Chapter 9
Mathematics Teachers as Products and Agents: To Be and Not to Be. That's the Point!

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Abstract Studying mathematics teachers in the Political invites to understand how teachers' subjectivities emerge in the entanglement of the individual in discursive-material formations. We focus on the power effects of the expert discourses by international agencies such as OECD and UNESCO in the fabrication of the mathematics teacher's subjectivity. Deploying a Foucault-inspired discourse analysis on a series of documents produced by these agencies, we argue that nowadays cultural thesis about who the mathematics teacher should be are framed in a double bind of the teacher as a policy product and as a sales agent. Narratives about the mathematics teacher are made possible within a dispositive of control, which makes mathematics education and mathematics teachers the cornerstone for realizing current market-oriented, competitive, and globalized societies.

Introduction

In a conversation with a prestigious colleague, the topic of what it meant to adopt a political perspective to study mathematics teacher education came to the fore. Discussing the differences and similarities of mathematics teachers' work in different countries, the impact of international agencies such as OECD and its Program for International Student Assessment (PISA) became clearly a topic. In the colleague's view, PISA had not had a significant impact on the work of teachers because the ideas behind PISA had never made it to the classrooms. Teachers have difficulties in designing tasks that would realize the ideals of PISA in their everyday work with students. This kind of statement is an example of a truth that has emerged in the field of teaching and learning, as well as in mathematics education research:

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International comparative assessments contribute positively to increase people's mathematical competence. At the same time, mathematics educators ought to align in the realization of such good intentions, since better mathematical achievement of the kind that the assessments measure will lead to the improvement of living conditions at individual and national levels within a global economy. Mathematics teachers, in particular, ought to be committed to selling PISA's effective models.

We want to problematize such truth and consequently we use the statement of our colleague and its inherent rationality as a starting point in our analysis. We are not interested in asserting whether our colleague is right or wrong but in the way some ideas are accepted and become naturalized truths. Problematizing them implies, for example, recognizing the regime that the whole dispositive of PISA articulates. Such a task is beyond the scope of this chapter, and some other authors have started such endeavour (e.g. Kanes, Morgan, & Tsatsaroni, 2014). We focus on the discursive framing for the making of the mathematics teacher nowadays, and at this particular moment, we cannot ignore the force that the expert visions of international organizations display in such making. Thus, we intend to advance a research agenda of political studies on the mathematics teacher by displacing the analysis of teachers out of their minds, knowledge and beliefs, and out of classrooms, schools and teacher education. Accordingly, we pay attention to the *cultural theses* (Popkewitz, 2008) forming around who the mathematics teacher should be in the expert discourses of international agencies and research.

Gates and Jorgensen (2009) argue that while there is a myriad of political studies in mathematics education concerned with "social justice," little research has been done concerning the political dimensions with regard to teachers and their education. Two issues of the *International Journal of Mathematics Teacher Education* were dedicated to filling this gap in the literature. A political perspective on teachers and teacher education would ask "how teacher education plays a part in the furtherance of a practice which evidently works against the interests of many learners. Significantly, such socially unjust practices are not imposed upon teachers; they are enacted by them, and believed by them to be essential and natural" (Gates & Jorgensen, 2009, p. 164). The papers in the two issues include studies of practices in initial and in-service teacher education where an effort is made to challenge the implication of teachers themselves in the creation of inequalities. The political dimensions in this collection then seems to be connected to how teacher education can/cannot promote awareness for inclusive teaching and learning that would lead to more social justice.

Following Pais and Valero (2012) we would go a step further and argue that understanding teachers and their work in the Political requires a study of how teachers' subjectivities emerge in the inseparable entanglement of the individual and the discursive-material formations within which people and practices of teaching mathematics unfold. Brown and McNamara (2005) already conducted a study of primary mathematics teachers in England trying to understand the emergence of what counts as mathematical practices of teaching and teachers "shaped between the individual's grasp of the subject and the institutional definition of it" (Brown & McNamara, 2005, p. 2). They examined how curriculum and government policy impact on the teacher students' becoming teachers. Our approach diverges from Brown's and

McNamara's in that we direct our gaze away from concrete teachers and towards the expert discourses that nowadays seek to govern and to conduct teachers' professional life. Therefore, the attempt to delve into the current ways of reasoning and the encompassing cultural theses about who the mathematics teacher should be is an important effort to study mathematics teachers politically.

The "mathematics teacher" that we discuss here is not a concrete individual of flesh and bone. It is a discursive construction, where power is actualized in articulating ways of thinking about desired forms of being, and where the meaning of and expectations for the mathematics teacher is configured and negotiated. However, saying that the "mathematics teacher is not a concrete person" does not mean that we are simply talking about thin air formulations that have nothing to do with real people. On the contrary, these ways of reasoning frame possibilities of being and becoming. In particular, we examine the expert discourses about the teacher produced by international agencies such as OECD and UNESCO claiming to know how to fix the problems of education, particularly through the making of teachers as objects of policy. We also connect these to the expert discourses of research in mathematics teacher education existing in the literature.

