (Moon, 1986, p. 199). If this is indeed so, one may wonder at who benefited most: University mathematicians who were already well organized on an international level, or mathematics teachers who were bound to local school systems with little chance of being heard in international conferences? Moon observes that "one interest group appears to have been particularly influential, in the early years of reform. The impact of university mathematicians, notably these advocating a "Bourbakist" reform of the school curriculum, is demonstrated in each country" (Moon, 1986, p. 216). He adds, however, that "despite all the investment of time and energy and political activity, many of the ideas advanced by those from the university world failed to become established and [...] a markedly different climate existed two decades after Royaumont".

As indicated by many authors, the New Math reform was not a single, well-oriented and coherent movement but rather an amalgam of proposals and projects. Before the Royaumont Seminar, there was little interaction on an international scale. Both in the US and in Europe small, informal groups were working on some ideas of curriculum reform (often called "curriculum improvement"), but from different angles and with varying degrees of success. After Royaumont, some international collaboration between Europe and the US took shape, but its direct influence was limited. On a symbolic level, however, the international dimension (at least in Europe) favored those mathematicians who had access to the network of European and American reformers. This may have been particularly important in smaller countries, whereas it did not make so much difference in countries like the US, the UK and France. As de Carvalho (2014) concludes for Latin America: "The modern math movement had varying degrees of success in Latin American countries. Perhaps its most important result was fostering the creation and development of the community of Latin American mathematics educators" (p. 355).

The New Math reform proved to be a failure in the US. It did not survive the 1970s. Also in European countries, many of the new elements that had been introduced were either abolished or adapted. Yet, the institutional basis of mathematics education studies seemed to have survived the storm of criticism in most countries. Could it be that the same international dimension which was responsible for the amount of independence that mathematics reformers obtained in the 1960s was also instrumental in establishing mathematics education studies as an independent field?

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