WHAT IS DESIRED AND THE GOVERNING OF THE MATHEMATICS TEACHER

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In this paper a Foucault-inspired discourse analysis is deployed, with the aim of unpacking the traces of what is desired, and governmentality techniques put in operation for conducting the conduct of the mathematics teacher. The enunciation of the desired has effects of power in the fabrication of mathematics teacher' subjectivities. What is desired shape to diverse discourses and dispositive of control, where are regulated and standardized the mathematics teacher and teacher education, promoting, among other things, successful practices and models of (re)training that meet current social needs and demands.

INTRODUCTION

Discourses about social well–being, progress and development are circulated in diverse social level, in which are tracing a better future. OECD (1989) stated that the education is an important factor in the social and economic development of countries.

> Achieving greater equity in education is not only a social justice imperative, it is also a way to use resources more effectively, increase the supply of skills that fuel economic growth, and promote social cohesion. (OECD, 2016a, p. 4)

Moreover, the development of the mathematical and scientific knowledge has become relevant to achieve a successful social and economic development. OECD (2015b) asserted that a person with high mathematical competencies is more productive and able to face the challenges of the modern world, favoring the individual well–being and socio–economic progress, since, first, "an increase in cognitive skills increases the probability of a number of positive outcomes, such as completing tertiary education, finding a job and earning a good salary" (p. 34), and second, to think mathematically is a powerful mean to understand and control one's social and physical reality, through developing of certain tools and skills that help people to undertake diverse tasks and problems of everyday life, and of their contexts (OECD, 2014). Mathematics and sciences become technologies for fabrication efficient and productive citizens.

Discourses (re)produced by international agencies and research seem to be configured with the aim of promoting successful experiences, practices and performances (Gutierrez, 2013), embodying what is desired by society. The enunciation of what is desired by society is redefining social demands and needs, promoting rationalities. Thus, this paper problematizes discursive formations about what is desired and governmentality techniques put in operation for conducting the conduct of the mathematics teacher. Through a discourse analysis, inspired in Foucault's ideas, is unpacking dispositives of control and the mathematics teacher's subjectivities.

Discourses are put in operation from what is desired, configuring forces, dispositions, rationalities, and truths. The enunciations of what is desired by society govern the mathematics teacher, deploying diverse forms of control and a kind of subject.

UNPACKING WHAT IS DESIRED AND ITS DISCOURSES

International agencies and research in the field of the mathematics education are (re)producing continually discourses. The discourse is a group of statements (Foucault 1972, p. 117) —statements used with some regularity— that constitute a particular language, knowledge and regimes of power, through the configuration of valid form of enunciating and arguing. Discourses operate within governmentality techniques (Foucault, 2010) to the enunciate what is desired by society —desired ways of being, acting, thinking and producing meaning, among others—, and the to promote a rationality.

In this work, the desire is not understood as a manifestation of some lacks, rather as a continuous process of becoming, in this case, the becoming of the society and the mathematics teacher. In this fashion, it articulates forces, discourses and dispositions with the aim of configuring an image of future. What is desired is identified from circulating statements, in specific, statements that constantly are enunciated and used by international agencies and research on the mathematics teacher. Diverse forms of control are deployed for achieved what is desired by society, For example, international standardized testing, such as PISA and TIMSS, become a form of control, through competition and comparison system of reason.

> PISA, has become the world's premier yardstick for evaluating the quality, equity and efficiency of school systems [...] PISA allows governments and educators to identify effective policies that they can then adapt to their local contexts.(OECD, 2014, p. 3)

A Foucault-inspired discourse analysis (Arribas-Ayllon & Walkerdine, 2008) is deployed with the aim of contributing to an understanding of the effect of power on the making of the mathematics teacher, through the unpacking of discourses about what is desired, governmentality techniques and forms of control. The empirical materials consist of documents produced by international agencies, such as OECD and UNESCO, and the research about the mathematics teacher, in specific the research released within the last five years of three journals: Journal of Mathematics Teacher Education, ZDM and Educational Studies in Mathematics. With this analysis is seeking, on the one hand, to show the circulating discourses formulate from what is desired by society, and the role given to mathematical knowledge, its teaching and learning. On the other hand, to problematize the mathematics teacher as object of policy. And finally, to analyze how the mathematics teacher is governing and conducting.