With our analysis, we are seeking to show that the discursive frame for subjectivity of the mathematics teacher is configured in the tension between the mathematics teacher as a *policy product* and as a *sales agent*. The teacher is an object of policy (OECD, 2005) and, therefore, s/he is caught in a double bind: s/he is a product of governing technologies operating through policy, that respond to demands and requirements of society. At the same time, s/he is an agent for governing that has to sell effectively a highly valued knowledge—the mathematical knowledge—by conducting people's mathematical learning and achievement, for the betterment of the individual students and society. Furthermore, this double bind is made possible as an effect of power within the market-driven logic being performed through a dispositive of control, such as the expert knowledge systems, which international agencies and their comparative studies are part of. In other words, the double bind that frames mathematics teachers' subjectivity nowadays is closely connected to the expansion of particular capitalist understandings of education and teachers, where mathematics and mathematical competence, firstly, make particular sorts of people, and secondly, are key values to govern, control, and give value to people.

The chapter begins by positioning the mathematics teacher in contemporaneity and delineating the analytical strategy utilized in doing so. We present the network of discourses that configure and frame the mathematics teacher, which are putting in operation diverse lines of force for delimiting who the teacher is and must be. In the second section we trace and map circulating statements about teachers. We navigate, firstly, in the discourses fabricated by OECD and UNESCO about the teacher and the mathematics teacher as an object of policy, and secondly, in the discourses and ideas that circulate about students' mathematics achievement and how teachers produced it. We show how in these two types of discourses the mathematics teacher is framed as a social product and as a sales agent respectively. In the third section we open up the analysis of the documents by discussing the double bind of the making of the teacher in relation to the notion of societies of control. Finally, we discuss the contributions of this problematization to the political studies of mathematics teachers.

Researching Mathematics Teacher's Subjectivity in Discourse

In this study we operate with some concept tools for unpacking the discursive network framing mathematics teachers' subjectivity. These tools draw on Foucault's studies on discourse and subjectivity, and Popkewitz's cultural theses.

Enunciations are part of collective practices and the systematic and regular use to promote the conditions to configure statements that compose *discourses*. "We shall call discourse a group of statements in so far as they belong to the same discursive formation" (Foucault, 1972, p. 117) and, as Arribas-Ayllon and Walkerdine (2008) put it, discourses describe rules, divisions, and systems of a particular body of knowledge from specific spatiotemporal conditions. Furthermore, discourses "establish what kind of person one is entitled/obliged to 'be'" (MacLure, 2003, p. 176). Hence, discourse analysis is an analytical strategy that makes possible to trace the enunciations and statements that shape particular ideas about the mathematics teacher's subjectivity and his/her ways of thinking and being.

To trace statements is not a straightforward path to follow; some traces are lost and some seem unconnected. More than a clear line of argument, enunciations and statements are entangled in a discursive network where *cultural theses* about the mathematics teacher become visible. Popkewitz (2008, p. 5) argues that "to talk of cultural theses is to focus on how different sets of ideas, institutions and authority relations are connected to order the principles of conduct."

OECD and UNESCO are two institutions that in the last decades have gained prominence in enunciating what education around the world should be. Their documents encapsulate expert discourses that articulate ways of understanding and thinking about education, teachers and mathematics teachers. Popkewitz (2015, p. 1-2.) argues that the reports of international agencies:

> [p]rovide entrance to a style of thinking and acting that moves among different institutions and social actors, such as policy discourses and discussions among teachers' unions and public debates […] The grey-zone area in which the reports operate, then, is more than mediating schemas between research and policy. They provide insight into the numbers as constituted in the international assessments as cultural practices about how to make judgments, to recognize types of objects, and draw conclusions in making manageable fields of existence that are never merely that of numbers.

Within the OECD and UNESCO documents, we can find that a large number of reports have focused on teachers. For example, OECD (2005, p. 220) asserts that teachers "[are] important not only for improving the knowledge base for teacher policy, but also as a way of introducing new information and ideas to schools." UNESCO (2015, p. 1) recognizes that "teachers are a critical education resource in every country." Therefore, these documents become an important source for examining the discursive framing of mathematics teacher's subjectivity in contemporaneity, seeking, firstly, to understand how the discourses in these documents generate systems of reason and cultural theses, which fabricate the desired mathematics teacher. For this study, the material analysed are the documents produced by OECD and UNESCO, such as: the documents by OECD *Teachers Matter: Attracting, Developing and Retaining Effective Teachers* (2005); *Mathematics Teaching and*

Learning Strategies in PISA (2010); *PISA 2012 Mathematics Framework* (2010); and *Equity, Excellence and Inclusiveness in Education: Policy Lessons From Around the World* (2014). The documents by UNESCO *The challenge of teacher shortage and quality: Have we succeeded in getting enough quality teachers into classrooms* (2015); *Evolution of policies on teacher deployment to disadvantaged areas* (2015); and *Challenges in basic mathematics education* (2012).

