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Cultural conflicts in mathematics classrooms and resolution – The case of immigrants from the Former Soviet Union and Israeli "Old timers"

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Abstract: *This paper describes a singular process that has been transforming mathematics education in Israel over the past 20 years, as a result of a massive influx of mathematics teachers from the former Soviet Union (FSU). It traces the key points of conflict that marked the initial contact between Israel's mathematical and educational culture and the codes and values brought with the immigrant teachers from the FSU. It then shows how this conflict is gradually becoming resolved, as the two disparate cultures merge into a single, new culture, based on 'the best of both worlds.' This case, we claim, can serve as an example of the importance - and the benefit – of relations of mutual influence and stimulation between different groups in today's climate of migrating peoples and mixing cultures*.

Keywords: cultural conflict; cultural dimensions of mathematics teaching; educational culture; former Soviet Union; immigrant teachers; mathematics teachers; Israel; Israeli educational system; teacher identity; values

Socio-historical Background

"Why Learn Math? Because it Develops Orderly Minds!"

This quote is attributed to the famous eighteenth century Russian mathematician, scientist, poet, and linguistics reformer Mikhail Lomonosov (1711-1765). Lena, who immigrated to Israel in 1995, remembers seeing the slogan hanging in her math class in Ukraine. She admits wistfully, yet proudly, that she misses order, clarity, and a sense of belonging. For Lena and thousands of other FSU immigrants teaching math in Israel, Lomonosov's inspiring message resounds far beyond mathematics. The importance of "the sense of order" in life that math provides is part of an ongoing cultural legacy (Amit & Burde, 2005).

Usually, when we speak of cultural gaps in education, we refer to gaps that exist between teachers and their students, or between students of different backgrounds (Sfard & Prusak, 2005). This study, however, addresses a cultural divide that was formed within the teaching community, when a wave of mass-immigration to Israel from the former Soviet Union brought together two groups of teachers from very different backgroundsii. Over the past two decades, more than 900,000 immigrants from the FSU, many of them educated in science or engineering, have arrived in Israel and made their way into the job market, particularly as teachers of mathematics and physics (Darr & Rotschild, 2004). Though this is, in fact, the second wave of Soviet immigration, following an earlier one in the 1970s, its impact on Israeli society was far

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more significant, since it was both quantitatively much larger (constituting a 15% addition to the country's population of six million), and qualitatively less prone to assimilation. (This latter point is tangible in the two waves' respective treatment of names. While in the first "Igors" tended to change into more Israeli sounding "Igal," children born in Israel in the '90s were still given "Russian" names like "Natalia" or "Oleg").

The immigrants arriving from the FSU were marked by a shared perception of the immense value and importance of higher education. For them, such education was both a duty and an aspiration, particularly in the fields of natural science, engineering and mathematics.

Many of the immigrants who became teachers in Israel had been teachers in the FSU, while others had been engineers or scientists - products of the one level or another of the Soviet educational system. Though the hometowns of these people were widely dispersed throughout the Soviet Union, their concept of mathematics education was strikingly homogenous, a consistency most probably born of the Soviet educational system's tight centralization. The new immigrant teachers were set to work side by side with the veteran teachers already present in the educational system, teaching classes composed of a mix of immigrant and native-born students, in which the sole language of instruction was Hebrew. While the need to teach in a foreign language was originally assumed to be a potential source of great difficulty, it proved in retrospect to be far less problematic than the foreignness the immigrants discovered in the culture and mentality underlying the Israeli approach to mathematics education. The encounter between the FSU immigrant math teachers and their Israeli counterparts, and the conflicts it produced, led to changes in the country's math education culture. The uniqueness of these changes was that they occurred 'from the bottom up,' originating in the teachers and their teaching practices rather than in politicians, market forces, industrialists, or researchers (Amit & Fried, 2002).

The experiences of the immigrant mathematics teachers, and how these contrasted with their expectations, are suggestive of the importance of acknowledging that even something as seemingly 'objective' as mathematics is influenced by cultural concerns. This notion that an inseparable link exists between math education on the one hand and values, culture, and society, on the other has long been acknowledged by the mathematics education research community (Bishop, 1988; Amit, 2000; Seah 2004; Sfard & Prusak, 2005). It has not yet, however, been similarly acknowledged by those engaged in the practice of mathematics education (such as teachers and policy makers), which may account for why these elements were not taken into account as factors in the immigrant teachers' professional integration.