THE MATHEMATICS TEACHER AND WHAT IS DESIRED

Socially are enunciated discourses, in which are circulating and promoting ideas about social well–being, progress, quality of lives and development. Discourses

(re)produced by *the OECD Better Life Initiative* are a clear example of that, since this initiative "focuses on developing statistics that can capture aspects of life that matter to people and that, taken together, help to shape the quality of their lives" (OECD, 2013, p. 1), with the aims of measuring well–being and progress in diverse societies and promoting better policies for better lives. The formulations of these discourses have portrayed a kind of society, and the ways of being and acting of its persons.

"Today's socio-economic climate poses a number of challenges that requires individuals to manage complexity and diversity in their private, work and social lives" (OECD, 2015b, p. 42), where social and emotional skills are just as important as cognitive skills. It is recognizing that "[s]ome aspects of wellbeing (such as household income, wealth, jobs and life satisfaction) are generally better in OECD countries with the highest levels of GDP per capita" (OECD, 2015a, p. 5)

Education and social progress has been connected by OECD in diverse of is reports, in this fashion, in OECD (2015b) asserted

> During the past 30 years, important gains have been made in some indicators of social progress, especially in access to, and participation in, education [...] Education can contribute to raising motivated, engaged and responsible citizens by enhancing skills that matter. Cognitive ability such as literacy and problem-solving are crucial. (p. 27)

Also, it considers that to invert in education is one key policies "for addressing today's numerous socio-economic challenges, and for ensuring prosperous, healthy, engaged, responsible and happy citizens" (OECD, 2015b, p. 27).

> Education systems share the goal of equipping students, irrespective of their socio-economic status, with the skills necessary to achieve their full potential in social and economic (OECD, 2016a, p. 39)

Moreover, it is been repeatedly enunciated, on the one hand, the relevance of the teaching and learning of mathematics and sciences for society (see, OECD, 2010, 2014). The social and economic development have been closely related with the development of these kind of knowledge, configuring the insatiable need of improving its teaching and learning, by aiming at ensuring its higher quality, and with that achieve what is established as desired by society and producing a particular kind of person.

Lerman (2012) asserted that "[m]athematics as a field of knowledge production has a privileged position in the eyes of governments, business and parents" (p. 188), success in mathematics has a gate-keeping role. On the other hand, the relevance of teachers for society, the roles that they have in the establishment of quality education (see, Luschei & Chudgar, 2015; OECD, 2005, 2014), in a more just society, closing achievement gaps between advantaged and disadvantaged students (see, OECD, 2012), and in the social development and progress, the teachers become relevant since they are who "brings progress to society through the social administration of the child" (Popkewitz, 1998, p. 2).

From empirical material, it is possible to see an alignment of research on the mathematics teacher with discourses of international agencies, through the resonance of its discourses. It is possible to find resonances about effectiveness: effective teachers are important (OECD, 2005, 2012).

> Educators in some countries are engaged in intense debates regarding the best way to assess teacher effectiveness and the difficulties and potential risks involved in linking teachers' performance to their students' test scores. (OECD, 2016b, p. 146)

"The question of what constitutes good or effective mathematics teaching is at the heart of educational research" (Hemmi & Ryve, 2015, p. 501). Lee and Kim (2016) asserted "to believe that initial teacher training programs should include more specific investment in the effective use of classroom dialogue for learning" (p. 378). Concerning the learning of mathematics,

> "[t]he understanding of how children learn mathematical ideas effectively and how best to facilitate that learning must define the very core of mathematics education research." (Seah & Wong, 2012, p. 35)

Regarding the research and the mathematics teacher, Gellert, Hernández, and Chapman (2013) enunciate that research wants its findings to be applied to the professional development of teachers, modifying education practices, in the frame of social changes. The research becomes a form of control, with the research is seeking to have the tools, knowledge and effectives methods for guaranteeing the quality of the mathematics teacher—its effectiveness and competitiveness— with the aim of assuring the mathematical knowledge and skills of new generations. It configured a standardization of all aspects of the teacher that work as a quality parameters. The development of standards is based on a constant process of abstracting of the mathematics teacher aspects for its generalization. The mathematics teacher performances are responding to quality standards configured socially (Beswick, Callingham, & Watson, 2012). The standards are controlling the becoming mathematics teachers, through the regulation, normalization and disposition of the desired mathematics teacher.