We deploy a Foucault-inspired discourse analysis (Arribas-Ayllon & Walkerdine, 2008, Jørgensen & Phillips, 2002). With this analysis, we seek to problematize truths that circulate in discourses and understand how these are established and configured. A discourse analysis helps to direct attention to questions of subjectivity, context and the socio-historical dimensions of discourse (Angermuller, 2014). From these ideas, the discourse analysis seeks to throw light on how in circulating discourses the current image of the mathematics teacher has been shaped. In other words, the discourse analysis that we deployed provides a way of thinking about how diverse cultural theses emerge in what is enunciated, conducting the mathematics teacher to particular ways of reasoning, thinking and being.

Tracing and Mapping Statements on the Teacher

To begin with, we need to consider that studies and reports developed by OECD and UNESCO about education are part of a field of expertise composed by diverse institutions, agencies, and users. This field is also of interest to a large number of people, institutions, and agencies. In these reports, mathematical knowledge and skills have taken relevance. Furthermore, international agencies give them moral attributes. For example, OECD (2014b, p. 6) asserts that:

> [f]oundation skills in mathematics have a major impact on individuals' life chances […] poor mathematics skills severely limit people's access to better-paying and more-rewarding jobs; at the aggregate level, inequality in the distribution of mathematics skills across populations is closely related to how wealth is shared within nations. Beyond that, the survey shows that people with strong skills in mathematics are also more likely to volunteer, see themselves as actors in rather than as objects of political processes, and are even more likely to trust others. Fairness, integrity and inclusiveness in public policy thus also hinge on the skills of citizens.

Consequently, documents produced by international agencies set a logic and rationality in education where mathematical knowledge and skills are of great value for the development of a "good citizen." Teachers are the key element of a quality education system to produce high results for students, measured in terms of high scores in achievement tests. Therefore, it is asserted that mathematics teachers are important for society (OECD 2005, 2010c; UNESCO, 2009). Moreover, it is recognized that to think mathematically is a powerful mean to understand and control one's social and physical reality (OECD, 2010c). Additionally, UNESCO (2007, p. 6) states that "mathematics education is a key to increasing the post-school and citizenship opportunities of young people."

If mathematical competence becomes a desired qualification, then the mathematics teacher is considered a provider and developer of certain tools and skills to new generations, which should help people to undertake diverse tasks and problems of everyday life, and of their contexts (OECD, 2010c). Mathematical knowledge is essential for society and its development (Gellert, Hernández, & Chapman, 2013; OECD, 2010d). The mathematical knowledge gets a high value in society, and thus acquires a privileged position because it conduct students' ways of thinking and acting with this knowledge.

Within discussions about teaching and learning, educational achievement is related to factors beyond education; for example, OECD (2014a, p. 104) says that "[h]igher educational achievement benefits both individuals and society, not only financially, but in the well-being with which it is also associated, such as better health outcomes and more civically engaged societies." Educational achievement becomes the aim for the development of movements and efforts realized in diverse social spheres.

Moreover, when improving achievement is at stake, teachers are the only variable that policy can touch in significant ways to better students' achievement. As a result, what happens with teachers becomes a concern for several countries, policy makers, and social and school agents. For example, Schleicher (2012) states that school leaders reported a lack of qualified teachers, particularly mathematics and science teachers. A series of other issues acquire prominence: the need of good teacher training, the improvement of professional knowledge and skills that teachers have to develop, the increase in the effectiveness and competitiveness of teachers, and the implementation of policies to retain the best teachers, among others.

UNESCO (2015) recognizes that it becomes important to ensure that teachers are well trained, motivated and supported. Additionally, Schleicher (2012, p. 38) states that:

> [t]eachers need to be well-versed in the subjects they teach in order to be adept at using different methods and, if necessary, changing their approaches to optimize learning. This includes content-specific strategies and methods to teach specific content.

These reports are not alone in producing different statements of the sort. Mathematics education research literature also points out that the job of the mathematics teacher is a complex and demanding practice that requires a mixture of both theoretical and practical knowledge, skills, and deep understanding of children (White, Jaworski, Agudelo-Valderrama, & Gooya, 2013). A whole range of general and subject specific research resonates with the statements produced by international agencies.

Diverse statements about the mathematics teacher are formulated from an idealized and desired image of the teacher. However, at the same time, these statements shape an idealized and desired image of the teacher. For example, UNESCO (2007, p. 13) describe the *effective teacher*, which in turn embeds an image of the ideal teacher:

> [E]ffective teachers understand that the tasks and examples they select influence how students come to view, develop, use, and make sense of mathematics […] Effective teachers design learning experiences and tasks that are based on sound and significant mathematics;

they ensure that all students are given tasks that help them improve their understanding in the domain that is currently the focus.