The entering teachers were provided with a framework of preparation and assimilation into the Israeli educational system, but despite the expectation that mathematics could be universally taught anywhere, all parties were surprised to discover that this was not the case. The integration programs focused solely on acquainting the newcomers with the Israeli syllabus, and other logistical issues pertaining to the management of Israeli schools. They included no element of cultural or social acclimatization. Tamara, for instance, came to Israel with a doctorate degree in mathematics and twenty-two years of teaching experience, and had to take a year-long preparatory course before receiving an Israeli teaching certificate[iii].

Tamara: At first I felt that the course had nothing to offer me . . . I was [sure it] would be a waste of time, a mere formality, and that I'd sit there for a year, and start working the following year. I was certain that I'd be able to step into a classroom and just begin teaching math. [I believed

that] although people's [cultural] natures differ, traditional mathematics is the same everywhere, and it was a waste of time to go to an absorption centre– Was I ever wrong! [emphatically stated].

Research Aims and Scope

This paper aims to illuminate some of the cultural differences that emerged between the two groups of mathematics teachers working in Israel, and to show how these are gradually bringing forth a new mathematics education culture that draws on elements from both sidesiv. The research on which it is based has been carried out over several years. The bulk of the data on FSU educational culture was gathered over the course of three intensive years of personal interviews and discussions, in groups of 3-5, with 14 teachers from the FSU. The confrontations with 'native' Israeli culture were observed both within such discussions, and in the hundreds of lessons, taught by immigrant and non-immigrant mathematics teachers, that the author of this paper audited during years spent working for the ministry of education.

All of the immigrant teachers participating in the study had held the equivalent of a Masters degree, and had teaching experience ranging from 18 to 30 years, the last of them spent teaching in Israel. All had gone through the preparatory course in Israel, had received a teaching certificate, and had good command of Hebrew. Clearly, this short paper cannot provide an exhaustive account of the results of over ten years of research, and the short summary provided here is just the 'tip of the iceberg.'

From Conflict to Collaboration- A Cultural Evolution

The perceptions of mathematics education held by the immigrant and native Israeli teachers were separated by a cultural chasm – one that initially seemed insurmountable, producing great fissures in Israel's mathematics education system. These cultural gaps, however, are gradually being bridged. Though this process began with a meeting – and a confrontation - between two distinctly separate cultures, in time, the rigid borderline between the cultures began to crack, and they started to slowly leak into one another, progressing toward a final stage in which they merge into a new, composite culture that utilizes elements of both.

Conflicts in Values, Method and Practice: Primary Sources of Friction

Importance and function of mathematics education: In Israel, as in many other 'Western' cultures, the study of mathematics is generally perceived as a means to an end; something one must study in order to qualify for training in certain privileged fields (such as medicine, computers, engineering). As a result, for those aspiring to succeed in other directions (achieving success in business, for instance) mathematics are a low priority – a point reflected in the recent dramatic drop in students specializing in mathematics. In the culture from which the immigrant teachers arrived, on the other hand, the study of mathematics was far more of an end unto itself, a field implicitly associated with high status and prestige.

Tamara: Education was considered a goal in its own right, as well as a key to a better way of life, a higher social position, and a larger income. This was the Soviet view. In Israel there are other paths to success, such as opening a business. In the FSU math was the leading subject in education, and as such was preeminently regarded.

Teaching methods and syllabus: While in both Israel and the FSU mathematics education is based upon a central, government imposed syllabus, the degree of centralization in the latter system is greater by far. In Israel, the path by which the government-decided end result is reached is left to the discretion of individual schools and teachers, allowing for the use of an ever-shifting range of teaching styles and textbooks. In the FSU, on the other hand, the government provides a single approved teaching approach and set of textbooks, allowing, at the expense of the relative freedom inherent in the Israeli system, a far greater educational stability over both time and space. The stark contrast between the approaches of these two cultures is evident in the definition of what constitutes "freedom" that arises from this statement by the USSR Academy of Pedagogical Sciences - the official body for research and applied education in the Soviet Union. The statement declares that "research on the new methods . . . frees teachers from repeated trial and error, from discovering what science already knows, and applying ideas that are unrealistic for the ordinary school"(Dunston & Suddaby, 1992, P. 9). Where an Israeli 'old-timer' might perceive the rigid Soviet educational system as limiting teachers' freedom by restricting their independence and creativity, this same system may be perceived from another direction as providing freedom from time-consuming responsibility and potentially wasted effort.