The social demands are redefining what is considered as 'good' —right, successful and effective— practices, repertoire of techniques, knowledge and ways of being of mathematics teachers, shaping a desired features and qualities —standards— that mathematics teachers must have. The standardization of the mathematics teacher is put in operation through educational policies, efforts and initiatives; moreover, the standardization together with international comparative surveys is deploying logic of comparison and competition, where is setting a numerical language and teacher have become samples or data (Deleuze, 1992).

In navigating through the discourses that circulate about the mathematics teacher, it is possible to identify, on the one hand, that the mathematics teacher is opened and conditioned by the political (OECD, 2005), the cultural (see, Andrews & Xenofontos, 2015) or the social (see, Beswick et al., 2012). The mathematics teacher is an object

of policy (OECD, 2005), planned and designed from what is desired and as means for the realization what is desired. On the other hand, that the mathematics teacher always is or has some deficit, mathematics teachers becomes a subject in debt, in debt with the system, students and themselves (Montecino & Valero, 2016). And finally, that are put in operation forms of control —a control short–term and of rapid rates of turnover, continuous and without limit (Deleuze, 1992)—, with trace the becoming of the mathematics teacher. Research on the mathematics teacher is controlling, influencing mathematics teachers, their professional development and practices (White, Jaworski, Agudelo-Valderrama, & Gooya, 2013).

DISPOSITIVES OF CONTROL, GOVERNING THE MATHEMATICS TEACHER

International agencies and research on mathematics teacher configure an expert knowledge, which puts in operation discourses, rationalities and truths. Through of discourses that (re)produce is traced what is desired by society. This expert knowledge operates as a technology for fabrication of desired subject.

What is desired by society traces demands and interests, producing a reality (Deleuze & Guattari, 1977) and promoting a kind of subjectivity, conducting the becoming of the mathematics teacher. "[D]esire is understood as a primary active force rather than as a reactive response to unfulfilled need" (Patton, 2000, p. 70), a force that configures a social production of reality —"social–production is purely and simply desiring–production itself under determinate conditions" (Deleuze & Guattari, 1977, p. 29).

The desire is a productive force. Just as Deleuze and Guattari assert that desire produces reality, Foucault argues that power is productive, "power produces; it produces reality […] The individual and the knowledge that may be gained of him belong to this production" (Foucault, 1991, p. 194). Power is understood as force relations, which shape dispositives, discourses, subjectivities, truths and forms of control. But, "if we suppose that all social relations are power relations as well as desire-relations, then one and the same social institution may be considered either as an apparatus [dispositive] of power or as a complex circuit of desire" (Patton, 2000, p. 69). Discourses, institutions, expert knowledge and what is considered as true and valuable are configured from a particular interest and from what is desired.

What is desired is shaping to *dispositives (Foucault, 1980)* of control, a dispositive is a *multilinear ensemble* (Deleuze, 1992) of techniques, forces, dispositions and discourses put in operation for conducting the conduct of the mathematics teacher —conducting towards what is desired— and have a strategic function (Foucault, 1980). Dispositives have effects of power in mathematics teachers' subjectivities. The teacher is governed through the enunciation of what is desired, and the production of system of knowledge, discourses and rationalities.

That society desires a kind of mathematics teacher does not only mean that it desires a specific teachers, but it also desires the rationality that they will promote, the kind

of student that they will be able to develop; it desires the impact in the social growth and development that teachers will have, and the conditions that they will promote. Thus, the mathematics teacher is related to many social aspects, where is configured a complex network of relations where the teacher has implications, being these complex relations of what is really desired by society.

AS A CONCLUSION

International agencies and research on mathematics teacher as an expert knowledge conducts the making of the teacher, producing knowledge, truths, discourses and forces from what is desired. Regarding the mathematics teacher, it desires a teacher capable of meeting the demands of new times, productive and competitive, and that promote a particular rationality. Dispositives of control are put in operation for configuring and to governing the mathematics teacher. The teacher is subjected to rationality and a regimen of truth, in which, what is desired by society promote practices and configure demands.

The becoming of the mathematics teacher is a product of what is desired, the desire is defining the ways in which it is valid and legitimate to think and research the mathematics teacher, in other words, it is regulating what is said regarding teachers. The mathematics teacher is becoming an agent within economic system, an agent that is controlling under logic of debt and favouring an economic and social model. As agent the teacher has to promote this model and its development through the mathematics. In other words, the mathematics teacher must shape a kind of student; students able to integrate themselves into the ways of acting and thinking of an economic and social model —that regulate the society— through mathematics.

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