The resonances between the multiple enunciations and statements produced by international agencies, research and other voices shape truths, which establish what is possible and desired. "Truth is a discursive construction, and different regimes of knowledge determine what is true and false" (Jørgensen & Phillips, 2002, p. 13). The reports—our focus here—create a new *grey-zone* (Lindblad, Pettersson, & Popkewitz, 2015) of authoritative expert knowledge located between policy and academic research, and thus the reports contribute to new truth regimes about teachers and their work. The resonances formed by a multiplicity of perceptions and understandings converge in shaping cultural theses about the mathematics teacher, configuring an ideal subject. The subject—the mathematics teacher—emerges through repetition and anticipation, and the subject is constituted in the given (Deleuze, 1991).

Hence, through the discourse analysis deployed, we seek to navigate through the discursive network, tracing and mapping the circulating enunciations and statements that constitute the framing of teachers' subjectivity nowadays. The analysis has two movements. First, we study how the mathematics teacher is shaped as a policy product. Second, we examine how the teacher is shaped as a sales agent.

The Mathematics Teacher as a Policy Product

Navigating through OECD and UNESCO documents it is possible to identify the articulation of a certain form of reasoning and arguing. Education is an important factor in the *social and economic development of countries* (OECD, 1989). For education to deliver the adequate formation of human capital, it is important to focus on the *quality of the education system.* A quality system will secure that as many students as possible acquire the needed competencies so that *students' achievement*, in general, can be high. Students' achievement is systematically monitored as a strategy to closely follow educational quality. The accumulation of extensive and detailed data about the quality of educational systems in many countries in the world reveals that there are factors of quality, which cannot be directly dealt with and easily influenced—what is called contextual factors. However, there are factors that governments can steer. The one key element is *the quality of teachers and their professional development*. It is within this type of reasoning that the four elements highlighted above—development, quality, achievement, and teachers—entangle in a discursive network framing the becoming of the mathematics teacher into a policy product.

A large number of reports and studies focus on the steering of education to produce effective students' learning and achievement. Diverse factors are recognized to have influence on *student's achievement, learning, and experience*. The reports state that contextual factors such as different abilities, attitudes and background that the students have and bring to school are "difficult for policy makers to influence, at least in the short-run" (OECD, 2005, p. 26).

But there seems to be taken as a fact that "*the quality of teachers and their teaching* are the most important factors in student outcomes that are open to policy influence" (OECD, 2005, p. 12, our emphasis). To conceive teachers as the targets of policy implies thinking that it is possible to design and fabricate teachers on the grounds of political ideas and agendas such as globalization and social progress. The teacher then becomes configured and controlled as a product for society to face the demands and needs of economic and political initiatives and interests.

This is connected with the emphasis in diverse documents for *the quality of the education system* and its relation with teacher's quality performance. For example,

> [a]ll countries are seeking to improve their schools, and to respond better to higher social and economic expectations […] Teachers are central to school improvement efforts. (OECD, 2005, p. 19)
>
> PISA shows a clear link between student performance and teacher status, with students doing better in school systems that spend more on salaries to attract quality teachers. (Schleicher, 2014, p. 11)

UNESCO also recognizes a direct relation between the quality of the education system and the teacher. They warn that:

> [e]ducation quality can be jeopardized by hiring untrained teachers if they lack qualifications, preparation, motivation, appropriate working conditions and ongoing professional development. (UNESCO, 2015, p. 9)

Teachers are the key to the positive and sustainable development of education systems, constituting the principal challenge to quality mathematics education (UNESCO, 2012). Moreover, diverse investigations argue that teacher's quality is closely related to student's learning and his/her academic achievement (OECD, 2005); and that effective teachers help to close achievement gaps between advantaged and disadvantaged students:

> [e]ffective teachers are particularly important for disadvantaged schools and their students […] Highly competent teachers can have large positive effects on student performance, strong enough to close achievement gaps between disadvantaged and advantaged students. [… Teachers] may help low performing students to catch up and improve. (OECD, 2012, p. 130)

Thirdly, the interest in strengthening the teaching profession has the purpose of striving for the *quality, effective teacher*. The teacher is considered as the means whereby it is possible to achieve the promise of improving the education system and to reach the desired quality level. In the search of an improved educational system, teachers become a priority issue for the society because "teachers are key to increasing educational quality" (Luschei & Chudgar, 2015, p. 3).

Achievement, quality, and teachers are meant to be geared towards high quality due to their aggregated significance for *social and economic development* in countries and between countries. Schleicher (2011, p. 45) states that the conditions for the teaching profession are important:

> [d]ata from Pisa show that high-performing education systems tend to prioritize the quality of teachers, including attractive compensation, over other inputs, most notably class size.