Boris describes the difference between Israeli and Soviet teaching methods in the discussion below:

Boris: There we had many didactic materials, booklets telling us how it [the teaching] should be, how it [the curriculum] should be constructed, how to teach...

Researcher: Who publishes these booklets?

Boris: Usually these were pretty formal things...there was a lot of monitoring there of the methods of teaching and working, and you could get a very unpleasant warning if you didn't follow the general spirit.

Researcher: And the 'general spirit' was decided in Moscow?

Boris: More or less.

Researcher: Didactically, do you have more freedom in Israel?

Boris: Yes, decidedly so. Here they do not monitor the didactic methods a teacher uses in his work. He can basically use any method he wants to succeed, they measure by the success of the end result and not by the way you get there.

Researcher: And you?

Boris: It may sound strange, but I felt very comfortable almost from the beginning in Israel with the option of choosing what's comfortable for me. It fits my character.

Upon arriving in Israel, immigrant teachers felt the lack of the 'top down' approach to which they had been accustomed, wanting precise information about what should be taught when and how, and which book should be used in doing so. Even as they learned to appreciate the increased freedom, they nevertheless lamented the loss of the FSU system's predictability and long-term support.

The two cultures also differed in the larger amount of time and resources allotted to mathematics education in the FSU – where even far-flung schools were equipped with special 'math-rooms,' where mathematics was taught only in the morning, and where the smaller selection of other available study-topics meant that 8 classes could be devoted to mathematics every week. This last point is reflective of a basic difference in the two cultures' approach to learning, whereby the Israeli system seeks to give students a smaller 'taste' of a large assortment of topics, while in the FSU a select group of priority topics are taught in greater depth - a difference that also shows in each culture's choice of mathematical topics. Teachers from the FSU, who had been used to a curriculum highly focused on arithmetic, algebra and Euclidean geometry, were violently opposed to the Israeli reduction of these topics in favour of such additions as calculus, vectors, and (particularly) statistics. The lack of connection in Israeli schools between mathematics and other sciences, especially physics, was also difficult for the immigrant teachers, who had been schooled in multiple sciences in tandem, and in their connection to one another. They found the mathematics taught in Israel to be 'stripped down' by its disconnection fro its sister-sciences.

Pedagogy and classroom management: Another source of friction and anxiety were the pedagogical differences between the two cultures. Mathematics education in the FSU was based largely on a method of 'drill and practice,' a 'hard work' approach based on the solving of many exercises and the development of technical skills. An FSU university entrance exam, for instance, might require a student to simplify the following complex algebraic expression:

$$\left(\frac{a}{3(a^2+1)^{1/2}} - (2a^2+1+a\sqrt{4a^2+3})^{1/2}\cdot(2a^2+3+a\sqrt{4a^2+3})^{-1/2}\right)^2$$

Such a show of algebraic technical skill would not be required of a high school graduate in Israel, which has opted, like much of the western world, to relinquish technique (making use if calculators etc), and stress instead an 'overall comprehension' of the topic, which does not necessarily centre on correct answers to individual exercises.

These differences go beyond the debate over pedagogical approaches and emphases, and are strongly rooted in both the values and the pragmatic reality of the Former Soviet Union. On an ethical level, hard work in itself was a virtue in the Soviet Union.

"Soviets hold that complex calculations inculcate good habits of hard work, while British (and others in the West) feel that mathematics is a subject [that teaches that] by hard thinking it is possible to avoid hard work" (Muckle, 1988, p. 58).

Furthermore, Algebraic skills demand very little independent creative thinking. This was perfectly acceptable since creative thinking was a skill the Soviet regime did not want to develop. At the pragmatic level, immigrant teachers have an ingrained belief, probably imbued in them from the pragmatism of the Soviet regime, that the solution of a problem is correct only if it arrives at a correct product. The Israeli system, on the other hand, holds the constructivist view that problem solution is a process, and that a student ought to be given credit for a partial answer, even if the final product is missing or incorrect. One FSU immigrant teacher told us that the algebraic approach of prioritizing process over product meant that: "The [students] are like engineers who know how to design things but not how to build them" (Tamara) – i.e. that they understand theoretically how a problem is to be solved, but are not necessarily capable of actually solving it.