Such a statement indirectly states that low performing countries in PISA—which correspond with poor, developing countries—have problems providing good conditions for the profession. At the same time, teachers are being positioned as the key actors in bridging achievement gaps, which is also a socioeconomic gap. Hence, there emerge ideas such as the need for teachers to be given appropriate support and training for facing diversity in schools and classrooms:

> School education must therefore seek to overcome socio-economic inequalities throughout societies while at the same time utilise the benefits that diversity brings to schools and classrooms. A successful programme treats diversity as a source of potential growth rather than an inherent hindrance to student performance. One way to do this is to use teachers' strength and flexibility. Of course, for this to be effective, teachers need to be given appropriate support and training. (OECD, 2010a, p. 20)

In many countries, there is a high demand and need for qualified teachers. UNESCO (2007, p. 69) urges for the "need for better-trained mathematics teachers," that is, teachers trained with the highest standards of professional knowledge, skills, competence, and integrity; and teachers who must and can implement diverse initiatives to improve teaching. Such an effort is set as a priority in a context where "about half the countries report serious concerns about maintaining an adequate supply of good quality teachers, especially in high-demand subject areas" (OECD, 2005, p. 8).

Countries which have improved their performance in PISA have also set policies to improve their teaching staff (OECD, 2013b). Moreover, several high-performing countries took decided steps to raise the quality of the teaching profession—for instance, by inspiring people from other professions to give their talents to the teaching profession. Through marketing, for example, diverse recruitment campaigns can emphasize the fulfilling nature of teaching as a profession, and can attract candidates (OECD, 2014d). Such initiative is important because it is recognized that high performing countries, unlike other countries, recruit their candidates for initial teacher training from the top third of each cohort that graduates from their school system (OECD, 2010b). It is important to attract good candidates with potential for being a teacher as the raw material for the fabrication of the teacher. The recurrent idea concerning recruitment is that the better the candidates, the better the teachers. The teaching profession is thus being portrayed as "the option" for fulfilling and satisfying social demands and requirements. The satisfaction of societal needs and desires is secured through the configuration, use, and consumption of the object called "teacher."

However, good raw material is not enough. Teachers' continual professional development also promotes the social and economic development of a country. The retention of teachers is important: "Teacher policy needs to ensure that teachers work in an environment that encourages effective teachers to continue in teaching" (OECD, 2014a, p. 486). The instruments to secure recruitment go hand in hand with instruments to monitor the good quality of teachers' professional exercise and its improvement. For example, permanent evaluation of teachers, involvement in lifelong learning activities, and the monitoring of students' achievement are becoming control instruments for policy. Currently, it is needed to submit the teacher to constant testing with

the aim of knowing if s/he is or is not competent. In other words, "quality control" becomes a constant measurement that the teacher must face. It is recognized that initial teacher training—whether good or bad—does not really matter, since it cannot prepare teachers to succeed in every challenge throughout a career (Schleicher, 2012, 2014). For example, in situations where there is "socio-economic heterogeneity in student populations, this heterogeneity is a major challenge for teachers and education systems" (OECD, 2014c, p. 36). Policies "should be implemented to ensure teachers have sufficient qualification and training" (UNESCO, 2015, p. 9).

The different lines that we tried to follow in the previous paragraphs cross, ensemble and intermesh. In the discursive network where the lines unfold there operates the mechanism where the teacher is controlled, produced and planned in function of what is desired by society. Moreover, the teacher is positioned in a market logic where supply and demand configure the teacher as a product that can be made and acquired by whoever has purchasing power. This favours a logic where the higher the purchasing power, the better teachers may be produced.

In this discursive network the mathematics teacher is configured as a political product, a product that results from policies. The market and society seek to satisfy the needs and desires that are established as urgent, through the making of the teacher. Moreover, the market—and its hunger for highly mathematically competent workforce—sets the attributes that the mathematics teacher must have, and thanks to globalization these attributes seem to been standardized. The mathematics teacher as a product of policy is subjected to the whims of the market, the development of policies, and the response to social demands.

The Mathematics Teacher as a Sales Agent

In the documents of international agencies there is a substantial concern about the development of mathematical knowledge in young people, and thus the teaching and learning of mathematics. This concern is expressed through attention on achievement of children, adults, teachers and even social achievement. Achievement is mainly measured through standardized tests, for example, PISA and Trends in International Mathematics and Science Study (TIMSS). Through the quantification of achievement, it is possible to know the level, competencies and expertise in mathematics that countries, groups or individuals have. It is argued that mathematics achievement is relevant since modern societies require a high level of mathematical competence for social development. Mathematics is referred to as the foundation of much of the scientific and technical activity that distinguishes advanced from less advanced societies, hence, "developing students' mathematical competence at a much higher level than is required for everyday communication is thus a goal of most school programs" (OECD, 2010c, p. 32).

In OECD and UNESCO documents mathematics achievement is set in a network of at least three lines: *social and economic differences*, *teaching and learning mathematics*, and *students' and teachers' performances*. Mathematics achievement

is configured as a node, where the lines conducting the mathematics teacher in the discursive network converge. The mathematics teacher as a sales agent is a multifaceted salesman/woman. S/he must not only manage the mathematics teaching, but also, among others, the students, their motivation, experience, and expectations. The teacher must identify social needs and design offerings adjusted to the context according to the standards set for the product s/he is dealing with. S/he must be capable of promoting and selling a highly valued product—the mathematical knowledge and competence. Finally, the mathematics teacher becomes a defender for progress and success in society. The progress promised by this highly qualified agent is based on his/her capacity of developing of mathematical knowledge in students.

Firstly, within diverse documents of international agencies, it is possible to identify an interest in studying how *social and economic differences* in students and of countries constitute gaps in levels of performance. It is asserted that there is a direct relationship between students' social and economic background and their achievement, particularly in mathematics achievement. For example:

> On average, a more socio-economically advantaged student scores 39 points higher in mathematics than a less-advantaged student. This difference represents the equivalent of nearly 1 year of schooling. (OECD, 2013a, p. 17)
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> On average across OECD countries, 13 % of students are top performers in mathematics (Level 5 or 6). At the same time, 23 % of students in OECD countries, and 32 % of students in all participating countries, are low performers in mathematics (i.e. they did not reach the baseline Level 2). […] Across OECD countries, 15 % of the difference in performance among students is explained by disparities in students' socio-economic status […] around 1 year of formal schooling—separate the mathematics performance of those students who are considered socio-economically advantaged and those whose socio-economic status is close to the OECD average. (OECD, 2014a, p. 189)
>
> Socio-economic measure is positively associated with mathematics performance in all countries. (OECD, 2010c, p. 76)

OECD and UNESCO studies have shown the differences that there are between countries and the differences that exist within each society or community that has been studied. These studies converge mainly on the concern to reduce the gap that emerges from social and economic differences. Here, the mathematical knowledge—its teaching and learning—has acquired a value in society, and the mathematics teacher is responsible for promoting the increased and improved acquisition of better mathematical knowledge. The mathematics teacher must guaranty that this knowledge comes to society; in other words, the teacher is positioned as the one who must sell and ensure massive consumption of this desired merchandise.

The results from studies that recognize social and economic differences generate antecedents for policy makers. OECD (2014a, p. 188) states:

> PISA results reveal what is possible in education […] The findings allow policy makers around the world to gauge the knowledge and skills of students in their own countries in comparison with those in other countries, set policy targets against measurable goals achieved by other education systems, and learn from policies and practices applied elsewhere.

Moreover, from successful experiences there emerge guidelines that set an ideal image of what is desired from the educational system, its functioning and participants. The OECD country reports clearly express this type of logic. For the case of Sweden, one of the countries whose performance in PISA tests declined dramatically in 2012, it is stated:

> The report makes extensive use of OECD's international knowledge base and of Swedish educational research, statistical information and policy documents. It identifies the main strengths and challenges of the school system and provides concrete recommendations and policy actions to serve as the foundation for a comprehensive school improvement reform to bring about system-wide change and strengthen the performance of all Swedish students […] (OECD, 2015, p. 14)
>
> OECD Education Policy Reviews are tailored to the needs of the country and cover a wide range of topics and sub-sectors focused on education improvement. The reviews are based on in-depth analysis of strengths and weaknesses, using various available sources of data such as PISA and other internationally comparable statistics, research and a review visit to the country. They draw on policy lessons from benchmarking countries and economies, with expert analysis of the key aspects of education policy and practice examined […] The methodology aims to provide analysis and recommendations for effective policy design and implementation. It focuses on supporting reform efforts by tailoring comparative analysis and recommendations to the specific country context, engaging and developing the capacity of key stakeholders throughout the process. (OECD, 2015, p. 15)

The recommendations of OECD to Sweden on how to create a "highway" to educational success (Lindblad et al., 2015, p. 137) highlighted the importance of designing targeted strategies for promoting better learning for all and for disadvantaged groups, and for raising the quality of teacher education and the teacher profession. The documents create clear images that are then sold around as effective solutions to fix the problems of education, by deploying different marketing tools for the consumption of the educational products of these agencies.

Secondly, in order to talk about mathematics achievement it is essential to focus on *teaching and learning mathematics*, since "it is clear that teaching and learning factors have a significant association with student performance in mathematics" (OECD, 2010c, p. 120). Furthermore, "there is a strong correlation between the teacher's knowledge of mathematics and successful classroom practice" (JMTE, 2014, p. 373). "The presence of qualified, well-motivated and supported teachers is vital for student learning. Effective teaching strongly influences what and how much students achieve in school" (UNESCO, 2015, p. 1).