The Israeli classroom environment proved to be a further source of contention, as it is far more lax than that of the FSU, which was based on rigid discipline and the absolute authority of the teacher. In Israel, students might challenge a teacher's authority by speaking in class, expressing reluctance to complete 'too much' homework, or demanding further explanation if something is not understood. This, combined with the need to work in a new, unfamiliar language, could often be a blow to the immigrant teachers' self-confidence.

Yafa, an Israeli 'old-timer' who works closely with immigrant colleagues, told us:

Yafa: The most prominent thing about [immigrant teachers] is their emphasis on technique and hard work. They pay attention to doing exercises, homework and student effort...and they have a certain intolerance when it comes to student behaviour. Students must behave respectfully and not be rude to the teacher...speak at the proper time and not interrupt. In their opinion – a student who knows how to behave is a good student.

Researcher: Behave according to their norms?

Yafa: Right, yes, of course. I think it's not that different from the expectations of the veteran Israeli teachers, but because we have also spent some time living in this place (said emphatically) and we're familiar with this behaviour, we are a bit more tolerant...of this behaviour, though we don't agree with it.

Regarding differences in teaching method, Yafa adds:

"We try to vary things with games and projects, they emphasize technique and repetition. As my friend told me, "students need to know first to work and then to play."

The immigrant teachers' struggle to adjust to Israel's constructivist views on education is clear from statements such as:

"There we knew how to teach properly, and we succeeded at what we were doing. We knew what was best for [the students] . . . Students cannot discover math rules on their own . . . Why should they? We can teach them the correct ones . . . The students' role is to learn in any situation; they must practice constantly, do heavy loads of homework, and be very organized (especially in their notebooks), then their minds will be orderly . . . Why does a student have to

look for a mathematical explanation . . . what is wrong with receiving a good explanation?" (Lena)

The primary goal of teaching mathematics: A final pedagogical difference arose from the deep divergence of values that separated the two cultures' conceptions of the purpose of teaching mathematics in school and what the primary goal of mathematics education should be. While the Israeli educational system aspired to the promotion of equality and to achieving an evenness in the academic level of all the pupils in a class, teachers arriving from the FSU saw mathematics classes as a site for identifying and promoting only those among their students who were mathematically gifted. This opposition led to conflicting views regarding the proper allocation of time and resources amongst students; where, for instance, should the best teachers be sent? To aid those who are weak in catching up, or to guide those already strong to greater heights? Here, the immigrant teachers' desire to advance their students' excellence conflicted with the budgetary constraints of a society primarily preoccupied with finding ways of providing equal educational opportunities for its socio-economically struggling communities.

Equality [was] top priority. No need to invest in the better students because they will manage on their own. And anyway, in practice their were no resources for it because we were responsible firstly for the weak and mediocre students (Yafa).

Yakov, another 'old-timer,' corroborates this point, telling us: "Equality and excellence are not mutually exclusive, but sometimes we get carried away, worrying so much about the equality that we miss the excellence."

Evaluation and confidentiality: The two cultures differed greatly in their views of how evaluation is to be carried out and how information is to be shared between all of the parties involved in the educational process (i.e. students, teachers, parents, supervisors). In Israeli schools, for instance, preserving the confidentiality of a student's status is considered paramount. The teacher is therefore not allowed to make any potentially humiliating or hurtful public references to a student, or to divulge the names of particularly strong or weak students in an all-parent forum. Accordingly, Israeli schools do not employ the FSU method of in-class evaluation, wherein every session contains an element of testing in which pupils come to the board and receive a grade for their performance.

"Every lesson I had to give the pupils a grade, in other words, I had to test them. If the vice-principal, principal, or supervisor examined the teacher's grade book (that was left at school for supervision every day), and it wasn't in order, the teacher would be in deep trouble with the authorities. (Maria)

While both cultures made use of national exams, in the FSU these were given at the end of every school year and included an oral examination. In Israel in the 1990s, on the other hand, mathematics exams were given only at the end of high-school (this changed in the year 2000), and contained no oral elements whatsoever. In a further step towards relaxing its demands on the student, Israeli mathematics education divides them into three level groups at the age of 15-16, and the difficulty of their final matriculation is adjusted to their skill level (Amit & Fried, 2002). Israeli exams also nearly always contain an element of choice, so that students may theoretically still get full marks in an exam containing a question they do not know how to answer. The new immigrant teachers define this approach as "a recipe for laziness," since the FSU, in contrast, maintains a single level of study for all students (except a gifted minority that receive extra instruction), and introduces no element of choice, though the level of the questions in the national exam rises as the exam progresses.