Mathematical literacy is configured as an important issue in teaching and learning mathematics. It is relevant that people have mathematical skills and knowledge, but it is also important to know what can be done with these skills and knowledge. In OECD (2014a) it is enunciated that modern societies valorise individuals not for what they know, but for what they can do with what they know. Some OECD documents defend the relevance of mathematical literacy for society. For example:

> Mathematical literacy is an individual's capacity to formulate, employ, and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts, and tools to describe, explain, and predict phenomena. It assists individuals to recognise the role that mathematics plays in the world and to make the wellfounded judgments and decisions needed by constructive, engaged and reflective citizens. (OECD, 2010d, p. 4)

The statements around this line contribute to set up the idea of the mathematics teacher as a sale agent promoting the education of a subject—the desired student (see also Andrade-Molina and Valero in this volume)—through the conduction of students' conduct and behaviour in learning mathematics and becoming mathematically literate. Hence, the teacher is portrayed as an agent for governing, subjecting and conducting children through mathematical learning.

Finally, it is possible to identify some policy initiatives around the teaching and learning focusing on the *improvement of teachers' and students' performance*. Students' mathematical achievement is recognized as "the educational outcome, student learning strategies and teaching strategies are its main predictors" (OECD, 2010c, p. 70). Teaching strategies and student learning strategies are characterized by OECD (2010c, p. 20) as:

> [t]eaching strategies refer to a broad range of processes, from the organisation of classrooms and resources to the moment-by-moment activities engaged in by teachers and students to facilitate learning. Student learning strategies refer to cognitive and meta-cognitive processes employed by students as they attempt to learn something new.

In OECD (2014a, p. 196), it is considered that:

> [t]op performers in mathematics are students who score at Level 5 or 6 on the PISA assessment. They can develop and work with models for complex situations, identifying constraints and specifying assumptions; select, compare, and evaluate appropriate problem-solving strategies for dealing with complex problems related to these models; work strategically using broad, well-developed thinking and reasoning skills, appropriate linked representations, symbolic and formal characterisations, and insight pertaining to these situations; and begin to reflect on their work and formulate and communicate their interpretations and reasoning.

High performance is of great interest for societies. "Student performance in mathematics is related to teachers' professional knowledge of mathematics, that is, their knowledge of mathematics per se, and the specialised knowledge of mathematics used in teaching" (UNESCO, 2012, p. 74). Regarding teacher's knowledge, research on mathematics teachers states that:

> [a]dditional research is needed to understand the relationship between […] knowledge and pedagogical moves. It is necessary, as part of the development of a robust theory of the knowledge teachers need, to understand how teachers' learning with understanding fits into teaching for understanding in their classrooms. (JMTE, 2015, p. 295)

The whole issue of the subject-matter qualifications of teachers is also highlighted as being of great importance. It is possible to identify some policy initiatives that have as aim to attract teachers in subjects such as mathematics, science and technology (Schleicher, 2011). The quality and effectiveness of teachers take relevance within social spheres:

> [t]eachers need to be capable of preparing students for a society and an economy in which they will be expected to be self-directed learners, able and motivated to keep learning over a lifetime. (OECD, 2005, p. 97)

Moreover, OECD (2014a, p. 18) recognizes that the professional development of teachers is politically relevant:

> [p]olicy levers and contexts typically have antecedents—factors that define or constrain policy […] For teachers and students in a school, for example, teacher qualifications are a given constraint while, at the level of the education system, professional development of teachers is a key policy lever.

Currently, students need to have an understanding of the fundamental concepts of mathematics. They need to be able to cope with a new situation or problem, recognizing the relevance of mathematics, identifying and using the relevant mathematical knowledge to solve the problem, and evaluating the solution in the original problem context (Schleicher, 2012). In addition, the mathematics teacher must be able to make sure that students will be able to do all these activities. The work of the teacher is more than teaching mathematics; rather the mathematics teacher must contribute to give value to mathematical knowledge for everyday life and for the future.

As a result, the teacher is a medium that extends and realizes the intentions of policy, for example, through the promotion and implementation of reform. Promoting reform is "considered by many to be a major responsibility of prospective teacher preparation" (JMTE, 2014, p. 295). S/he is made a sales agent that must favour a more equal and just society. The mathematics teacher is responsible for promulgating the desire for mathematics.

The Making of the Teacher Within a Dispositive of Control

Following the traces of enunciations and statements about the acclaimed and undoubted importance of teachers for building the future in documents of international agencies such as OECD and UNESCO, we entered an entangled discursive network where lines and forces cross. In our analysis a certain sense of repetition and circularity intended to grasp the folds and unfolds of the multiple stories told about who teachers are and who they should be. These stories are instantiations of power. Possible subjectivities become actualized in the discursive network (Jørgensen & Thomassen, 2015) unfolded by the prominent and increasingly decisive expert-knowledge of these agencies. It is precisely in the actualization of power in discourse and stories that possible cultural theses about the mathematics teacher emerge. Teachers' subjectivity is framed and entangled in a rationality of social progress, competitiveness, and globalization. The double bind of the mathematics teacher as a policy product and as a sales agent is made concrete in the demands and expectations of society and in the urge of making (mathematics) education work for the economy.