This aspect of cultural divergence extends beyond the evaluation of students, and is marked by differences in the evaluation of teachers as well. In Israel, teachers were expected to make a periodic report to their supervisors, and these supervisors (i.e. principles, or inspectors) attended lessons rarely, and only after coordinating their visit with the teacher in advance. In the FSU, on the other hand, teachers submitted weekly written reports to their supervisors detailing the progress of every lesson. Supervisors of different levels also entered teachers' lessons several times a year, without announcing their arrival in advance.

Finally, the manner and frequency in which information was to be shared with students' parents was also a point of contention. In Israel, parents typically receive written reports from their children's homeroom teachers three to four times a year and meet with them on an individual basis at least twice. Meetings with the teachers of particular subjects (such as mathematics) are optional. In the FSU, however, parents receive a weekly report of their child's grades and of the activities in class, a report that they must verify having received with their signature. Teachers there do not commonly meet parents individually, but general parent-teacher conferences are held three to four times a year in which the teacher reports on the class's progress, commonly singling out excellent pupils, and sometimes censuring problematic ones by name before all the parents. Furthermore, homeroom teachers in the FSU are required to visit their pupil's homes, and, in the event that any misbehaviour on the students' part goes unacknowledged by their parents, the school was authorized to refer the matter to the parents' place of work, so that the students' behaviour can potentially jeopardise the professional position and salary of their parents. (This latter system was in practice during the communist regime, and remained intact, due to inertia, in the first years of perestroika.)

Merging Cultures – A Mutual Exchange of Values Breeds a New Educational Approach

The teachers immigrating from the FSU left a society based on hierarchy, uniformity and discipline, coming instead to one that – for good or ill - promotes equality, diversity, choice, and autonomy. The FSU's centralized educational system supports the teacher's honored status, individual excellence, and competitiveness, and channels enormous resources to the

advancement of education. In contrast, the immigrant teachers entered an educational system that grants teachers and pupils a generous portion of autonomy, encourages diversity in teaching methods, and allocates only frugal funds to math education. Though the conflicts generated by these many differences led a minority of immigrant teachers to break away from the mainstream and found parallel systems based on FSU values, most were ultimately absorbed into Israel's central educational framework.

While this absorption in itself is not, perhaps, out of the ordinary in immigrant situations, what stands out about this particular case is that the process of change and adjustment was not unidirectional, but occurred on the 'native' side as well. Even as the FSU immigrants worked to adopt the cultural codes that governed the Israeli educational system, that system was being impacted and reformed by its contact with the new culture the immigrants had brought with them from their former homeland.

One reason for the occurrence of such a mutual degree of influence is the sheer numbers of FSU immigrants that flowed into the Israeli education system, which meant that, though 'technically' a minority, their numbers were soon rivalling those of their native Israeli counterparts. Secondly, these teachers arrived bearing the FSU's 'aura of success' in mathematics, a reputation that granted them a fairly high standing in their field, despite their status as immigrants and newcomers. Under such dual conditions of sharp differences coupled with an unusual measure of equality, these two groups were charged with the task of coexisting under a single educational roof – a circumstance that ultimately led to a mutual cultural 'leakage.'

From this 'leakage' there emerged a new model of mathematics education, one that borrowed and combined elements from each of the cultures on which it was based:

Pedagogical adjustments – combining teacher-student reciprocity with technical expertise. In a synergetic fusing of the two pedagogical approaches, the Soviet virtues of hard work, repetition, practice and technical skill are now being acknowledged, while the FSU teachers have begun to adopt a more open 'bottom up' approach in their relation to their students.

Syllabus and teaching style – finding the balance between liberty and consistency. The immigrant teachers have learnt to appreciate the benefits of the greater freedom the looser Israeli curricular restraints allow them in choosing their own teaching styles and textbooks. The Israeli teachers, in turn, have accepted the value of the rigorousness and order espoused by the Soviet system in providing a more stable and coherent teaching and learning experience.