In our previous analysis the connection between these discourses and particular economic interests and agendas have been hinted at. In our conclusion we want to make such connection more explicit by opening up the political field of subjectification of which the network of discourses on the (mathematics) teacher is made possible. Deleuze's notion of *dispositive*—congruent with Foucault's notion of apparatus—helps us casting light on this issue. Foucault (1980, p. 195) wrote:

> I understand by the term "apparatus" a sort of—shall we say—formation which has as its major function at a given historical moment that of responding to an urgent need. The apparatus thus has a dominant strategic function. This may have been, for example, the assimilation of a floating population found to be burdensome for an essentially mercantilist economy: there was a strategic imperative acting here as the matrix for an apparatus which gradually undertook the control or subjection of madness, sexual illness and neurosis.

A dispositive—a "tangle, a multilinear ensemble" (Deleuze, 1992b, p. 159)—can be understood as a machine, which makes one see and speak (Deleuze, 1992b). A dispositive is immersed in the network of relations that can be established between "discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions—in short, the said as much as the unsaid" (Foucault, 1980, p. 194).

A dispositive making the teacher a policy object and a sales agent operates as a response to the urgent need expressed in different institutions and by expert knowledge producers, of securing a world order where education is meant to bring individual prosperity, collective competitiveness and international circulation of well-being, all following the patterns of those who are on the top of the rankings of wealth and progress. The making of mathematics teachers cannot longer be left to the whims of a single person's dream of teaching his/her favourite school subject, or of well-intentioned teacher education programs. Governments need to steer and secure the adjustment of a machinery to make the right agents of the desires of the state—which, by the way seem to conflate with the needs of the market.

The demands of the time are embedded in the different lines that we addressed in our analysis and in the ways they intersect: quality teachers and effective teachers are needed with the aim of closing gaps between students' achievement, professional development, and social and economic differences. For achieving this goal, teachers' professional development takes on particular relevance, since it secures compliance with what the ideal desire about who the mathematics teacher must be, and what s/he must do. The mathematics teacher needs to develop specific skills and knowledge, so that s/he can respond to central urgencies of society. But, how is it possible to ensure that the teacher has developed what is necessary or what is demanded? Here is where the continuous training and, specifically, standardized tests acquire importance. The highest mechanism of control in the education system is the use of standardized tests. These tests are setting a numerical language of control that marks access to information, and where people have become samples, data, or markets (Deleuze, 1992a). Hence, the test that measures students' performance and directly or indirectly teachers' quality and, as a whole, educational quality allows transforming education into controllable variables of a system attending a marketing logic.

> Marketing has become the center or the "soul" of the corporation […] the operation of markets is now the instrument of social control and forms the impudent breed of our masters. Control is short-term and […] continuous and without limit, while discipline was of long duration. (Deleuze, 1992a, p. 6)

The market sets supplies and demands around the mathematics teacher to satisfy social needs. There is always a demand determining what the teacher should know

to satisfy the requirements of society, and these demands shape the double bind of the teacher: the teacher as a policy product is fabricated with the aims of meeting social demands and requirements, and as a sales agent is configured for conducting students towards the desires of society. The double bind increases the demands of professionally qualified teachers against the lack of them, which in turn installs a strong logic of competition. This logic implies that the teacher does not only need to compete in qualifications with other teachers to get a job; it is necessary to compete permanently with oneself for staying in the job, even in a situation when the person is highly needed. Secondly, and as a consequence of the previous, the focus is on the knowledge and skills of the mathematics teacher. These knowledge and skills must comply with special requirements of quality and expectations established by society. In research on mathematics teachers it is recognized that "[teachers need to] develop professional knowledge in support of their practice" (JMTE, 2014, p. 455). It is also pointed "that teachers' lack of content knowledge interfered with their judgements and that there [is] a mismatch between their perceptions of students' difficulties and the actual difficulties demonstrated by their students" (JMTE, 2014, p. 405). Hence, demands and social urgencies promote discourses and forces for establishing the idea of permanent training since it is recognized that initial teacher education is insufficient to satisfy new challenges that market sets. However, why did the need for permanent training and what is being sought with it emerge? A partial answer can be found in Deleuze (1992a, p. 4), who argues that:

> [i]n the societies of control one is never finished with anything—the corporation, the educational system, the armed services being metastable states coexisting in one and the same modulation, like a universal system of deformation.

Therefore, the idea of permanent training is a way of maintaining control of a never-ending process for the teacher. The idea of permanent training is operating as part of a dispositive by setting diverse forms of control, discourses, and forces. Consequently, the mathematics teacher is condemned to be incomplete and to have constant deficits to overcome, since society and the market will always be setting new requirements, demands, and urgencies that the teacher must face. The mathematics teacher will always be "a man in debt" (Deleuze, 1995, p. 181).

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