Stepping up student evaluation. The evaluation of pupils' achievement in Israel has become much more centralized and institutionalized, under the auspices of the Ministry of Education. It is worth noting that this change was not initiated by the immigrant teachers, being the result, rather, of concerns over Israel's ranking in international tests. Their strong presence was, however, a factor in the readiness with which these striking changes were adopted, since they were already accustomed to and in favor of the use of systematic external evaluation.

Merging values - joining equality with excellence. While the Israeli educational system continues to strive for equality in its pupils, it has also adopted the Soviet awareness of the value

of recognizing and promoting excellence. This new legitimization of aspiring to excellence has led to the rise of special programs for students who are particularly talented in mathematics, many of which are led by experienced teachers from the FSU. While some of these programs were set up within the schools themselves (such as special classes for 'math speakers'), excellence has remained a comparatively low state priority in terms of resource allocation. Most programs for mathematical excellence have therefore taken the form of extracurricular 'mathematics clubs.'

The Kidumatica Math Club

"Kidumatica," a club "dedicated to advancing math excellence in the Negev," is one of the finest examples of the Israeli initiatives for excellence that arose under the influence of FSU cultural values. The club was founded by the author of this paper at the Ben-Gurion University of the Negev, and is designed for the advancement and development of young students (aged 10-17) of high cognitive potential, many of whom come from lower socio-economic strata. The club's main aim is to enhance mathematics-based reasoning, logic skills, scientific orientation, and creative and multi-directional thinking in solving unconventional problems. Most of Kidumatica's teachers are immigrant mathematicians, who derive immense satisfaction from this work, saying that it is "like breathing the oxygen-rich air from 'back there'." The founder of the club is herself an Israeli 'old-timer,' who sought to combine in Kidumatica the values of excellence acquired from her many years of contact with FSU teachers with the fundamental strive for equity on which she was raised. On the one hand, therefore, the club addresses Israel's social need to provide equal opportunity to diverse populations; on the other, it promotes mathematical excellence in the Soviet spirit. Kidumatica's successful pooling of key elements from both the Israeli and Soviet mathematics education cultures has proven that ideological fusion or integration is possible.

Prospects

In this article we traced a process that began with a friction in the values and expectations of two societies, each comfortable with - and confident in the virtues of – their own way. The veteran Israelis entered the breach with the force of inertia and maintaining the status-quo, a force countered on the immigrants' side by their unusual size as a minority and the halo of mathematical success surrounding the country of their birth. However, these two different mathematical cultures have been gradually 'leaking into one another' and reforming into a new approach to mathematics education that incorporates elements of both.

The merging of these two cultures and the ironing out of their differences is by no means a finished process, and not all of the cultural conflicts have as yet been resolved. The issue of class discipline, for instance, continues to be particularly troublesome to the ex-Soviet teachers, as are such Israeli curricular choices as the limitation of the study of geometry and the insistence on teaching statistics. However, mutual respect and recognition are gradually breeding a model that takes the best of both worlds.

While this case is rare in the sheer enormity of the population change incurred by the FSU immigration, it nevertheless has applicable lessons to teach in today's world of social and cultural mobility, where the population of many countries is being infused with varying quantities of immigrants. Firstly, our study highlights the presence of cultural conflict as a pertinent element in the assimilation of teachers (and students), and one that may benefit from a greater degree of acknowledgement and attention today than it was granted in Israel 20 years ago. Secondly, this case is an example of the potential rewards of a cultural influence that is mutual rather than one-sided. The contribution of Israel's immigrant teachers to the evolution of its math education culture suggests that the arrival of an immigrant population, though its values and priorities may be drastically different, can be seized as an opportunity for adapting and enhancing a pre-existing culture.

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[ii] This paper is based in part on a presentation by Amit and Burde at CIAEM in Italy, July 2005.

[iii] It is worth noting here for the purposes of clarification that as Jewish immigrants entering Israel, these teachers benefited from the security of an automatic and immediate citizenship, and of the highly organized system the state employs for the integration of immigrants (there is an entire government office devoted to this). The year-long course was therefore necessary specifically and exclusively for obtaining a teaching certificate, and was not a prerequisite for any other aspect of Israeli citizenship.

[iv] Though we address only elements pertaining specifically to mathematics education here, these are largely derivative of the very great differences that exist between these cultures on a general systemic level as well.